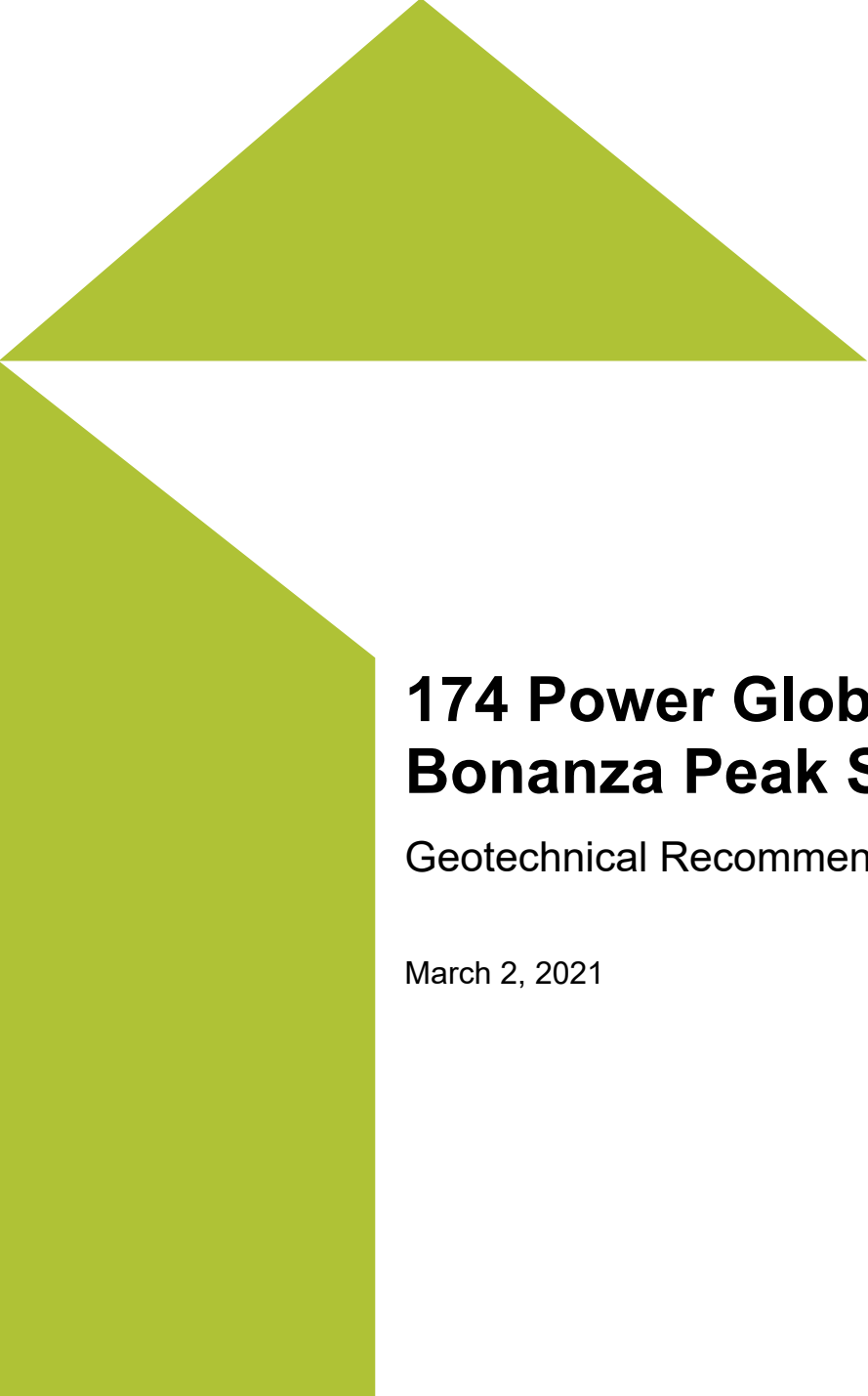


Appendix J

Geotechnical Report

A large green geometric graphic consisting of a triangle at the top and a rectangle below it, with a diagonal cutout on the left side.

174 Power Global Bonanza Peak Solar Farm

Geotechnical Recommendation Report

March 2, 2021

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174 Power Global Bonanza Peak Solar Farm

Geotechnical Recommendation Report

March 2, 2021

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Executive Summary

Mott MacDonald was retained by 174 Power Global to conduct a geotechnical investigation program for the proposed Bonanza Peak solar project, located in Calvada Springs, California. The purpose of this Geotechnical Report is to provide Information for Bidders (IFB) to inform them of expected subsurface conditions for the proposed photovoltaic development, as well as support their respective design. It is expected that the successful Contractor may perform their own final investigation and studies, as required, to complete detailed design and construction.

We understand the Bonanza Peak solar development will include buried cabling, access roadways, substation(s), and battery storage area. We understand the project is still in the planning phase, and that the number of solar panels, length of roadways, and length of cabling and/or transmission lines has not been confirmed at this time. The project area encompasses over approximately 3,000 acres of public and private land, which consists of mostly undeveloped arid landscape with sparse vegetation, with drainage channels extending across the project site.

This Geotechnical Report summarizes the field geotechnical investigation program conducted by Mott MacDonald in September and October 2020. Prior to our investigation, Ninyo and Moore conducted a preliminary geotechnical evaluation within the project site in January 2011. Mott MacDonald's investigation was to serve as a supplementary investigation to facilitate a more detailed design. Studies completed by Mott MacDonald included a desktop review of local geology, test pit investigations, soil boring explorations, field electrical resistivity testing, laboratory thermal resistivity testing, laboratory soil material testing, and limited chemical testing (i.e., corrosivity and sulfates). An Investigation Location Plan identifying our sampling and testing locations is provided as **Appendix A**.

Mott MacDonald's field investigation, described in **Section 3**, included 18 exploratory test pits, 27 soil borings, as well as laboratory thermal resistivity testing of soil samples collected from nine (9) widely-spaced, representative locations, and in-situ electrical resistivity testing at 12 locations. Test pits and soil borings were observed by a Mott MacDonald geotechnical representative. Soil boring logs and test pit photo logs are provided in **Appendices C and D**, respectfully. Encountered subsurface profile generally consisted of very stiff silt with occasional sandy and gravelly soil strata. Hard, strong to moderately cemented soils (caliche) were also often encountered during the investigation. More detailed summary of the encountered subsurface profile is provided in **Section 4**.

Based on the subsurface conditions encountered and results of laboratory testing, Mott MacDonald has prepared preliminary geotechnical recommendations for the various portions of civil/site grading, roadway improvements, foundation design, and construction for consideration by the designer of the solar development. Geotechnical considerations and construction recommendations for solar array and substation foundations are discussed in **Sections 7 and 8**.

It should be noted that the findings and recommendations presented within this Geotechnical Report are based on our investigation programs conducted in September and October of 2020, laboratory testing, and our engineering evaluation. This report has been prepared to summarize the information gathered during site investigations, as well as provide project-specific data to assist with the design and construction of the planned solar development. It is expected that the successful EPC selected to perform final design and construction will perform supplemental investigations and studies, including pile load testing, that are deemed appropriate to confirm the

information and recommendations presented and develop more detailed information which may be required for the final design.

1 Introduction

Mott MacDonald was retained by 174 Power Global to conduct a geotechnical investigation program in support of the proposed Bonanza Peak Solar project in Calvada Springs, California. It is our understanding that the proposed solar development encompasses over 3,000 acres and is expected to generate approximately 400 megawatts (MWac) of renewable solar energy.

Our supporting geotechnical investigation program included an initial desktop review of local geology, exploratory soil borings, test pit excavations, electrical resistivity testing, as well as laboratory material index testing and thermal resistivity testing. This Geotechnical Report has been prepared to summarize the findings of our investigation program as well as provide geotechnical recommendations for the development of the Bonanza Peak Solar project. A Vicinity Plan depicting the approximate project area is included as Figure 1. An Investigation Location Plan depicting our subsurface explorations is provided as **Appendix A**.

Figure 1 – Project Vicinity Plan



Source: Google Earth, 2020

2 Geologic Desktop Study

Prior to our field investigation, Mott MacDonald conducted a desktop study of the local geology within the project area using publicly-available references including published maps and online geologic databases. Geologic materials reviewed within our study are provided as **Appendix B**.

2.1 Previous Investigation

Prior to our investigation, Ninyo and Moore conducted a preliminary geotechnical evaluation within the project site in January 2011. Within this preliminary scope, 20 soil borings, ten (10) exploratory test pits, and 20 cone penetrometer tests (CPT) were advanced. Upon review of the preliminary geotechnical engineering report, the findings of Ninyo and Moore were consistent with observations recorded within our investigations, including dense silty and clayey sands with frequently encountered cemented materials. Ninyo and Moore's investigation location plan, boring logs, test pit logs, laboratory soil testing results, and CPT logs are included in **Appendix J**.

2.2 Topographic Setting

The overall project setting consists of mostly undeveloped, arid/desert landscape with sparse native vegetations, consisting primarily of shrubs and bushes. Numerous unpaved roads extend across the site in a roughly north-south and east-west grid pattern. The ground elevation ranges from approximately 2,590 feet above mean sea level on the west side of the site to 2,640 feet on the east side.

2.3 Surficial Geology

Mott MacDonald reviewed the "Geologic Map of of the Mound Spring Quadrangle, Nye and Clark Counties, Nevada, and Inyo County, California" (2002), which indicated the project area is underlain by Quaternary alluvium, fluvial, and playa deposits, generally described as unconsolidated and semi-consolidated, coarse to fine detrital deposits.

Mott MacDonald additionally reviewed surficial soil mapping available from the Natural Resource Conservation Service (NRCS) Web Soil Survey application. The NRCS survey was initially created for agricultural purposes and is generally limited to the upper five (5) feet below ground surface (BGS); however, the resource provides generalized information pertaining to the soil chemistry and properties. The majority of the project area is located in the Mojave Desert Area of California, where no NRCS digital data is available. The area immediately northeast of the project site consists of Corbilt gravelly loamy fine sand unit, which is reasonably assumed to be consistent with the site's subsurface conditions. A summary of the NRCS soil unit properties is provided as Table 1.

Table 1 – NRCS Soil Properties

Soil Unit	Drainage Class	Available Water Storage	Erosion Hazard
Corbilt Gravelly Loamy Fine Sand	Well Drained	Low to Moderate (5.4 – 7.1 inches)	Slight

2.3.1 Predominant Soil Units – Corrosivity Potential

Mott MacDonald notes that NRCS characterizes the native soil groups adjacent to the project site as exhibiting a low-risk rating for corrosion of concrete and moderate to high-risk rating for corrosion of steel.

To investigate the corrosivity potential of the native soil units at the project site, Mott MacDonald collected soil samples from representative locations and submitted the samples to Atlantic Testing Laboratories (ATL) of Canton, New York, an accredited geotechnical laboratory, for corrosivity testing. The results of the testing are summarized within Table 6 of **Section 5** and detailed within **Appendix F**.

2.3.2 Predominant Soil Units – Erodibility, Drainage Characteristics, Organic Content

Based on the findings of our desktop study and subsequent field investigation, it is expected that the organic content of natural soils should be negligible. The surficial layer of organics (topsoil) are expected to be minimal given the desert landscape. Notwithstanding, it is typical for most developments that any surficial organics are stripped and appropriately staged on-site for re-use in vegetated areas.

It is Mott MacDonald's understanding that shallow ephemeral drainage channels exist across the project site. Specifically, these drainage features delineated by US Army Corps of Engineers, Regional Water Board, and California Department of Fish and Wildlife, generally exist on the eastern area of the project site, oriented northeast to southwest, and on the southern area of the site, oriented northwest to southeast. Due to the arid and sparsely vegetated condition of the site, rainfall events may create additional stream or erosion channels, either temporary or permanent. Proper run-on/run-off control soil erosion measures should be considered and implemented within the site's civil design. Additionally, sediment control and good housekeeping measures should be implemented during construction to limit the erodibility of and stabilize the native materials as dry overburden soils may become easily airborne.

It is expected that the proposed improvements should not impact existing groundwater, aquifer systems, historic slopes and relief, or create hazardous conditions with respect to local geology or landforms.

2.4 Bedrock Geology

No bedrock geology mapping was publicly available for the project area. The site is located between two mountain ranges, one bedrock unit located approximately 12 miles northeast of the site is comprised of carbonate shelf sequence, consisting primarily of limestone with sparse dolomite, siltstone, and sandstone, while a second unit exists approximately four (4) miles southwest from the site which is comprised of Cambrian marine rocks, consisting of sandstone, shale, and limestone. The project site is located within a valley adjacent to the two mountain ranges, therefore it is likely that the bedrock at the site beneath the alluvial deposits consists of similar units as the nearby mapped units. No bedrock was encountered during Mott MacDonald's subsurface investigation, and bedrock is not expected to be encountered at the site within the anticipated construction depths.

2.5 Geologic Hazard

Within our desktop study, Mott MacDonald consulted additional karst and seismic hazard mapping for the general project area. Referenced USGS information indicates that carbonate-dominant bedrock is not located at a depth to be considered significant within the proposed project area and therefore poses a low risk of containing karst geology. USGS mapping also indicates that the project area resides in a region with a moderate risk of seismic/earthquake activity.

Mott MacDonald additionally reviewed the Geologic Hazard maps provided by California Department of Conservation and Nevada Bureau of Mines and Geology, and has identified the project facility area, in its entirety, to be generally low to moderate risk for additional relevant geohazards, such as landslides and volcanoes. Given the type of proposed improvement

(photovoltaic facility) and components associated with the development (non-habitable structures, flexible buried cabling, and post-mounted solar modules), we also consider the development to be at low risk with respect to the aforementioned additional regional geohazards.

2.5.1 Karst Geology

In karst terrain, limestone and dolomite bedrock (carbonate rock formations) are eroded by water and create karst features such as subsurface channels, caves, and ground subsidence. Ground subsidence, commonly referred to as “sinkholes”, is the local downward movement of surface material with little or no horizontal movement. Subsidence is a potential geologic hazard in areas where karst terrain occurs, or where underground mining has taken place.

Based on Mott MacDonald’s review of available USGS mapping, the nearest mapped karst formation is located approximately three miles southwest of the project site and consists mainly of dolostone and sandstone. Mott MacDonald reviewed the USGS Mineral Resources Online Spatial Database which is used to report the presence or absence of sinkholes, and have found no evidence of karst features or documented sinkholes with the extents of the project area.

Based on the above review and our field observations, karst is not expected to exist within the project area.

2.5.2 Seismicity and Faults

Based on Mott MacDonald’s review of available USGS mapping, the nearest Quaternary age active fault is the Pahrump Fault¹ located approximately 1,500 feet north of the project site (in Nevada). The Pahrump fault is largely uncharacterized and is not mapped in the California Alquist-Priolo special studies zone. An active fault is defined as a fault that has ruptured in the last 11,000 years. The report by Ninyo and Moore, as discussed in **Section 2.1**, states that the fault has the potential to generate an earthquake of moment magnitude 7.2. USGS Seismic Hazard figure indicates that the project site is located within the area with moderate seismic hazard. As such, the structural components, racking systems, and foundations will be designed to accommodate the computed seismic site class and local ground motions (discussed in **Section 6**) associated with the regional setting.

The report by Ninyo and Moore also discusses the possibility of ground fissures within the project site. Ground fissures are formed due to soil erosion or subsidence caused by horizontal tensional forces in the ground from the nearby faults. While signs of ground surface lineations were observed by Ninyo and Moore, no apparent indications of the presence of ground fissures were observed during their investigation.

2.5.3 Landslide Hazard

The landslide hazard rating is noted to be a “low incidence” (landslide unlikely) area within the project’s footprint. There are no documented landslides within or immediately adjacent to the project boundaries.

2.5.4 Volcano Hazard

The project area is mapped within an area that does not have any nearby volcanic activity.

¹ Anderson, R.E., and Bryant, W.A., compilers, 1998, Fault number 1076, Pahrump fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, <https://earthquakes.usgs.gov/hazards/qfaults>, accessed 02/28/2021 04:20 PM

2.6 Geologic Impacts

It is our professional opinion that the construction of the proposed solar development will not create significant impacts to the regional geology provided appropriate construction practices and proper soil erosion and sediment control measures are maintained. The potential impacts considered include, but are not limited to, significantly increased soil erosion, introduction of slippage or failure planes, and creation of subsurface instability.

3 Methodology

3.1 Soil Boring Explorations

Mott MacDonald retained Elite Drilling Services of Denver, Colorado to advance 27 geotechnical soil borings (B-01 through B-25, B-SS-01, and B-SS-02) drilled throughout the project area between October 2 and 8, 2020. As-drilled boring locations are reflected on the Investigation Location Plan provided in **Appendix A**.

Each soil boring was advanced using a track-mounted Mobile B-48 drill rig 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 ten (10) feet in each boring, then in five-foot intervals thereafter to the termination depth. All 25 soil borings (B-01 through B-25), located spread out across the solar array areas, were terminated at depths ranging between 15 and 17 feet BGS, while the two (2) soil borings advanced within the proposed substation areas, B-SS-01 and B-SS-02, were extended to 51 feet BGS and 50.5 feet BGS, respectively. All subsurface explorations were observed and logged by a Mott MacDonald geotechnical representative.. Soil boring logs are provided in **Appendix C**. Bulk samples were collected at selected locations from zero (0) to four (4) feet below grade for laboratory corrosivity testing, and from three (3) to five (5) feet below grade for laboratory thermal resistivity testing. Upon completion, each borehole was backfilled to its existing grade with soil cuttings, resulting in a leveled ground surface with minimal disturbance.

3.2 Test Pit Explorations

Mott MacDonald retained Kenzevich Excavating, LLC of Pahrump, Nevada to excavate 18 geotechnical test pits (TP-01 through TP-18) completed at select locations across the project's array area(s) between September 23 and 25, 2020 and are depicted in the Investigation Location Plan, provided in **Appendix A**.

All test pits were excavated using a Cat 420F2 Backhoe Loader and were overseen and documented by a Mott MacDonald geotechnical representative. Soil strata changes, soil classification, and excavation depths were documented during each test pit excavation and are presented within the test pit logs provided as **Appendix D**. Test pits were excavated to approximately ten (10) feet below grade. Excavation refusal was encountered in test pits TP-06, TP-12, and TP-18 at depths ranging from 7 to 9.2 feet below grade likely due to encountering caliche. Bulk soil samples were collected from three (3) to five (5) feet below grade at selected locations for laboratory thermal resistivity testing. Upon completion, each test pit excavation was backfilled with native soil cuttings, bucket-tamped, and tracked over with the excavator to minimize any post-excavation settlement.

3.3 Electrical Resistivity Testing

As part of our field investigation program, Mott MacDonald performed field Electrical Resistivity Tomography (ERT) testing from September 18 through 22, 2020. Testing was conducted at 12 locations; ten (10) ERT locations were spaced throughout the proposed array area(s), and one (1) ERT location was placed within each of the two (2) proposed substation locations. 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. The “a”-spacings of 1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, 75, and 100 feet was used for the ERTs located within the array area, while “a”-spacings of 1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, 75, 100, 150, and 200 feet were used for the substation ERTs. ERT test locations are reflected on the Investigation Location Plan provided in **Appendix A**, and results of the Electrical Resistivity Testing are presented in **Appendix H**.

4 Investigation Results

4.1 Subsurface Conditions

Based on observations from our subsurface investigation program, Mott MacDonald has summarized the encountered subsurface materials, in approximate depth order, in Table 2 below. It should be noted that this summary depicts a highly generalized representation of materials encountered, and soil boring and test pit logs, provided as **Appendices C and D**, respectively, should be referenced for detailed and location-specific information. Although conditions were observed to be largely consistent throughout the project area, additional investigations should be performed by the successful EPC, as needed, to confirm Mott MacDonald's findings and interpretations.

Table 2 – Generalized Subsurface Profile

Material Type	Average Consistency	Description
Topsoil	-	Approximately three (3) to six (6) inches of topsoil was identified at some investigation locations.
Upper Silty Soil (SM/ML)	Loose/Soft	Loose/soft silty soil was encountered within the upper two (2) to four (4) feet of the borings throughout the project site.
Lower Silty Soil (SM/ML)	Very Dense/ Very Stiff	The upper silty soil layer transitioned to a somewhat stiffer consistency around four (4) feet below grade in majority of the soil borings. The soils encountered from this stratum were generally described as dry, very stiff to hard, light brown and light gray silt with varying amounts of gravel and sand. The silt generally exhibited low plasticity and were often weakly to moderately cemented. Hard, strongly cemented soils (caliche) were also observed within this layer, where frequent split spoon refusal was encountered during the investigation. Majority of the soil borings were terminated within this stratum.
Silty/Gravelly Sand (SM / SP)	Medium Dense/ Very Dense	Dense, silty and gravelly sand was encountered throughout the soil borings at the eastern area of the project site, and sporadically throughout the rest of the soil borings. Soil borings on the eastern area of the project site were terminated within this stratum.

Mott MacDonald notes that the observed subsurface conditions consisted of stiff to hard silty soils, except for in the eastern area where the soil consisted mainly of dense sand.

4.2 Groundwater

Mott MacDonald notes that groundwater was not encountered within any of the borings nor test pits at the time of our subsurface investigation. No monitoring wells were installed as part of Mott MacDonald's investigation scope. During Ninyo and Moore's investigation, groundwater was measured within the four abandoned water wells at the project site between 110.2 to 131.4 feet BGS. It should be noted that water conditions are ephemeral and may fluctuate due to seasonal and climate conditions. Where caliche or indurated soils create a relatively impermeable boundary layer, perched groundwater conditions may develop after precipitation.

5 Testing Results

5.1 Soil Index Testing

Representative soil samples collected within our investigation program were submitted to Atlantic Testing Laboratories (ATL) of Canton, New York for testing of Particle Size Analysis (ASTM D422), Atterberg Limits (ASTM D4318), Moisture Content (D2216), and Expansion Index (D4829). A summary of laboratory testing data is provided in Tables 3 through 5 below. Complete, as-received laboratory results have been provided as **Appendix E**.

Table 3 – Particle Size Analysis Results (ASTM D422)

Boring ID	Sample	Depth	% Gravel	% Sand	% Fines
B-01	S-3	4'-6'	5	58	37
B-02	S-2	2'-4'	25	53	22
B-03	S-2	2'-4'	7	56	37
B-05	S-4	6'-8'	1	34	65
B-06	S-1	0'-2'	1	33	66
B-07	S-3	4'-6'	12	80	8
B-09	S-2	2'-4'	12	72	16
B-10	S-2	2'-4'	3	32	65
B-11	S-4	6'-8'	11	33	56
B-12	S-5	8'-10'	3	37	60
B-13	S-1	0'-2'	0	31	69
B-14	S-3	4'-6'	6	60	34
B-15	S-2	2'-4'	21	55	24
B-16	S-3	4'-6'	3	37	60
B-17	S-6	15'-17'	4	22	74
B-18	S-2	2'-4'	0	36	64
B-20	S-1	0'-2'	2	42	56
B-21	S-2	2'-4'	8	60	32
B-22	S-2	2'-4'	4	60	36
B-23	S-4	6'-8'	2	38	60
B-24	S-4	6'-8'	0	30	70
B-25	S-3	4'-6'	4	59	37
B-SS-01	S-4	6'-8'	0	28	72

Table 4 – Atterberg Limit Results (ASTM D4318)

Boring ID	Sample	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Moisture Content (%)
B-03	S-1	0'-2'	21	15	6	2.5
B-04	S-4	6'-8'	28	15	13	7.5
B-05	S-3	4'-6'	48	21	27	8.9
B-15	S-1	0'-2'	29	19	10	4.9
B-18	S-1	0'-2'	38	21	17	6.5
B-23	S-3	4'-6'	46	23	23	7.2
B-SS-01	S-3	4'-6'	27	16	11	5.2

Table 5 – Expansion Index Results (ASTM D4829)

Boring ID	Depth	Expansion Index (EI)	Potential Expansion	Moisture Content (%)
B-6	2'-6'	18	Very Low	11.7
B-12	4'-8'	21	Low	11.0
B-SS-01	0'-4'	10	Very Low	9.5

5.2 Corrosivity Testing

Mott MacDonald collected bulk samples from depths between zero (0) and four (4) feet below grade at 12 locations; ten (10) samples from locations spaced throughout the proposed array area, and one (1) sample from each of the two proposed substation locations. Results of the corrosivity testing, completed by ATL, are summarized within Table 6, with complete as-received laboratory results provided in **Appendix F**.

Table 6 – Corrosivity Testing Summary

Location ID	pH (average)	Sulfate [mg/kg]	Chloride [mg/kg]	Soil Box (Calculated Resistivity) [Ω/cm]	Redox Potential (average)
B-01	8.26	0	55	1,290,000+	-54.33
B-04	8.38	3,000	10	1,290,000+	-63.33
B-05	8.25	600	95	838,500	-53.66
B-07	8.25	13,500	35	438,600	-52.33
B-11	8.08	6,800	115	112,230	-45.66
B-12	8.26	1,400	10	154,800	-52
B-14	9.09	0	5	1,290,000+	-95.33
B-19	8.41	20,200	85	399,900	-61
B-23	8.41	500	60	296,700	-61.33
B-24	8.43	1,100	90	167,700	-60
B-SS-01	8.81	1,600	110	335,400	-82.33
B-SS-02	8.62	3,400	45	477,300	-74.33

The results of the corrosivity testing indicate a moderate risk of corrosion to the proposed foundation elements. The contractor should confirm these findings within their own location-specific investigation and be prepared to consider alternate mix or implementation of sacrificial thicknesses or protective coatings during material selection and design. Additional corrosion considerations are included within **Section 7.2**.

5.3 Laboratory Thermal Resistivity Testing

As briefly discussed in **Section 3.1 and 3.2**, Mott MacDonald collected bulk soil samples from total of nine (9) locations between three (3) and five (5) feet below grade for laboratory testing of Thermal Resistivity properties. Soils were collected in a five-gallon bucket and delivered to ATL's laboratory in Rochester, New York. 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 resistivity are summarized within Table 7, and the complete report is provided as **Appendix G**.

Table 7 – Thermal Resistivity Testing Values

Sample ID	Material Type	Thermal Resistivity Values at Various Moisture Contents						Received Moisture Content (%)	Re-Molded Dry Density (lb/ft³)
		% water	% water	% water	% water	% water	% water		
		(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)		
TP-01	SILT, little Sand	0.00	2.21	4.86	7.65	10.81	14.78	4.4	96.2
		376	301	189	134	113	88		
TP-05	SAND, little Silt	0.00	2.51	4.85	8.97	12.42	17.59	6.1	92.8
		349	284	223	143	116	93		
TP-08	SAND, little Gravel/Silt	0.00	2.44	4.95	9.02	11.99	-	3.2	100.5
		316	222	133	88	77	-		
TP-09	SAND, little Silt	0.00	2.42	4.80	7.91	12.16	16.38	7.9	91.8
		316	262	197	151	102	92		
TP-13	SAND/GRAVEL, little Silt	0.00	2.59	4.87	7.74	10.62	14.99	5.0	94.8
		303	274	190	120	100	82		
TP-14	SAND, little Silt	0.00	2.89	5.76	9.89	16.65	24.13	11.5	83.9
		369	297	231	163	121	97		
TP-17	SILT, some Sand	0.00	2.42	4.88	8.19	12.20	16.30	26.1	87.7
		308	252	213	151	109	97		
B-SS-01	SILT	0.00	2.11	4.92	7.81	11.94	15.13	5.1	94.7
		20.17	21.29	20.68	20.78	20.83	20.92		
B-SS-02	SAND, some SILT	0.00	2.14	4.83	8.69	13.02	-	3.4	98.8
		20.10	20.35	20.09	19.97	19.82	-		

For design purposes, resistivity values obtained for the received moisture conditions, or drier, should be considered. It should be noted that our investigation was conducted in September and October, and temperature and moisture fluctuations due to seasonal variations should be considered.

6 Seismic Site Classification

Mott MacDonald utilized data obtained from the soil boring explorations to determine the Seismic Site Class for the proposed Bonanza Peak Solar Facility. Based on the results of our investigation program, boring B-SS-01 was considered as the “site average” condition for seismic site classification purposes. In accordance with the SPT average N-value method as prescribed in Chapter 20 of the ASCE Standard 7-16 design manual, Site Class D for “Stiff Soil” should be utilized across the project site.

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

- 0.2 second spectral response acceleration, $S_s = 0.443$ g
- 1 second spectral response acceleration, $S_1 = 0.180$ g
- Maximum spectral acceleration for short periods, $S_{MS} = 0.640$ g
- Maximum spectral acceleration for a 1-second period, $S_{M1} = 0.403$ g
- 5% damped design spectral acceleration at short periods, $S_{DS} = 0.427$ g
- 5% damped design spectral acceleration at 1-second period, $S_{D1} = 0.269$ g

6.1 Preliminary Seismic Evaluation

The seismic site class designated above is based on results from our investigation program. Backup data for the site class determination is provided as **Appendix I**. Based on our observation of subsurface conditions, computed Site Class ratings, and review of USGS’s 2014 National Seismic Hazard Map, Mott MacDonald concludes that there is a moderate risk of significant seismic activity which may impact the proposed solar facility.

7 Solar Array and Substation Foundation Considerations

This section presents geotechnical recommendations and considerations relative to solar array foundations that should be considered during design and construction. The contractor/designer is responsible to confirm the applicability of these recommendations to the design and, if deemed necessary, perform supplemental and confirmatory studies and analyses.

7.1 Foundation Types

Mott MacDonald anticipates that, as typical with solar farm construction, embedded posts such as W6x9 or W6x12 steel H-piles may be used to support the proposed solar panels. Other conventional shallow foundations such as sonotubes, spread footings, or similar systems will likely also be utilized for substation foundations, equipment pads and associated support structures.

7.2 Corrosion Considerations

Given the soil's measured sulfate concentrations and Redox potentials summarized in **Section 5.2** (Table 6), corrosion should be evaluated with respect to embedded steel posts and concrete foundations.

In general, the corrosion of zinc in soil is on average considerably greater than in the atmosphere, but can vary greatly, even over short distances. This is essentially because of the varying moisture content and its heterogeneity, particularly along a vertical profile. In general terms, coarse, open-textures (such as gravels and sands) are less corrosive than fine-grained soils (such as silt, clay, and organics) which tend to hold water. Soil mineral content, pH, and oxygen content are also important indicators. Mineral content is easily appraised by measurement of soil resistivity; the lower the resistivity the greater the corrosion rate. If the moisture content of the soil is less than 17.5%, in general, it has been observed by others² that there will be minimal accelerated corrosion and the soil chloride ion concentration is reported to not have a significant effect on the corrosion rate of hot dip galvanizing. However, hot dip galvanized steel should not be used in contact with strong acids or strong alkalis (below pH 6 and above pH 12 respectively), which are not expected to be present at this project site.

Based on the subsurface conditions at the site, the site can be classified as Corrosive Category C2 ("Low Corrosivity"). The rate of corrosion rate is therefore in the magnitude of 0.7 $\mu\text{m}/\text{year}$. Typically, a coating of 1.7 oz/ft² is the minimum coating for Grade 75 steel (W6x9) as specified by ASTM A123. Based on this average coating thickness, the design life can be approximated at approximately 50 years, after which bare steel loss would occur at approximately 25 $\mu\text{m}/\text{year}$.

The results of the corrosivity testing indicate a high risk of sulfate corrosion to the proposed foundation elements, as such, Mott MacDonald recommends Type V cement, as outlined in ASTM C150, be utilized for concrete foundations, slabs, or other buried structures for additional protection against corrosion and sulfate attack.

² *Guide to the Service Life of Hot-Dipped Galvanized Steel*, Galvanizer's Association of Australia, v. 2.1, June 2018

7.3 Frost Considerations

Within Inyo County, California, frost depth is mapped to exist at approximately 10 inches below grade. As such, Mott MacDonald recommends that all structural foundations be founded at least 12 inches below grade or deeper to ensure adequate protection from frost conditions which may jeopardize the integrity of subgrade soils and associated substructure. Small slab or isolated footing foundations supporting minor housekeeping structures with minimal loads and applied pressures (500 pounds per square foot or less) may be founded at shallower depths; however, the contractor should implement measures such as free-draining, granular fill beneath the foundation extending at least beyond the frost depth.

7.4 Adfreeze Considerations

Although soils with significant fine-grained soils were observed near the surface in some locations, given the limited moisture content of soil, absence of the groundwater table at shallow depths, and limited frost depth, adfreeze is not considered a significant concern for the proposed array foundations. Mott MacDonald recommends that side resistance within the upper one (1) foot of the installed posts be neglected due to potential frost, disturbance, and erosion impact.

7.5 Expansion Index

Soils with low to moderate plasticity were frequently encountered within the boreholes. Selected samples from the upper eight (8) feet of the boreholes were tested for Expansion Index (EI) of the soil in accordance with ASTM D4829, and the results are tabulated in Table 3. The laboratory test results indicate that the EI values of the upper eight (8) feet of the site ranges between 10 and 21, indicating very low to low potential for expansion.

7.6 Recommended Geotechnical Foundation Parameters

Based on our interpretation of the subsurface conditions observed within our investigation program, supplemented by laboratory results, Mott MacDonald recommends that the soil parameters, as depicted within Table 8, be considered for design purposes across the project area.

Table 8 – Recommended Design Soil Parameters

Depth	Material	Total Unit Weight	Internal Friction	Cohesion	Allowable Bearing Capacity	Allowable Side Resistance	Soil Strain (E ₅₀)	Horizontal Soil Modulus
0'–1'	Silty Soil (frost zone)	100 lb/ft ³	29°	0 lb/ft ²	500 lb/ft ²	-	-	25 lb/in ³
1'–4'	Upper Silty Soil (SM / ML)	110 lb/ft ³	32°	0 lb/ft ²	1,500 lb/ft ²	50 lb/ft ²	0.01	100 lb/in ³
4'+	Lower Silty Soil (SM / ML)	120 lb/ft ³	33°	0 lb/ft ²	2,500 lb/ft ²	100 lb/ft ²	0.005	500 lb/in ³
6'+ (East side of site)	Sand (SM / SP)	125 lb/ft ³	35°	0 lb/ft ²	3,000 lb/ft ²	150 lb/ft ²	-	125 lb/in ³

It should also be noted that the above-depicted capacities assume that foundations are placed at least 12 inches (1 foot) below grade to be below the frost depth. Shallower support elements should follow considerations detailed within **Section 7.3**. Additionally, Mott MacDonald recommends that allowable side resistance within the upper one (1) foot be neglected due to

potential frost, disturbance, and erosion influences. These allowable capacities and resistances provided are based on a serviceability limit of one half-inch of maximum deflection. It should also be noted that these parameters have been established based on our engineering judgment and the results of our investigation program.

8 Construction Recommendations

This section presents geotechnical construction recommendations pertaining to panel and substation foundations that should be considered during final design and construction. The exact sizes of the panels and substation elements are not known at the time of this report. The contractor/designer is responsible to confirm the applicability of these recommendations to the design and, if necessary, perform supplemental and confirmatory studies and analyses to confirm or revise the recommendations presented herein.

8.1 Excavation

Prior to foundation excavation work, clearing and grubbing of topsoil and vegetation (including any existing small trees, brush, and roots) within the solar array work areas should be expected. Topsoil, where encountered, should be stripped and stockpiled discretely for the duration of construction. Stripped topsoil should be protected from erosion, managed in accordance with applicable ordinances, and should not be re-used as structural or fill material of any type.

Where shrubs and other vegetation are cleared, cut, grubbed, or ground, the stump and roots, where present, should be removed entirely and properly disposed of and managed on or off-site. Tree removal, if applicable, should include the root system and all surface roots larger than one-half inch in diameter. Voids created from tree clearing and stump and root removal should be completely filled with properly compacted structural fill to minimize future subsidence. General fill may be required to level areas and restore grade following removal of vegetation and compaction. Excavations resulting from tree removal should be cleaned of loose or disturbed material (including all previously-placed backfill) and dish-shaped (with sides sloped 3H:1V or flatter) to permit access for compaction equipment.

Temporary excavations extending deeper than four (4) feet should be sloped, benched, or supported in accordance with Cal/OSHA or local governing regulations; the more stringent requirements shall apply. For shallow foundation construction, the base of the soil excavation should extend at least 18 inches horizontally beyond the footing in all directions.

Predominant overburden soils observed at the project site consist of fine sand. For temporary benching and excavation design considerations, overburden soils may be considered as "Type C" soil and should be limited to 1.5H:1V, or flatter. Classification and maximum permissible temporary excavation slope angles should be confirmed by the contractor's "competent person" prior to excavation activities. Similarly, any proposed shoring or excavation support systems should be designed by the contractor's "competent person" and certified by a Professional Engineer licensed in the State of California.

8.2 Dewatering

It should be noted that site soils were observed to be dry at the time of our investigation program. Notwithstanding, the potential for infiltrated stormwater, or perched surface water within the overburden soils is possible and may fluctuate based on seasonal and climactic conditions. The contractor should perform their own location-specific investigation prior to construction to confirm groundwater conditions at that time and determine the appropriate construction dewatering system, if needed, to allow for foundation construction in-the-dry. Mott MacDonald anticipates that any localized dewatering can be achieved with traditional sump-and-pump methods. Water should be discharged away from prepared subgrade and compacted fill surfaces. Grading should

be accomplished to intercept and divert runoff away from excavations, prepared subgrade, and compacted fill surfaces.

8.3 Subgrade Preparation

Prior to installation of shallow concrete foundations, Mott MacDonald recommends over-excavating the subgrade by at least four (4) inches, lining the exposed material with a geotextile separation fabric, and bringing the subgrade back up to the design foundation elevation with compacted structural fill as specified within Table 9. This recommendation may be waived if firm and unyielding conditions are confirmed by a representative of the geotechnical engineer of record for the final design. Native material beneath the separation fabric should be inspected for unsatisfactory conditions such as standing water, frozen soil, organics, or deleterious materials. Should any unsatisfactory conditions exist within the native subgrade, the excavation should be undercut an additional four (4) inches (eight [8] total inches beneath proposed foundation depth) prior to placement of the geotextile separation fabric.

Table 9 – Recommended Gradation of Structural Fill

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

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

8.4 Earthwork

Mott MacDonald anticipates that some degree of earthmoving activities, including cut, fill, and grading work, will likely be required to facilitate the construction of the planned solar facility.

8.4.1 Cut

It is anticipated that some solar array locations may require cuts, beyond stripping of topsoil and removal of vegetation. Temporary excavations should follow recommendations presented within **Section 8.1**.

Permanent cut slopes surrounding solar array locations should have water diversion features employed at the top of the surrounding slopes to divert stormwater away from the solar array locations. Surrounding slopes should be located such that any surface gradient greater than two (2) percent is located at least 20 feet from the extent of the foundation footprint and should be limited to 4H:1V (horizontal to vertical) in maximum pitch unless additionally stabilized.

8.4.2 Fill and Backfill

Mott MacDonald notes that native soils with appreciable fine-grained content (greater than 15 percent passing No. 200 Sieve) will likely be difficult to handle, place, and compact without proper moisture conditioning and protection. 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, imported fill with less than 15 percent fine-grained content should be used as general backfill; native soil with less than 15 percent fine-grained content may also be used. General backfill material should not be used beneath any load-bearing structures and should be placed in loose lift thicknesses not exceeding 12 inches and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557). Soil used as backfill should not be handled when frozen and should be free of excessive moisture, organics, and deleterious material.

In areas beneath foundations, access roads, and load-bearing structures, Mott MacDonald recommends structural fill as described in **Section 8.3** and Table 9.

8.5 Foundation Post Installation

It is anticipated that steel H-Piles (W6x9 or similar section) will be utilized to support the proposed solar panels. These steel posts are typically installed via direct-push, vibration, and/or percussive hammer methods. It is Mott MacDonald's professional opinion that these installation methods are likely appropriate at the Bonanza Peak Solar project site. The contractor should be aware, however, that cemented soils and/or gravels were observed within our investigation program, generally beginning around four (4) feet below grade, which may prove problematic for conventional foundation post installations. As such, a pile load testing program should be conducted prior to final design and construction to confirm pile drivability and capacity. Based on the results and success of the load testing program, pre-drilling may be required to ensure adequate depth and capacity of the post foundations.

Should pre-drilling be required, Mott MacDonald recommends that the diameter of the pre-drilled hole be 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. The surrounding annulus can then be filled with pea gravel or clean sand. Mott MacDonald notes that a six-inch diameter hole has been successfully drilled and utilized, in similar geology, for W6x9 sections (approximately 7.1-inch diagonal measurement) during pile load testing. The contractor should also be aware that heavier sections (ie. W6x12 or W6x15) may have limiting "bending" capacity in its flanges, and therefore require a hole slightly larger than six (6) inches in diameter.

8.6 Access Roads

Mott MacDonald understands that an access road will be required to enter and exit the project site as well as provide access to the equipment pad locations. It was observed that there are numerous existing unpaved roads extend across the site in a grid pattern that should be utilized to the extent feasible. The existing roads were successfully utilized by track-mounted rigs, backhoes, and support trucks at the time of our investigation program (during dry conditions) without noticeable rutting or deterioration. These access roads, as well as proposed access roads, are expected to be unpaved to accommodate occasional light vehicular traffic such as utility pickup truck or similar vehicle. As such, Mott MacDonald recommends that any additional access roads be constructed with at least six (6) inches of crushed stone as specified within Table 10. Existing access roads may require some regrading, additional stabilization, and should be further evaluated to confirm suitability prior to use.

Table 10 – Recommended Gradation of Crushed Stone

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

Prior to any additional roadway construction, the subgrade should be stripped of vegetation and topsoil, and be proof-rolled with at least three (3) roundtrip passes of a smooth-drum roller with a minimum operating weight of eight (8) tons. The prepared subgrade should be confirmed to maintain a minimum CBR value of 10. Although not anticipated, additional stabilization may be obtained if needed through chemical treatment of the subgrade including introduction of lime or cement. Crushed stone should be placed in loose lifts not exceeding eight (8) inches in height and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557). Additionally, proper dust and sediment control measures should be employed both during and after construction as dry overburden soils may become easily airborne.

9 Transmission Line Recommendations

Mott MacDonald understands that the proposed gen-tie path travels east from the southeast area of the project site, and travels northeast along Tecopa Road. At the time of this report, the subsurface investigation for the transmission lines have not been performed. Once completed, a separate report will be issued with Mott MacDonald's design and construction recommendation for the transmission line foundations.

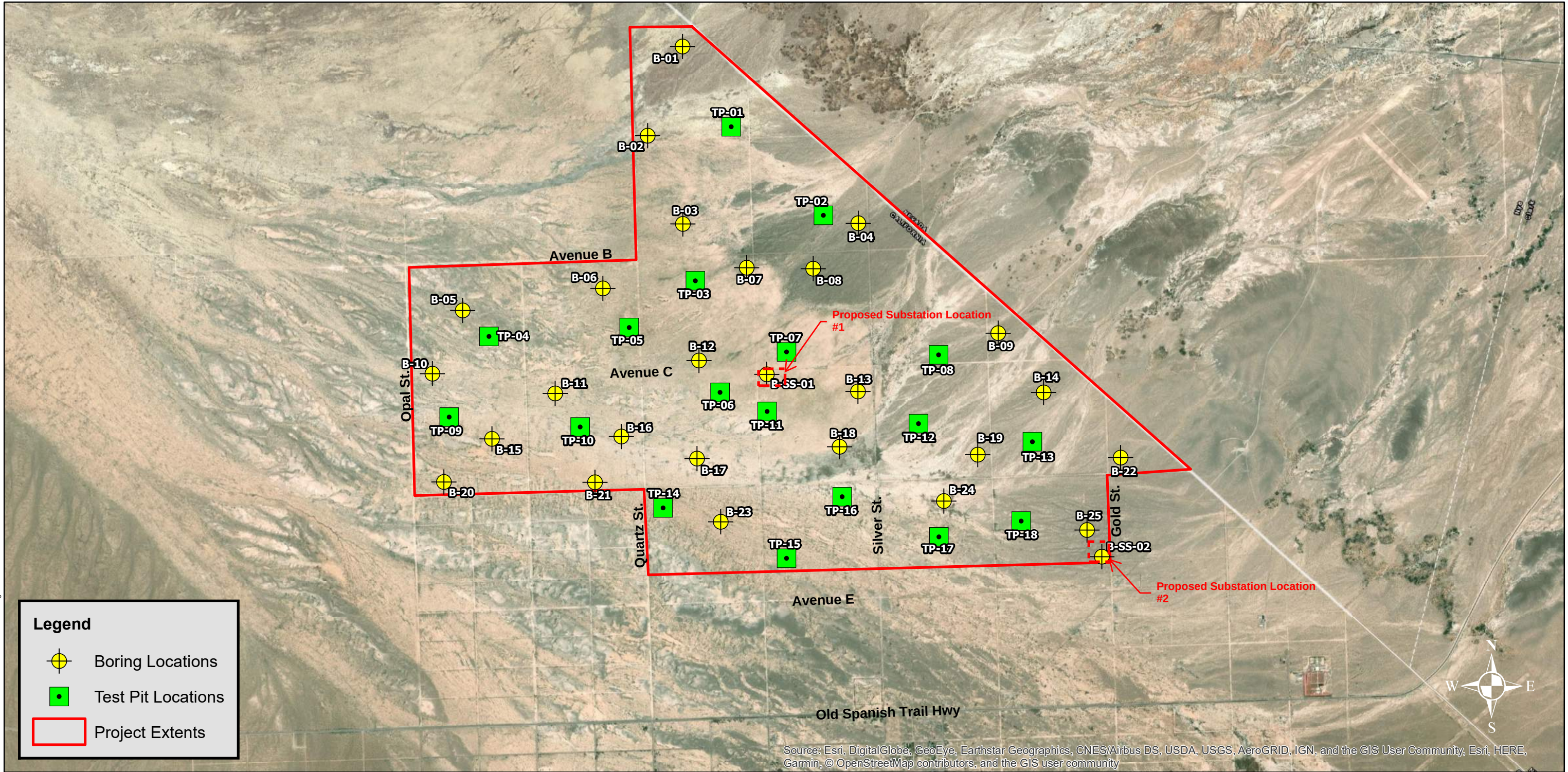
10 Limitations

Mott MacDonald notes that the findings and recommendations presented with this Report are based on a limited subsurface investigation program conducted in September and October 2020, laboratory testing, and our engineering judgment. Should further investigations, testing, or revised concept plans reveal new information, Mott MacDonald should be given the opportunity to revise our recommendations as necessary.

Appendices

A. Investigation Location Plan

C:\Users\WJL80541\Desktop\Geotech Projects - Working from Home Locations\Bonanza Solar\MXD\Bonanza Solar - Boring & Test Pit Location Plan.mxd



Legend

Boring Locations

Test Pit Locations

Project Extents

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Client

174

POWER
GLOBAL

0	11/10/2020				
Rev	Date	Drawn	Description	Ch'k'd	App'd

01,6003,2004,800			Feet		
Reference Scale:			Absolute Scale:		
1:27,000			1 inch = 2,250 feet		
Project Number		B/O	Total		
513100382-014		1	1		

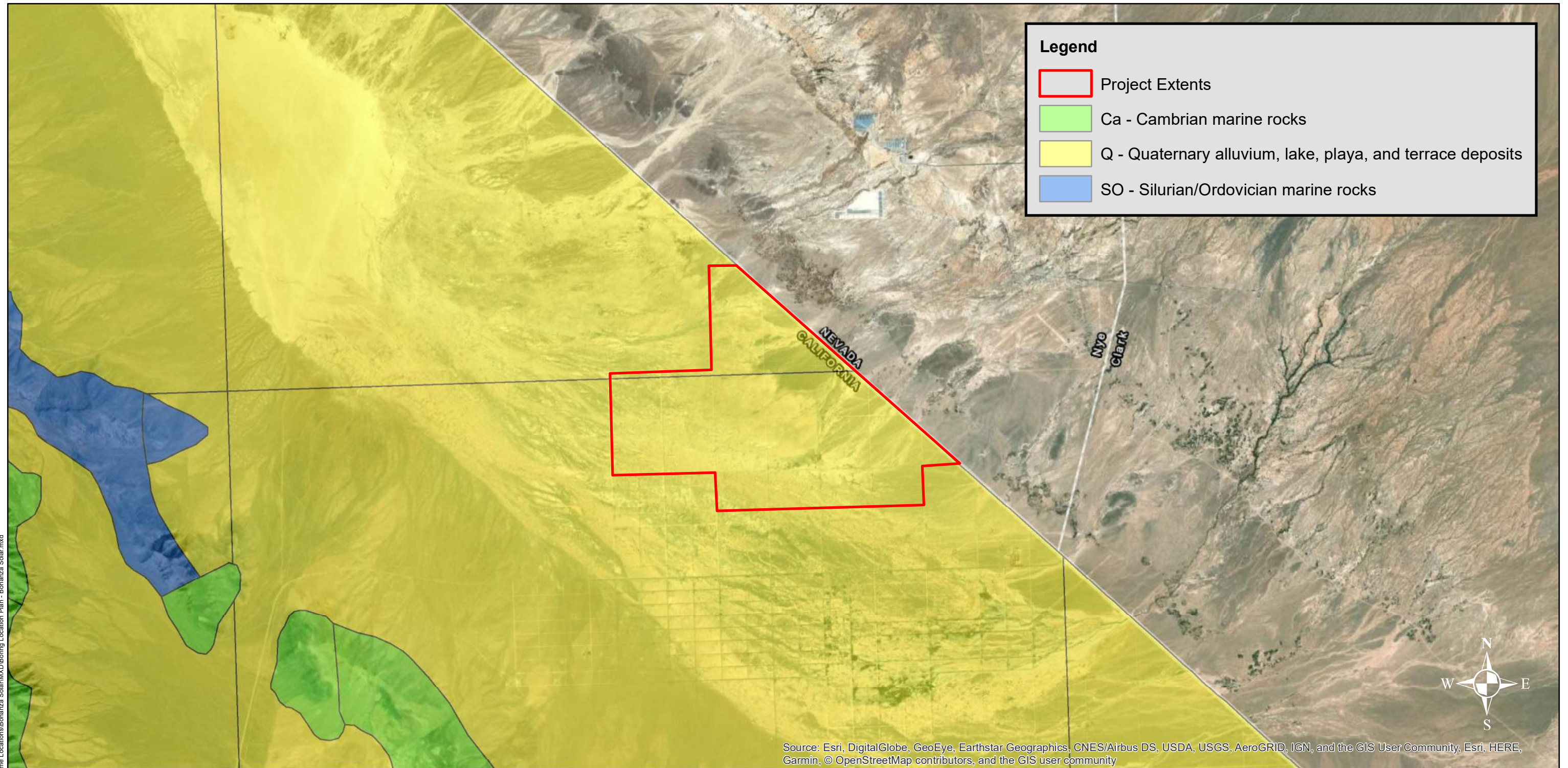
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Drawn	AGW	Coordination		
Dwg Check	EP	Approved		
Scale at 11" x 17"		Status	Rev	Security
AS SHOWN				
Drawing Number				
BTOLP-1				

Title

BORING AND TEST PIT
LOCATION PLAN

174 POWER GLOBAL CORPORATION
BONANZA SOLAR FARM
CALVADA SPRINGS, CALIFORNIA

B. Geologic References



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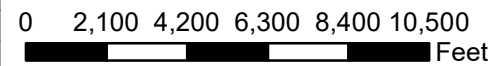
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0	9/22/2020				
Rev	Date	Drawn	Description	Ch'k'd	App'd



Reference Scale:
1:60,000

Absolute Scale:
1 inch = 5,000 feet

Project Number	513100382-014
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	B/C
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	Total
	1

Designed	YN		Eng check		
Drawn	AGW		Coordination		
Dwg Check	EP		Approved		
Scale at 11" x 17" AS SHOWN	Status		Rev		Security
Drawing Number GM-1					

	Title
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GEOLOGY MAP

174 POWER GLOBAL CORPORATION
BONANZA SOLAR FARM
CALVADA SPRINGS, CALIFORNIA

C. Mott MacDonald Soil Boring Logs

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-01 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 8, 2020 at 2:05 pm Date/Time Finished: October 8, 2020 at 4:00 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 36.0140235 Long: -115.9133108		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	13	1 1 1 2		SM	Very loose, light brown fine SAND, some Silt, trace fine Gravel, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	18	3 1 2 2		SM	Very loose, light brown coarse to fine SAND, some Silt, dry (SM)	-	-	-	-	
	S-3 4.0'- 6.0'	20	4 10 18 23		SM	Medium dense, light brown fine Silty SAND, trace fine Gravel, dry (SM)	-	-	-	-	
10	S-4 6.0'- 8.0'	21	8 21 28 27		ML	Hard, light gray SILT, some coarse to fine Sand, trace fine Gravel, dry (ML)	N	L	L	L	
	S-5 8.0'- 10.0'	16	30 36 34 41		ML	Hard, light brown SILT, little coarse to fine Sand, trace fine Gravel, dry (ML)	S	L	L	M	
15	S-6 15.0'- 17.0'	17	13 13 23 24		SM	Dense, light brown coarse to fine SAND, little Silt, trace fine Gravel, dry (SM)	-	-	-	-	
	12.5										
	17.0										
End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.											

Water Level Data						Sample Type		Notes:		
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	U	SS	G
			Bot. of Casing	Bottom of Hole	Water					

Field Test Legend:		Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High		Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High	
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.					

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-02 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 7, 2020 at 3:00 pm Date/Time Finished: October 7, 2020 at 4:00 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 36.0084752 Long: -115.9162418		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		Length		Inside Dia. (in.)		Hammer Wt. (lb.)		Hammer Fall (in.)	
HSA 5 ft 4 - -		S 2 ft 1.375 140 30		- - - -		Rig Make & Model: Mobile B-48 ☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☐ Geoprobe ☒ Winch ☒ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☒ Cutting Head		Hammer Type ☐ Safety ☐ Doughnut ☒ Automatic ☐ Bentonite ☐ Polymer ☐ Water ☒ None	
								Drill Rod Size: Casing Advance Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks	
							Dilatancy	Toughness	Plasticity	Dry Strength		
	S-1 0.0'- 2.0' 0.3'-	16	1 1 3 3		ML	0.3' - TOPSOIL Medium stiff, light brown Sandy SILT, little fine Gravel, trace Roots, dry (ML)	-	N	L	L	L	
	S-2 2.0'- 4.0'	17	4 9 13 22		SM	2.0 Medium dense, light brown coarse to fine Sand, some fine Gravel, some Silt, dry (SM)	-	-	-	-	-	
	S-3 4.0'- 6.0'	10	24 50/6"		SP	4.0 Very dense, light brown fine SAND, some coarse to fine Gravel, trace Silt, dry (SP)	-	-	-	-	-	
	S-4 6.0'- 8.0'	15	13 19 18 19		SP	8.0 Dense, light gray Gravelly coarse to fine SAND, trace Silt, dry (SP)	-	-	-	-	-	
	S-5 8.0'- 10.0'	20	17 21 18 20		ML	Hard, light brown SILT, trace fine Gravel, trace coarse to fine Sand, dry (ML)	S	L	L	L	L	
	S-6 15.0'- 17.0'	15	21 20 20 26		ML	17.0 Hard, light brown SILT, some fine Sand, trace fine Gravel, dry (ML)	S	L	L	L	L	
						End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.						

Water Level Data						Sample Type		Notes:		
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	U	SS	G
			Bot. of Casing	Bottom of Hole	Water					

Field Test Legend:		Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High		Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High	
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.					

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-03 Page 1 of 1																																																																																																																																																																													
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 7, 2020 at 1:50 pm Date/Time Finished: October 7, 2020 at 2:40 pm																																																																																																																																																																								
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 36.0029265 Long: -115.9137007																																																																																																																																																																						
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84																																																																																																																																																																					
Type		Length		Inside Dia. (in.)		Hammer Wt. (lb.)		Hammer Fall (in.)																																																																																																																																																																					
HSA		5 ft		4		140		30																																																																																																																																																																					
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Rig Make & Model: Mobile B-48 ☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☐ Geoprobe ☒ Winch ☒ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ Cutting Head Hammer Type ☐ Safety ☐ Doughnut ☒ Automatic Drilling Fluid ☐ Bentonite ☐ Polymer ☐ Water ☒ None																																																																																																																																																																													
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Depth/ Elev. (ft)</th> <th rowspan="2">Sample No. / Interval (ft)</th> <th rowspan="2">Rec. (in)</th> <th rowspan="2">Sample Blows per 6"</th> <th rowspan="2">Stratum Graphic</th> <th rowspan="2">USCS Group Symbol</th> <th rowspan="2">Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)</th> <th colspan="4">Field Tests</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Dilatancy</th> <th>Toughness</th> <th>Plasticity</th> <th>Dry Strength</th> </tr> </thead> <tbody> <tr> <td rowspan="4"></td> <td>S-1 0.0'- 2.0'</td> <td rowspan="4">20</td> <td>2 4 4 4</td> <td rowspan="4"></td> <td rowspan="4">ML</td> <td>0.3 - 3" - TOPSOIL Stiff, light brown SILT, trace fine Sand, trace Roots, dry (ML)</td> <td>S</td> <td>L</td> <td>L</td> <td>L</td> <td rowspan="4"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td rowspan="3"></td> <td>S-2 2.0'- 4.0'</td> <td rowspan="3">17</td> <td>6 5 4 6</td> <td rowspan="3"></td> <td rowspan="3">SM</td> <td>2.0 Loose, light brown Silty fine SAND, trace coarse to fine Gravel, dry (SM)</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td rowspan="3"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td rowspan="3">5</td> <td>S-3 4.0'- 6.0'</td> <td rowspan="3">18</td> <td>9 14 11 10</td> <td rowspan="3"></td> <td rowspan="3">SM</td> <td>6.0 Medium dense, light gray Gravelly fine SAND, little Silt, dry (SM)</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td rowspan="3"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td rowspan="3"></td> <td>S-4 6.0'- 8.0'</td> <td rowspan="3">13</td> <td>9 12 21 38</td> <td rowspan="3"></td> <td rowspan="3">SP</td> <td>8.0 Dense, light brown Gravelly coarse to fine SAND, trace Silt (SP)</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td rowspan="3"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td rowspan="3">10</td> <td>S-5 8.0'- 10.0'</td> <td rowspan="3">4</td> <td>50/6"</td> <td rowspan="3"></td> <td rowspan="3">ML</td> <td>Hard, light brown SILT, some coarse to fine Gravel, little coarse to fine Sand, dry (ML)</td> <td>N</td> <td>M</td> <td>L</td> <td>M</td> <td rowspan="3"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td rowspan="3">15</td> <td>S-6 15.0'- 17.0'</td> <td rowspan="3">22</td> <td>26 33 36 36</td> <td rowspan="3"></td> <td rowspan="3">ML</td> <td>17.0 Hard, light brown SILT, trace fine Gravel, trace coarse to fine Sand, dry (ML)</td> <td>S</td> <td>L</td> <td>L</td> <td>L</td> <td rowspan="3"></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="6"></td> <td colspan="5"> End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings. </td> </tr> </tbody> </table>										Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks	Dilatancy	Toughness	Plasticity	Dry Strength		S-1 0.0'- 2.0'	20	2 4 4 4		ML	0.3 - 3" - TOPSOIL Stiff, light brown SILT, trace fine Sand, trace Roots, dry (ML)	S	L	L	L																		S-2 2.0'- 4.0'	17	6 5 4 6		SM	2.0 Loose, light brown Silty fine SAND, trace coarse to fine Gravel, dry (SM)	-	-	-	-												5	S-3 4.0'- 6.0'	18	9 14 11 10		SM	6.0 Medium dense, light gray Gravelly fine SAND, little Silt, dry (SM)	-	-	-	-													S-4 6.0'- 8.0'	13	9 12 21 38		SP	8.0 Dense, light brown Gravelly coarse to fine SAND, trace Silt (SP)	-	-	-	-												10	S-5 8.0'- 10.0'	4	50/6"		ML	Hard, light brown SILT, some coarse to fine Gravel, little coarse to fine Sand, dry (ML)	N	M	L	M												15	S-6 15.0'- 17.0'	22	26 33 36 36		ML	17.0 Hard, light brown SILT, trace fine Gravel, trace coarse to fine Sand, dry (ML)	S	L	L	L																		End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.				
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Boring No.: B-03																																																																																																																																																																													
Field Test Legend: Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High																																																																																																																																																																													
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Project No.:	<u>513100382-014</u>
Project Mgr:	<u>Eric Pauli</u>
Field Eng. Staff:	<u>Nicholas King</u>
Date/Time Started:	<u>October 8, 2020 at 11:10 am</u>
Date/Time Finished:	<u>October 8, 2020 at 12:00 pm</u>

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole. Boring No.: B-04
			Bot. of Casing	Bottom of Hole	Water		
Field Test Legend:						Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High	
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.							

Project No.:	513100382-014
Project Mgr:	Eric Pauli
Field Eng. Staff:	Nicholas King
Date/Time Started:	October 7, 2020 at 6:50 am
Date/Time Finished:	October 7, 2020 at 8:00 am

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:		Water	O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole			
						Boring No.: B-05	
Field Test Legend:		Dilatancy: N - None S - Slow R - Rapid		Plasticity: NP - Non-Plastic L - Low M - Medium H - High			
		Toughness: L - Low M - Medium H - High		Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.							

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-06 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 7, 2020 at 12:30 pm Date/Time Finished: October 7, 2020 at 1:30 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9990377 Long: -115.9200220		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☒ None	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
								☒ Winch	
								☐ Roller Bit	
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MOTT MACDONALD SOIL BORING LOG BORING NO.: B-07 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 8, 2020 at 8:30 am Date/Time Finished: October 8, 2020 at 9:40 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 36.0000499 Long: -115.9089485		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☒ None	
								Drilling Fluid	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	16	2 2 2 3		SM	6" - TOPSOIL 0.5 Very loose, light brown Silty fine SAND, trace fine Gravel, trace Roots, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	13	3 3 5 6		SM	Loose, light brown coarse to fine SAND, some Silt, little fine Gravel, dry (SM)	-	-	-	-	
	S-3 4.0'- 6.0'	14	8 9 8 6		SP	Medium dense, light brown coarse to fine SAND, little fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-4 6.0'- 8.0'	7	8 9 14 19		SP	Medium dense, light brown fine SAND, little fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-5 8.0'- 10.0'	15	18 29 45 50/6"		ML	Hard, light gray SILT, trace fine Sand, dry (ML)	S	L	L	L	
15	S-6 15.0'- 16.5'	18	15 32 50/6"	ML	Hard, light gray SILT, little coarse to fine Sand, dry (ML)	S	M	L	M		
	End of Soil Boring at 16.5 feet BGS. Borehole backfilled with soil cuttings.										

Water Level Data						Sample Type		Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water			

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid
 Toughness: L - Low M - Medium H - High

Plasticity: NP - Non-Plastic L - Low M - Medium H - High
 Dry Strength: N - None L - Low M - Medium H - High VH - Very High

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

Boring No.: **B-07**

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-08 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 8, 2020 at 10:00 am Date/Time Finished: October 8, 2020 at 10:45 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9998508 Long: -115.9037809		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☒ None	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
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MOTT MACDONALD SOIL BORING LOG BORING NO.: B-09 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 3, 2020 at 10:50 am Date/Time Finished: October 3, 2020 at 12:15 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9954444 Long: -115.8897222		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☒ None	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ Cutting Head	
								☐ Skid	
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								☐ Truck	

MOTT MACDONALD		M M		SOIL BORING LOG										BORING NO.: B-10																									
														Page 1 of 1																									
Project: Bonanza Peak Solar Farm														Project No.: 513100382-014																									
Location: Calvada Springs, CA														Project Mgr: Eric Pauli																									
Client: 174 Power Global														Field Eng. Staff: Nicholas King																									
Drilling Co.: Elite Drilling Services														Date/Time Started: October 6, 2020 at 1:27 pm																									
Driller/Helper: Lenny Jecminck /Gerald Van														Date/Time Finished: October 6, 2020 at 2:25 pm																									
Elevation: Grade ft.				Vertical Datum:				Boring Location: See Boring Location Plan										Coord.: Lat: 35.9940425 Long: -115.9333586																					
Item		Casing		Sampler		Core Barrel		Rig Make & Model: Mobile B-48										Hammer Type		Drilling Fluid				Drill Rod Size:															
Type		HSA		S		-		☐ Truck ☐ Tripod ☐ Cat-Head ☐ Safety										☐ Bentonite		Casing Advance																			
Length		5 ft		2 ft		-		☐ ATV ☐ Geoprobe ☒ Winch										☐ Doughnut						Polymer															
Inside Dia. (in.)		4		1.375		-		☒ Track ☐ Air Track ☐ Roller Bit										☒ Automatic		☐ Water																			
Hammer Wt. (lb.)		-		140		-		☐ Skid ☐ Cutting Head										☐		☒ None																			
Hammer Fall (in.)		-		30		-																																	
Depth/ Elev. (ft)		Sample No. / Interval (ft)		Rec. (in)		Sample Blows per 6"		Stratum Graphic		USCS Group Symbol		Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)										Field Tests				Remarks													
																						Dilatancy						Toughness				Plasticity				Dry Strength			
5		S-1 0.0'- 2.0'		7		2 5 6 4				ML		Stiff, light brown SILT, trace coarse to fine Sand, dry (ML)										N				M				L				M					
		S-2 2.0'- 4.0'		21		2 3 5 5				ML		Medium stiff, light brown SILT, some coarse to fine Sand, trace fine Gravel, dry (ML)										N				M				L				M					
		S-3 4.0'- 6.0'		15		5 5 4 7				ML		Stiff, light gray SILT, little coarse to fine Sand, dry (ML)										S				L				L				L					
		S-4 6.0'- 8.0'		8		11 16 32 40				ML		Hard, light gray SILT, trace coarse to fine Sand, dry (ML)										S				M				L				L					
10		S-5 8.0'- 10.0'		13		29 39 50/6"				SM		8.0 Very dense, light brown Silty fine SAND, dry (SM)										-				-				-				-					
15		S-6 15.0'- 16.0'		6		22 50/6"				ML		16.0 Hard, light gray SILT, little coarse to fine Sand, dry (ML)										S				M				L				M					
Water Level Data												Sample Type										Notes:																	
Date		Time		Elapsed Time (hr)		Depth in feet to:		Bot. of Casing		Bottom of Hole		Water		O Open End Rod										Groundwater was not encountered in this borehole.															
												T Thin-Wall Tube																											
												U Undisturbed Sample																											
												SS Split Spoon Sample																											
												G Grab Sample																											
Field Test Legend:												Dilatancy: N - None S - Slow R - Rapid										Plasticity: NP - Non-Plastic L - Low M - Medium H - High																	
												Toughness: L - Low M - Medium H - High										Dry Strength: N - None L - Low M - Medium H - High VH - Very High																	
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.																																							
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.																																							

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-11 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 7, 2020 at 8:35 am Date/Time Finished: October 7, 2020 at 9:30 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9925769 Long: -115.9239669		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety ☐ Doughnut ☒ Automatic	
Hammer Wt. (lb.)		-		140		-		☐ Bentonite ☐ Polymer ☐ Water ☒ None	
Hammer Fall (in.)		-		30		-		Drill Rod Size: Casing Advance Hollow Stem Auger	
Depth/ Elev. (ft)		Sample No. / Interval (ft)		Rec. (in)		Sample Blows per 6"		Stratum Graphic	
								USCS Group Symbol	
								Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	
								Field Tests	
								Dilatancy Toughness Plasticity Dry Strength	
								Remarks	
0.3' - 2.0'		S-1 20		2 2 3 5				ML 0.3' - TOPSOIL Medium stiff, brown SILT, trace fine Sand, trace Roots, dry (ML)	
2.0' - 4.0'		S-2 17		7 9 6 8				ML Very stiff, light brown SILT, some coarse to fine Gravel, little coarse to fine Sand, dry (ML)	
4.0' - 6.0'		S-3 9		7 6 7 25				ML Stiff, light gray SILT, little coarse to fine Sand, dry (ML)	
6.0' - 8.0'		S-4 5		50/6"				ML Hard, light gray Sandy SILT, little fine Gravel, dry (ML)	
8.0' - 10.0'		S-5 19		22 30 39 50				ML Hard, little gray Sandy SILT, little fine Gravel, dry (ML)	
15.0' - 15.3'		S-6 3		50/3"				SM 15.3' Very dense, light gray Silty SAND, trace fine Gravel, dry (ML) End of Soil Boring at 15.3 feet BGS. Borehole backfilled with soil cuttings.	
Water Level Data Sample Type Notes:									
Date		Time		Elapsed Time (hr)		Depth in feet to:			
						Bot. of Casing		Bottom of Hole	
								Water	
								O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	
								Groundwater was not encountered in this borehole.	
Boring No.: B-11									
Field Test Legend:									
Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High									
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.									

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-12 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 5, 2020 at 12:25 pm Date/Time Finished: October 5, 2020 at 1:25 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9943518 Long: -115.912830		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	8	1 1 2 2		SM	Very loose, brown fine SAND, some Silt, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	14	4 2 2 4		ML	Soft, brown Sandy SILT, dry (ML)	N	L	L	L	
	S-3 4.0'- 6.0'	18	4 7 12 13		ML	Very stiff, light brown SILT, some fine Sand, dry (ML)	N	M	L	M	
	S-4 6.0'- 8.0'	15	20 23 22 23		ML	Hard, light brown Sandy SILT, dry (ML)	S	H	L	L	
	S-5 8.0'- 10.0'	16	18 21 13 17		ML	Hard, light brown Sandy SILT, dry (ML)	S	M	L	M	
15	S-6 15.0'- 17.0'	7	34 29 24 13		ML	Hard, light brown SILT, little fine Sand, dry (ML)	S	L	L	L	
						17.0	End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.				

Water Level Data						Sample Type		Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water			
						U	Undisturbed Sample	
						SS	Split Spoon Sample	
						G	Grab Sample	

Field Test Legend:				Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High				Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
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NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-13 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 5, 2020 at 8:25 am Date/Time Finished: October 5, 2020 at 9:15 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9820775 Long: -115.900682		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	6	2 3 3 3		ML	Medium stiff, light brown Sandy SILT, dry (ML)	S	L	L	L	
	S-2 2.0'- 4.0'	19	4 4 5 6		ML	Stiff, light brown SILT, trace fine Sand, dry (ML)	S	L	L	L	
	S-3 4.0'- 6.0'	20	5 5 6 10		ML	Stiff, light brown Sandy SILT, dry (ML)	S	L	L	L	
	S-4 6.0'- 8.0'	17	23 43 50/6"		ML	Hard, light brown SILT, trace fine Sand, dry (ML)	S	M	L	M	
	S-5 8.0'- 10.0'	12	42 50/6"		ML	Hard, light brown SILT, trace fine Sand, dry (ML)	S	L	L	L	
15	S-6 15.0'- 15.4'	4	50/5"		ML	15.4 Hard, light brown SILT, some fine Sand, dry (ML)	N	L	L	L	
	End of Soil Boring at 15.4 feet BGS. Borehole backfilled with soil cuttings.										

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		

Field Test Legend:		Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High		Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High	
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NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.					
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MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-14 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 3, 2020 at 9:32 am Date/Time Finished: October 3, 2020 at 10:25 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9916472 Long: -115.8863667		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Truck ☐ Tripod ☐ Cat-Head ☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut ☒ Automatic	
Hammer Fall (in.)		-		30		-		☐ Skid ☐ Geoprobe ☒ Winch ☐ Air Track ☐ Roller Bit ☒ Cutting Head	
								☐ Bentonite ☐ Polymer ☐ Water ☒ None	
								Drill Rod Size: Casing Advance Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	20	3 5 5 7		SP	Medium dense, light brown coarse to fine SAND, little fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-2 2.0'- 4.0'	18	5 10 11 9		SP	Medium dense, light brown coarse to fine SAND, trace fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-3 4.0'- 6.0'	21	5 6 12 35		SM	Medium dense, light brown Silty coarse to fine SAND, trace fine Gravel, dry (SM)	-	-	-	-	
	S-4 6.0'- 8.0'	17	15 19 23 33		SP	Dense, light brown coarse to fine SAND, some fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-5 8.0'- 10.0'	20	19 25 21 25		SP	Dense, light brown coarse to fine SAND, some fine Gravel, trace Silt, dry (SP)	-	-	-	-	
15	S-6 15.0'- 17.0'	24	26 44 34 33	SM	Very dense, brown coarse to fine SAND, little fine Gravel, little Silt, dry (SM)	-	-	-	-		
						12.5 17.0 End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.					

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High

Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

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

Boring No.: **B-14**

3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-16 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 6, 2020 at 9:20 am Date/Time Finished: October 6, 2020 at 10:15 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9897602 Long: -115.9189860		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	10	1 1 2 6	[Pattern]	SM	Very loose, brown Silty fine SAND, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	18	6 5 14 18	[Pattern]	ML	Very stiff, light brown SILT, some coarse to fine Sand, dry (ML)	S	L	L	L	
	S-3 4.0'- 6.0'	14	14 13 13 14	[Pattern]	ML	Very stiff, light gray Sandy SILT, trace fine Gravel, dry (ML)	S	L	L	L	
	S-4 6.0'- 8.0'	13	19 26 34 50/5"	[Pattern]	ML	Hard, light gray Sandy SILT, dry (ML)	S	L	L	L	
	S-5 8.0'- 10.0'	20	19 21 26 33	[Pattern]	ML	Hard, light gray SILT, trace coarse to fine Sand, dry (ML)	S	L	L	L	
	15	S-6 15.0'- 17.0'	12	9 10 10 12	[Pattern]	ML	Very stiff, light gray SILT, trace fine Sand, dry (ML)	S	L	L	
End of Soil Boring at 17 feet BGS. Borehole was backfilled with soil cuttings.											

Water Level Data						Sample Type		Notes:		
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	U	SS	G
			Bot. of Casing	Bottom of Hole	Water					

Field Test Legend:		Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High		Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High	
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.					

Boring No.: **B-16**

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-17 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 6, 2020 at 8:10 am Date/Time Finished: October 6, 2020 at 9:00 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9882042 Long: -115.9032072		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	6	5 6 7 10		SM	Medium dense, brown fine SAND, some Silt, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	14	10 15 17 22		ML	Hard, light brown SILT, trace coarse to fine Sand, dry (ML)	S	L	L	L	
	S-3 4.0'- 6.0'	8	17 17 16 17		ML	Hard, brown SILT, trace fine Sand, dry (ML)	S	L	L	L	
	S-4 6.0'- 8.0'	10	13 50/6"		ML	Hard, light gray SILT, little coarse to fine Sand, dry (ML)	N	M	L	M	
	S-5 8.0'- 10.0'	5	50/6"		ML	Hard, light gray SILT, trace fine Sand, dry (ML)	S	M	L	M	
15	S-6 15.0'- 17.0'	12	9 9 9 12		ML	Stiff, light gray SILT, some coarse to fine Sand, trace fine Gravel, dry (ML)	S	M	L	M	
						17.0	End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.				

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		
						T	
						U	
						SS	
						G	

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid
 Toughness: L - Low M - Medium H - High

Plasticity: NP - Non-Plastic L - Low M - Medium H - High
 Dry Strength: N - None L - Low M - Medium H - High VH - Very High

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

Boring No.: **B-17**

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-18 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 5, 2020 at 6:55 am Date/Time Finished: October 5, 2020 at 8:00 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.988704 Long: -115.902231		
Item	Casing	Sampler	Core Barrel	Rig Make & Model: Mobile B-48			Hammer Type		Horizontal Datum: WGS84
Type	HSA	S	-	☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☐ Geoprobe ☒ Winch ☒ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☒ Cutting Head			☐ Safety ☐ Doughnut ☒ Automatic ☐		Drilling Fluid
Length	5 ft	2 ft	-						Drill Rod Size:
Inside Dia. (in.)	4	1.375	-						Casing Advance
Hammer Wt. (lb.)	-	140	-						Hollow Stem Auger
Hammer Fall (in.)	-	30	-						☒ None

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	14	2 2 2 3		ML	Medium stiff, light brown SILT, trace fine Sand, dry (ML)	S	L	L	L	
	S-2 2.0'- 4.0'	8	4 14 13 17		ML	Very stiff, light brown Sandy SILT, dry (ML)	S	L	L	L	
	S-3 4.0'- 6.0'	21	11 25 45 50/3"		ML	Hard, light brown Sandy SILT, dry (ML)	S	L	L	L	
	S-4 6.0'- 8.0'	22	39 48 35 33		ML	Hard, light brown SILT, little fine Sand, dry (ML)	S	M	L	M	
	S-5 8.0'- 10.0'	8	43 50/4"		ML	Hard, light brown SILT, trace fine Sand, dry (ML)	S	M	L	M	
15	S-6 15.0'- 17.0'	23	20 20 16 27	ML	Hard, light brown SILT, little fine Sand, dry (ML)	S	M	L	M		
						17.0 End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.					

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.			

MOTT MACDONALD		M M	SOIL BORING LOG										BORING NO.: B-19														
													Page 1 of 1														
Project: Bonanza Peak Solar Farm												Project No.: 513100382-014															
Location: Calvada Springs, CA												Project Mgr: Eric Pauli															
Client: 174 Power Global												Field Eng. Staff: Nicholas King															
Drilling Co.: Elite Drilling Services												Date/Time Started: October 3, 2020 at 12:50 pm															
Driller/Helper: Lenny Jecminck /Gerald Van												Date/Time Finished: October 3, 2020 at 1:50 pm															
Elevation: Grade ft.				Vertical Datum:				Boring Location: See Boring Location Plan								Coord.: Lat: 35.9878944 Long: -115.8916028											
Item		Casing		Sampler		Core Barrel		Rig Make & Model: Mobile B-48								Hammer Type		Horizontal Datum: WGS84									
Type		HSA		S		-		☐ Truck ☐ Tripod ☐ Cat-Head ☐ Safety								☐ Bentonite		Casing Advance									
Length		5 ft		2 ft		-		☐ ATV ☐ Geoprobe ☒ Winch								☐ Doughnut						Hollow Stem Auger					
Inside Dia. (in.)		4		1.375		-		☒ Track ☐ Air Track ☐ Roller Bit								☒ Automatic											
Hammer Wt. (lb.)		-		140		-		☐ Skid ☐ Cutting Head								☒ None											
Hammer Fall (in.)		-		30		-																					
Depth/ Elev. (ft)		Sample No. / Interval (ft)		Rec. (in)		Sample Blows per 6"		Stratum Graphic		USCS Group Symbol		Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)										Field Tests				Remarks	
																				Dilatancy Toughness Plasticity Dry Strength							
5		S-1 0.0'- 2.0'		13		1 3 10 10				SP		Medium dense, light brown coarse to fine SAND, little fine Gravel, trace Silt, dry (SP)								-				Caliche in gravel			
		S-2 2.0'- 4.0'		20		11 16 19 19				SM		Dense, light brown Silty fine SAND, dry (SM)								-							
		S-3 4.0'- 6.0'		17		22 26 37 50/5"				SM		Very dense, light brown Silty fine SAND, dry (SM)								-							
		S-4 6.0'- 8.0'		9		39 50/4"				SM		Very dense, light brown Silty fine SAND, dry (SM)								-							
		S-5 8.0'- 10.0'		5		50/5"				SM		Very dense, light brown Silty fine SAND, trace coarse to fine Gravel, dry (SM)								-							
		S-6 15.0'- 17.0'		17		36 44 18 50				SM		Very dense, light brown Gravelly coarse to fine SAND, little Silt, dry (SM)								-							
												End of Soil Boring at 17 feet BGS. Borehole backfilled with soil cuttings.															
Water Level Data												Sample Type				Notes:											
Date		Time		Elapsed Time (hr)		Depth in feet to:						O Open End Rod				Groundwater was not encountered in this borehole.											
						Bot. of Casing		Bottom of Hole		Water		T Thin-Wall Tube															
												U Undisturbed Sample															
												SS Split Spoon Sample															
												G Grab Sample															
Field Test Legend:												Notes:															
Dilatancy: N - None S - Slow R - Rapid												Plasticity: NP - Non-Plastic L - Low M - Medium H - High															
Toughness: L - Low M - Medium H - High												Dry Strength: N - None L - Low M - Medium H - High VH - Very High															
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.																											
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.																											

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-20 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 6, 2020 at 11:55 am Date/Time Finished: October 6, 2010 at 12:50 pm				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9872438 Long: -115.9327538		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☒ None	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
								☒ Winch	
								☐ Roller Bit	
								☒ Automatic	
								☐ Safety	
								☐ Doughnut	
								☒ Automatic	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
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								☒ Automatic	
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								☐ Doughnut	
								☒ Automatic	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
								☒ Winch	
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								☒ Winch	
								☐ Roller Bit	
								☒ Automatic	
								☐ Safety	
								☐ Doughnut	
								☒ Automatic	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
								☒ Winch	
								☐ Roller Bit	
								☒ Automatic	
								☐ Safety	
								☐ Doughnut	
								☒ Automatic	
								☒ Cutting Head	
								☐ Skid	
								☐ Tripod	
								☐ Geoprobe	
								☒ Winch	
								☐ Roller Bit	
								☒ Automatic	
								☐ Safety	
								☐ Doughnut	

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-21 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 6, 2020 at 10:45 am Date/Time Finished: October 6, 2020 at 11:30 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9869283 Long: -115.9214301		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	9	2 5 10 48		ML	Stiff, brown SILT, little coarse to fine Sand, dry (ML)	N	L	L	L	
	S-2 2.0'- 4.0'	17	8 12 50/5"		SM	Very dense, light gray Silty coarse to fine SAND, trace fine Gravel, dry (SM)	-	-	-	-	
	S-3 4.0'- 6.0'	4	50/4"		ML	Hard, light brown SILT, trace coarse to fine Sand, dry (ML)	S	L	L	M	
	S-4 6.0'- 8.0'	3	50/3"		ML	Hard, light gray SILT, trace fine Sand, dry (ML)	S	L	L	L	
	S-5 8.0'- 10.0'	17	9 19 20 50/3"		SM	Dense, light brown coarse to fine SAND, some Silt, moist (ML)	-	-	-	-	
15	S-6 15.0'- 15.3'	3	50/3"		ML	15.3 Hard, light gray SILT, some coarse to fine Sand, moist (ML) End of Soil Boring at 15.3 feet BGS. Borehole backfilled with soil cuttings.	S	M	L	M	

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		

Field Test Legend:				Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High				Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
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NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.											
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MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-22 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Ryan Salto Date/Time Started: October 3, 2020 at 8:05 am Date/Time Finished: October 3, 2020 at 9:06 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9874111 Long: -115.8806083		
Item	Casing	Sampler	Core Barrel	Rig Make & Model: Mobile B-48			Hammer Type		Horizontal Datum: WGS84
Type	HSA	S	-	☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☐ Geoprobe ☒ Winch ☒ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☒ Cutting Head			☐ Safety ☐ Doughnut ☒ Automatic ☐		Drilling Fluid
Length	5 ft	2 ft	-						Drill Rod Size:
Inside Dia. (in.)	4	1.375	-						Casing Advance
Hammer Wt. (lb.)	-	140	-						Hollow Stem Auger
Hammer Fall (in.)	-	30	-						☒ None

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	14	1 3 4 5		SP	Loose, light brown coarse to fine SAND, trace fine Gravel, trace Silt, dry (SP)	-	-	-	-	
	S-2 2.0'- 4.0'	17	4 5 7 10		SM	Medium dense, light brown coarse to fine SAND, little fine Gravel, little Silt, dry (SM)	-	-	-	-	
	S-3 4.0'- 6.0'	15	26 36 50/6"		SM	Very dense, light brown coarse to fine SAND, some coarse to fine Gravel, some Silt, dry (SM)	-	-	-	-	
	S-4 6.0'- 8.0'	23	17 22 27 36		SM	Dense, brown Silty coarse to fine SAND, little fine Gravel, moist (SM)	-	-	-	-	
	S-5 8.0'- 10.0'	24	37 46 48 50		SM	Very dense, brown coarse to fine SAND, little Silt, trace fine Gravel, moist (SM)	-	-	-	-	
15	S-6 15.0'- 16.8'	22	18 27 37 50/4"	SM	Very dense, brown coarse to fine SAND, little Silt, trace coarse to fine Gravel, moist (SM)	-	-	-	-		
						16.8	End of Soil Boring at 16.8 feet BGS. Borehole backfilled with soil cuttings.				

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water		

Field Test Legend:
 Dilatancy: N - None S - Slow R - Rapid
 Toughness: L - Low M - Medium H - High

Plasticity: NP - Non-Plastic L - Low M - Medium H - High
 Dry Strength: N - None L - Low M - Medium H - High VH - Very High

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

Boring No.: **B-22**

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-23 Page 1 of 1									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 6, 2020 at 6:45 am Date/Time Finished: October 6, 2020 at 7:45 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9842300 Long: -115.9115627		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	18	2 3 4 3	[Pattern]	SM	Loose, brown coarse to fine SAND, some Silt, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	19	7 9 9 11	[Pattern]	ML	Very stiff, brown SILT, little coarse to fine Sand, dry (ML)	N	L	L	L	
	S-3 4.0'- 6.0'	16	18 42 50/4"	[Pattern]	ML	Hard, light brown SILT, trace coarse to fine Sand, dry (ML)	S	M	L	M	
	S-4 6.0'- 8.0'	13	21 28 25 32	[Pattern]	ML	Hard, light brown Sandy SILT, dry (ML)	S	H	L	M	
	S-5 8.0'- 10.0'	20	25 23 30 34	[Pattern]	ML	Hard, light brown SILT, little fine SAND, dry (ML)	S	M	L	M	
	15	S-6 15.0'- 16.8'	15	10 15 40 50/3"	[Pattern]	ML	Hard, brown SILT, some coarse to fine Sand, dry (ML)	N	L	L	
					End of Soil Boring at 16.8 feet BGS. Borehole backfilled with soil cuttings.						

Water Level Data						Sample Type		Notes:				
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	U	SS	G		
			Bot. of Casing	Bottom of Hole	Water							
												Groundwater was not encountered in this borehole. Boring No.: B-23

Field Test Legend:				Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High				Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.											

Project No.:	513100382-014
Project Mgr:	Eric Pauli
Field Eng. Staff:	Nicholas King
Date/Time Started:	October 3, 2020 at 2:45 pm
Date/Time Finished:	October 3, 2020 at 3:35 pm

Water Level Data						Sample Type	Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:		Water	O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole			
Field Test Legend: Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High							Boring No.: B-24
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.							

Project No.:	<u>513100382-014</u>
Project Mgr:	<u>Eric Pauli</u>
Field Eng. Staff:	<u>Ryan Salto</u>
Date/Time Started:	<u>October 3, 2020 at 6:40 am</u>
Date/Time Finished:	<u>October 3, 2020 at 7:42 am</u>

Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan				Coord.: Lat: 35.98295 Long: -115.8833611							
Item		Casing	Sampler	Core Barrel		Horizontal Datum: WGS84									
Type		HSA	S	-		Rig Make & Model: Mobile B-48		Hammer Type		Drilling Fluid		Drill Rod Size:			
Length		5 ft	2 ft	-		☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety	☐ Bentonite	Casing Advance				
Inside Dia. (in.)		4	1.375	-		☐ ATV	☐ Geoprobe	☒ Winch	☐ Doughnut	☐ Polymer	Hollow Stem Auger				
Hammer Wt. (lb.)		-	140	-		☒ Track	☐ Air Track	☐ Roller Bit	☒ Automatic	☐ Water					
Hammer Fall (in.)		-	30	-		☐ Skid	☐	☒ Cutting Head	☐	☒ None					
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)				Field Tests				Remarks	
										Dilatancy	Toughness	Plasticity	Dry Strength		
5	S-1 0.0'- 2.0'	15	2 3 6 6		SP	Loose, light brown, coarse to fine SAND, trace fine Gravel, trace Silt, dry (SP)				-	-	-	-		
	S-2 2.0'- 4.0'	18	7 14 9 5		SP	Medium dense, light brown coarse to fine SAND, little fine Gravel, trace Silt, dry (SP)				-	-	-	-		
	S-3 4.0'- 6.0'	12	6 7 8 12	SM	Medium dense, light brown coarse to fine Silty SAND, little fine Gravel, dry (SM)				-	-	-	-			
	S-4 6.0'- 8.0'	19	8 10 15 17	ML	Very stiff, light brown SILT, some fine Sand, trace fine Gravel, dry (ML)				S	L	L	L			
	S-5 8.0'- 10.0'	17	16 14 20 44	ML	Hard, light brown Sandy SILT, trace fine Gravel, dry (ML)				S	L	L	L			
	15														
S-6 15.0'- 15.9'		11	36 50/5"		SM	Very dense, light brown Silty coarse to fine SAND, little fine Gravel, dry (SM)				-	-	-	-		
						End of Soil Boring at 15.9 feet BGS. Borehole backfilled with soil cuttings.									
Water Level Data						Sample Type		Notes:							
Date	Time	Elapsed Time (hr)	Depth in feet to:			O Open End Rod T Thin-Wall Tube U Undisturbed Sample SS Split Spoon Sample G Grab Sample		Groundwater was not encountered in this borehole.							
			Bot. of Casing	Bottom of Hole	Water										
Field Test Legend:						Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High									
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.															

MOTT MACDONALD SOIL BORING LOG BORING NO.: B-SS-01 Page 1 of 3									
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 5, 2020 at 9:35 am Date/Time Finished: October 5, 2020 at 11:50 am				
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9533410 Long: -115.90761		
Item		Casing		Sampler		Core Barrel		Horizontal Datum: WGS84	
Type		HSA		S		-		Rig Make & Model: Mobile B-48	
Length		5 ft		2 ft		-		Hammer Type	
Inside Dia. (in.)		4		1.375		-		☐ Safety	
Hammer Wt. (lb.)		-		140		-		☐ Doughnut	
Hammer Fall (in.)		-		30		-		☒ Automatic	
								☐ Bentonite	
								☐ Polymer	
								☐ Water	
								☒ None	
								Drill Rod Size:	
								Casing Advance	
								Hollow Stem Auger	

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
5	S-1 0.0'- 2.0'	6	2 1 2 2		ML	Soft, light brown SILT, trace fine Sand, dry (ML)	S	L	L	L	
	S-2 2.0'- 4.0'	17	2 1 4 5		ML	Medium stiff, light brown SILT, little fine Sand, dry (ML)	S	L	L	L	
	S-3 4.0'- 6.0'	21	5 4 5 7		ML	Stiff, brown Sandy SILT, dry (ML)	S	L	L	L	
	S-4 6.0'- 8.0'	15	12 16 23 29		ML	Hard, brown SILT, some medium to fine Sand, dry (ML)	S	L	L	L	
	S-5 8.0'- 10.0'	23	26 27 35 45		ML	Hard, light brown SILT, some coarse to fine Sand, dry (ML)	S	M	L	M	
15	S-6 15.0'- 17.0'	12	19 50/6"	ML	Hard, light brown SILT, little coarse to fine Sand, dry (ML)	N	M	L	M		

Water Level Data						Sample Type		Notes: Groundwater was not encountered in this borehole. Boring No.: B-SS-01
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	
			Bot. of Casing	Bottom of Hole	Water			

Field Test Legend:				Dilatancy: N - None S - Slow R - Rapid Toughness: L - Low M - Medium H - High				Plasticity: NP - Non-Plastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
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NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

MOTT MACDONALD M M										SOIL BORING LOG (continued)				BORING NO.: B-SS-01 Page 2 of 3	
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Symbol Group	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks				
							Dilatancy	Toughness	Plasticity	Dry Strength					
	S-7 20.0'- 22.0'	4	50/6"		ML	Hard, light brown SILT, trace fine Sand, dry (ML)	S	M	L	M					
						23.5									
25	S-8 25.0'- 27.0'	9	21 21 38 48		SP	Very dense, brown coarse to fine SAND, some fine Gravel, trace Silt, dry (SP)	-	-	-	-					
						28.5									
30	S-9 30.0'- 32.0'	5	21 25 24 25		ML	Hard, light brown SILT, some coarse to fine Sand, dry (ML)	N	M	L	M					
35	S-10 35.0'- 37.0'	12	13 18 14 15		ML	Hard, light brown SILT, little coarse to fine Sand, dry (ML)	S	H	L	H					
40	S-11 40.0'- 42.0'	6	16 50/6"		ML	Hard, light brown SILT, trace coarse to fine Sand, dry (ML)	S	H	L	H					
45	S-12 45.0'- 47.0'	6	50/6"		ML	Hard, light brown SILT, trace coarse to fine Sand, dry (ML)	S	H	L	M					
							PROJECT NO.: 513100382-014			BORING NO.: B-SS-01					

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

MOTT MACDONALD										M M		SOIL BORING LOG (continued)										BORING NO.: B-SS-01			
																						Page 3 of 3			
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic			USCS Symbol Group	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks												
									Dilatancy	Toughness	Plasticity	Dry Strength													
50	S-13	8	35				ML	Hard, light brown SILT, some fine Sand, dry (ML)	S	H	L	H													
	50.0'- 51.0'		50/6"											51.0											
								End of Soil Boring at 51 feet BGS. Borehole backfilled with soil cuttings.																	
55																									
60																									
65																									
70																									
									PROJECT NO.: 513100382-014				BORING NO.: B-SS-01												
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.																									

MOTT MACDONALD M M SOIL BORING LOG BORING NO.: B-SS-02 Page 1 of 3										
Project: Bonanza Peak Solar Farm Location: Calvada Springs, CA Client: 174 Power Global Drilling Co.: Elite Drilling Services Driller/Helper: Lenny Jecminck /Gerald Van					Project No.: 513100382-014 Project Mgr: Eric Pauli Field Eng. Staff: Nicholas King Date/Time Started: October 8, 2020 at 2:05 pm Date/Time Finished: October 8, 2020 at 4:00 pm					
Elevation: Grade ft.		Vertical Datum:		Boring Location: See Boring Location Plan			Coord.: Lat: 35.9812546 Long: -115.682331 Horizontal Datum: WGS84			
Item		Casing	Sampler	Core Barrel	Rig Make & Model: Mobile B-48			Hammer Type	Drilling Fluid	
Type		HSA	S	-	☐ Truck ☐ Tripod ☐ Cat-Head ☐ ATV ☐ Geoprobe ☒ Winch ☒ Track ☐ Air Track ☐ Roller Bit ☐ Skid ☐ ☒ Cutting Head			☐ Safety ☐ Doughnut ☒ Automatic ☐	☐ Bentonite ☐ Polymer ☐ Water ☒ None	Drill Rod Size:
Length		5 ft	2 ft	-					Casing Advance	
Inside Dia. (in.)		4	1.375	-					Hollow Stem Auger	
Hammer Wt. (lb.)		-	140	-						
Hammer Fall (in.)		-	30	-						

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
	S-1 0.0'- 2.0'	12	3 3 3 3		SM	0.3 4" - TOPSOIL Loose, light brown coarse to fine SAND, some Silt, trace Roots, dry (SM)	-	-	-	-	
	S-2 2.0'- 4.0'	20	4 4 5 7		SM	Loose, light brown Silty coarse to fine SAND, dry (SM)	-	-	-	-	
5	S-3 4.0'- 6.0'	17	7 9 10 11	ML	Very stiff, light brown Sandy SILT, dry (ML)	N	L	L	L		
	S-4 6.0'- 8.0'	15	11 19 17 28	ML	Hard, light gray SILT, trace fine Sand, dry (ML)	N	M	L	M		
	S-5 8.0'- 10.0'	11	17 50/6"	ML	Hard, light brown SILT, trace fine Sand, dry (ML)	S	M	L	M		
15	S-6 15.0'- 17.0'	13	22 27 34 24	ML	Hard, light gray SILT, little coarse to fine Sand, dry (ML)	N	M	L	M		
						18.5					

Water Level Data						Sample Type		Notes:
Date	Time	Elapsed Time (hr)	Depth in feet to:			O	T	Groundwater was not encountered in this borehole.
			Bot. of Casing	Bottom of Hole	Water			
						U		
						SS		
						G		

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid Plasticity: NP - Non-Plastic L - Low M - Medium H - High Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High VH - Very High			
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.			

MOTT MACDONALD M M						SOIL BORING LOG (continued)		BORING NO.: B-SS-02 Page 2 of 3			
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Symbol Group	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks
							Dilatancy	Toughness	Plasticity	Dry Strength	
	S-7 20.0'- 22.0'	5	50/5"		GP	Very dense, light brown Sandy coarse to fine GRAVEL, dry (GP)	-	-	-	-	
						23.5					
25	S-8 25.0'- 27.0'	6	50/6"		SM	Very dense, light brown coarse to fine SAND, little coarse to fine Gravel, little Silt, dry (SM)	-	-	-	-	
						28.5					
30	S-9 30.0'- 32.0'	3	14 50/3"		GP	Very dense, light gray coarse to fine GRAVEL, little coarse to fine Sand, dry (GP)	-	-	-	-	
						33.5					
35	S-10 35.0'- 37.0'	6	35 50/5"		SP	Very dense, light brown coarse to fine SAND, some coarse to fine Gravel, dry (SP)	-	-	-	-	
						38.5					
40	S-11 40.0'- 42.0'	19	17 18 26 32		ML	Hard, light gray SILT, trace fine Gravel, trace coarse to fine Sand, dry (ML)	N	L	L	L	
45	S-12 45.0'- 47.0'	20	8 16 24 45		ML	Hard, light gray SILT, trace fine Gravel, trace coarse to fine Sand, dry (ML)	S	L	L	L	
							PROJECT NO.: 513100382-014		BORING NO.: B-SS-02		

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

MOTT MACDONALD										M		SOIL BORING LOG (continued)										BORING NO.: B-SS-02			
																						Page 3 of 3			
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic			USCS Symbol Group	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests				Remarks												
									Dilatancy	Toughness	Plasticity	Dry Strength													
50	S-13	6	50/6"				ML	Hard, light gray SILT, trace coarse to fine SAND, dry (ML)	N	L	L	L													
	50.0'- 50.5'						50.5	End of Soil Boring at 50.5 feet BGS. Borehole backfilled with soil cuttings.																	
55																									
60																									
65																									
70																									
PROJECT NO.: 513100382-014									BORING NO.: B-SS-02																
NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading. 3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.																									

D. Mott MacDonald Test Pit Logs

PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-01
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	10:57 AM	TIME CLOSED	12:10 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'1"	DATE	9/25/2020

0'-4'8"

Light brown,
SILT, little fine
sand, dry (ML)

4'8"-7'7"

Light brown,
sandy coarse to
fine GRAVEL,
trace silt, dry
(GW)

7'7"-10'1"

Light brown,
silty coarse to
fine SAND, little
fine gravel, dry
(SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-02
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	12:35 PM	TIME CLOSED	1:50 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'2"	DATE	9/25/2020

0'-0'10"

Light brown, fine SAND, trace silt, dry (SP)

0'10"-3'10"

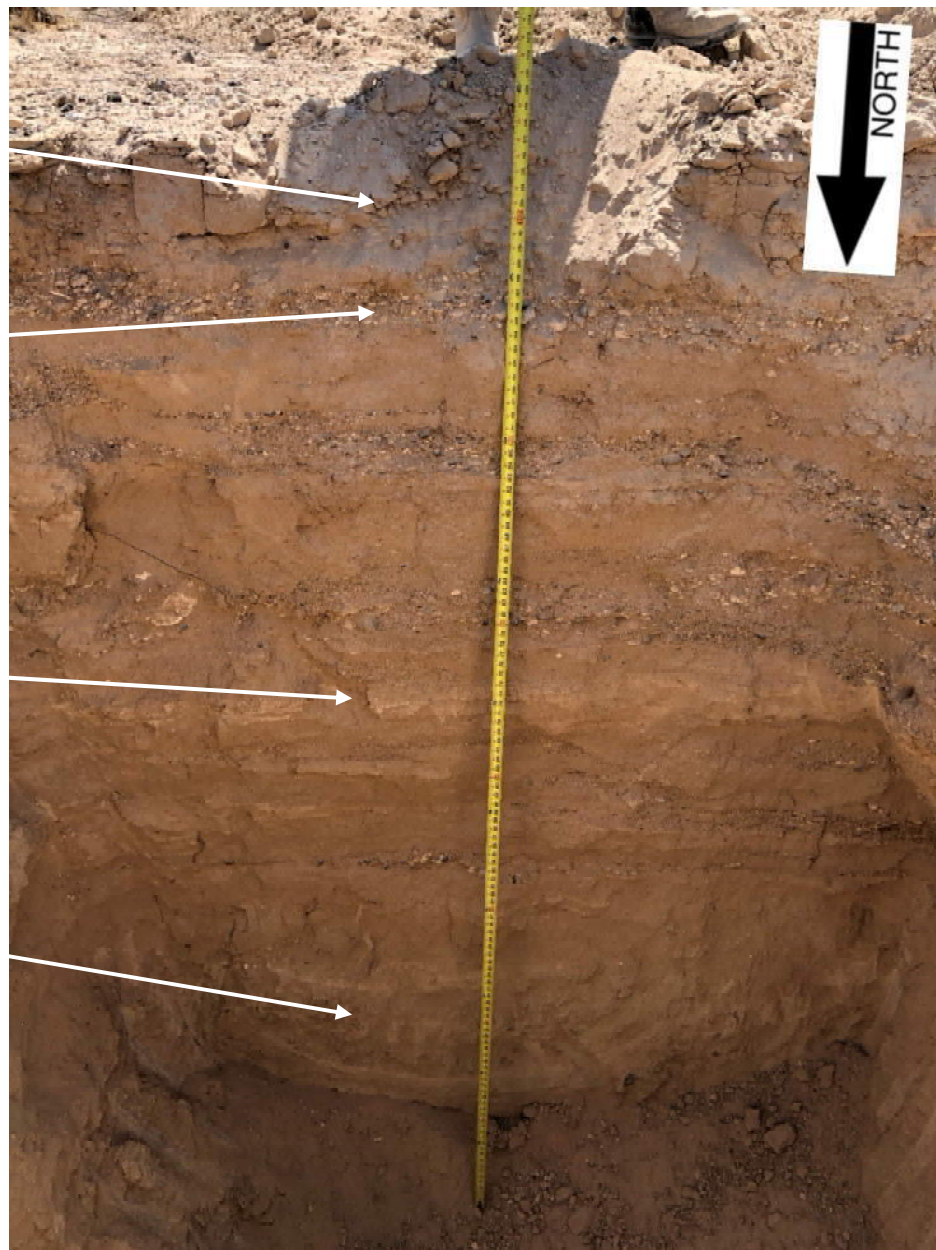
Light brown, coarse to fine GRAVEL, little coarse to fine sand, trace silt, dry (GP)

3'10"-7'6"

Light brown, coarse to fine SAND, some fine gravel, little silt, dry (SM)

7'6"-10'2"

Light gray, SILT, trace fine sand, dry (ML)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-03
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	10:01 AM	TIME CLOSED	10:45 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'2"	DATE	9/25/2020



0'-6'8"

Light brown,
SILT, little fine
sand, dry (ML)

6'8"-10'2"

Light gray,
SILT, little fine
sand, moist
(ML)

PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-04
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	10:29 AM	TIME CLOSED	11:18 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'8"	DATE	9/24/2020

0'-3'10"

Light brown,
SILT, some fine
sand, dry (ML)

3'10"-10'8"

Light gray, fine
SAND, some
silt, moist (SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-05
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	9:15 AM	TIME CLOSED	10:13 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'8"	DATE	9/24/2020

0'-2'3"

Light brown,
SILT, some fine
sand, dry (ML)

3'0"-10'8"

Greenish gray,
fine SAND, little
silt, moist (SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-06
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	7:50 AM	TIME CLOSED	8:45 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	7'9"	DATE	9/25/2020

0'-2'10"

Light brown,
SILT, little fine
sand, dry (ML)

2'10"-6'0"

Light gray,
SILT, little fine
sand, moist
(ML)

6'0"-7'9"

White grayish,
dense SILT,
trace fine sand,
moist (ML)

7'9"

Refusal. Soil too
dense.



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-07
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	8:56 AM	TIME CLOSED	9:50 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'7"	DATE	9/25/2020


0'-3'0"

Light brown,
SILT, trace fine
sand, dry (ML)

3'0"-8'1"

Light brown,
SILT, trace fine
sand, trace
gravel (basalt
cobbles), dry
(ML)

8'1"-10'7"

Light grayish,
fine SAND, little
silt, dry (SM)

PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-08
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	12:05 PM	TIME CLOSED	1:00 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	10'3"	DATE	9/23/20

0-2'11"

Light brown, fine SAND, trace fine gravel, little silt, dry (SM)

2'11"-3'11"

Light brown, sandy coarse to fine GRAVEL, trace silt, dry (GW)

3'11"-7'6"

White light, brown medium to fine SAND, little gravel, little silt, dry (SM)

7'6"-10'3"

Light brown, coarse to fine GRAVEL, some coarse to fine sand, little silt, dry (GM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-09
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	12:57 PM	TIME CLOSED	2:02 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'0"	DATE	9/24/2020

0'-3'0"

Light brown, SILT, trace fine sand, dry (ML)

3'0"-5'6"

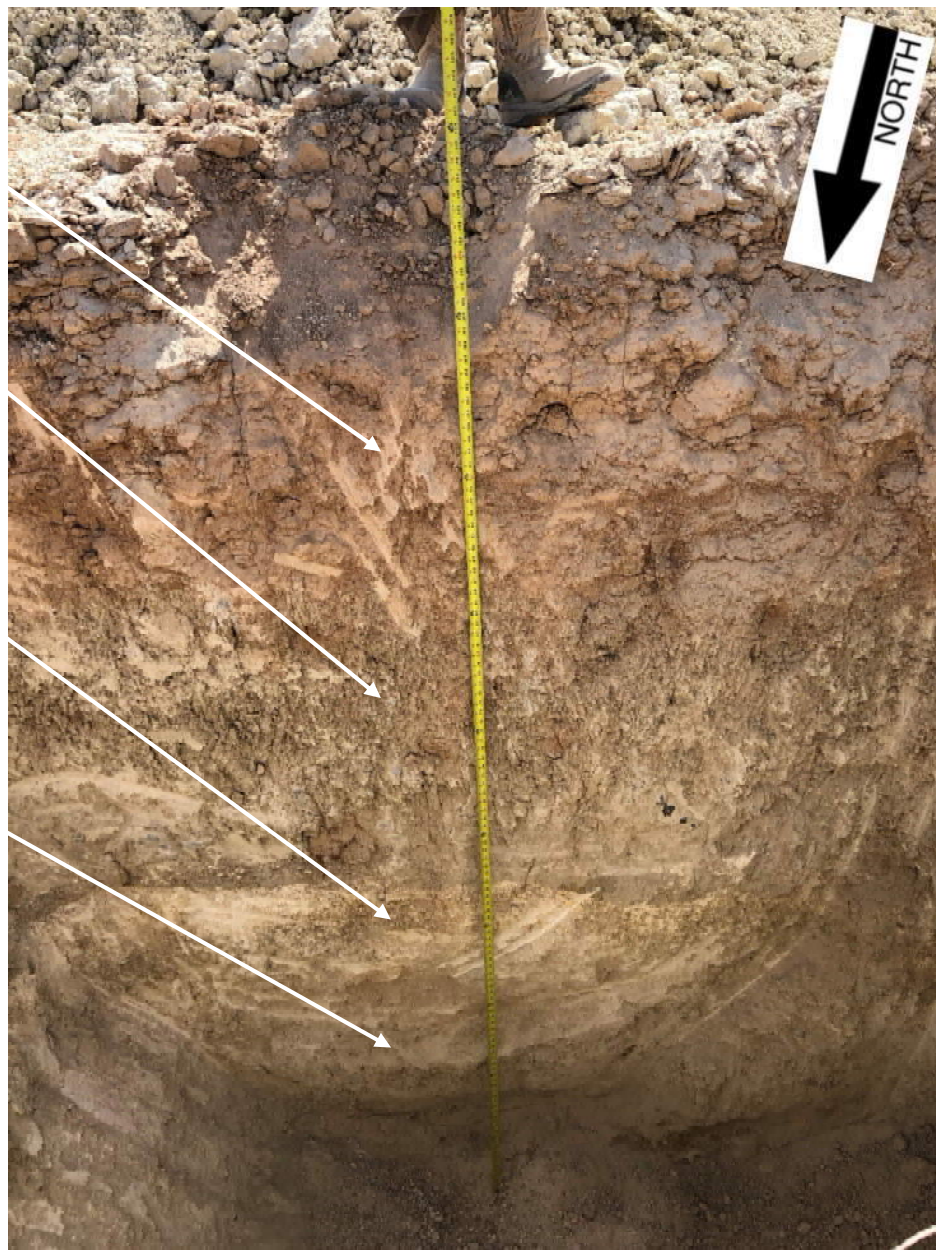
Light greenish gray, fine SAND, little silt, moist (SM)

5'6"-7'5"

Brown, SILT, trace fine sand, moist (ML)

7'5"-10'0"

Light greenish gray, fine SAND, little silt, little gravel (caliche), moist (SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-10
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	11:50 AM	TIME CLOSED	12:42 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'3"	DATE	9/24/2020



0'-0'8"

Light brown,
SILT, little fine
sand, dry (ML)

0'8"-10'3"

Light gray, fine
SAND, little silt,
dry (SM)

PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-11
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	6:38 AM	TIME CLOSED	7:40 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'3"	DATE	9/25/2020

0'-3'11"

Light brown, SILT, little fine sand, dry (ML)

3'11"-7'3"

Light gray, SILT (chunks), little fine sand, moist (ML)

7'3"-10'3"

Greenish gray, SILT (chunks), little fine sand, moist (ML)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-12
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevich Excavating
TIME OPENED	1:20 PM	TIME CLOSED	2:15 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	9'	DATE	9/23/2020

0'-2'4"

Light brown, fine SAND, some silt, dry (SM)

2'4"-9'

Light brown to grayish, coarse to fine SAND, little silt, moist (SM)

9'0"

Refusal. Soil too dense.



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-13
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	10:29 AM	TIME CLOSED	11:40 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	10'	DATE	9/23/20

0'-4'3"

Light brown medium to fine SAND, little silt, dry (SM)

4'3"-5'4"

Light brown sandy coarse to fine GRAVEL, little silt, dry (GM)

5'4"-9'7"

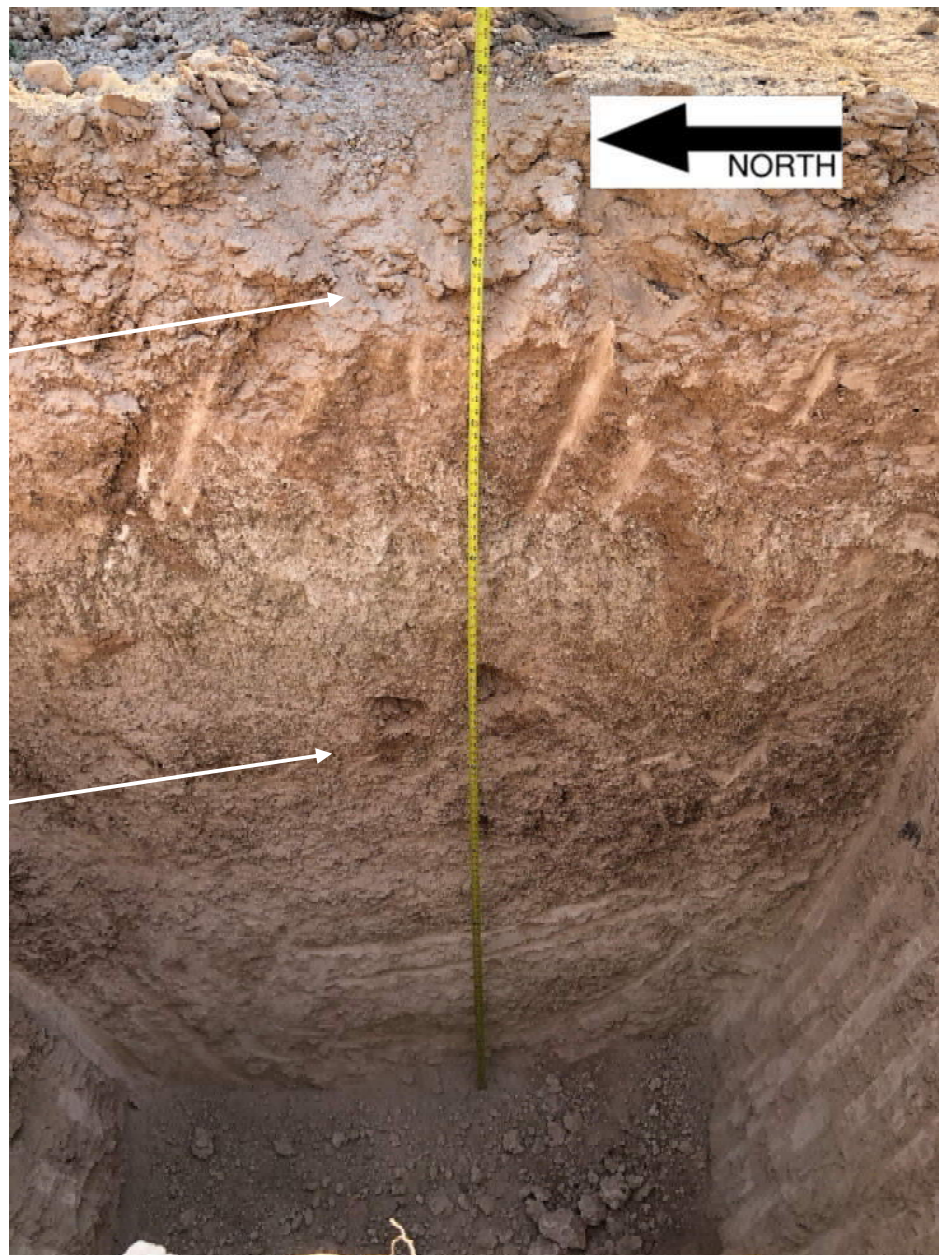
Light brown coarse to fine SAND, little coarse to fine gravel, some silt, dry (SM)

9'7"-10'0"

Brown coarse to fine SAND, trace fine gravel, trace silt, dry (SP)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-14
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	8:05 AM	TIME CLOSED	9:05 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'0"	DATE	9/24/2020

**0'-2'9"**

Light brown,
fine SAND,
some silt, dry
(SM)

2'9"-10'0"

Light greenish
gray, fine
SAND, little silt,
moist (SM)

PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-15
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	6:40 AM	TIME CLOSED	7:41 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F
FINAL EXCAVATION DEPTH (FEET BGS)	10'4"	DATE	9/24/2020

0'-2'3"

Light brown,
SILT, some fine
sand, dry (ML)

2'3"-5'6"

Brown, SILT,
some fine sand,
moist (ML)

5'6"-10'4"

Greenish gray,
silty fine SAND,
moist (SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-16
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevich Excavating
TIME OPENED	2:30 PM	TIME CLOSED	3:25 PM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	10'3"	DATE	9/23/2020

0'-2'3"

Light brown, fine SAND, some silt, dry (SM)

2'3"-7'5"

Light brown to grayish, coarse to fine SAND, little silt, moist (SM)

7'5"-10'3"

Greenish, fine SAND, little silt, moist (SM)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-17
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevitch Excavating
TIME OPENED	6:45 AM	TIME CLOSED	8:31 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	10'	DATE	9/23/20

0'-4'3"

Light brown, medium to fine SAND, some silt, dry (SM)

4'3"-8'8"

Light brown, medium to fine SAND, some silt, trace fine gravel, dry (SM)

8'8"-10'

Light brown grayish, coarse to fine SAND, some fine gravel, trace silt, dry (SP)



PROJECT NAME	Bonanza Solar	TEST PIT NUMBER	TP-18
PROJECT NUMBER	513100382-014	MOTT MACDONALD REPRESENTATIVE	Ryan Salto
GENERAL LOCATION	Calvada, CA	CONTRACTOR	Kenzevich Excavating
TIME OPENED	8:46 AM	TIME CLOSED	10:15 AM
DEPTH TO WATER (FEET BGS)	Not Observed	EQUIPMENT	CAT 420F2
FINAL EXCAVATION DEPTH (FEET BGS)	9'3"	DATE	9/23/2020

0'-4'3"

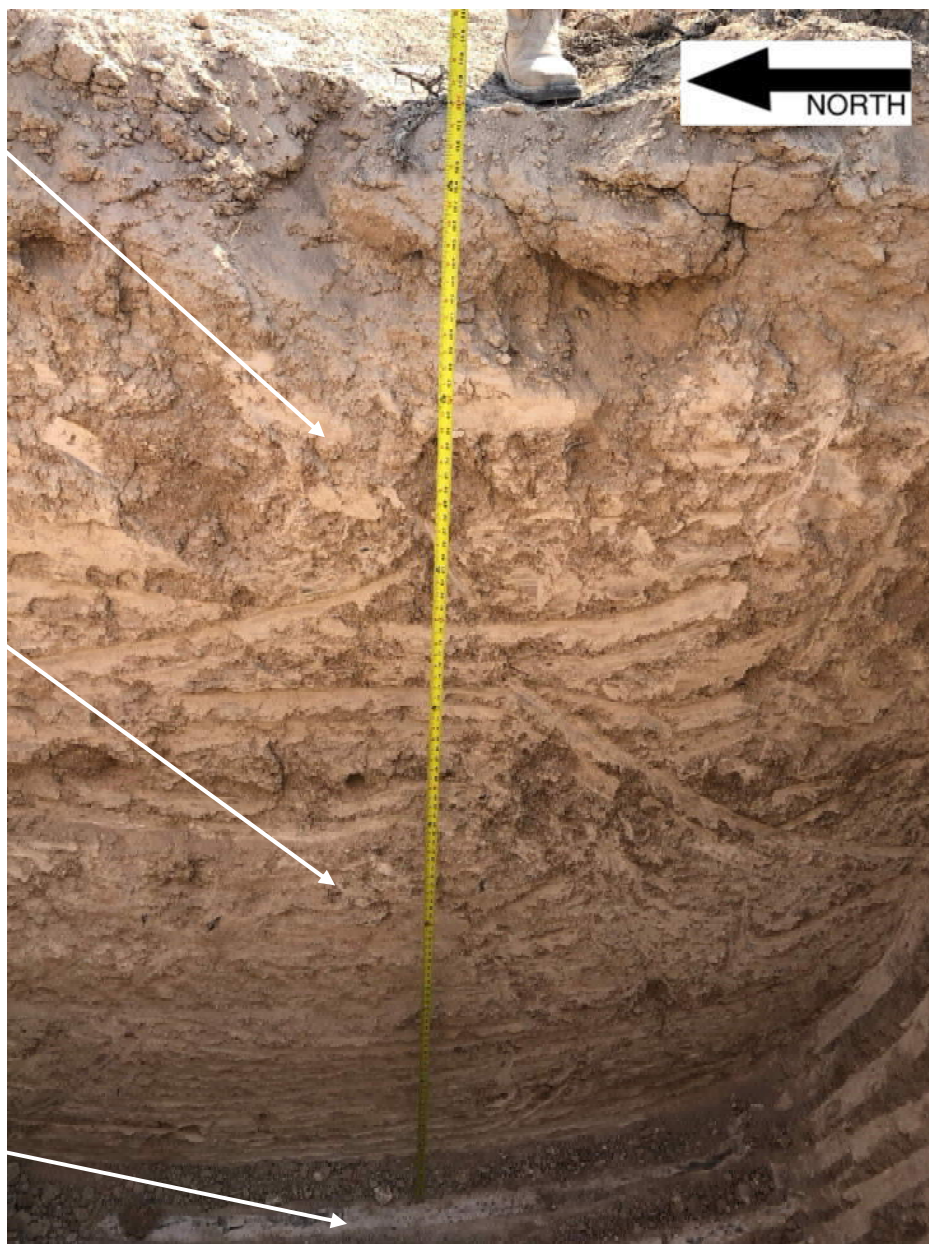
Light brown, fine sandy SILT, dry (ML)

4'3"-9'3"

Brown, medium to fine SAND, some silt, dry (SM)

9'3"

Refusal. Soil too dense.



E. Mott MacDonald Laboratory Testing Results



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

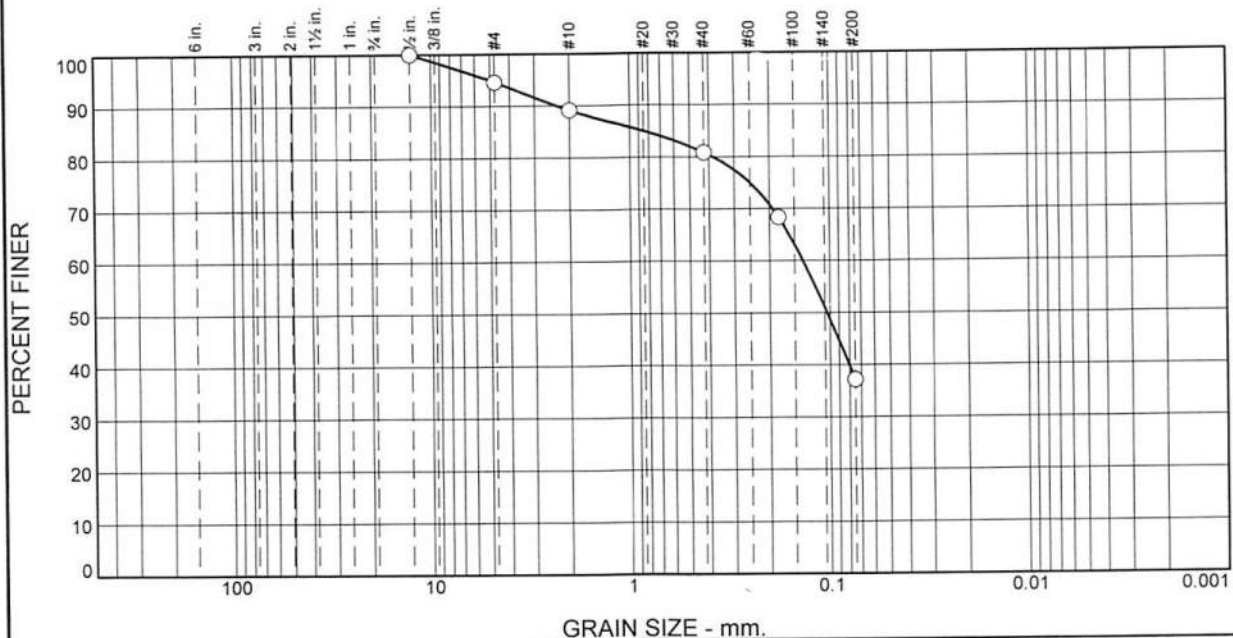
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-01, S-3
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 4-6'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	6	8	44	37	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	95		
#10	89		
#40	81		
#80	68		
#200	37		

Soil Description

Light Brown cmf+ SAND; and SILT/CLAY; trace f GRAVEL

Atterberg Limits

PL= --

LL= --

PI= --

Coefficients

D₈₅= 0.8479

D₆₀= 0.1361

D₅₀= 0.1033

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS=

AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Judith Ames

Date: 10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

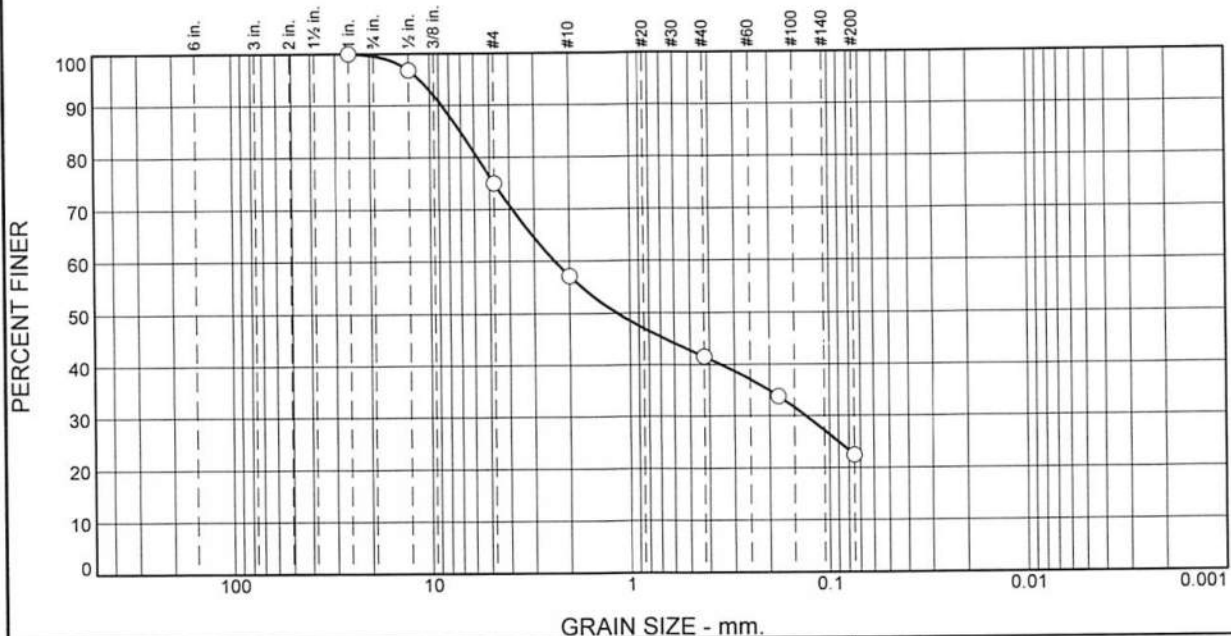
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-02, S-2
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	25	18	15	20	22	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	97		
#4	75		
#10	57		
#40	42		
#80	34		
#200	22		

Soil Description

Light Brown cmf SAND; some mf+ GRAVEL; some SILT/CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 7.0425 D₆₀= 2.3723 D₅₀= 1.1612
D₃₀= 0.1314 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Judith Ames

Date: 10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

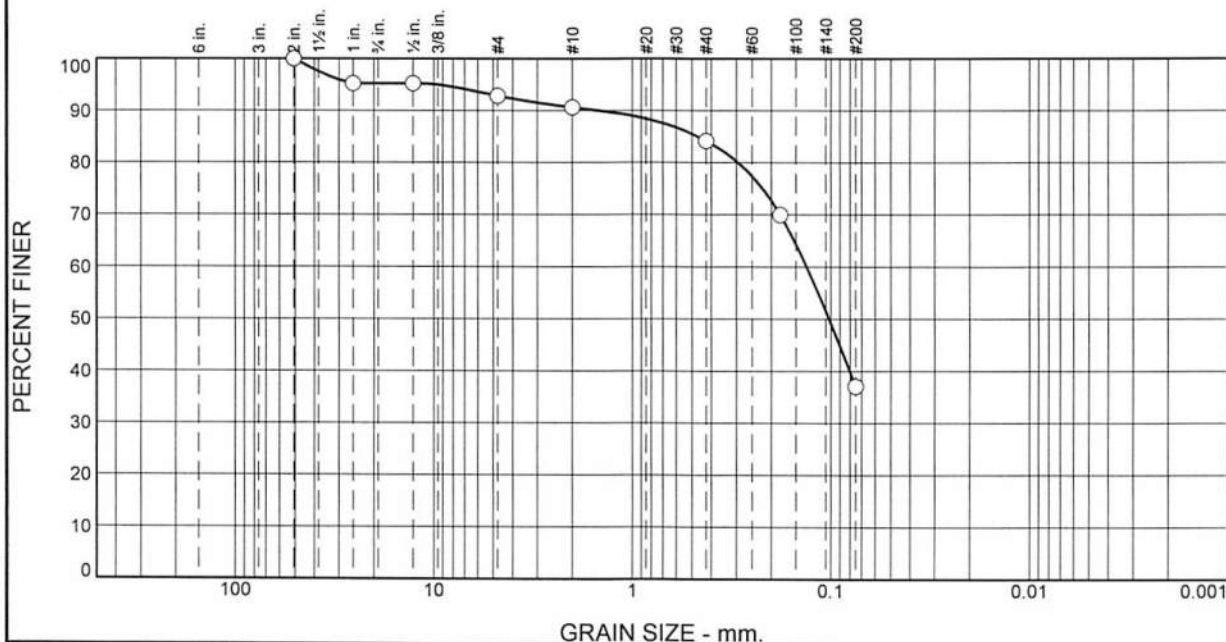
Date: 10/23/20

Sample No: B-03, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	5	2	2	7	47	37	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
2"	100		
1"	95		
1/2"	95		
#4	93		
#10	91		
#40	84		
#80	70		
#200	37		

* (no specification provided)

Soil Description

Light Brown c-mf+ SAND; and SILT/CLAY; trace c+f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.4681 D₆₀= 0.1322 D₅₀= 0.1021
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judy Ames

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

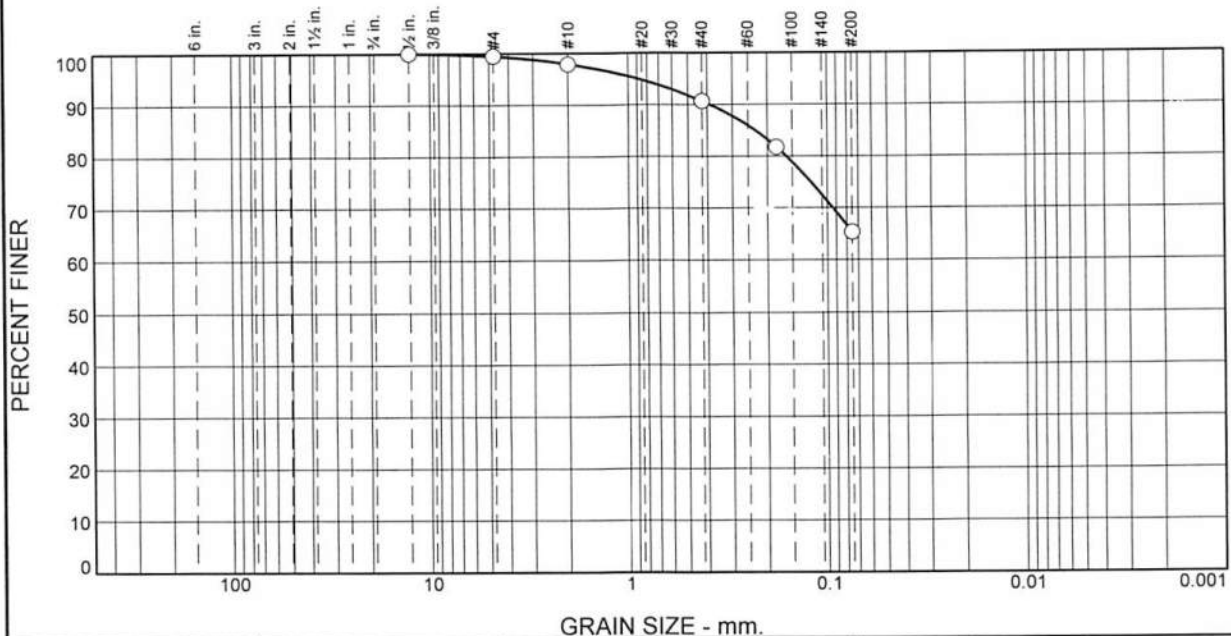
Date: 10/23/20

Sample No: B-05, S-4

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 6-8'



GRAIN SIZE - mm.

% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	7	26	65	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	99		
#10	98		
#40	91		
#80	82		
#200	65		

* (no specification provided)

Soil Description

Light Brown SILT/CLAY; some c-mf+ SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.2293 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Amos

Date: 10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

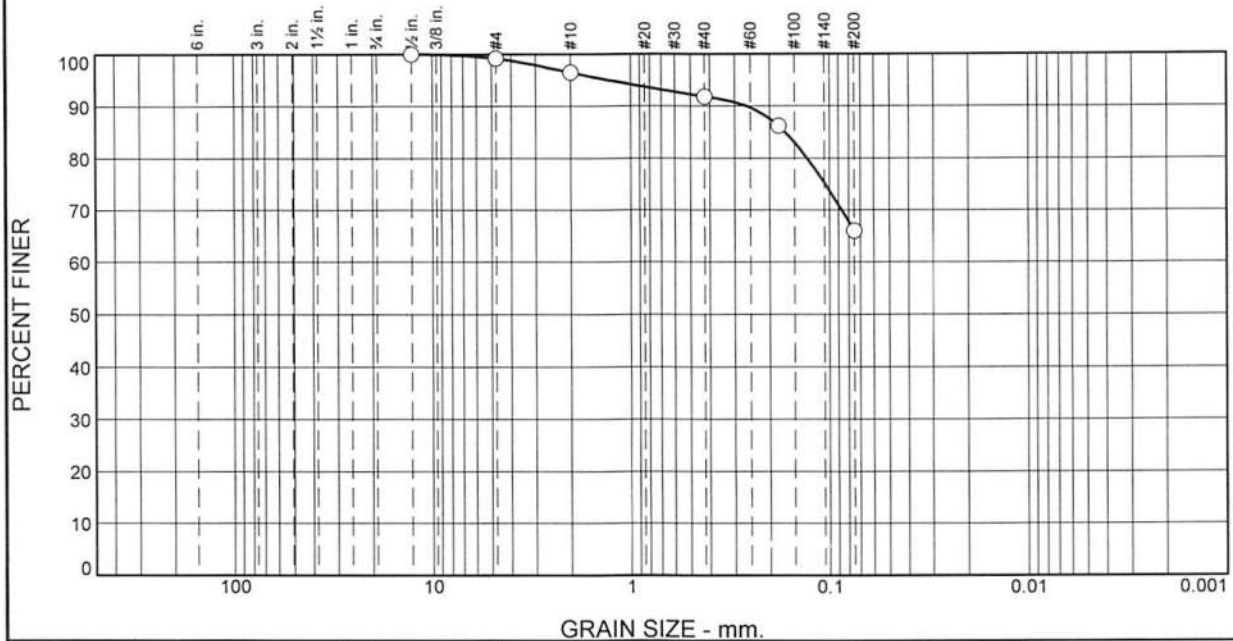
Date: 10/23/20

Sample No: B-06, S-1

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 0-2'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	3	4	26	66	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	99		
#10	96		
#40	92		
#80	86		
#200	66		

* (no specification provided)

Soil Description

Light Brown SILT/CLAY; some cmf+ SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.1669 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Amos

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

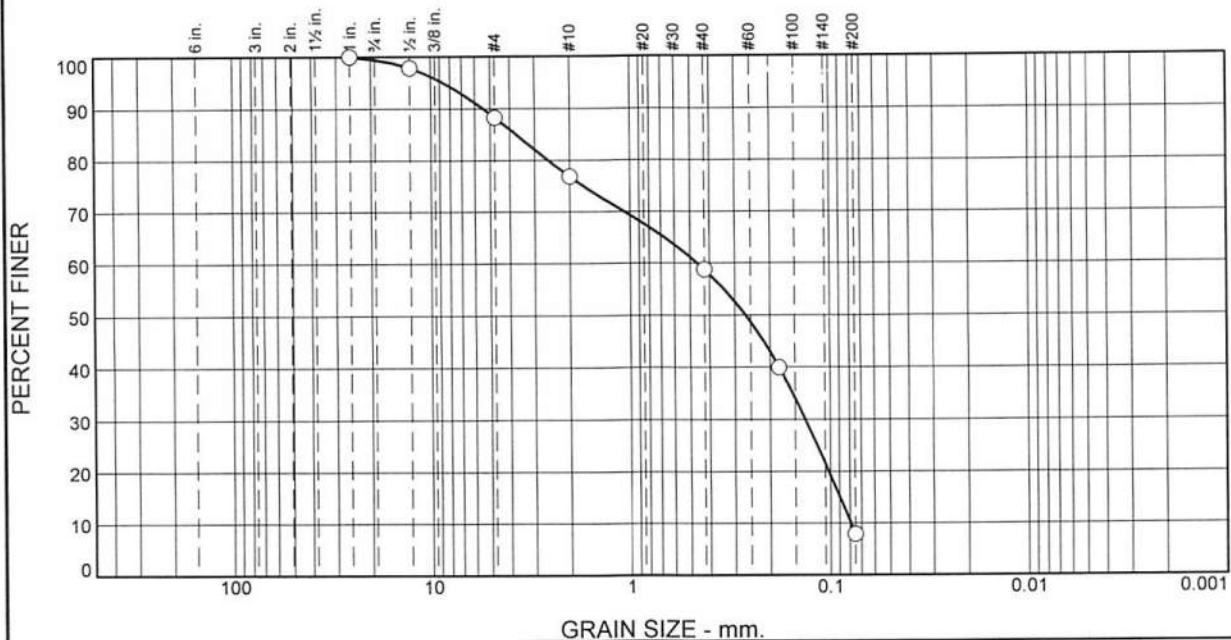
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-07, S-3
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 4-6'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	11	11	18	51	8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	98		
#4	88		
#10	77		
#40	59		
#80	40		
#200	7.9		

Soil Description

Light Brown cmf+ SAND; little mf+ GRAVEL; trace SILT

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 3.7078 D₆₀= 0.4611 D₅₀= 0.2652
D₃₀= 0.1331 D₁₅= 0.0897 D₁₀= 0.0791
C_u= 5.83 C_c= 0.49

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Ames

Date: 10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

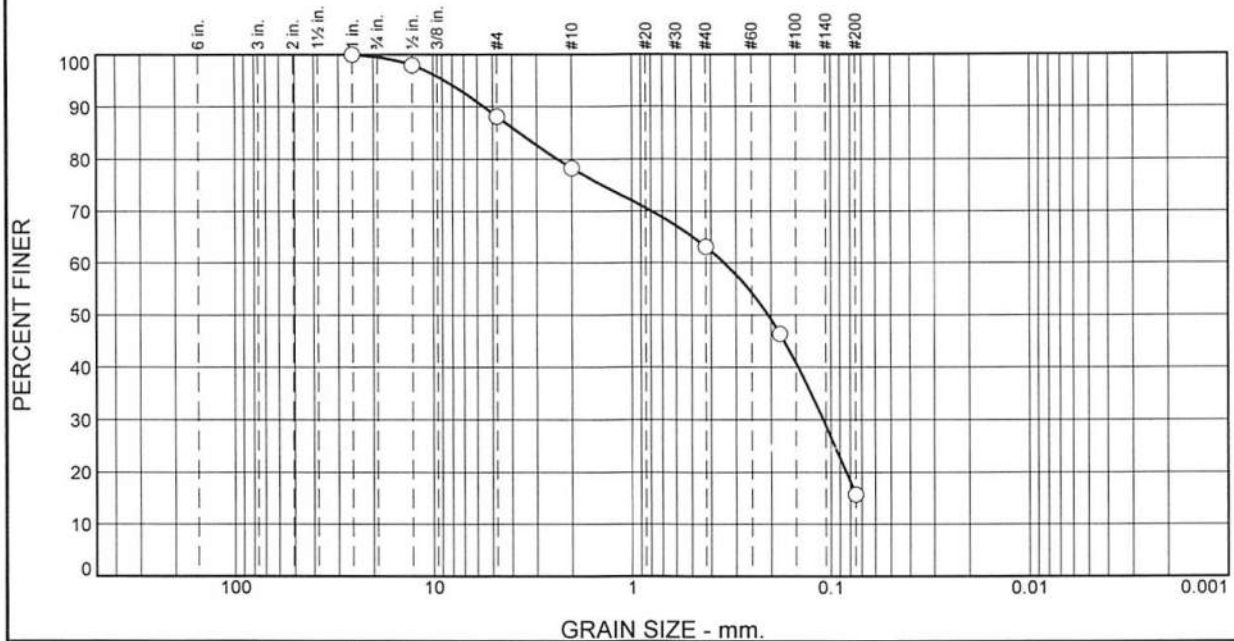
Date: 10/23/20

Sample No: B-09, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	12	10	15	47	16	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	98		
#4	88		
#10	78		
#40	63		
#80	46		
#200	16		

* (no specification provided)

Soil Description

Light Brown cmf+ SAND; little SILT; little mf+ GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 3.6629 D₆₀= 0.3432 D₅₀= 0.2070
D₃₀= 0.1093 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Ames

Date:

10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

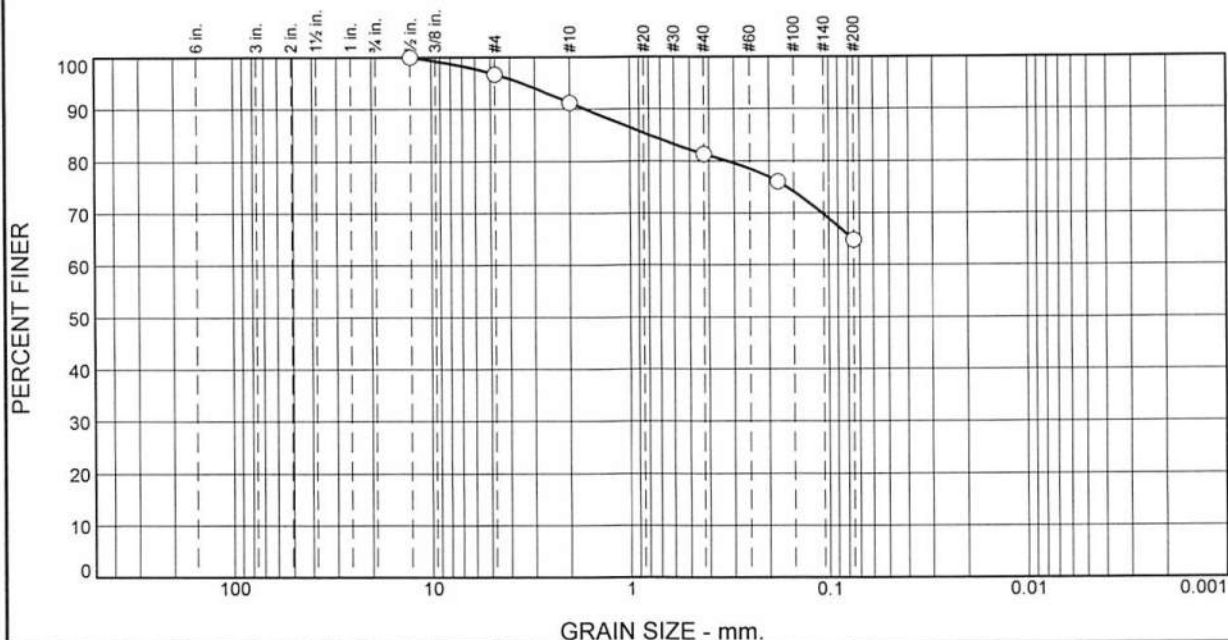
Date: 10/23/20

Sample No: B-10, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	6	10	16	65	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	97		
#10	91		
#40	81		
#80	76		
#200	65		

Soil Description

Light Brown SILT/CLAY; some cmf+ SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.7996 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Judy Ames

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

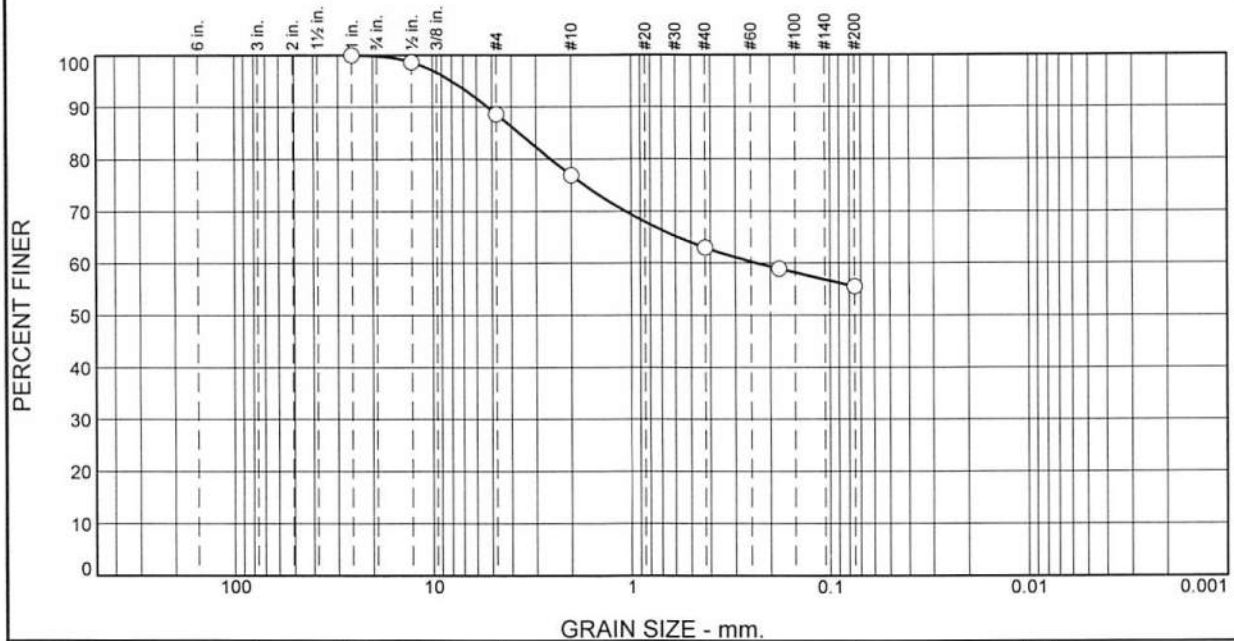
Date: 10/23/20

Sample No: B-11, S-4

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	11	12	14	7	56	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	99		
#4	89		
#10	77		
#40	63		
#80	59		
#200	56		

Soil Description

White SILT/CLAY; some cmf- SAND; little mf+ GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 3.6484 D₆₀= 0.2343 D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Judith Ames

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

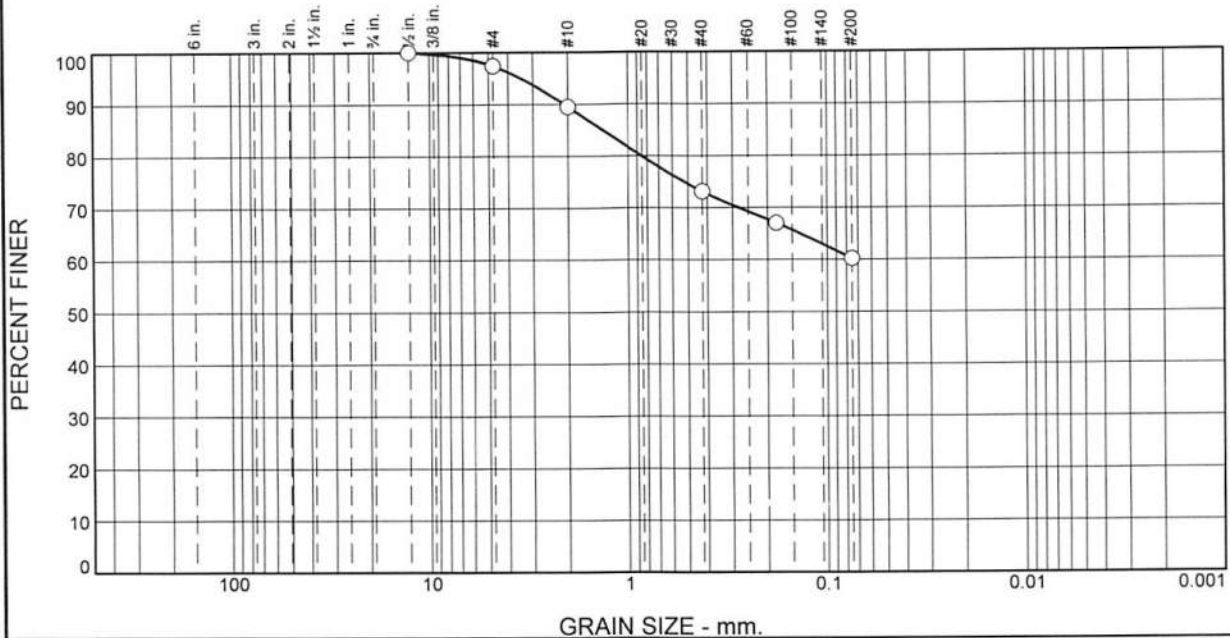
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-12, S-5
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 8-10'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	7	17	13	60	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	97		
#10	90		
#40	73		
#80	67		
#200	60		

Soil Description

Light Brown SILT/CLAY; and c-mf SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 1.3369 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Ames

Date: 10/26/20



Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

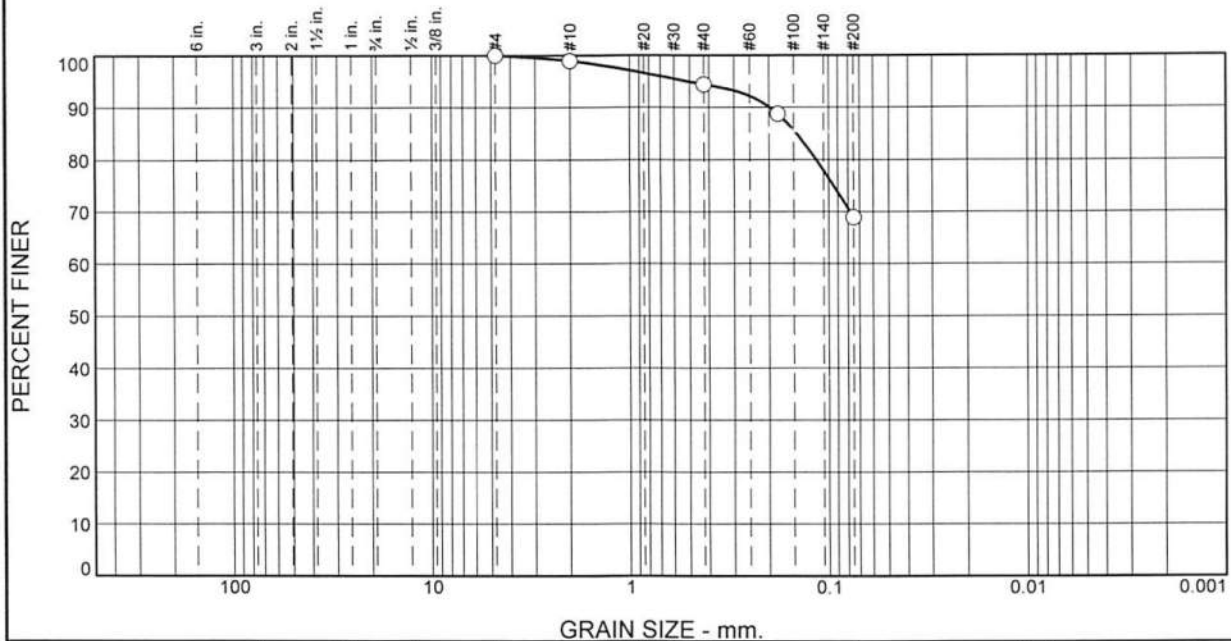
Date: 10/23/20

Sample No: B-13, S-1

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 0-2'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	5	25	69	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
#4	100		
#10	99		
#40	94		
#80	89		
#200	69		

* (no specification provided)

Soil Description

Light Brown SILT/CLAY; some c-mf+ SAND

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.1449 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

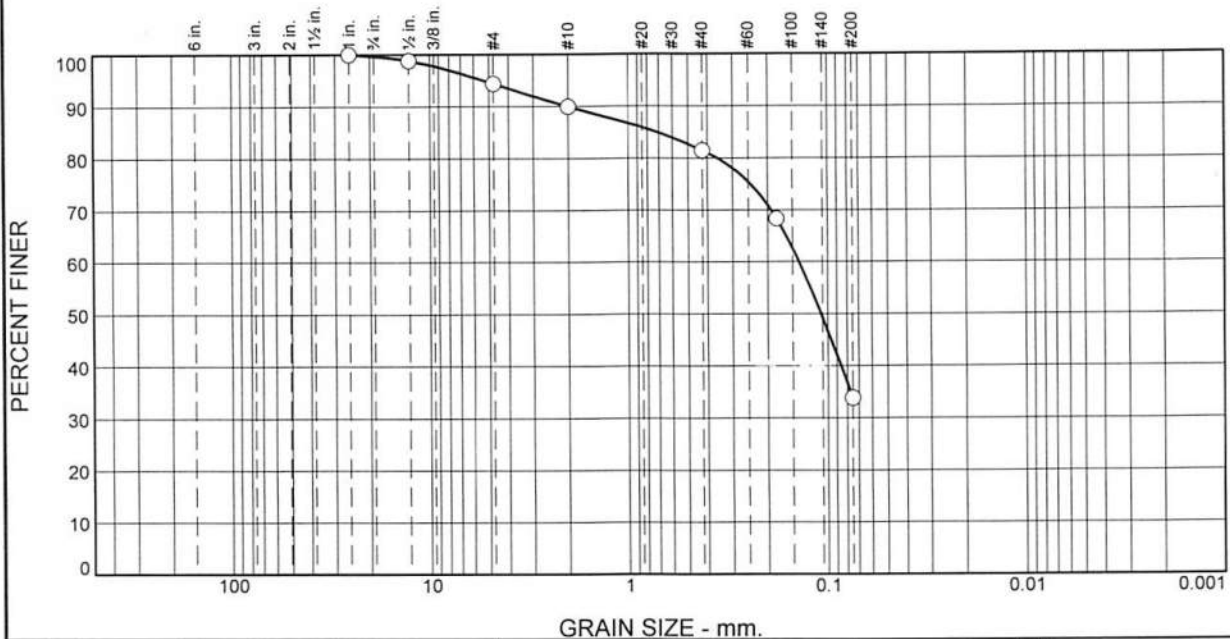
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-14, S-3
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 4'-6"



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	4	9	47	34	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	99		
#4	94		
#10	90		
#40	81		
#80	68		
#200	34		

* (no specification provided)

Soil Description

Light Brown cmf+ SAND; some SILT/CLAY; trace mf GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.7196 D₆₀= 0.1391 D₅₀= 0.1080
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Amos

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

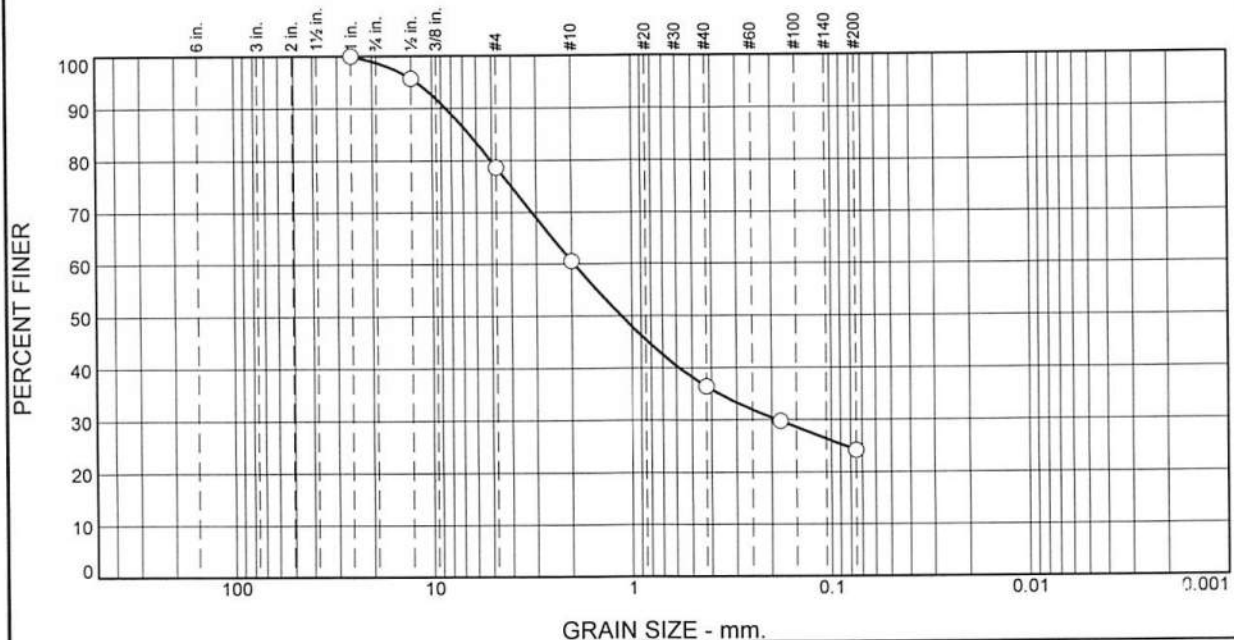
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-15, S-2
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	20	18	25	12	24	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	96		
#4	79		
#10	61		
#40	36		
#80	30		
#200	24		

Soil Description

Light Brown cmf- SAND; some SILT/CLAY; some mf+ GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 6.4846 D₆₀= 1.9442 D₅₀= 1.1322
D₃₀= 0.1868 D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judy Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

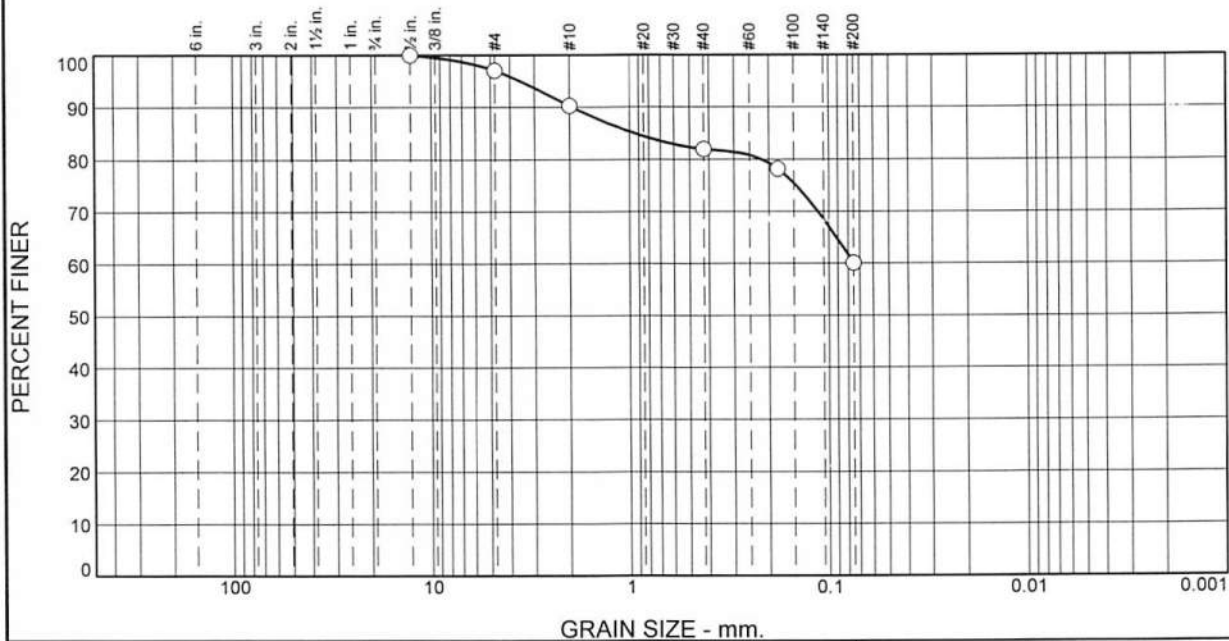
Date: 10/23/20

Sample No: B-16, S-3

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 4-6'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	7	8	22	60	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	97		
#10	90		
#40	82		
#80	78		
#200	60		

Soil Description

Light Brown SILT/CLAY; and cmf+ SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.9471 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by:

Judith Ames

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

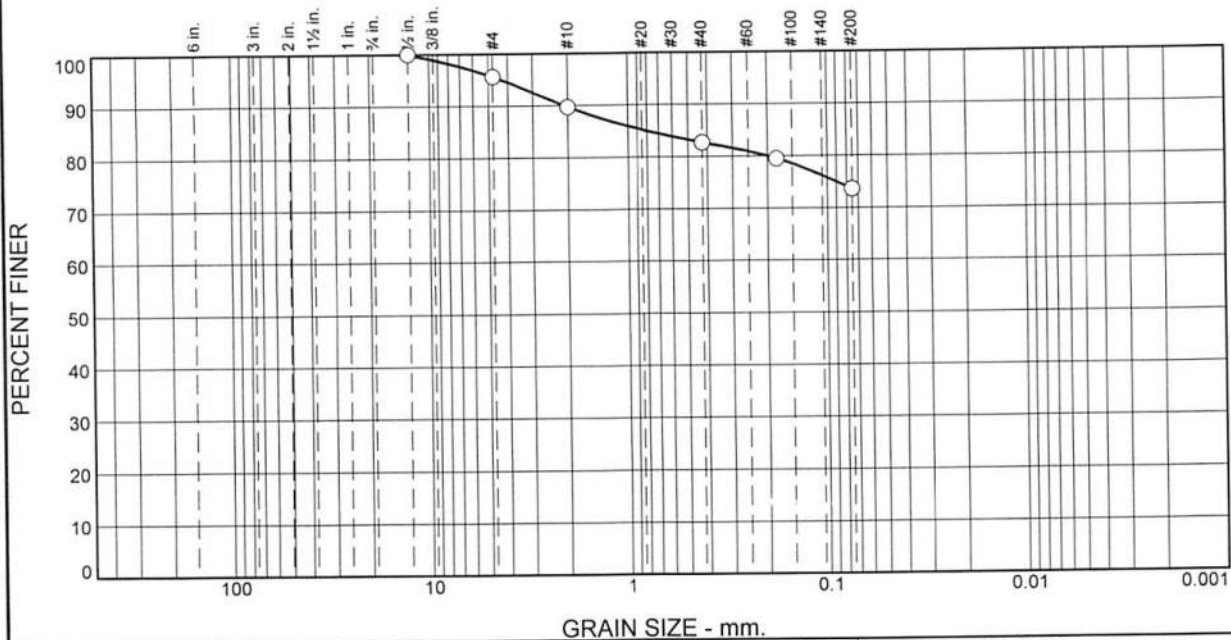
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-17, S-6
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 15-17'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	6	7	9	74	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	96		
#10	90		
#40	83		
#80	80		
#200	74		

* (no specification provided)

Soil Description

White SILT/CLAY; some cmf SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.8089 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Amos

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

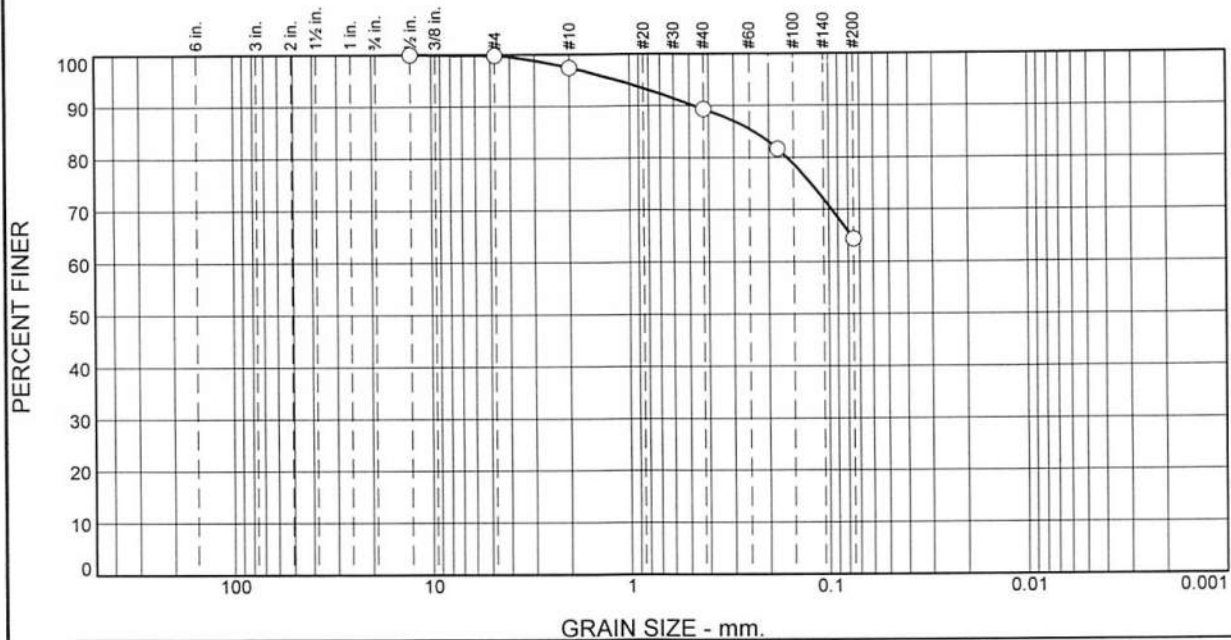
Date: 10/23/20

Sample No: B-18, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	3	8	25	64	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	100		
#10	97		
#40	82		
#80	65		
#200	64		

Soil Description

Light Brown SILT/CLAY; and c-mf+ SAND

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.2381 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judy Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

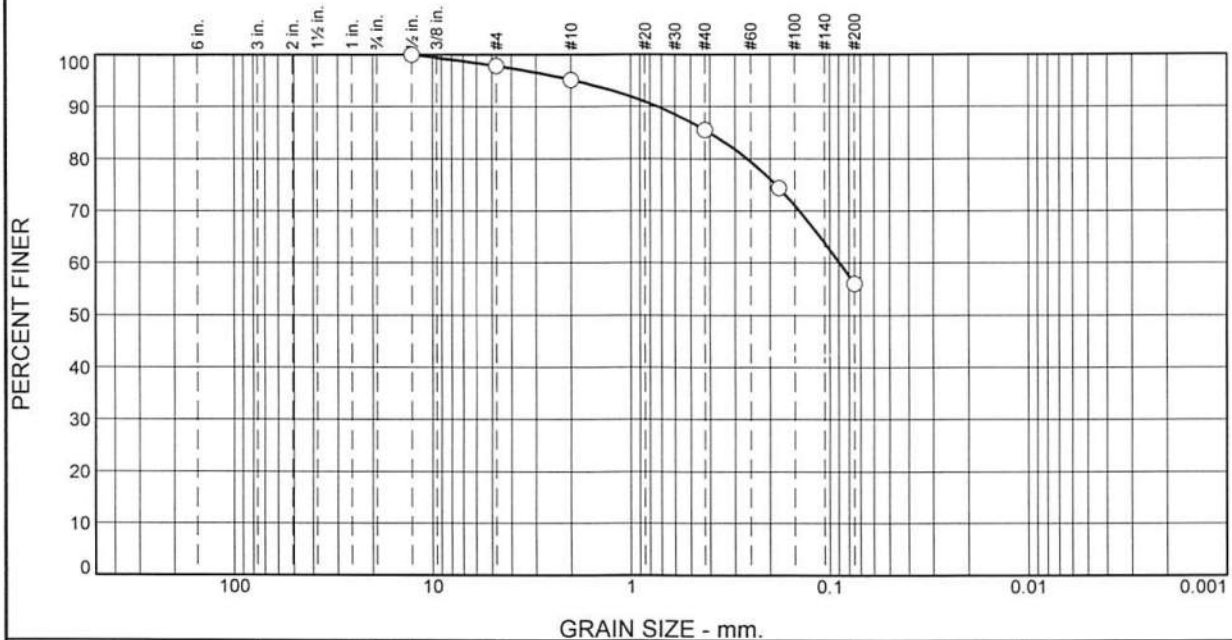
Date: 10/23/20

Sample No: B-20, S-1

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 0-2'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	3	9	30	56	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	98		
#10	95		
#40	86		
#80	74		
#200	56		

Soil Description

Light Brown SILT/CLAY; and c-mf+ SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.4033 D₆₀= 0.0894 D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

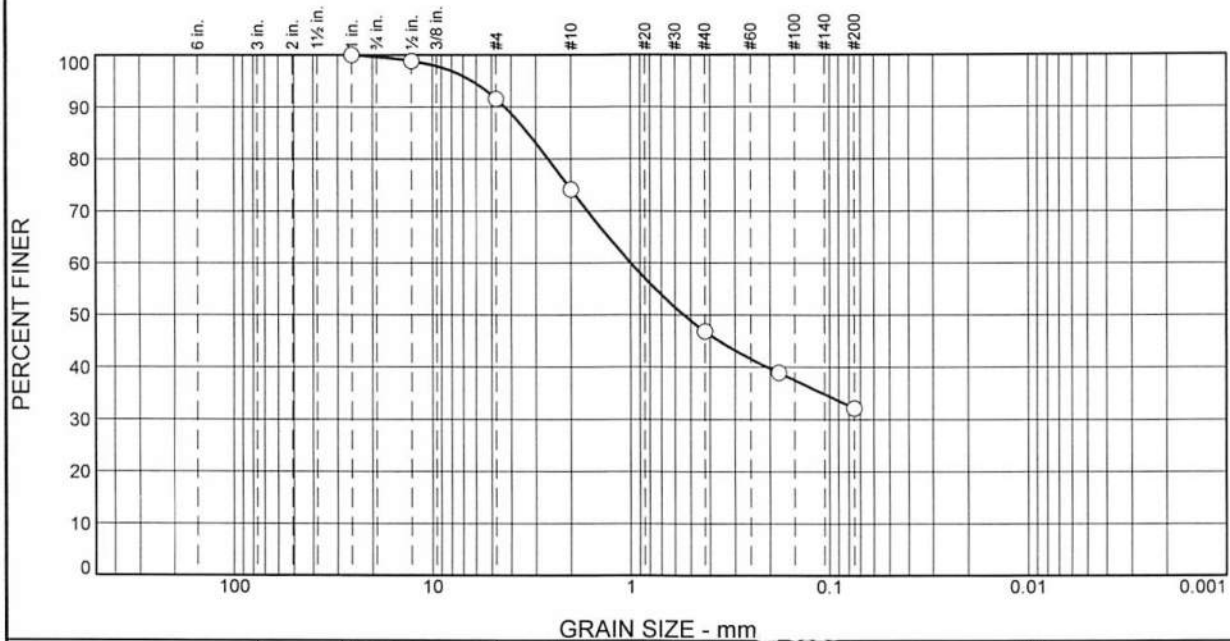
Date: 10/23/20

Sample No: B-21, S-2

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 2-4'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	18	27	15	32	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1"	100		
1/2"	99		
#4	92		
#10	74		
#40	47		
#80	39		
#200	32		

Soil Description

White cmf SAND; some SILT/CLAY; trace mf+ GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 3.2917 D₆₀= 1.0004 D₅₀= 0.5429
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

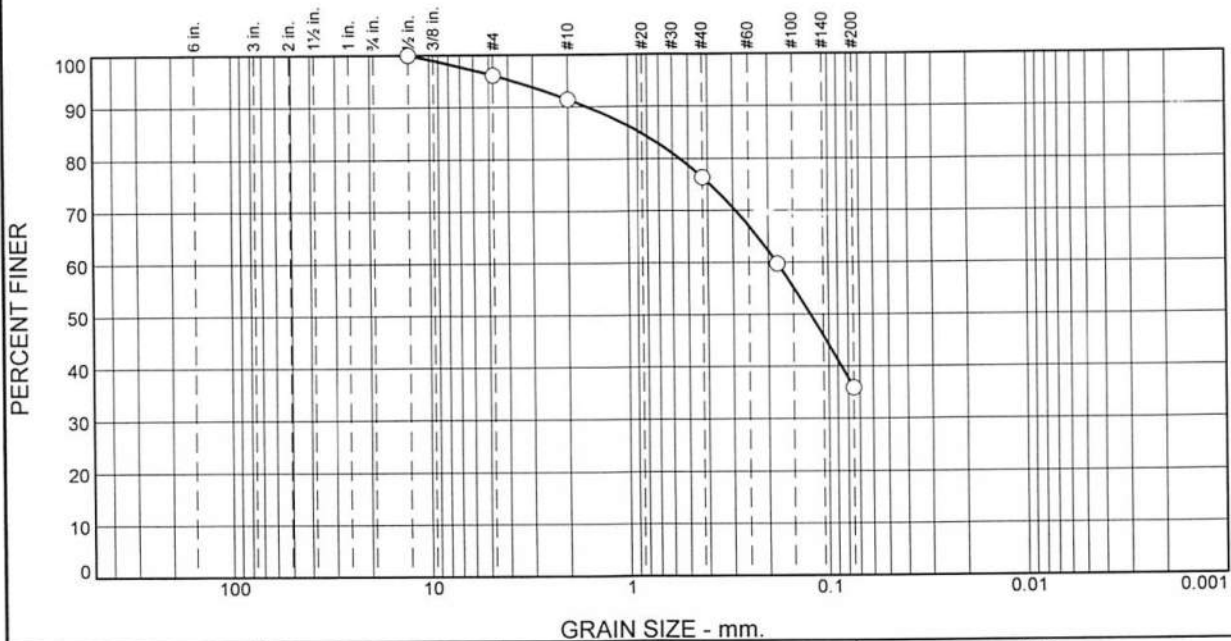
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-22, S-4
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	5	15	40	36	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	96		
#10	91		
#40	76		
#80	60		
#200	36		

* (no specification provided)

Soil Description

Light Brown c-mf+ SAND; and SILT/CLAY; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.8642 D₆₀= 0.1816 D₅₀= 0.1232
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Ames

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-C14 **Report No.:** RT1879CL-58-10-20

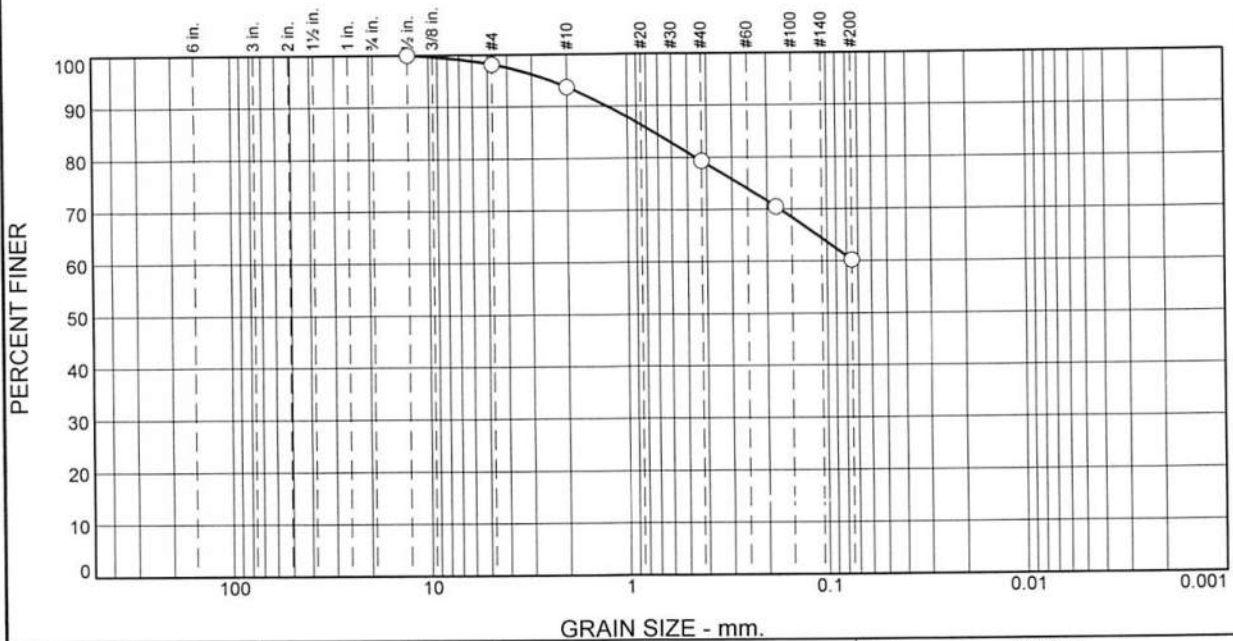
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-23, S-4
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	4	15	19	60	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	98		
#10	94		
#40	79		
#80	70		
#200	60		

* (no specification provided)

Soil Description

White SILT/CLAY; and c-mf SAND; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.7425 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Amos

Date:

10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

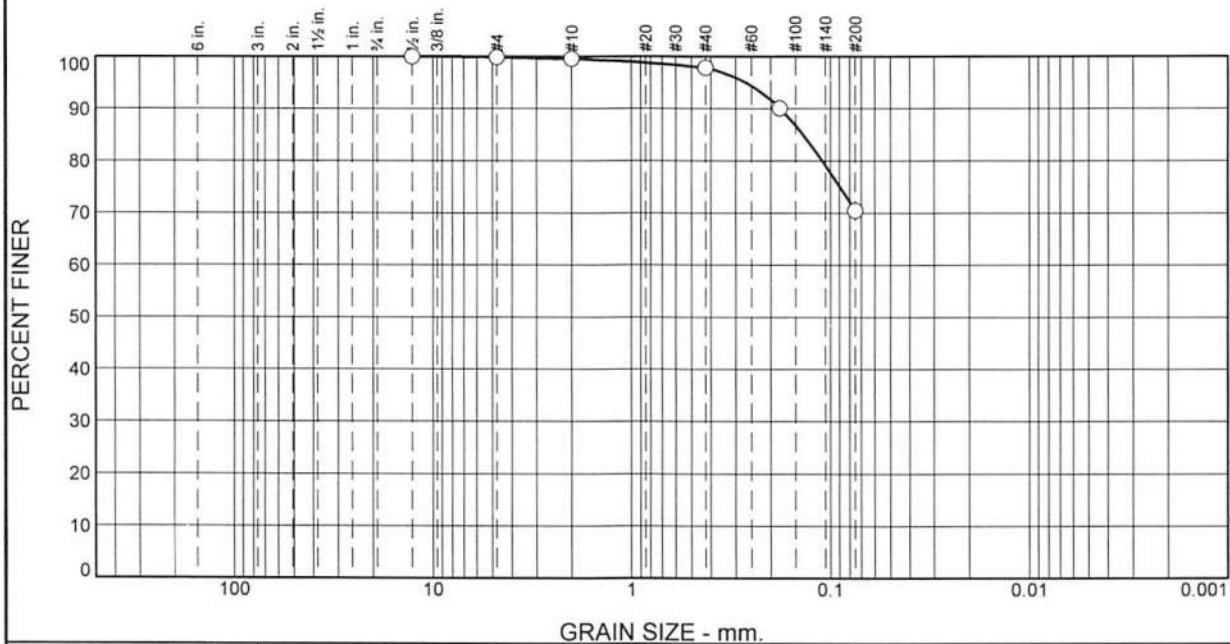
Date: 10/23/20

Sample No: B-24, S-4

Source of Sample: Boring Sample

Location: In-place

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	28	70	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	100		
#10	100		
#40	98		
#80	90		
#200	70		

* (no specification provided)

Soil Description

Light Brown SILT/CLAY; some m-f SAND

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.1372 D₆₀= D₅₀=
D₃₀= D₁₅=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

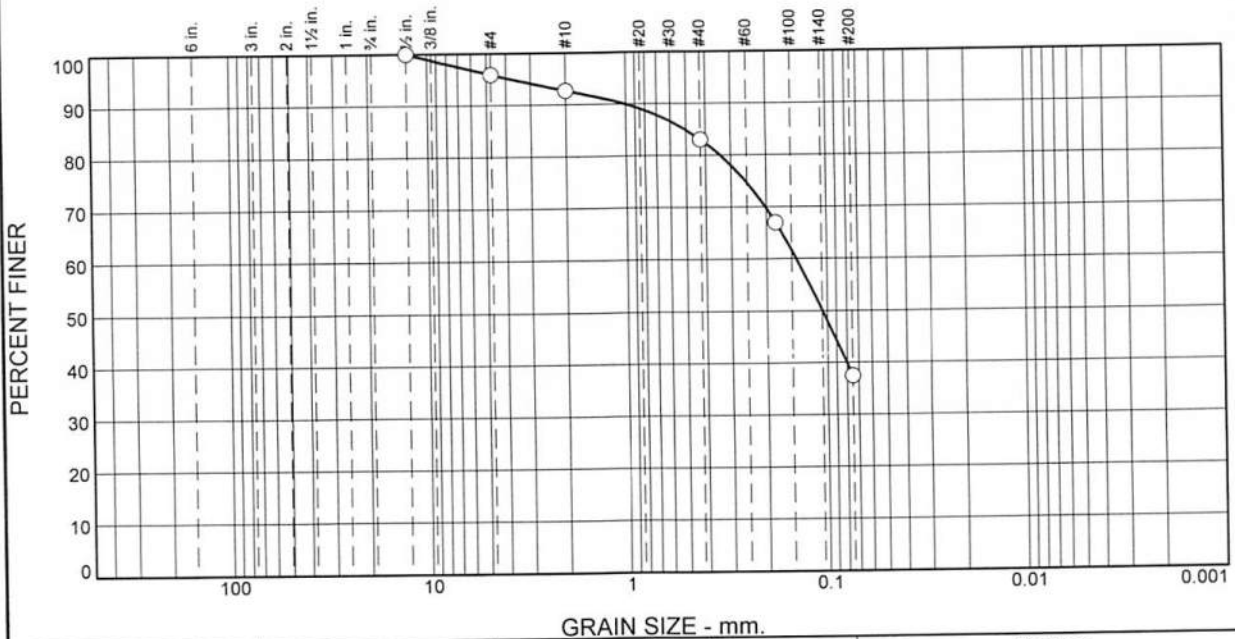
Client: Mott MacDonald

Date: 10/23/20

Sample No: B-25, S-3
Location: In-place

Source of Sample: Boring Sample

Elev./Depth: 4-6'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	3	10	46	37	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	96		
#10	93		
#40	83		
#80	67		
#200	37		

* (no specification provided)

Soil Description

Light Brown cmf+ SAND; and SILT/CLAY; trace f GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.5087 D₆₀= 0.1419 D₅₀= 0.1056
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Figure

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by:

Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

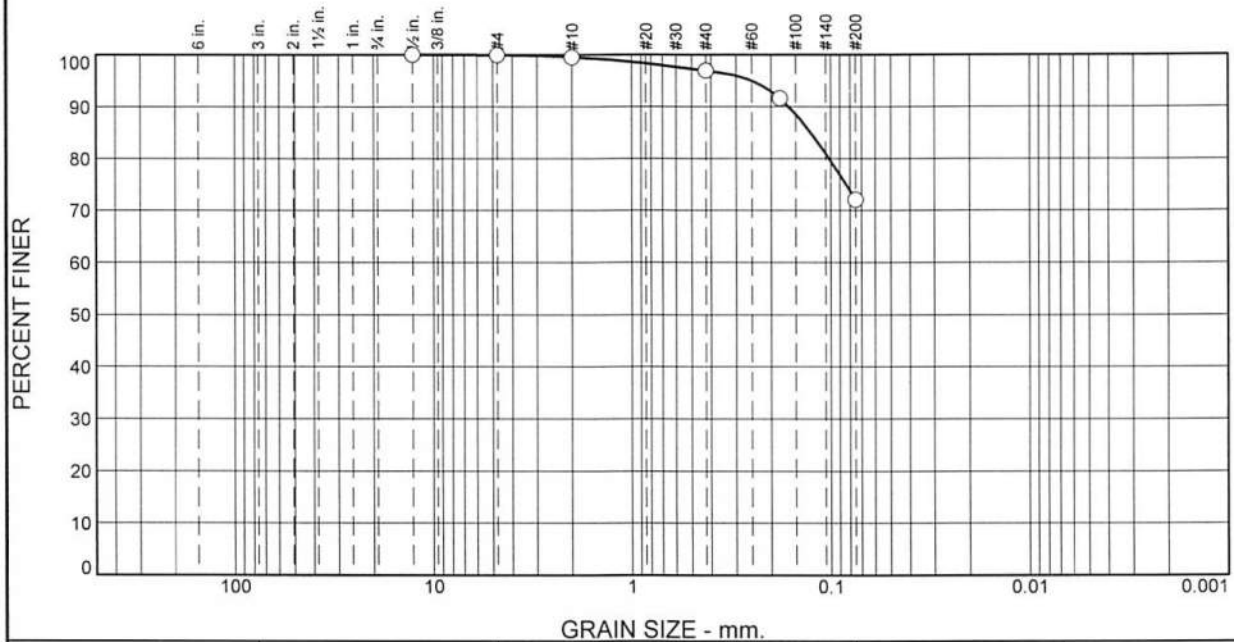
Project: Bonanza Solar, Calvada Springs, CA #513100382-014 **Report No.:** RT1879CL-58-10-20

Client: Mott MacDonald

Date: 10/23/20

Sample No: B-SS-01, S-4 **Source of Sample:** Boring Sample
Location: In-place

Elev./Depth: 6-8'



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	25	72	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1/2"	100		
#4	100		
#10	100		
#40	97		
#80	92		
#200	72		

Soil Description

Light Brown SILT/CLAY; some mf+ SAND

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D₈₅= 0.1260 D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Figure

Reviewed by: Judith Ames

Date: 10/26/20



ATLANTIC TESTING LABORATORIES

WBE certified company

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOIL
ASTM D 4318

Page 1 of 2

PROJECT INFORMATION

Client: Mott MacDonald

Project: Bonanza Solar

Location: Calvada Springs, CA

MM Project No.: 513100382-014

ATL Report No.: RT1879CL-58-10-20

Report Date: October 23, 2020

Date Received: October 15, 2020

TEST DATA

Boring No.	Sample No.	LL	PL	PI
B-03	S-1	21	15	6
B-04	S-4	28	15	13
B-05	S-3	48	21	27
B-15	S-1	29	19	10
B-18	S-1	38	21	17
B-23	S-3	46	23	23
B-SS-01	S-3	27	16	11

SAMPLE INFORMATION

Boring No.	Sample No.	Maximum Grain Size (mm)	Estimated Amount of Sample Retained on No. 40 Sieve (%)	As Received Moisture Content (%)
B-03	S-1	12.7	12	2.5
B-04	S-4	19	25	7.5
B-05	S-3	4.76	18	8.9
B-15	S-1	9.51	19	4.9
B-18	S-1	9.51	17	6.5
B-23	S-3	4.76	3	7.2
B-SS-01	S-3	4.76	2	5.2

Client: Mott MacDonald
Project: Bonanza Solar

ATL Report No.: RT1879CL-52-10-20
Date: October 23, 2020
Page: 2 of 2

PREPARATION INFORMATION

Boring No.	Sample No.	Preparation	Method of Removing Oversized Material
B-03	S-1	Air Dry	Pulverizing and Screening
B-04	S-4	Air Dry	Pulverizing and Screening
B-05	S-3	Air Dry	Pulverizing and Screening
B-15	S-1	Air Dry	Pulverizing and Screening
B-18	S-1	Air Dry	Pulverizing and Screening
B-23	S-3	Air Dry	Pulverizing and Screening
B-SS-01	S-3	Air Dry	Pulverizing and Screening

EQUIPMENT INFORMATION

Liquid Limit Procedure:	Multipoint - Method A	☒	Single Point - Method B	☐
Liquid Limit Apparatus:	Manual	☒	Motor Driven	☐
Liquid Limit Grooving Tool Material:	Plastic	☒	Metal	☐
Liquid Limit Grooving Tool Shape:	Flat	☒	Curved (AASHTO Only)	☐
Plastic Limit:	Hand Rolled	☒	Mechanical Rolling Device	☐

Reviewed By: Judy Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

WBE certified company

EXPANSION INDEX OF SOILS

ASTM D 4829

Client : Mott McDonald
Project: Bonanza Solar
Location: Calvada Springs, CA

Report No.: RT1879CL-58-10-20
Date: October 29, 2020
MM Project No. 513100382-014

Boring No.: B-6 Sample No: -- Sample Depth: (feet): 2-6

Test Date: 10/26/20 Tested By: AJR Sample Preparation: as-received

Percentage Retained on #4 Sieve:

Representative Sample (%) 19.5 Reduced Sample (%) 1.0

Weight of Porous Stone (g): 239.7 Weight of Loading Device (g): 5497.7

Initial Height of Sample (cm): 2.522 Volume of Specimen Ring (cm³): 205.3

Moist Density (g/cm³): 1.84 Dry Density (g/cm³): 1.65

Dry Unit Weight (Kg/cm³): 16.1 Moisture Content (%) : 11.7

Specific Gravity Used : 2.7 Duration of Test (hr): 8

Expansion Index, EI	Potential Expansion
18	Very Low

Remarks:

Reviewed by: Judith Amos

Date: 10/29/20



ATLANTIC TESTING LABORATORIES

WBE certified company

EXPANSION INDEX OF SOILS

ASTM D 4829

Client : Mott McDonald
Project: Bonanza Solar
Location: Calvada Springs, CA

Report No.: RT1879CL-58-10-20
Date: November 3, 2020
MM Project No. 513100382-014

Boring No.: B-12 Sample No: -- Sample Depth: (feet): 4-8

Test Date: 10/27/20 Tested By: AJR Sample Preparation: as-received

Percentage Retained on #4 Sieve:

Representative Sample (%) 20.1 Reduced Sample (%) 0.1

Weight of Porous Stone (g): 239.7 Weight of Loading Device (g): 5497.7

Initial Height of Sample (cm): 2.522 Volume of Specimen Ring (cm³): 205.3

Moist Density (g/cm³): 1.88 Dry Density (g/cm³): 1.69

Dry Unit Weight (Kg/cm³): 16.6 Moisture Content (%) : 11.0

Specific Gravity Used : 2.7 Duration of Test (hr): 2

Expansion Index, EI	Potential Expansion
21	Low

Remarks:

Reviewed by: Judez Amos

Date: 11/03/20



ATLANTIC TESTING LABORATORIES

WBE certified company

EXPANSION INDEX OF SOILS

ASTM D 4829

Client : Mott McDonald
Project: Bonanza Solar
Location: Calvada Springs, CA

Report No.: RT1879CL-58-10-20
Date: November 3, 2020
MM Project No. 513100382-014

Boring No.: B-SS-01 Sample No: -- Sample Depth: (feet): 0-4

Test Date: 11/02/20 Tested By: AJR Sample Preparation: as-received

Percentage Retained on #4 Sieve:

Representative Sample (%) 4.1 Reduced Sample (%) 0.2

Weight of Porous Stone (g): 239.7 Weight of Loading Device (g): 5497.7

Initial Height of Sample (cm): 2.522 Volume of Specimen Ring (cm³): 205.3

Moist Density (g/cm³): 1.95 Dry Density (g/cm³): 1.78

Dry Unit Weight (Kg/cm³): 17.4 Moisture Content (%) : 9.5

Specific Gravity Used : 2.7 Duration of Test (hr): 3

Expansion Index, EI	Potential Expansion
10	Very Low

Remarks:

Reviewed by: Judith Amos

Date: 11/03/20

F. Mott MacDonald Corrosivity Testing Results



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-01 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.00	0

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.25	8.27	8.26	8.26

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	1,000,000+	1,290,000+

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 12:30 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-54	-55	-54	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
55

Reviewed By:

Judee Ames

Date:

10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-04 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.30	3000

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.38	8.40	8.37	8.38

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	1,000,000+	1,290,000+

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 12:45 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-62	-65	-63	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
10

Reviewed By:

Judith Ames

Date:

10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-05 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.06	600

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.26	8.24	8.24	8.25

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	650,000	838,500

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 1:00 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-54	-52	-55	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
95

Reviewed By:

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-07 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
1.35	13500

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.24	8.26	8.25	8.25

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	340,000	438,600

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 1:15 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-53	-52	-52	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
35

Reviewed By: Judith Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-11 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.68	6800

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.09	8.07	8.09	8.08

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	87,000	112,230

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 1:30 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-46	-44	-47	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
115

Reviewed By: Judith Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-12 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.14	1400

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.26	8.28	8.25	8.26

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	120,000	154,800

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 1:45 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-52	-54	-50	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
10

Reviewed By: Judith Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-14 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.00	0

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	9.09	9.10	9.07	9.09

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	1,000,000+	1,290,000+

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 2:00 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-95	-97	-94	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
5

Reviewed By:

Judith Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-19 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
2.02	20200

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.41	8.39	8.43	8.41

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	310,000	399,900

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 2:15 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-61	-60	-62	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
85

Reviewed By:

Judez Amos

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-23 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.05	500

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.40	8.42	8.40	8.41

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	230,000	296,700

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 10:30 AM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-62	-59	-63	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
60

Reviewed By:

Judith Amos

Date:

10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-24 Sample: -- Depth (ft): 0-4

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.11	1100

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.43	8.46	8.41	8.43

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	130,000	167,700

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 10:45 AM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-60	-58	-62	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
90

Reviewed By:

Judge Ames

Date:

10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-SS-01 Sample: -- Depth (ft): 1-3

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.16	1600

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.81	8.80	8.83	8.81

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	260,000	335,400

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements 12:00 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-82	-83	-82	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
110

Reviewed By: Judy Ames

Date: 10/23/20



ATLANTIC TESTING LABORATORIES

CORROSION ANALYSIS SUITE

Client: Mott MacDonald
Project: Bonanza Solar
Location: Calvada Springs, CA
MM Project No.: 513100382-014

ATL Report No. RT1879CL-57-10-20
Report Date: October 23, 2020
Date Received: October 15, 2020

Boring: B-SS-02 Sample: -- Depth (ft): 1-3

WATER-SOLUBLE SULFATE IN SOIL

ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.34	3400

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING

ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	20.0	8.63	8.60	8.64	8.62

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISTIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD

ASTM G 187 (LABORATORY)

Test Date: 10/22/20 Performed by: T. Lucas
Meter Used: Nisson 400 Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω/cm)
Not Provided	Not Provided	370,000	477,300

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL

ASTM G 200

Test Date: 10/22/20 Time of Measurements: 12:15 PM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter: Orion 5 Star ORP Probe: Orion 9179NMD

ORP Measurements			Ambient Temperature (°C)
-75	-75	-73	20.0

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL

AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
45

Reviewed By:

Judey Ames

Date:

10/23/20

G. Mott MacDonald Thermal Resistivity Testing Results



ATLANTIC TESTING LABORATORIES

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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

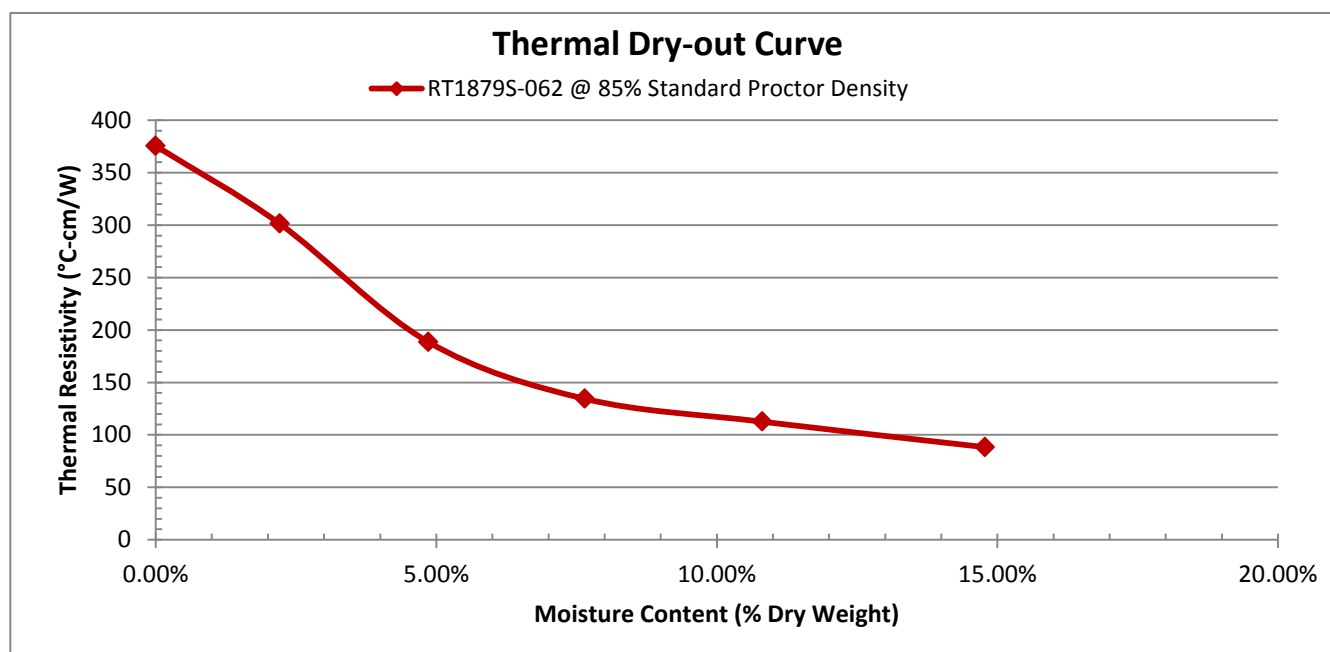
ATL Report No.: RT1879SL-062-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-01 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-062

Standard Proctor Values: 113.2 lb/ft³ @ 15.0% M.C.
Remolded Dry Density: 96.2 lb/ft³ (85%)
Received Moisture: 4.4%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	21.45	376
2.21%	20.87	301
4.86%	20.68	189
7.65%	20.68	134
10.81%	20.41	113
14.78%	20.64	88



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

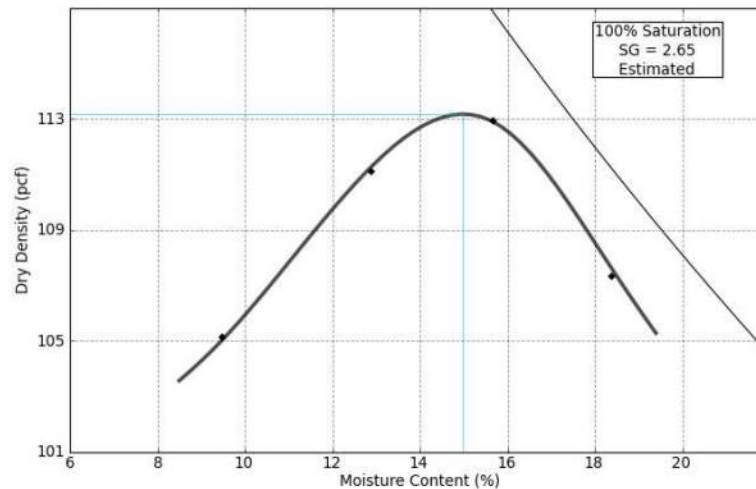
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-062-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-62

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-01



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 113.2 Optimum moisture (%) = 15.0					Bulk Sample				
Source of Sample: Test Pit TP-01 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



ATLANTIC TESTING LABORATORIES

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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

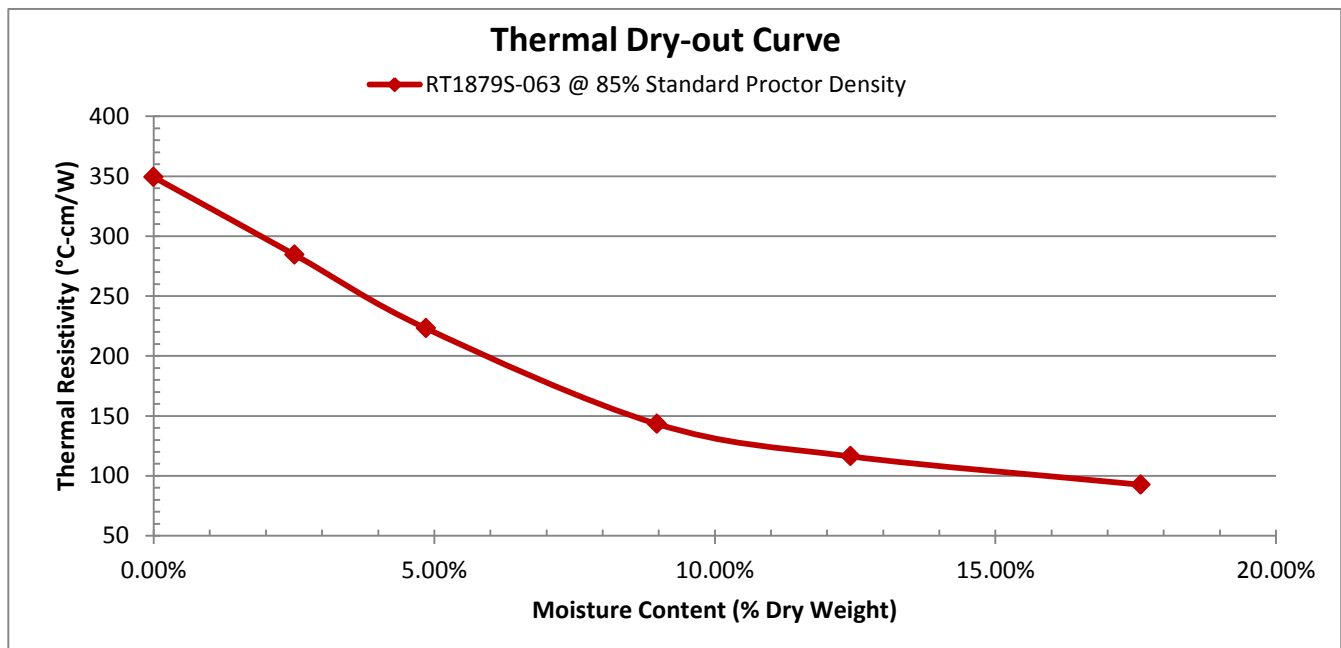
ATL Report No.: RT1879SL-063-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-05 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-063

Standard Proctor Values: 109.2 lb/ft³ @ 17.3% M.C.
Remolded Dry Density: 92.8 lb/ft³ (85%)
Received Moisture: 6.1%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	21.18	349
2.51%	21.51	284
4.85%	20.94	223
8.97%	20.60	143
12.42%	21.02	116
17.59%	20.72	93



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

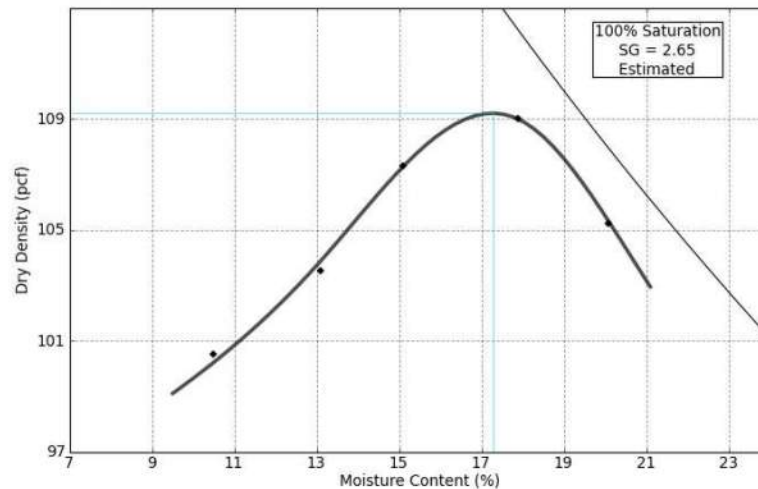
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-063-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-63

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-05



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 109.2 Optimum moisture (%) = 17.3					Bulk Sample				
Source of Sample: Test Pit TP-05 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

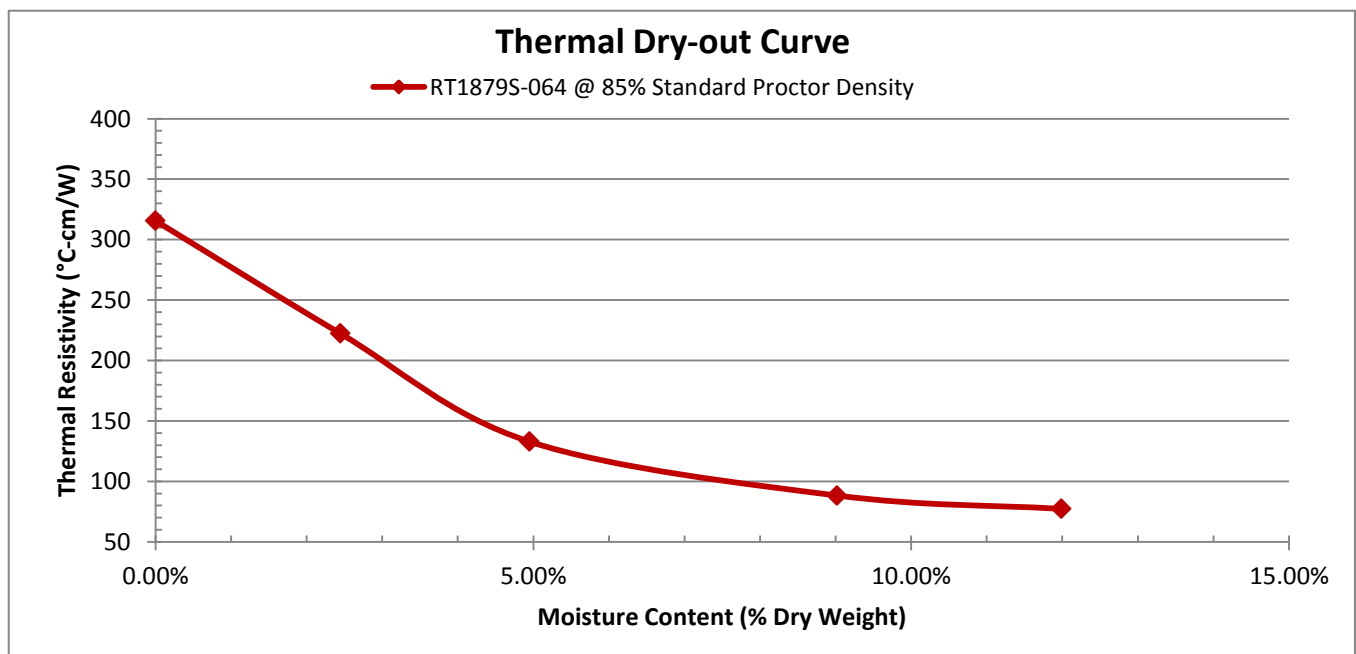
ATL Report No.: RT1879SL-064-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-08 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-064

Standard Proctor Values: 118.2 lb/ft³ @ 12.5% M.C.
Remolded Dry Density: 100.5 lb/ft³ (85%)
Received Moisture: 3.2%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	21.64	316
2.44%	21.96	222
4.95%	21.56	133
9.02%	21.73	88
11.99%	21.86	77



Reviewed By: _____

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

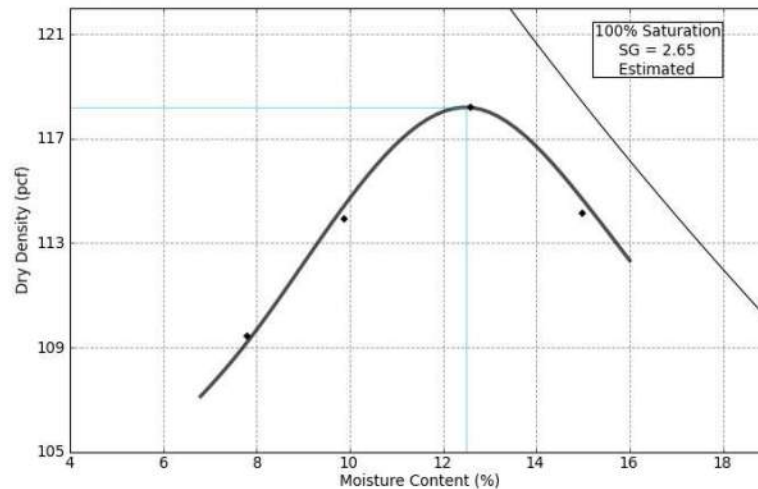
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-064-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-64

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-08



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 118.2 Optimum moisture (%) = 12.5					Bulk Sample				
Source of Sample: Test Pit TP-08 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

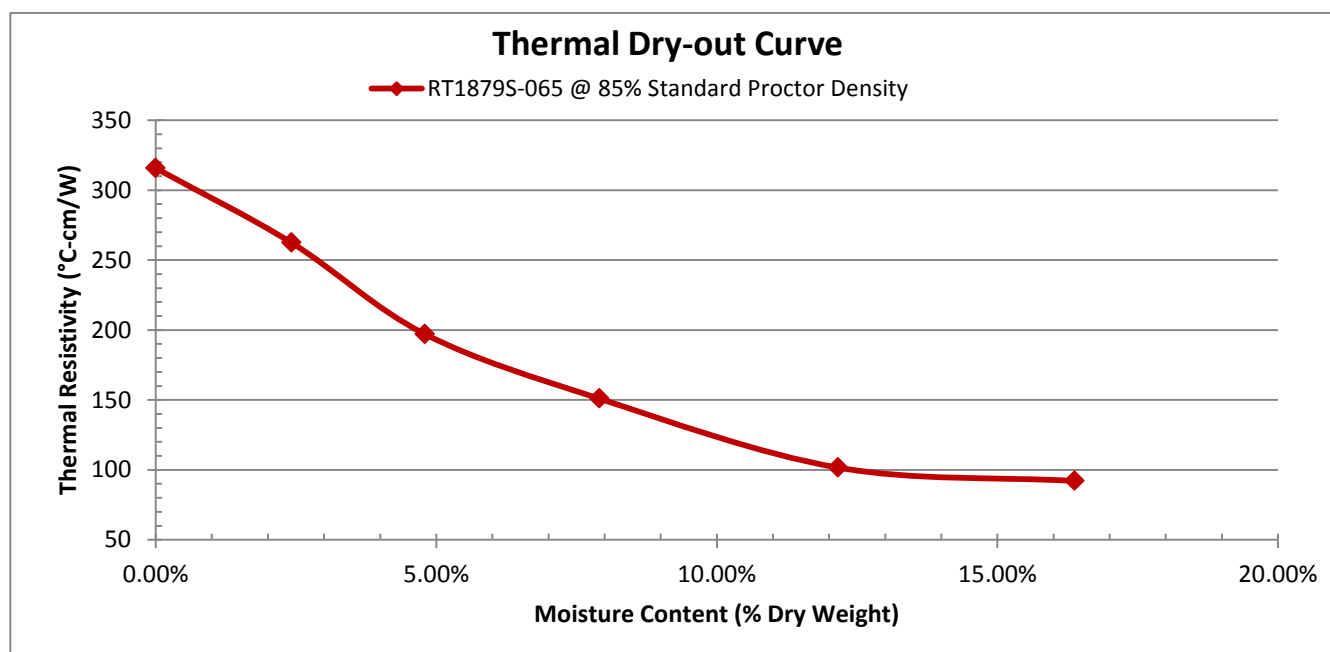
ATL Report No.: RT1879SL-065-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-09 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-065

Standard Proctor Values: 108.0 lb/ft³ @ 16.5% M.C.
Remolded Dry Density: 91.8 lb/ft³ (85%)
Received Moisture: 7.9%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	22.28	316
2.42%	20.42	262
4.80%	20.61	197
7.91%	20.18	151
12.16%	21.11	102
16.38%	21.17	92



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

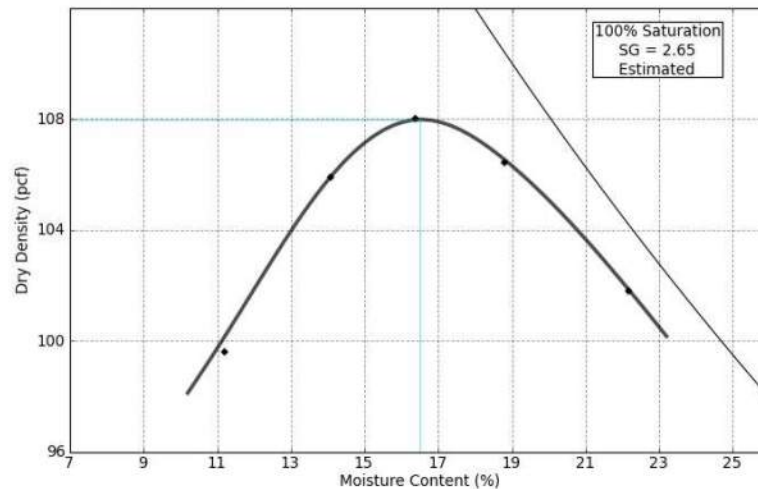
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-065-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-65

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-09



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 108.0 Optimum moisture (%) = 16.5					Bulk Sample				
Source of Sample: Test Pit TP-09 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

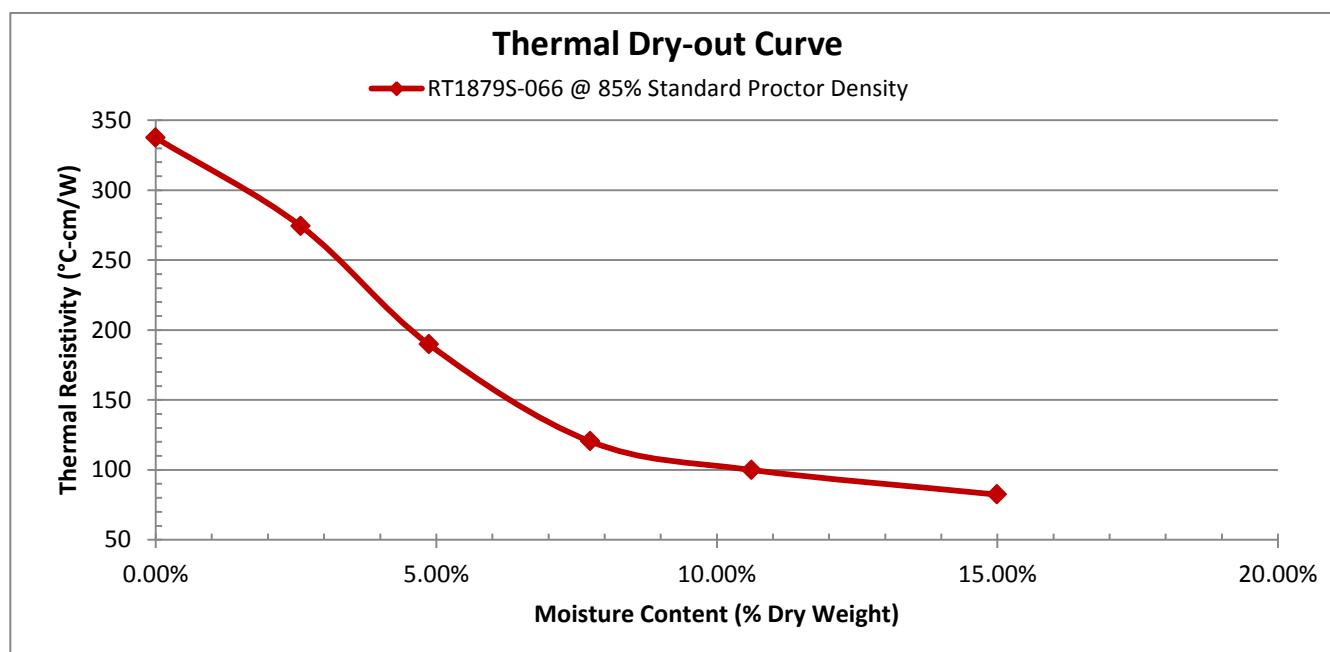
ATL Report No.: RT1879SL-066-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-13 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-066

Standard Proctor Values: 111.5 lb/ft³ @ 15.4% M.C.
Remolded Dry Density: 94.8 lb/ft³ (85%)
Received Moisture: 5.0%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	22.35	337
2.59%	22.41	274
4.87%	22.04	190
7.74%	21.95	120
10.62%	22.12	100
14.99%	22.14	82



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

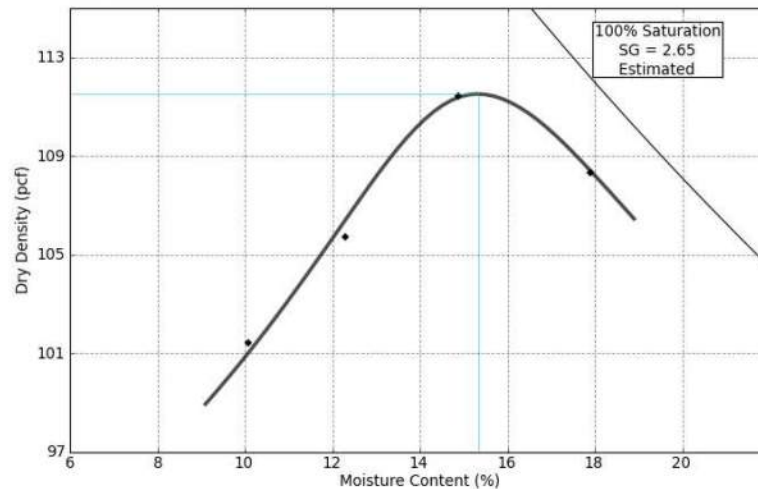
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-066-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-66

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-13



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 111.5 Optimum moisture (%) = 15.4					Bulk Sample				
Source of Sample: Test Pit TP-13 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

ATL Report No.: RT1879SL-067-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California

Test Pit Information: TP-14 (3' - 5')

Standard Proctor Values: 98.7 lb/ft³ @ 23.6% M.C.

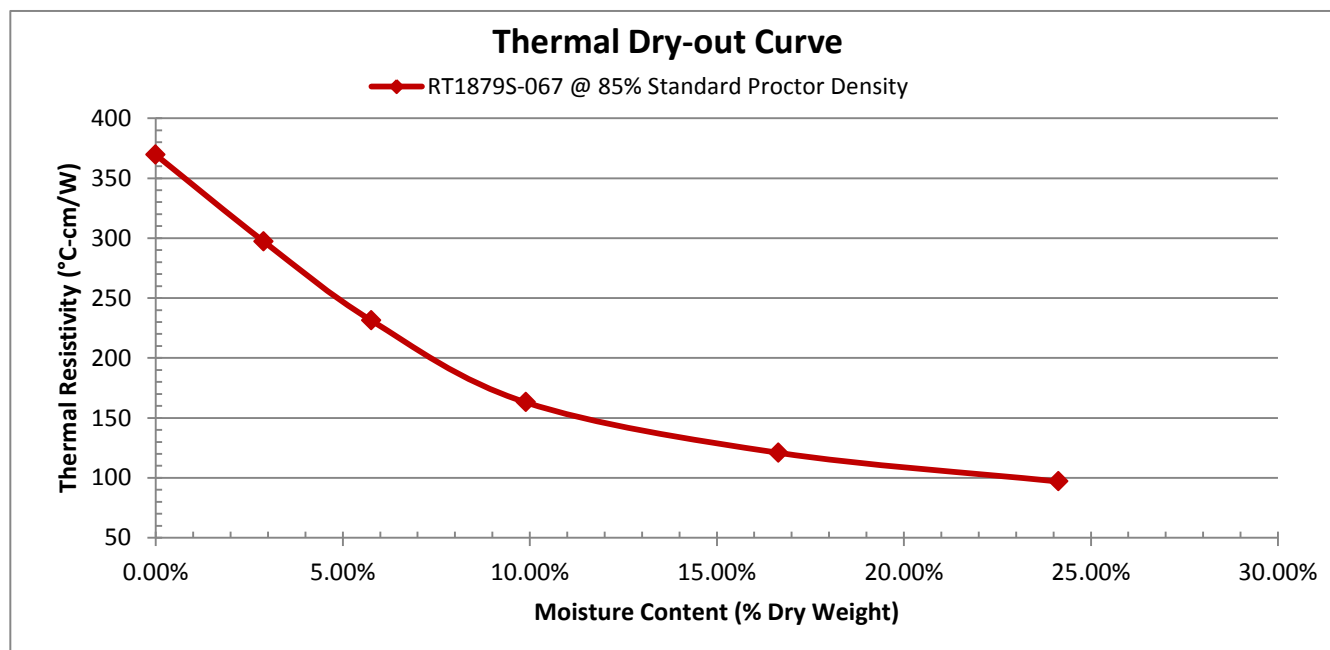
Sample Condition: Bulk; Re-molded

Remolded Dry Density: 83.9 lb/ft³ (85%)

ATL Sample No.: RT1879S-067

Received Moisture: 11.5%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	22.29	369
2.89%	21.49	297
5.76%	22.40	231
9.89%	22.44	163
16.65%	22.25	121
24.13%	22.10	97



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

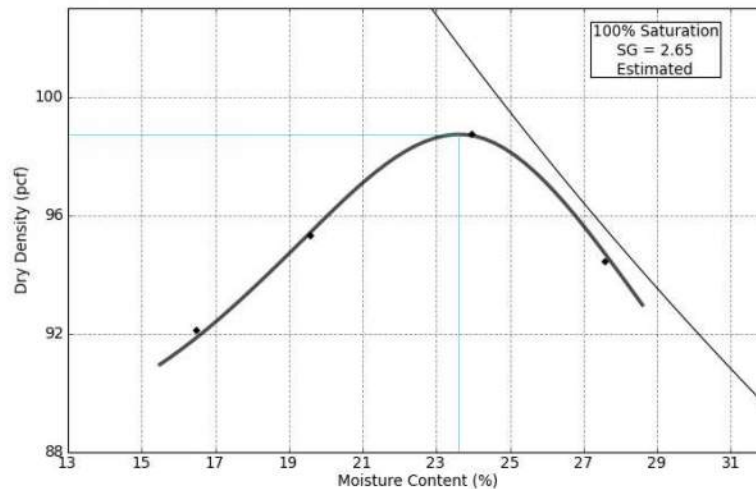
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-067-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-67

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-14



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 98.70 Optimum moisture (%) = 23.6					Bulk Sample				
Source of Sample: Test Pit TP-14 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



ATLANTIC TESTING LABORATORIES

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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

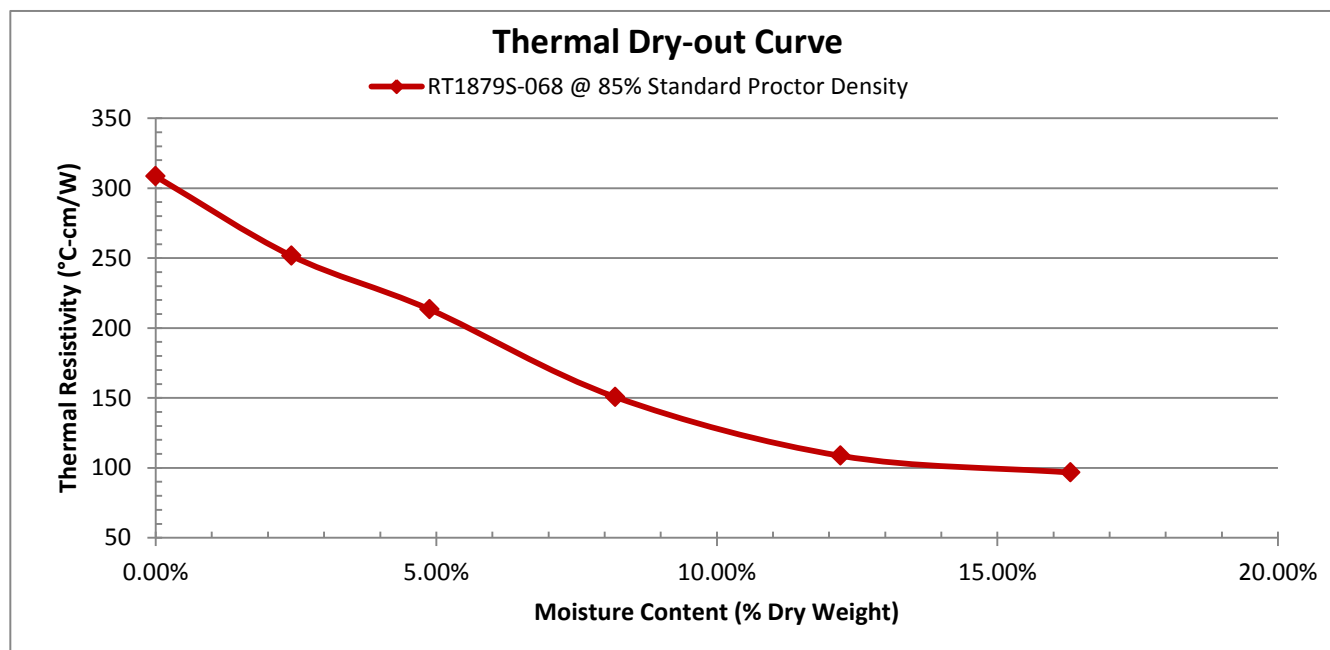
ATL Report No.: RT1879SL-068-09-20
Report Date: October 13, 2020
Date Received: September 30, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada, California
Test Pit Information: TP-17 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-068

Standard Proctor Values: 108.8 lb/ft³ @ 16.5% M.C.
Remolded Dry Density: 92.5 lb/ft³ (85%)
Received Moisture: 8.5%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	22.00	308
2.42%	23.03	252
4.88%	19.81	213
8.19%	19.34	151
12.20%	19.21	109
16.30%	19.45	97



Reviewed By: 

Date: 10/13/2020



ATLANTIC TESTING LABORATORIES

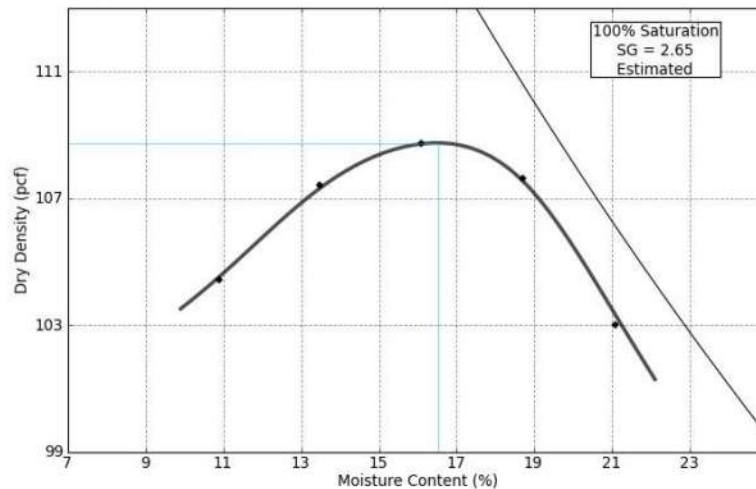
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-068-09-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: September 30, 2020
Sampled By: CLIENT
Service Order No.: 19790
Sample No.: RT1879S-68

Location: Bonanza Solar Project - Calvada, California - Test Pit TP-17

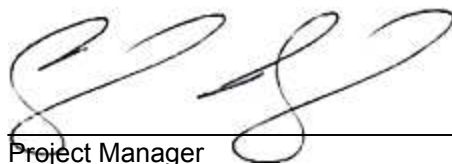


— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 108.8 Optimum moisture (%) = 16.5					Bulk Sample				
Source of Sample: Test Pit TP-17 (3' - 5')									
Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on September 30, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:


Project Manager
cinnis@atlantictesting.com

Date: Oct 13, 2020



ATLANTIC TESTING LABORATORIES

WBE certified company

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THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

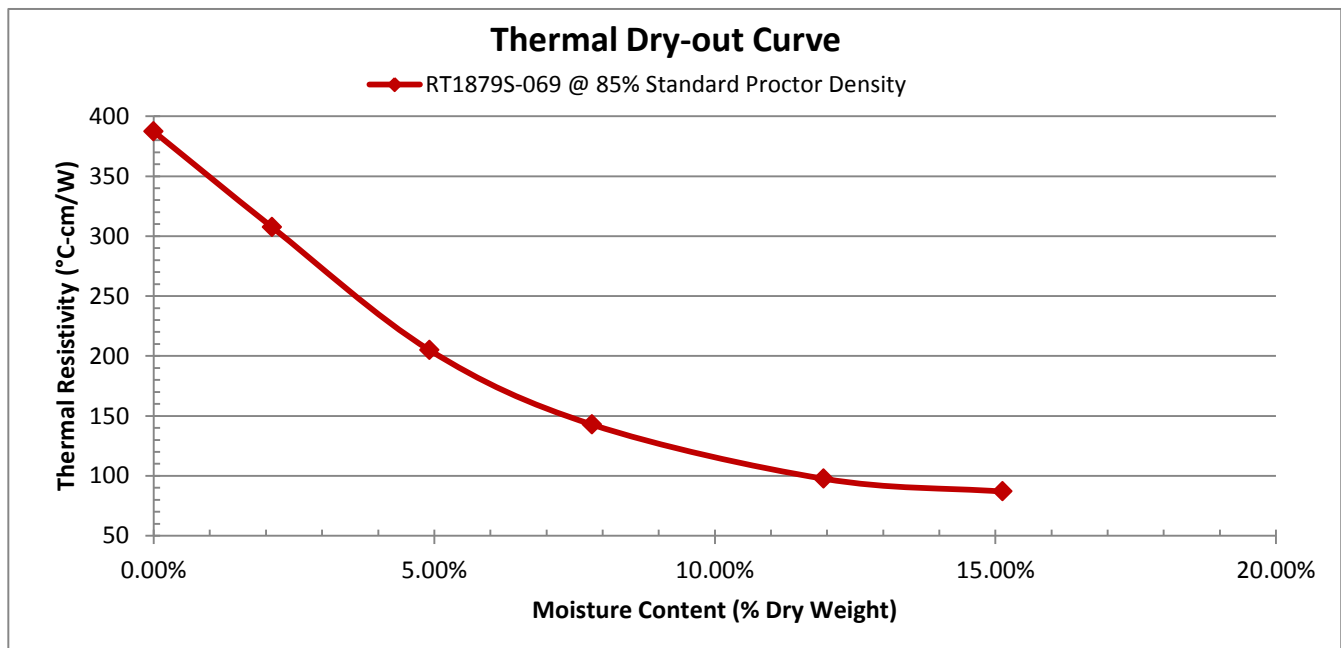
ATL Report No.: RT1879SL-069-10-20
Report Date: October 21, 2020
Date Received: October 15, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada Springs, California
Boring Information: B-SS-01 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-069

Standard Proctor Values: 111.4 lb/ft³ @ 15.3% M.C.
Remolded Dry Density: 94.7 lb/ft³ (85%)
Received Moisture: 5.1%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	20.17	387
2.11%	21.29	307
4.92%	20.68	205
7.81%	20.78	143
11.94%	20.83	98
15.13%	20.92	87



Reviewed By: 

Date: 10/22/2020



ATLANTIC TESTING LABORATORIES

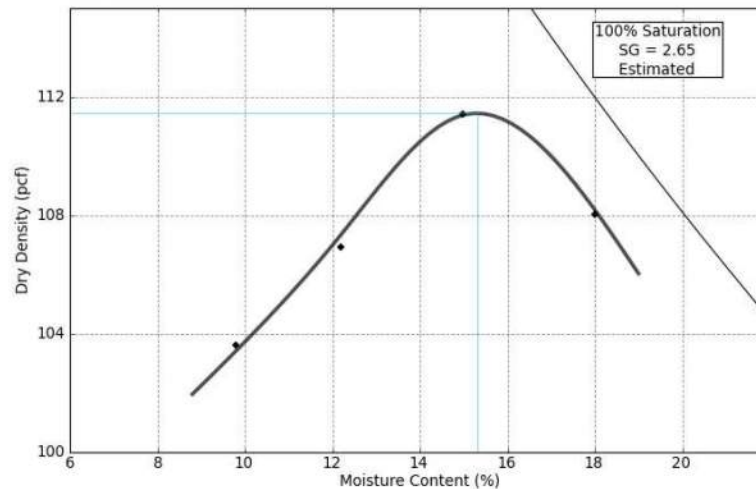
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-069-10-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: October 16, 2020
Sampled By: CLIENT
Service Order No.: 20071
Sample No.: RT1879S-69

Location: Bonanza Solar Project - Calvada Springs, California - Boring B-SS-01



— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 111.4 Optimum moisture (%) = 15.3					Bulk Sample				
Source of Sample: Boring B-SS-01 (3' - 5') Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on October 15, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:

Project Manager
cinnis@atlantictesting.com

Date: Oct 22, 2020



ATLANTIC TESTING LABORATORIES

WBE certified company

Rochester

3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE IEEE 442

PROJECT INFORMATION

Client: Mott MacDonald, Inc.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

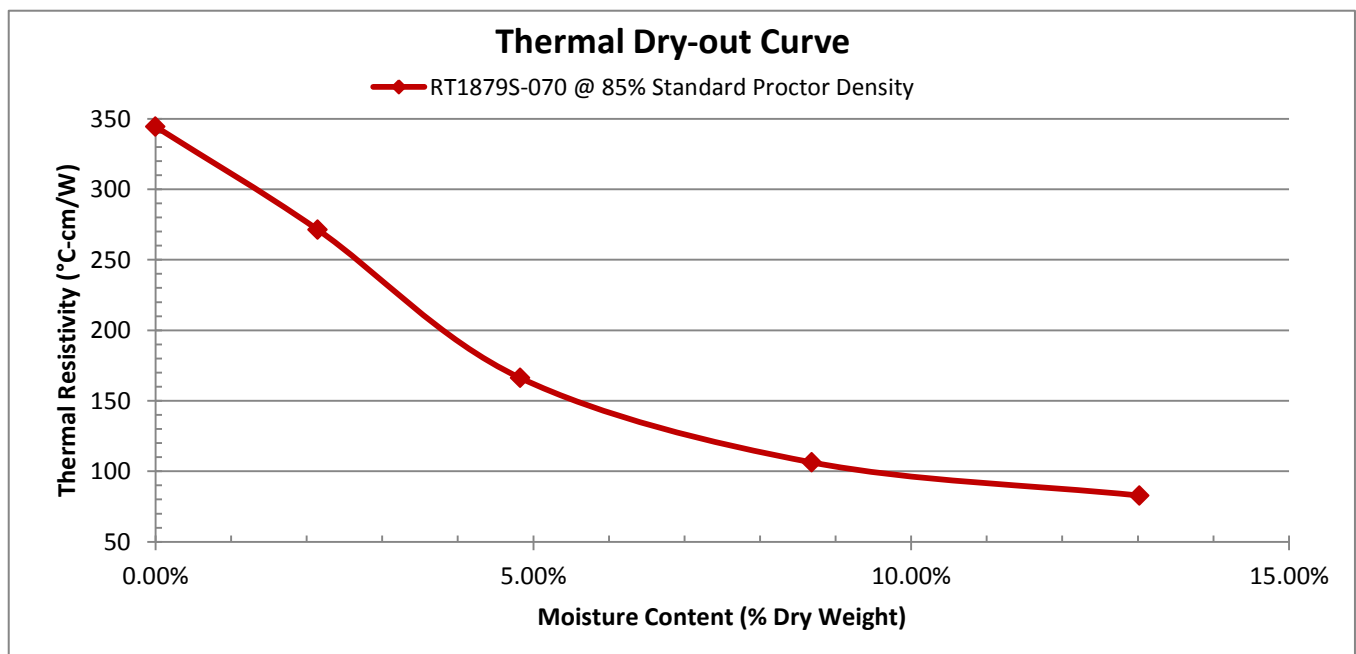
ATL Report No.: RT1879SL-070-10-20
Report Date: October 21, 2020
Date Received: October 15, 2020
Page: 1 of 1

SAMPLE INFORMATION

Source: Bonanza Solar Project - Calvada Springs, California
Boring Information: B-SS-02 (3' - 5')
Sample Condition: Bulk; Re-molded
ATL Sample No.: RT1879S-070

Standard Proctor Values: 116.2 lb/ft³ @ 13.2% M.C.
Remolded Dry Density: 98.8 lb/ft³ (85%)
Received Moisture: 3.4%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.00%	20.10	344
2.14%	20.35	271
4.83%	20.09	166
8.69%	19.97	106
13.02%	19.82	83



Reviewed By: _____

Date: 10/22/2020



ATLANTIC TESTING LABORATORIES

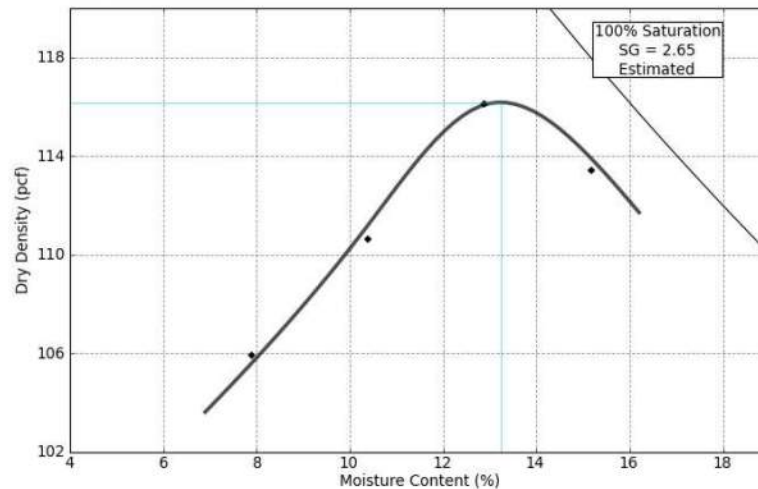
LABORATORY COMPACTION TEST REPORT No.: RT1879SL-070-10-20

Page 1 of 1

Client: MOTT MacDONALD NY, INC.
Project: 2020 Laboratory Testing
Rochester, Monroe County, New York

Sample Date: October 16, 2020
Sampled By: CLIENT
Service Order No.: 20071
Sample No.: RT1879S-70

Location: Bonanza Solar Project - Calvada Springs, California - Boring B-SS-02

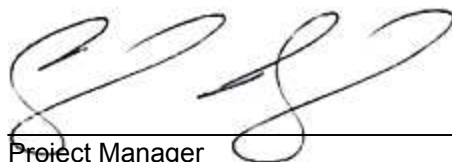


— Corrected

◆ - Uncorrected

Elev/ Depth	Classification		Received Moist.	Bulk Sp.G.	Oversize Sp.G.	Atterberg Limits			% > 3/8 in.
	USCS	AASHTO				LL	PL	PI	
--	--	--	--	2.65		--	--	--	0
TEST RESULTS					MATERIAL DESCRIPTION				
Maximum dry density (pcf) = 116.2 Optimum moisture (%) = 13.2					Bulk Sample				
Source of Sample: Boring B-SS-02 (3' - 5') Sp.G.: Estimated Prep Method: Moist Rammer: Manual									
Remarks: Delivered by FedEx on October 15, 2020.									
Test Specification: ASTM D-698 (12) Method-B									

Reviewed by:



Project Manager
cinnis@atlantictesting.com

Date: Oct 22, 2020

H. Mott MacDonald Electrical Resistivity Results

M**M****MOTT
MACDONALD****Soil Resistivity Results**

Bonanza Solar	ERT-01		9/20/2020		66°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	964.4	2770	813.5	1558	889.0	2164
1.5	209.9	602.9	239.9	689.2	224.9	646.0
2	105.7	404.8	104.3	399.6	105.0	402.2
3	29.55	169.8	37.35	214.6	33.45	192.2
4.5	12.33	106.2	13.15	113.3	12.74	109.8
7	6.711	89.98	6.228	83.48	6.470	86.73
10	4.074	78.03	4.212	80.68	4.143	79.35
15	2.641	75.86	3.244	93.18	2.943	84.52
22.5	2.004	86.35	1.809	77.94	1.907	82.14
35	1.309	87.72	1.211	81.17	1.260	84.44
50	0.7140	68.37	0.7849	75.16	0.7495	71.77
75	0.5481	78.73	0.5045	72.48	0.5263	75.61
100	0.4171	79.89	0.4525	86.65	0.4348	83.27

Bonanza Solar	ERT-02		9/20/2020		82°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	579.7	1110	174.6	334.4	377.2	722.2
1.5	155.3	446.2	103.0	295.7	129.2	371.0
2	93.68	358.7	48.40	185.4	71.04	272.1
3	15.10	86.78	12.79	73.46	13.95	80.12
4.5	4.665	40.20	5.625	48.46	5.145	44.33
7	2.937	39.38	2.814	37.73	2.876	38.56
10	2.443	46.79	1.717	32.89	2.080	39.84
15	1.438	41.30	1.578	45.32	1.508	43.31
22.5	0.8589	37.00	1.024	44.14	0.9415	40.57
35	0.6318	42.34	0.6434	43.13	0.6376	42.73
50	0.4300	41.18	0.4885	46.79	0.4593	43.98
75	0.2703	38.83	0.2889	41.51	0.2796	40.17
100	0.1603	30.69	0.1679	32.16	0.1641	31.42

Bonanza Solar	ERT-03		9/20/2020		63°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	155.9	298.6	152.6	292.3	154.3	295.5
1.5	50.05	143.8	44.37	127.4	47.21	135.6
2	30.81	118.0	22.18	84.95	26.50	101.5
3	15.60	89.64	14.15	81.29	14.88	85.47
4.5	11.78	101.5	11.73	101.1	11.76	101.3
7	7.925	106.2	8.630	115.7	8.278	111.0
10	4.813	92.17	4.489	85.95	4.651	89.06
15	2.649	76.08	2.597	74.62	2.623	75.35
22.5	1.265	54.50	1.804	77.72	1.535	66.11
35	1.123	75.29	0.8504	57.00	0.9867	66.14
50	0.5527	52.91	0.6156	58.98	0.5842	55.95
75	0.4912	70.56	0.3471	49.87	0.4192	60.21
100	0.2570	49.23	0.2351	45.02	0.2461	47.12

Bonanza Solar	ERT-04		9/19/2020		77°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	262.8	503.2	175.7	336.5	219.3	419.9
1.5	52.25	150.1	52.38	150.5	52.32	150.3
2	33.34	127.7	34.54	132.3	33.94	130.0
3	16.74	96.16	14.70	84.46	15.72	90.31
4.5	9.378	80.83	8.948	77.11	9.163	78.97
7	5.282	70.81	5.588	74.92	5.435	72.86
10	3.694	70.74	3.833	73.40	3.764	72.07
15	2.578	74.04	2.705	77.72	2.642	75.88
22.5	1.591	68.55	1.805	77.78	1.698	73.17
35	0.9837	65.93	0.9889	66.29	0.9863	66.11
50	0.7030	67.30	0.7242	69.34	0.7136	68.32
75	0.5035	72.33	0.4921	70.68	0.4978	71.51
100	0.3860	73.91	0.3563	68.24	0.3712	71.08

Bonanza Solar	ERT-05		9/20/2020		95°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	193.5	370.6	141.2	270.5	167.4	320.56
1.5	47.86	137.5	37.31	107.2	42.59	122.33
2	25.06	95.98	22.16	84.89	23.61	90.43
3	11.83	67.94	8.647	49.68	10.24	58.81
4.5	5.226	45.05	5.051	43.53	5.139	44.29
7	2.549	34.17	3.749	50.26	3.149	42.21
10	1.822	34.90	1.948	37.31	1.885	36.10
15	1.816	52.18	1.027	29.51	1.422	40.84
22.5	0.9989	43.04	0.9762	42.06	0.9876	42.55
35	0.6738	45.17	0.5750	38.53	0.6244	41.85
50	0.4984	47.73	0.3307	31.67	0.4146	39.70
75	0.3204	46.02	0.2707	38.89	0.2956	42.46
100	0.1934	37.03	0.1778	34.05	0.1856	35.54

Bonanza Solar	ERT-06		9/21/2020		66°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	97.51	186.8	105.4	201.8	101.5	194.3
1.5	49.48	142.1	51.08	146.7	50.28	144.4
2	30.25	115.9	30.60	117.2	30.43	116.5
3	17.27	99.21	22.86	131.4	20.07	115.3
4.5	10.46	90.13	16.41	141.4	13.44	115.8
7	5.706	76.50	7.613	102.0	6.660	89.28
10	3.786	72.51	3.648	69.86	3.717	71.19
15	2.098	60.29	2.108	60.56	2.103	60.43
22.5	1.350	58.19	1.184	51.02	1.267	54.60
35	0.8023	53.77	0.7978	53.49	0.8001	53.63
50	0.5375	51.48	0.5637	53.98	0.5506	52.73
75	0.3229	46.36	0.3405	48.89	0.3317	47.63
100	0.2252	43.13	0.2229	42.67	0.2241	42.90

Bonanza Solar	ERT-07		9/19/2020		88°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	449.7	861.4	311.0	595.6	380.4	728.5
1.5	88.84	255.2	75.58	217.1	82.21	236.2
2	47.80	183.1	39.20	150.1	43.50	166.6
3	13.86	79.64	15.42	88.57	14.64	84.11
4.5	9.006	77.60	10.25	88.30	9.628	82.95
7	4.320	57.91	5.616	75.29	4.968	66.60
10	2.934	56.17	3.373	64.59	3.154	60.38
15	1.295	37.19	1.548	44.47	1.422	40.83
22.5	1.017	43.83	1.714	73.88	1.366	58.86
35	0.6750	45.23	0.6214	41.67	0.6482	43.45
50	0.4986	47.73	0.6619	63.37	0.5803	55.55
75	0.2974	42.70	0.3635	52.21	0.3305	47.46
100	0.2077	39.78	0.2197	42.09	0.2137	40.93

Bonanza Solar	ERT-08		8/18/20		97°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	480.6	920.5	782.1	1498	631.4	1209
1.5	233.1	669.6	135.4	388.9	184.3	529.3
2	59.13	226.5	56.92	218.0	58.03	222.2
3	20.16	115.8	16.37	94.06	18.27	104.9
4.5	9.168	79.00	7.150	61.60	8.159	70.30
7	5.309	71.17	4.324	57.97	4.817	64.57
10	8.221	157.4	3.043	58.28	5.632	107.9
15	2.047	58.80	2.768	79.52	2.408	69.16
22.5	3.630	156.4	1.852	79.80	2.741	118.1
35	1.828	122.6	1.096	73.46	1.462	98.01
50	1.320	126.4	0.9857	94.40	1.153	110.4
75	0.4617	66.32	0.6660	95.65	0.5639	80.99
100	0.6965	133.4	0.3764	72.09	0.5365	102.7

Bonanza Solar	ERT-09		9/19/2020		77°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	171.9	329.2	196.7	376.7	184.3	353.0
1.5	68.80	197.6	58.81	169.0	63.81	183.3
2	38.88	148.9	35.22	134.9	37.05	141.9
3	21.80	125.3	22.22	127.7	22.01	126.5
4.5	13.87	119.5	12.15	104.7	13.01	112.1
7	5.943	79.67	5.965	79.98	5.954	79.83
10	4.526	86.69	3.744	71.69	4.135	79.19
15	2.286	65.65	2.682	77.05	2.484	71.35
22.5	1.439	62.00	1.189	51.24	1.314	56.62
35	0.7546	50.60	0.8349	55.96	0.7948	53.28
50	0.5737	54.92	0.2976	28.50	0.4357	41.71
75	0.2979	42.79	0.2969	42.64	0.2974	42.72
100	0.3975	76.11	0.1919	36.76	0.2947	56.43

Bonanza Solar	ERT-10		9/18/2020		73°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	269.7	516.3	243.0	465.4	256.4	490.9
1.5	115.9	333.1	92.93	266.9	104.4	300.0
2	48.92	187.4	50.18	192.2	49.55	189.8
3	17.82	102.4	17.17	98.63	17.50	100.5
4.5	5.664	48.80	7.891	68.00	6.778	58.40
7	3.521	47.21	3.790	50.81	3.656	49.01
10	2.116	40.54	2.293	43.92	2.205	42.23
15	2.320	66.66	1.383	39.75	1.852	53.20
22.5	0.9349	40.29	1.167	50.26	1.051	45.28
35	0.7067	47.37	0.9937	66.60	0.8502	56.98
50	0.7169	68.64	0.7388	70.74	0.7279	69.69
75	0.5450	78.27	0.3651	52.43	0.4551	65.35
100	0.5490	105.1	0.4188	80.19	0.4839	92.66

Bonanza Solar	ERT-SS-01		9/21/2020		75°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	174.0	333.5	218.7	418.8	196.4	376.1
1.5	77.42	222.4	82.63	237.4	80.03	229.9
2	44.75	171.4	41.77	160.0	43.26	165.7
3	29.08	167.1	17.46	100.3	23.27	133.7
4.5	10.81	93.12	10.04	86.56	10.43	89.84
7	5.259	70.50	4.132	55.38	4.696	62.94
10	2.817	53.95	2.539	48.62	2.678	51.28
15	1.479	42.49	1.398	40.17	1.439	41.33
22.5	1.201	51.76	1.040	44.81	1.121	48.28
35	0.7300	48.92	0.7033	47.15	0.7167	48.04
50	0.4611	44.17	0.4869	46.63	0.4740	45.40
75	0.2830	40.66	0.3024	43.43	0.2927	42.05
100	0.1980	37.92	0.2063	39.50	0.2022	38.71
150	0.1245	35.75	0.1243	35.72	0.1244	35.74
200	0.0872	33.41	0.0826	31.64	0.0849	32.52

Bonanza Solar	ERT-SS-02		9/21/2020		95°F	
	N-S		E-W		Location Average	
Array Spacing (ft)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)	Measured Resistance (Ω)	Apparent Resistivity (Ω-m)
1	938.6	1797	1011	1936	974.8	1867
1.5	286.2	822.0	330.6	949.8	308.4	885.9
2	152.5	584.0	136.0	520.6	144.3	552.3
3	51.26	294.5	42.61	244.8	46.94	269.7
4.5	11.48	98.94	17.87	154.0	14.68	126.5
7	4.917	65.93	7.899	105.9	6.408	85.91
10	5.225	100.1	5.032	96.35	5.129	98.21
15	3.345	96.07	4.041	116.1	3.693	106.1
22.5	2.507	108.0	2.173	93.63	2.340	100.8
35	1.305	87.51	1.440	96.53	1.373	92.02
50	1.014	97.05	1.320	126.4	1.167	111.7
75	0.5794	83.21	0.9654	138.7	0.7724	110.9
100	0.2835	54.28	0.5360	102.7	0.4098	78.47
150	0.1190	34.17	0.2014	57.88	0.1602	46.02
200	0.1249	47.85	0.1559	59.71	0.1404	53.78

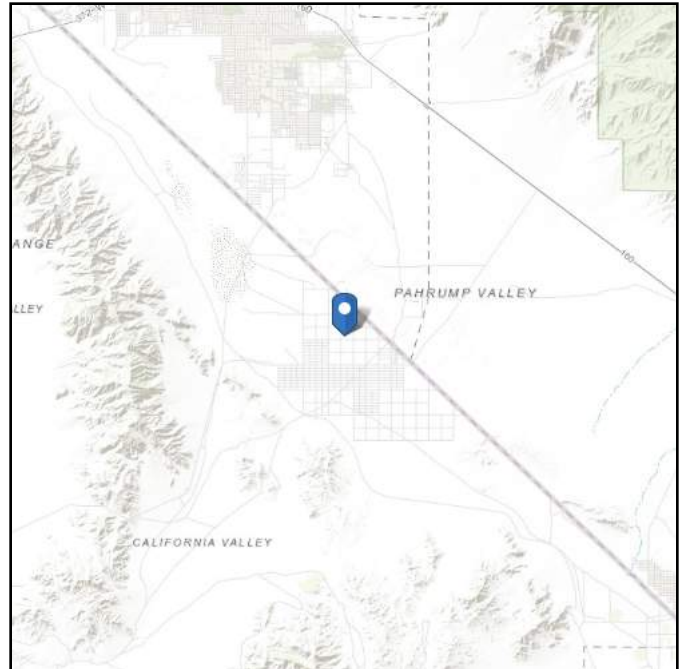
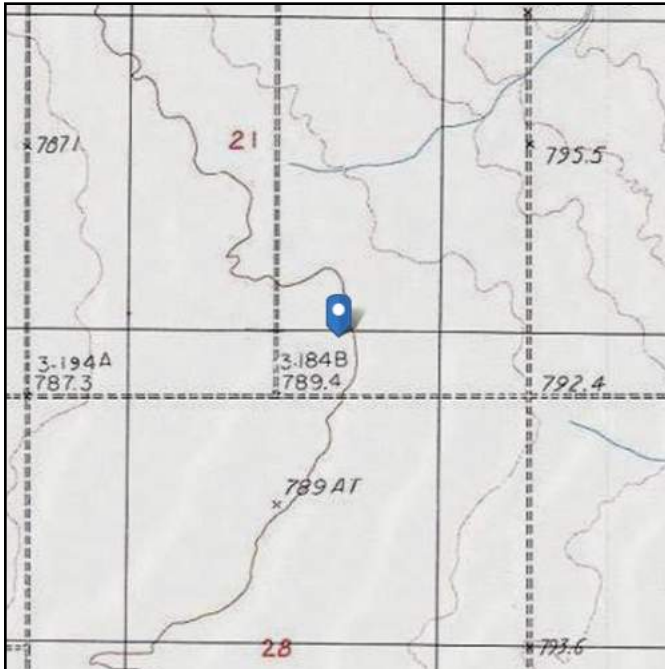
I. Seismic Support Data

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 2594.02 ft (NAVD 88)
Latitude: 35.987972
Longitude: -115.906143

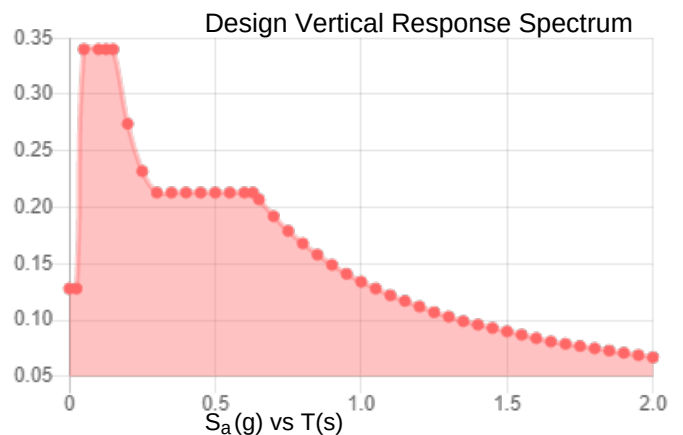
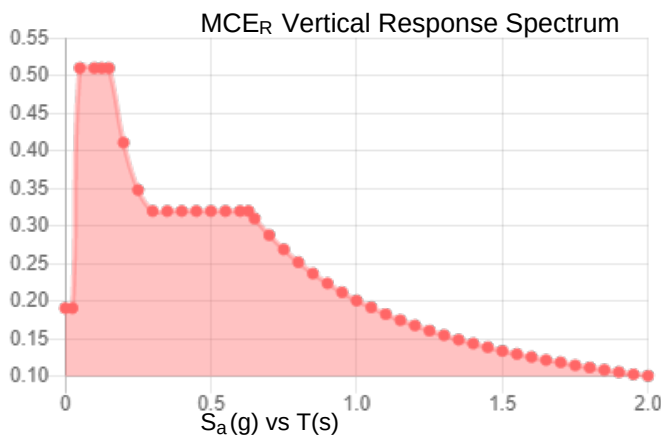
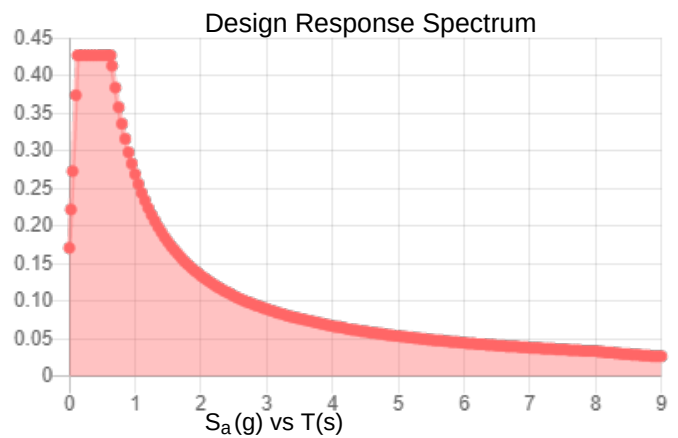
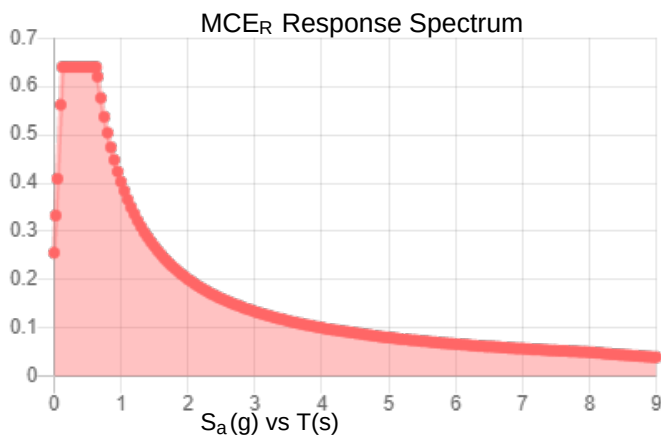


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.443	S_{D1} :	0.269
S_1 :	0.18	T_L :	8
F_a :	1.446	PGA :	0.196
F_v :	2.24	PGA _M :	0.276
S_{MS} :	0.64	F_{PGA} :	1.408
S_{M1} :	0.403	I_e :	1
S_{DS} :	0.427	C_v :	0.995

Seismic Design Category D



Data Accessed:

Tue Oct 06 2020

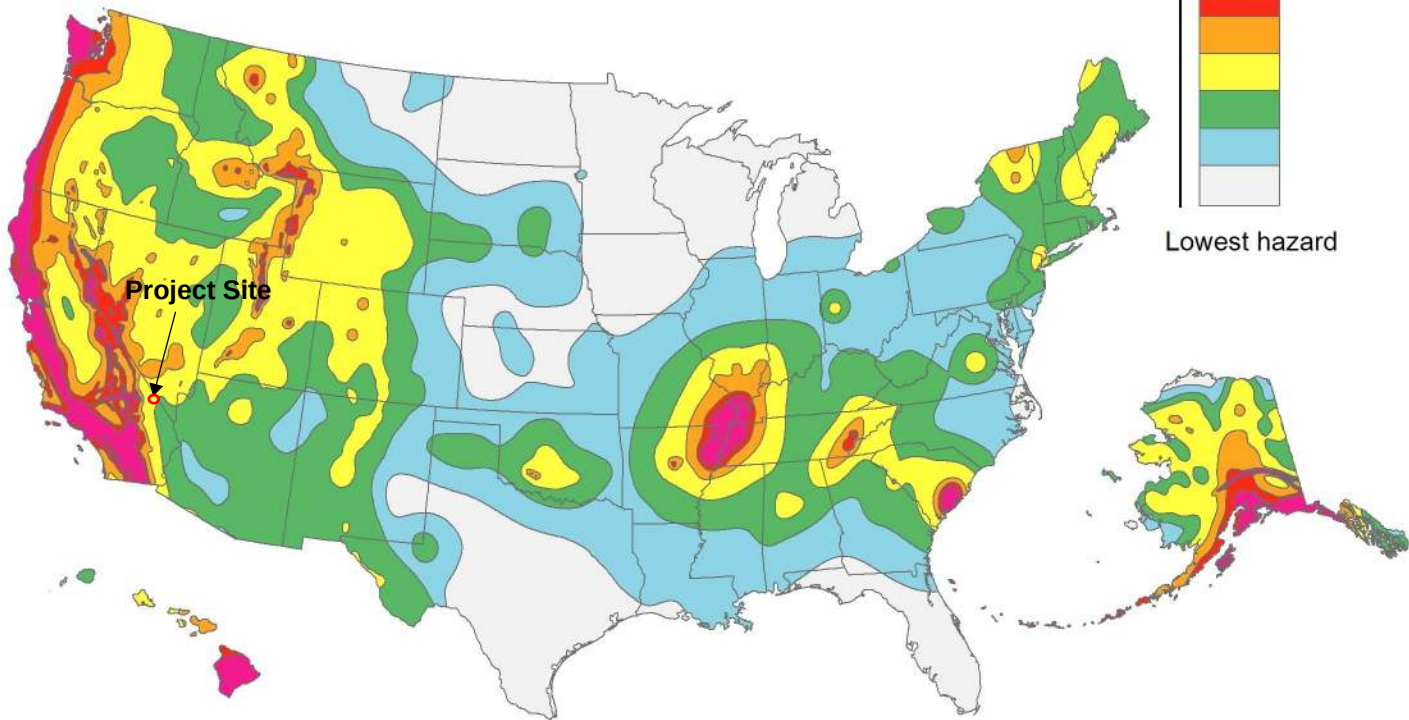
Date Source:

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.

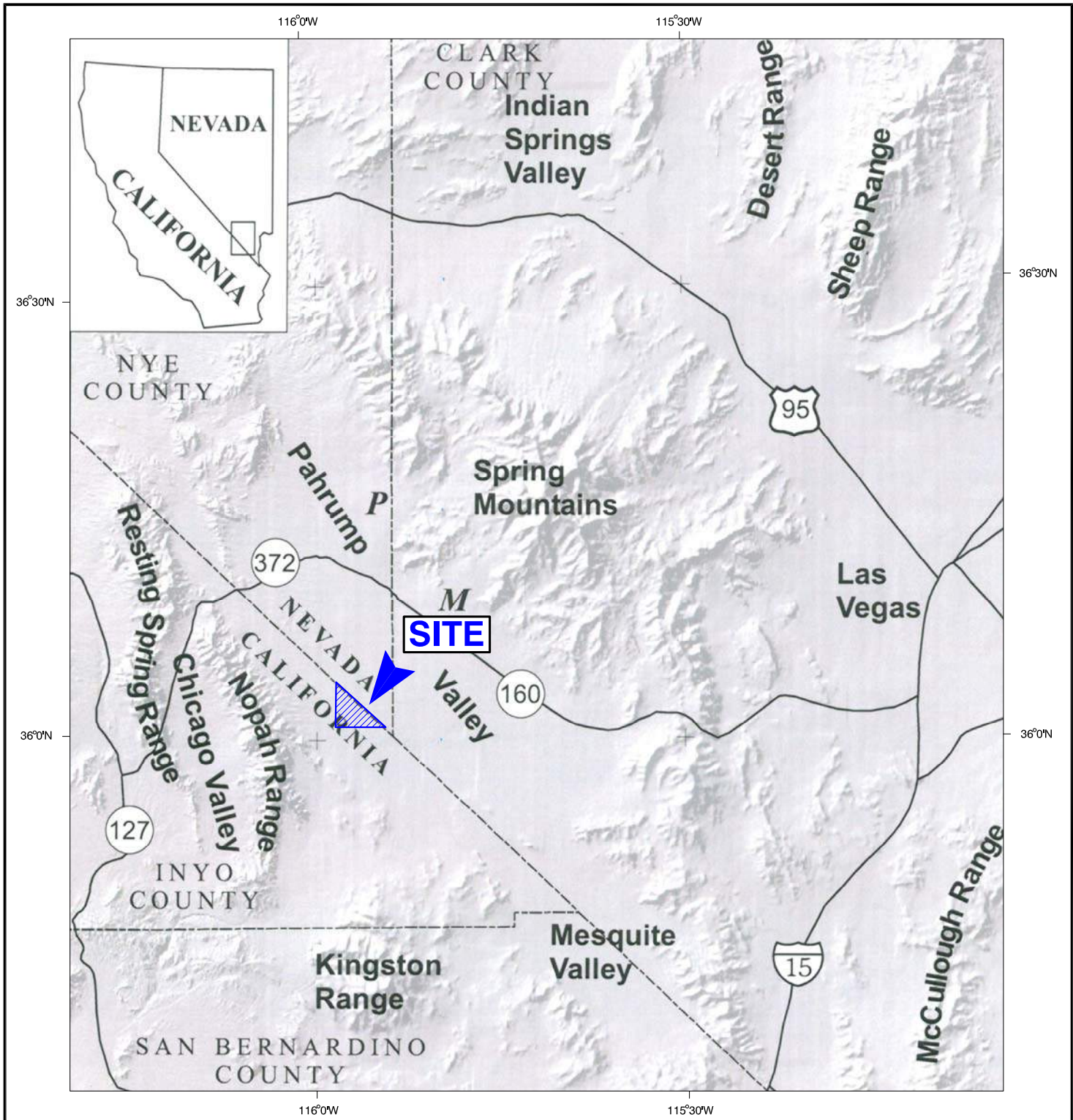
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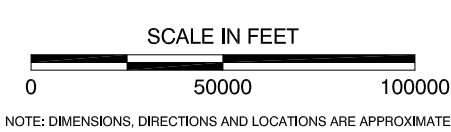
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J. Ninyo and Moore Geotechnical Report Appendices



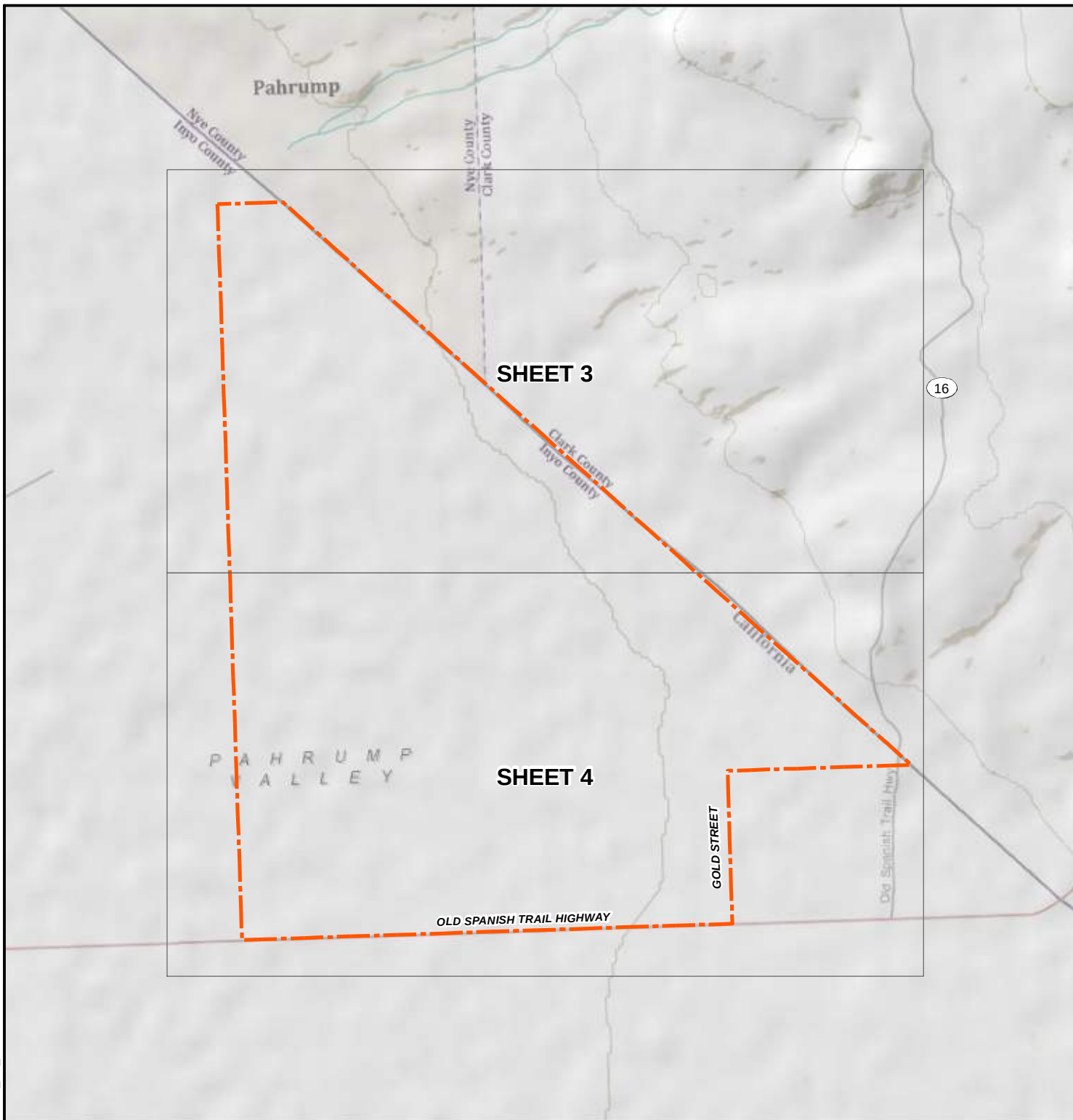
REFERENCE: SHADED-RELIEF BASE FROM U.S. GEOLOGICAL SURVEY 1:250,000-SCALE DIGITAL DATA; SUN ILLUMINATION FROM NORTHWEST AT 30 DEGREES ABOVE HORIZON.



		SITE LOCATION HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	FIGURE 1
PROJECT NO.	DATE		
303200001	3/11		

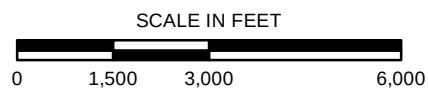
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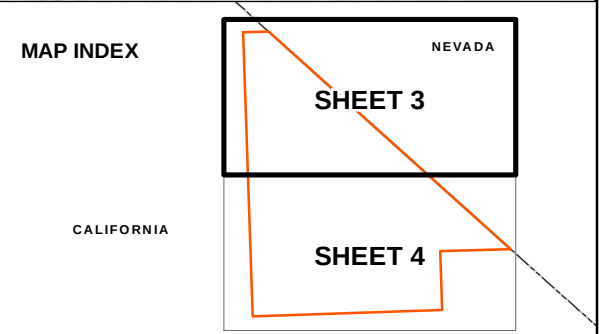
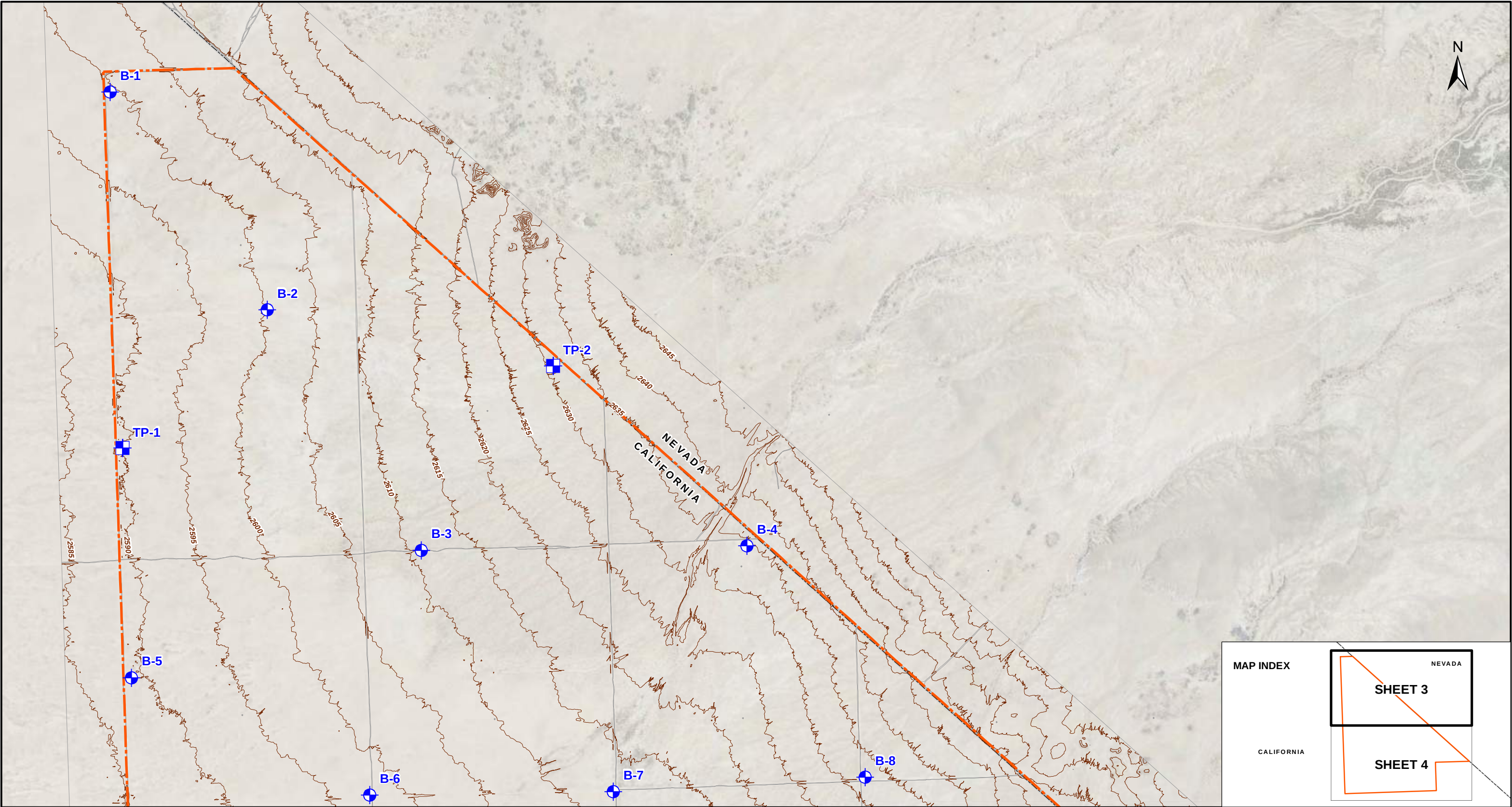
SOURCE: USGS, FAO, NPS, EPA, ESRI, DeLorme, TANA, other suppliers

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE



Ninyo & Moore		MAP INDEX	FIGURE
PROJECT NO.	DATE		
303200001	3/11	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	2

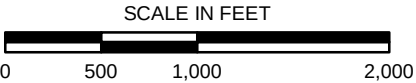
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SOURCE: DATA SOURCE

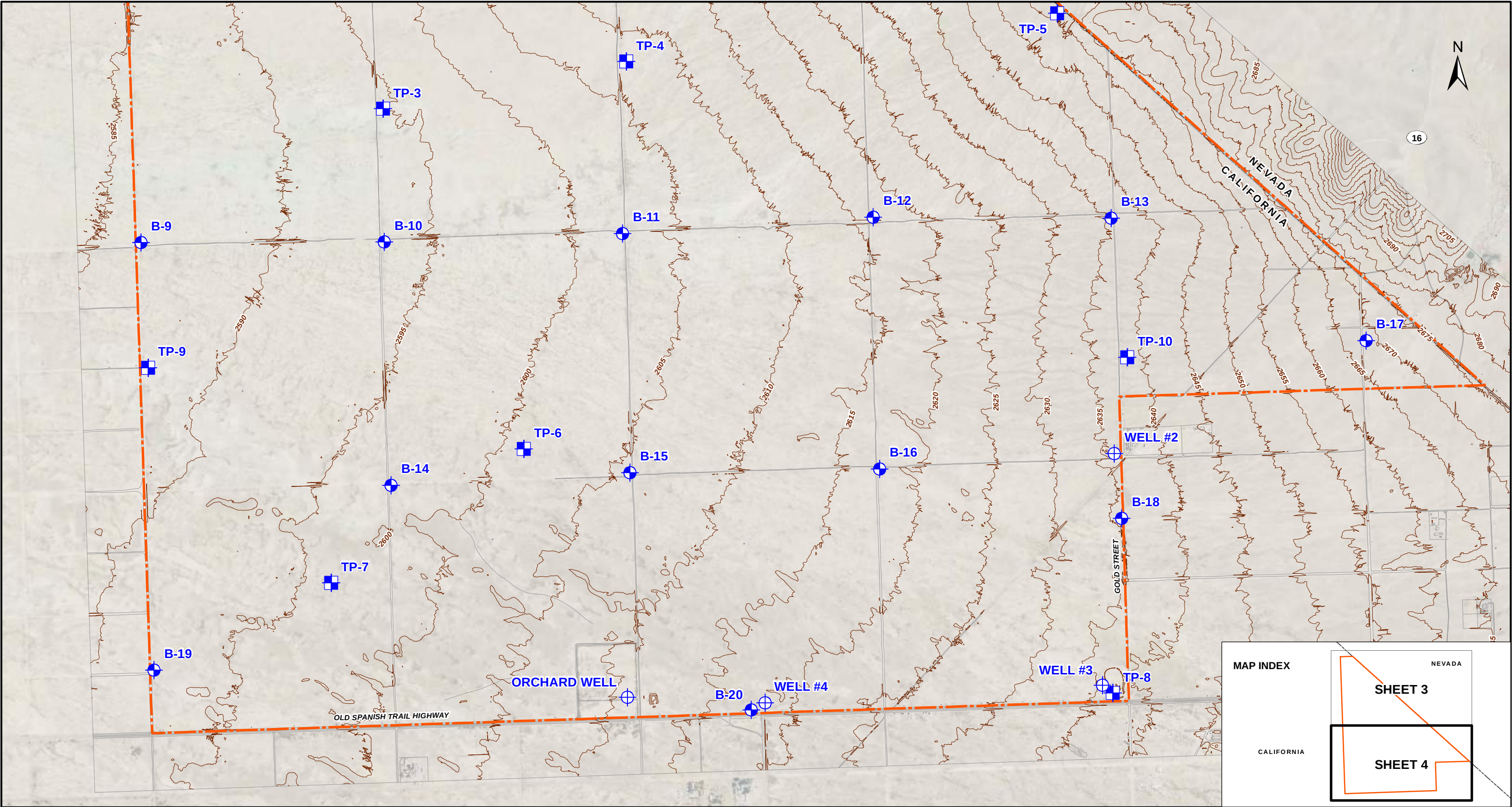
LEGEND

- B-20 BORING
- TP-10 TEST PIT
- WELL
- SITE BOUNDARY



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

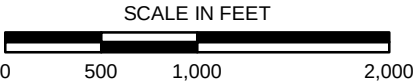
		EXPLORATORY EXCAVATIONS	FIGURE 3
PROJECT NO.	DATE		
303200001	3/11		
		HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	



SOURCE: DATA SOURCE

LEGEND

-  **B-20** BORING
-  WELL
-  **TP-10** TEST PIT
-  SITE BOUNDARY



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

		EXPLORATORY EXCAVATIONS	FIGURE 4
PROJECT NO.	DATE		
303200001	3/11		

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

APPENDIX A

EXPLORATORY BORING AND TEST PIT LOGS

Field Procedure for the Collection of Disturbed Samples

Bulk samples of representative earth materials were obtained from the exploratory excavations. The samples were bagged and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using a modified split-barrel drive sampler. The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows during driving are presented on the excavation logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

U.S.C.S. METHOD OF SOIL CLASSIFICATION			
MAJOR DIVISIONS		SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil >No. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction <No. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil <No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

GRAIN SIZE CHART		
CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
	3" to 3/4"	76.2 to 19.1
Coarse	3/4" to No. 4	19.1 to 4.76
Fine		
SAND	No. 4 to No. 200	4.76 to 0.074
	No. 4 to No. 10	4.76 to 2.00
	No. 10 to No. 40	2.00 to 0.420
	No. 40 to No. 200	0.420 to 0.074
Coarse		
Medium		
Fine		
SILT & CLAY	Below No. 200	Below 0.074

Hardness of Caliche*	
Descriptive Term	Characteristics
Moderately Hard	Can be scratched with a knife with light to moderate pressure; breaks with moderate hammer blow.
Hard	Can be scratched with a knife with difficulty; can be broken with heavy hammer blow.
Very Hard	Cannot be scratched with a knife; can only be broken with repeated heavy hammer blows.
* Rock-like cemented soil	

Ninyo & Moore	SOIL CLASSIFICATION
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DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-1</u>	
	Bulk	Driven						GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u>	METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u>
								DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u>	
								SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>	
									DESCRIPTION/INTERPRETATION
0							SC	NATIVE SOIL: Light brown, dry, loose, clayey SAND; a few roots in upper few feet of unit. Damp.	
			4/6" 6/6" 10/6"	5.8	94.0				
5			20/6" 20/6" 23/6"	3.9	103.0			Medium dense; trace gravel; moderately gypsiferous.	
								Increase in gravel content.	
10			12/6" 31/6" 34/6"	3.0	114.6			Dense.	
							SM	Light brown, damp, medium dense, silty SAND with gravel.	
15			8/6" 14/6" 14/6"						
									Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11.
									NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

PROJECT NO.
303200001

DATE
3/11

FIGURE
A-1

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-2</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>		
	Bulk	Driven						DESCRIPTION/INTERPRETATION		
0							SM	<u>NATIVE SOIL:</u> Light brown, dry, loose, silty SAND; trace gravel; a few roots. Damp.		
			4/6" 5/6" 10/6"	6.9	90.6		SC	Brown, damp, loose, clayey SAND; a few roots in upper few feet of unit.		
5			23/6" 30/6" 50/5"	6.7	89.8			Very dense; trace gravel; slightly gypsiferous; slightly porous; sampler refusal after 17 inches.		
10			28/6" 50/3"	7.8	89.8			Slightly cemented; decrease in gypsum content; sampler refusal after 9 inches.		
15			11/6" 23/6" 27/6"	9.4	92.2			Trace gravel. Medium dense.		
20								Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE

A-2

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-3</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>		
	Bulk	Driven						DESCRIPTION/INTERPRETATION		
0							SM	<u>NATIVE SOIL:</u> Brown, damp, loose, silty SAND; trace gravel; a few roots in upper few feet of unit.		
			3/6" 3/6" 8/6"	4.7	103.2					
5			6/6" 8/6" 12/6"	--	--			Increase in gravel content.		
10			20/6" 35/6" 50/4"					Very dense; slightly cemented; sampler refusal after 16 inches.		
							SC	Light brown, damp, very dense, clayey SAND; trace gravel.		
15			27/6" 35/6" 50/3"	6.2	110.4			Slightly cemented; sampler refusal after 15 inches.		
20								Total depth = 16.3 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

A-3

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-4</u>	
	Bulk	Driven						GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u>	METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u>
								DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u>	SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>
								DESCRIPTION/INTERPRETATION	
0							SM	<u>NATIVE SOIL:</u> Brown, damp, loose to medium dense, silty SAND; few gravel; a few roots.	
			4/6" 8/6" 13/6"	4.5	-		SC	Brown, damp, loose to medium dense, clayey SAND; slightly gypsiferous.	
5			17/6" 28/6" 30/6"	5.4	106.1			Medium dense.	
10			17/6" 48/6" 50/4"	7.7	101.1			Very dense; slightly cemented; slightly porous; sampler refusal after 16 inches.	
15			50/4"					Moderately hard, moderately cemented caliche layer; sampler refusal after 4 inches. Total depth = 15.3 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11.	
20								NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

A-4

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-5</u>		
							GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u>		
METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u>							DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u>		
SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>							DESCRIPTION/INTERPRETATION		
0						SM	<u>NATIVE SOIL:</u> Light brown, dry, loose, silty SAND; trace gravel; a few roots.		
5		2/6" 3/6" 3/6" 3/6" 5/6" 12/6"	10.5	79.2		SC	Brown, damp, very loose, clayey SAND; a few roots in upper few feet of unit. Loose.		
10		11/6" 20/6" 31/6"	11.4	101.0			Medium dense; moderately porous.		
15		2/6" 2/6" 50/1"	7.5	100.6			Moderately hard, moderately cemented caliche layer; sampler refusal after 13 inches.		
20							Total depth = 16.1 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

A-5

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.C.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-6</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION			
	Bulk	Driven									
0							SC	<u>NATIVE SOIL:</u> Brown, damp, very loose, clayey SAND; a few roots.			
			2/6" 2/6" 3/6"	5.1	82.2						
5			12/6" 30/6" 50/6"	7.4	108.7		CL	Light gray, damp, hard, sandy lean CLAY; trace gravel.			
10			30/6" 50/5"	4.5	103.5			Slightly cemented layer; sampler refusal after 11 inches.			
15			27/6" 50/4"					Light gray, damp, moderately hard, CALICHE; moderately cemented. Sampler refusal after 10 inches.			
20								Total depth = 15.8 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.			

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HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

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A-6

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.C.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-7</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							CL	<u>NATIVE SOIL:</u> Brown, damp, firm, sandy lean CLAY; a few roots.		
			2/6" 2/6" 4/6"	5.7	90.9		SM	Brown, damp, very loose, silty SAND.		
5			5/6" 6/6" 11/6"	7.1	86.1		SC	Brown, damp, loose, clayey SAND; slightly porous.		
							SM	Brown, damp, medium dense, silty SAND.		
10			31/6" 50/5"	6.1	102.2		SC	Light brown, damp, very dense, clayey SAND; trace gravel; slightly cemented. Sampler refusal after 11 inches.		
15			50/4"	6.6	96.5			Porous; sampler refusal after 4 inches. Total depth = 15.3 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11.		
20								NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE

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A-7

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-8</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SM	NATIVE SOIL: Light brown, dry to damp, loose to medium dense, silty SAND; few gravel: a few roots.		
			13/6" 14/6" 15/6"	4.9	113.1		SP-SM	Brown, damp, medium dense, poorly graded SAND with silt and gravel.		
5			7/6" 16/6" 28/6"	7.6	95.6		SC	Light brown, damp, medium dense, clayey SAND; trace gravel.		
10			8/6" 10/6" 16/6"	3.0	110.8		SM	Light brown, damp, medium dense, silty SAND; trace gravel.		
							SC	Light brown, damp, dense, clayey SAND; trace gravel.		
15			25/6" 25/6" 46/6"	5.0	102.3					
20								Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

Ningo & Moore

BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE

A-8

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-9</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>		
	Bulk	Driven						DESCRIPTION/INTERPRETATION		
0							SC	<u>NATIVE SOIL:</u> Light brown, dry, loose, clayey SAND; a few roots in upper few feet of unit. Damp. Medium dense; slightly porous. Light gray; few gravel; increase in clay content. Very dense; slightly cemented; sampler refusal after 9 inches. Medium dense; decrease in clay content. Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. <u>NOTE:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		
			5/6" 10/6" 15/6"	8.0	86.5					
5			7/6" 10/6" 19/6"	10.4	91.3					
10			19/6" 50/3"	9.0	97.3					
15			20/6" 30/6" 28/6"	3.8	105.9					
20										

Ninyo & Moore

BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE

A-9

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/20/11</u> BORING NO. <u>B-10</u>	
	Bulk	Driven						GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u>	METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u>
								DRIVE WEIGHT <u>140 lbs. (spooling cable)</u>	DROP <u>30"</u>
								SAMPLED BY <u>DJF</u>	LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>
								DESCRIPTION/INTERPRETATION	
0							CL	<u>NATIVE SOIL:</u> Brown, damp, very stiff, sandy lean CLAY; a few roots in upper few feet of unit.	
			7/6" 10/6" 18/6"	9.6	91.2				
5			17/6" 37/6" 50/4"	10.7	105.7			Hard; slightly cemented; slightly porous; sampler refusal after 16 inches. Light gray.	
10			20/6" 20/6" 23/6"	7.8	--			Very stiff; moderately porous.	
15			25/6" 50/3"	18.5	80.4			Hard; slightly cemented; sampler refusal after 9 inches.	
20								Total depth = 15.8 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

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A-10

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-11</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SM	<u>NATIVE SOIL:</u> Brown, damp, loose, silty SAND; trace gravel; a few roots.		
			5/6" 5/6" 10/6"	3.7	105.1		SC	Brown, damp, loose, clayey SAND; slightly porous.		
5			20/6" 50/4"	8.4	102.7		CL	Light grayish brown, damp, hard, sandy lean CLAY; slightly cemented; slightly porous. Sampler refusal after 10 inches.		
10			37/6" 50/1"	6.3	102.1			Sampler refusal after 7 inches. Light gray, damp, moderately hard, CALICHE; moderately cemented; composed primarily of fine-grained material.		
15			50/4"					Sampler refusal after 4 inches. Total depth = 15.3 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11.		
20								NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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FIGURE

A-11

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-12</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
							0		
		7/6" 27/6" 50/6"	9.4	103.4		SC	Light brown, damp, dense, clayey SAND; trace gravel; slightly cemented; moderately porous.		
5		27/6" 50/3"	--	--			Very dense; sampler refusal after 9 inches.		
10		17/6" 50/5"				SM	Light brown, damp, very dense, silty SAND with gravel; slightly cemented. Sampler refusal after 11 inches.		
15		29/6" 29/6" 50/2"	2.3	114.1			Slightly porous; sampler refusal after 14 inches.		
20							Total depth = 16.2 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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FIGURE

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A-12

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-13</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>		
	Bulk	Driven						DESCRIPTION/INTERPRETATION		
0							SM	NATIVE SOIL: Brown, damp, medium dense, silty SAND; few gravel; a few roots.		
			17/6" 19/6" 37/6"	7.2	101.6					
5			8/6" 18/6" 40/6"	6.2	99.2		SC	Brown, damp, medium dense, clayey SAND; slightly gypsiferous.		
							SM	Light brown, damp, medium dense, silty SAND; trace gravel; slightly gypsiferous.		
10			7/6" 9/6" 15/6"	5.8	94.2			Few gravel.		
15			20/6" 20/6" 20/6"	7.2	96.9					
20								Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
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FIGURE

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A-13

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.
							1/20/11	B-14
							GROUND ELEVATION	SHEET
							Not measured	1 OF 1
							METHOD OF DRILLING	
							Mayhew 1000 air-rotary drill rig	
							DRIVE WEIGHT	DROP
							140 lbs. (spooling cable)	30"
							SAMPLED BY	LOGGED BY
							DJF	DJF
							REVIEWED BY	BDB
							DESCRIPTION/INTERPRETATION	
0						SC	<u>NATIVE SOIL:</u> Light brown, damp, loose, clayey SAND; a few roots in upper few feet of unit.	
		12/6" 40/6" 50/3"	11.4	104.8			Brown; increase in clay content; trace gravel. Very dense; slightly cemented layer a few inches thick; sampler refusal after 15 inches.	
5		20/6" 21/6" 24/6"	13.3	98.3			Light brown; medium dense; slightly porous.	
10		7/6" 10/6" 20/6"	14.3	98.0				
15		40/6" 50/2"					Very dense; slightly cemented; sampler refusal after 8 inches.	
20							Total depth = 15.7 feet. Groundwater not encountered during drilling. Backfilled on 1/20/11.	
							<u>NOTE:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	

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FIGURE

A-14

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-15</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SC	<u>NATIVE SOIL:</u> Brown, damp, medium dense, clayey SAND; trace gravel; a few roots.		
2.9			29/6"	8.8	102.2		CL	Light gray, damp, hard, sandy lean CLAY; slightly cemented; slightly porous. Sampler refusal after 16 inches.		
4.2		42/6"								
5.0		50/4"								
5			27/6"	7.8	106.5					
		37/6"								
		50/6"								
10			20/6"	6.5	105.1		SC	Light gray, damp, very dense, clayey SAND; slightly cemented; few gravel; slightly porous. Sampler refusal after 11 inches.		
		50/5"								
15			30/6"	8.4	104.5			Sampler refusal after 13 inches.		
		30/6"								
		50/1"								
20								Total depth = 16.1 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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FIGURE

A-15

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-16</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SM	NATIVE SOIL: Brown, damp, medium dense, silty SAND; trace gravel; a few roots.		
17/6"				7.3	105.9		SC	Light brown, damp, very dense, clayey SAND; slightly cemented; few gravel; slightly porous. Sampler refusal after 17 inches.		
27/6"										
50/5"										
5				7.1	107.0			Moderately porous; sampler refusal after 11 inches.		
37/6"										
50/5"										
10				7.4	84.7			Sampler refusal after 8 inches.		
37/6"										
50/2"										
15								Sampler refusal after 8 inches.		
37/6"								Total depth = 15.7 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11.		
50/2"								NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		
20										

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FIGURE

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A-16

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-17</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SM	NATIVE SOIL: Brown, damp, very loose, silty SAND; a few roots; scattered gravel.		
			2/6"	10.4	96.6					
			2/6"							
			2/6"							
5							SC	Light brown, damp, medium dense, clayey SAND.		
			12/6"	3.2	113.0					
			24/6"							
			35/6"							
10							SC	Brown, damp, medium dense, clayey SAND with gravel.		
			5/6"	6.7	107.0					
			18/6"							
			34/6"							
15							SM	Brown, damp, medium dense, silty SAND with gravel.		
			12/6"	7.4	109.8					
			19/6"							
			40/6"							
20								Total depth = 16.5 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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FIGURE
A-17

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-18</u>	
	Bulk	Driven						GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u>	METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u>
								DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u>	
								SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>	
									DESCRIPTION/INTERPRETATION
0							SM	<u>NATIVE SOIL:</u> Brown, damp, medium dense, silty SAND; trace gravel; a few roots.	
			13/6" 15/6" 20/6"	7.5	101.7		SC	Brown, damp, medium dense, clayey SAND.	
5			17/6" 40/6" 44/6"	7.6	111.7			Dense; moderately porous.	
							SM	Light brown, damp, very dense, silty SAND; few gravel.	
10			7/6" 50/5"	14.1	96.4			Slightly cemented; sampler refusal after 11 inches.	
							SC	Light brown, damp, very dense, clayey SAND; trace gravel; slightly porous.	
15			27/6" 50/3"	--	--			Slightly cemented; sampler refusal after 9 inches.	
								Total depth = 15.8 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11.	
								<u>NOTE:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
20									

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FIGURE
A-18

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-19</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u>		
	Bulk	Driven						DESCRIPTION/INTERPRETATION		
0							SM	NATIVE SOIL: Light brown, damp, loose, silty SAND; a few roots; trace gravel.		
6 1/6"				17.3	104.9		SC	Brown, damp, medium dense, clayey SAND; trace gravel.		
13 1/6"										
22 1/6"										
5				15.1	96.6			Dense; light gray.		
6 1/6"								Light brown.		
17 1/6"										
47 1/6"										
10				15.1	102.5			Very dense; slightly cemented; sampler refusal after 15 inches.		
23 1/6"										
40 1/6"										
50 1/3"										
15				18.5	99.3			Slightly porous; sampler refusal after 7 inches.		
16 1/6"										
50 1/1"										
20								Total depth = 15.6 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11. NOTE: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE
A-19

DEPTH (feet)	SAMPLES		BLOWS	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/21/11</u> BORING NO. <u>B-20</u> GROUND ELEVATION <u>Not measured</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>Mayhew 1000 air-rotary drill rig</u> DRIVE WEIGHT <u>140 lbs. (spooling cable)</u> DROP <u>30"</u> SAMPLED BY <u>DJF</u> LOGGED BY <u>DJF</u> REVIEWED BY <u>BDB</u> DESCRIPTION/INTERPRETATION		
	Bulk	Driven								
0							SM	<u>NATIVE SOIL:</u> Brown, damp, medium dense, silty SAND; trace gravel; a few roots.		
			9/6" 12/6" 19/6"	2.7	102.2		SC	Brown, damp, medium dense, clayey SAND; trace gravel; slightly porous.		
			16/6" 50/3"	4.9	97.9		SM	Light brown, damp, very dense, silty SAND with gravel; slightly cemented. Sampler refusal after 9 inches.		
							SC-SM	Light brown, damp, medium dense, silty, clayey SAND; few gravel.		
10			23/6" 27/6" 33/6"	6.0	99.9					
15			50/5"	7.1	87.6			Very dense; slightly cemented; slightly porous; sampler refusal after 5 inches. Total depth = 15.4 feet. Groundwater not encountered during drilling. Backfilled on 1/21/11.		
20								<u>NOTE:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		

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BORING LOG

HIDDEN HILLS SOLAR FACILITY, OLD SPANISH TRAIL HIGHWAY
AND GOLD STREET, INYO COUNTY, CALIFORNIA

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FIGURE

A-20



TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

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DEPTH (FEET)

Bulk
Driven
Sand Cone

SAMPLES

MOISTURE (%)

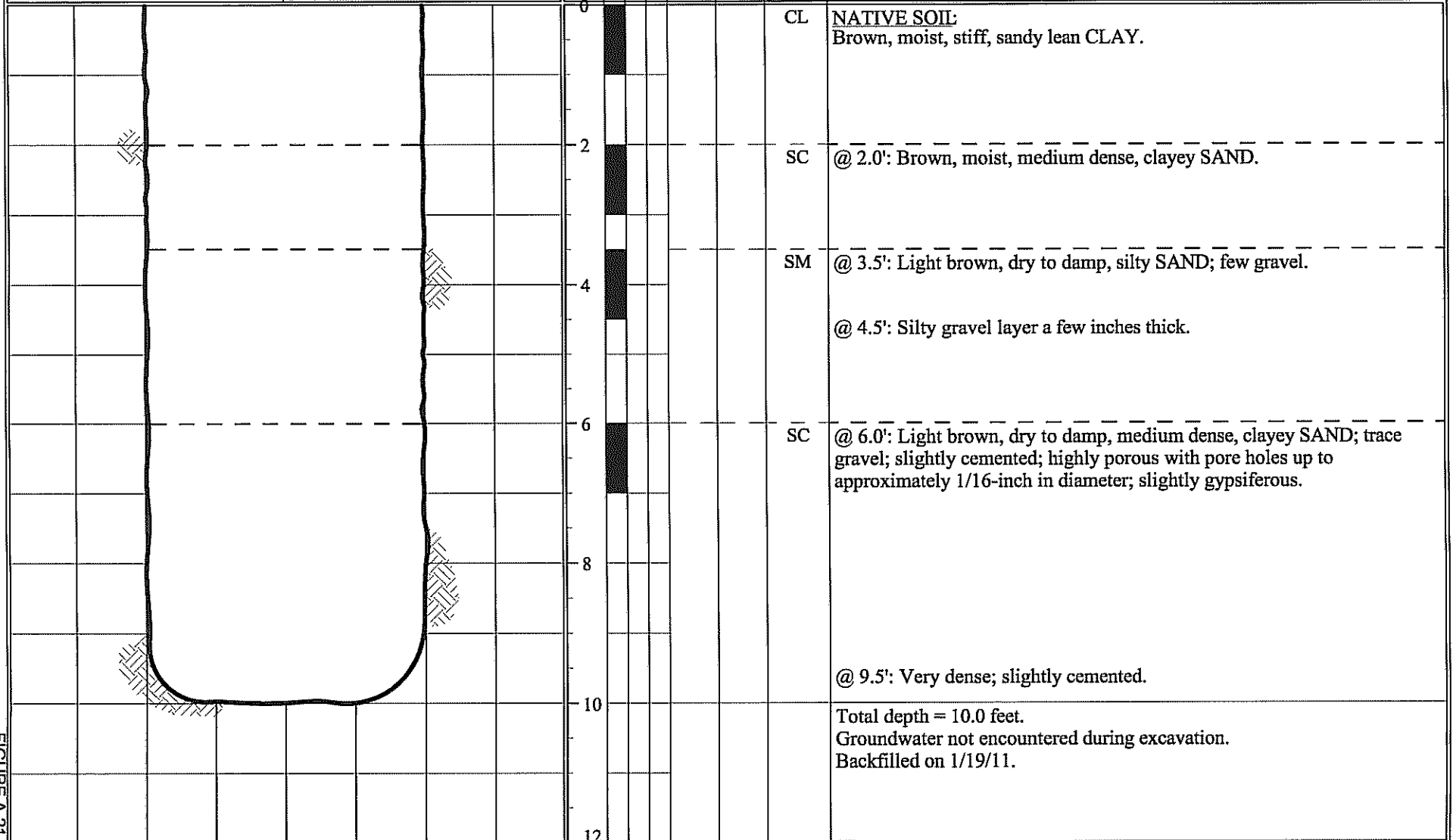
DRY DENSITY (PCF)

CLASSIFICATION
U.S.C.S.

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-1
GROUND ELEVATION Not measured LOGGED BY RCH
METHOD OF EXCAVATION Case 580 Super L Backhoe
LOCATION See Figure 2

DESCRIPTION

FIGURE A-21



SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO. DATE

303200001 3/11

DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.	DESCRIPTION
	Bulk	Driven	Sand Cone				
0						SM	<u>NATIVE SOIL:</u> Brown, damp to moist, loose, silty SAND; trace gravel; scattered roots to approximately 1/4-inch in diameter; slightly porous.
2						GM	@ 2.5': Brown, damp, medium dense to dense, silty GRAVEL with sand.
4						SM	@ 3.0': Light brown, dry to damp, medium dense to dense, silty SAND; few gravel. @ 4.5': Silty gravel layer a few inches thick.
6							
8						SC	@ 7.0': Brown, dry to damp, medium dense, clayey SAND; moderately porous with pore holes up to approximately 1/16-inch in diameter; moderately gypsiferous. @ 8.5': Orangish brown; slightly oxidized.
10							Total depth = 9.5 feet. Groundwater not encountered during excavation. Backfilled on 1/19/11.
12							

SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO.

303200001

DATE

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DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.	DESCRIPTION
	Bulk	Driven	Sand Cone				
0						CL/CH	NATIVE SOIL: Greenish brown, damp, firm, sandy lean to fat CLAY.
2						CL	@ 1.0': Brown and light brown, dry to damp, very stiff, sandy lean CLAY with gravel; gravel generally consists of caliche chunks; highly porous with pore holes up to approximately 1/4-inch in diameter.
4						CL/CH	@ 4.0': Light brown, dry to damp, very stiff, sandy lean to fat CLAY; slightly cemented; highly porous; scattered hard, strongly cemented caliche chunks ranging from sand- to gravel-size.
6							
8							
10							Total depth = 9.3 feet. Groundwater not encountered during excavation. Backfilled on 1/19/11.
12							

SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

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DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.
	Bulk	Driven	Sand Cone			
0						SC
2						
4						
6						
8						
10						
12						

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-4
GROUND ELEVATION Not measured LOGGED BY RCH
METHOD OF EXCAVATION Case 580 Super L Backhoe
LOCATION See Figure 2

DESCRIPTION

NATIVE SOIL:
Brown, moist, loose, clayey SAND.

@ 2.8': Light brown; medium dense.

@ 4.0': Pale brown; dense to very dense; slightly cemented; scattered hard, strongly cemented caliche chunks ranging from sand- to gravel-size; slightly gypsiferous; moderately porous with pore holes up to approximately 1/16-inch in diameter.

@ 9.0': Very dense.

Total depth = 11.0 feet.
Groundwater not encountered during excavation.
Backfilled on 1/19/11.

FIGURE A-24

SCALE = 1 in./2 ft.



TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

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DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.	DESCRIPTION
	Bulk	Driven	Sand Cone				
0						SP-SM	<u>NATIVE SOIL:</u> Brown, damp, very loose to loose, poorly graded SAND with silt and gravel.
2						SW	@ 1.9': Brown, moist, very loose to loose, well-graded SAND.
4						SC	@ 3.5': Light brown, damp, medium dense, clayey SAND with gravel.
						SW-SM	@ 4.0': Brown, damp, medium dense to dense, well-graded SAND with silt and gravel.
6							
8							
						GP-GM	@ 8.5': Brown, damp, dense, poorly graded GRAVEL with silt, sand, and cobbles.
10							Total depth = 10.0 feet. Groundwater not encountered during drilling. Backfilled on 1/19/11.
12							

SCALE = 1 in./2 ft.

TEST PIT LOG

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OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
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DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.
	Bulk	Driven	Sand Cone			
0						SC
2						
4						
6						CL/CH
8						
10						
12						

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-6

GROUND ELEVATION Not measured LOGGED BY RCH

METHOD OF EXCAVATION Case 580 Super L Backhoe

LOCATION See Figure 2

DESCRIPTION

NATIVE SOIL

Brown, moist, loose, clayey SAND; scattered rootlets.

@ 3.0': Light greenish brown; damp; medium dense; with caliche gravel.

CL/CH

@ 5.0': Brown, dry to damp, very stiff, sandy lean to fat CLAY; slightly cemented; highly porous; scattered hard, strongly cemented caliche chunks ranging from sand- to gravel-size.

Total depth = 10.0 feet.

Groundwater not encountered during excavation.

Backfilled on 1/19/11.

FIGURE A-26

SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO.

303200001

DATE

3/11

DEPTH (FEET)

Bulk
Driven
Sand Cone

MOISTURE (%)

DRY DENSITY (PCF)

CLASSIFICATION
U.S.C.S.

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-7

GROUND ELEVATION Not measured LOGGED BY RCH

METHOD OF EXCAVATION Case 580 Super L Backhoe

LOCATION See Figure 2

DESCRIPTION

SC

NATIVE SOIL:
Brown, damp, loose, clayey SAND; few gravel.

@ 2.0': Mottled greenish brown and reddish brown.

@ 3.5': Light brown; very dense; slightly cemented; scattered hard, strongly cemented caliche chunks ranging from sand- to gravel-size.

CL

@ 5.0': Greenish brown, damp, hard, sandy lean CLAY with gravel; highly porous with pore holes up to approximately 1/4-inch in diameter.

@ 8.5': Gravel layer up to a few inches thick.

@ 8.9': Brown.

Total depth = 9.4 feet.
Groundwater not encountered during excavation.
Backfilled on 1/19/11.

FIGURE A-27

SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO.

303200001

DATE

3/11

DEPTH (FEET)

Bulk

Driven

Sand Cone

SAMPLES

MOISTURE (%)

DRY DENSITY (PCF)

CLASSIFICATION
U.S.C.S.

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-8

GROUND ELEVATION Not measured LOGGED BY RCH

METHOD OF EXCAVATION Case 580 Super L Backhoe

LOCATION See Figure 2

DESCRIPTION

SM

NATIVE SOIL:

Brown, damp to moist, loose, silty SAND.

SC

@ 1.0': Brown, moist, loose to medium dense, clayey SAND.

@ 2.8': Damp; medium dense to dense; few gravel.

@ 3.5' Slightly cemented; highly porous with pore holes up to approximately 1/8-inch in diameter.

@ 7.0': Light brown to brown, damp, moderately hard to hard, CALICHE; moderately to strongly cemented; composed of fine- and coarse- grained material; highly porous with pore holes up to approximately 3/16-inch in diameter.

Total depth = 8.0 feet (backhoe refusal).

Groundwater not encountered during excavation.

Backfilled on 1/19/11.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO.

DATE

303200001

3/11

DEPTH (FEET)	SAMPLES			MOISTURE (%)	DRY DENSITY (PCF)	CLASSIFICATION U.S.C.S.
	Bulk	Driven	Sand Cone			
0						SC
2						
4						CL/CH
6						
8						SC
10						
12						

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-9
GROUND ELEVATION Not measured LOGGED BY RCH
METHOD OF EXCAVATION Case 580 Super L Backhoe
LOCATION See Figure 2

DESCRIPTION

NATIVE SOIL:
Brown, damp, loose, clayey SAND.

@ 2.9': Greenish brown; medium dense; moderately porous; slightly gypsiferous.

@ 3.5': Light brown, dry to damp, hard, sandy lean to fat CLAY; moderately porous with pore holes up to approximately 1/4-inch in diameter; slightly cemented; scattered hard, strongly cemented caliche chunks ranging from sand- to cobble-size.

@ 6.5': Light brown, moist, moderately hard, CALICHE; moderately cemented; composed of fine- and coarse-grained material; highly porous with pore holes up to approximately 1/4-inch in diameter.

@ 7.0': Light brown, moist, medium dense to dense, clayey SAND with gravel; gravel generally consists of caliche chunks; highly porous; a few slightly cemented clay layers a few inches thick.

Total depth = 10.0 feet.
Groundwater not encountered during excavation.
Backfilled on 1/19/11.

SCALE = 1 in./2 ft.

TEST PIT LOG

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

PROJECT NO.

DATE

303200001

3/11

DEPTH (FEET)

Bulk
Driven
Sand Cone

MOISTURE (%)

DRY DENSITY (PCF)

CLASSIFICATION
U.S.C.S.

DATE EXCAVATED 1/19/11 TEST PIT NO. TP-10
GROUND ELEVATION Not measured LOGGED BY RCH
METHOD OF EXCAVATION Case 580 Super L Backhoe
LOCATION See Figure 2

DESCRIPTION

SM

NATIVE SOIL:

Brown, moist, loose, silty SAND with gravel; scattered roots to approximately 1/2-inch in diameter.

GP-GM

@ 1.5': Brown, moist, medium dense, poorly graded GRAVEL with silt and sand.

SC

@ 2.3': Brown, moist, medium dense, clayey SAND.

SM

@ 3.0': Light brown, dry to damp, medium dense, silty SAND with gravel.

@ 6.0': Moderately porous with pore holes up to approximately 1/32-inch in diameter.

SC

@ 8.0': Brown, dry to damp, medium dense, clayey SAND with gravel; highly porous with pore holes up to approximately 3/8-inch in diameter.

Total depth = 10.3 feet.

Groundwater not encountered during excavation.

Backfilled on 1/19/11.

APPENDIX B

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory excavations in Appendix A.

Moisture Content

The moisture content of samples obtained from the exploratory excavations was evaluated in accordance with ASTM D 2216. The test results are presented on the logs of the exploratory excavations in Appendix A.

In-Place Moisture and Density

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory excavations were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory excavations in Appendix A.

Gradation Analysis

Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D 422. These test results were utilized in evaluating the soil classifications in accordance with the USCS. The grain-size distribution curves are shown on Figure B-1 through Figure B-14.

Atterberg Limits

Tests were performed on selected representative soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and classifications are shown on Figure B-15 and Figure B-16.

Consolidation

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The consolidation test results are summarized graphically on Figure B-17 through Figure B-22 and the expansion/collapse potential results are summarized on Figure B-23.

Collapse Potential

Collapse potential tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 5333. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The collapse test results are summarized graphically on Figure B-24 through Figure B-30 and the results of the test are summarized on Figure B-31.

Expansion Index

The expansion index of selected materials was evaluated in general accordance with ASTM D 4829. Specimens were molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimens were loaded with a surcharge of 144 pounds per square foot and were inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The results of these tests are presented on Figure B-32.

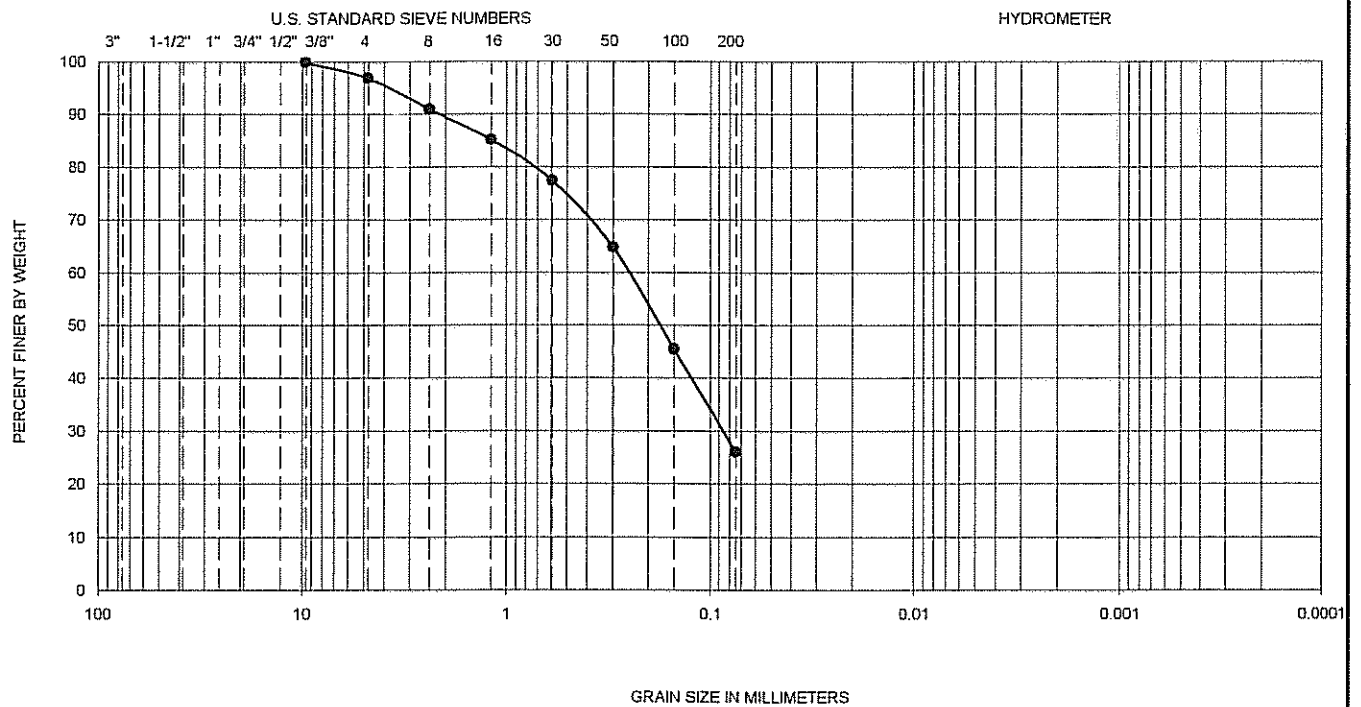
Direct Shear

Direct shear tests were performed on undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figure B-33 through Figure B-42.

Miller Box Resistivity

Miller Box resistivity tests were performed on selected samples to measure the resistivity of the soil as an indication of the relative ability of the soil to carry electrical current. A voltage was impressed between two outer electrodes and the resistance between two inner electrodes was measured using a Nilsson Soil Resistance Meter, Model 400. Samples were tested at increasing moisture contents until saturated. Results of the tests are summarized on Figure B-43.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

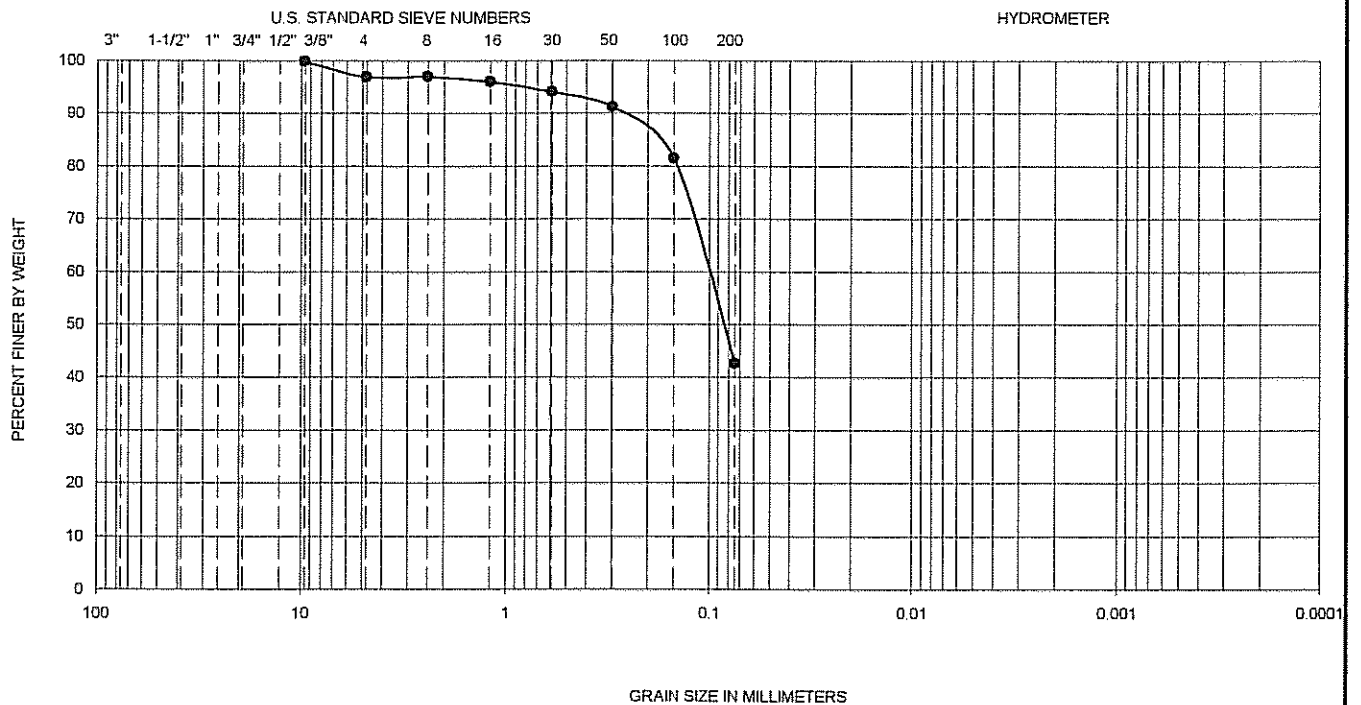


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-2	14.0-15.0	33	21	12	--	--	--	--	--	26	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE B-1
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

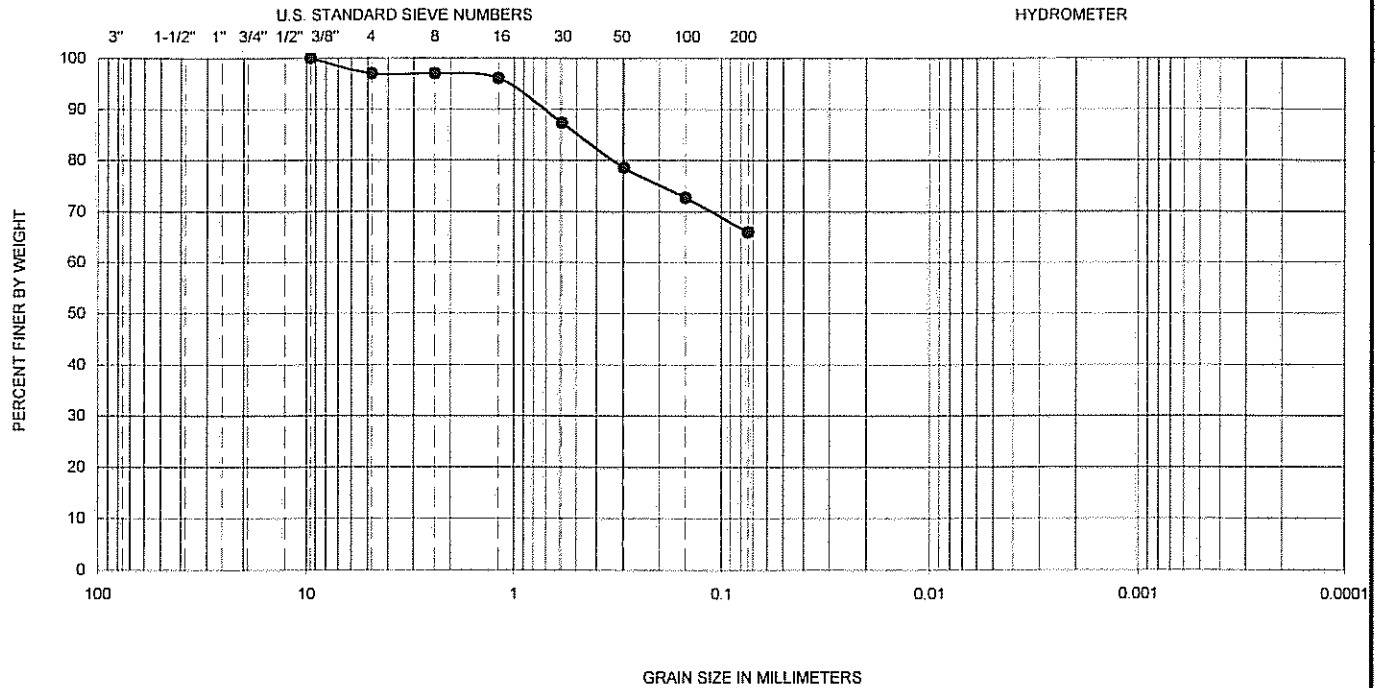


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-5	0.0-1.0	--	--	NP	--	--	--	--	--	43	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-2
PROJECT NO.	DATE		
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

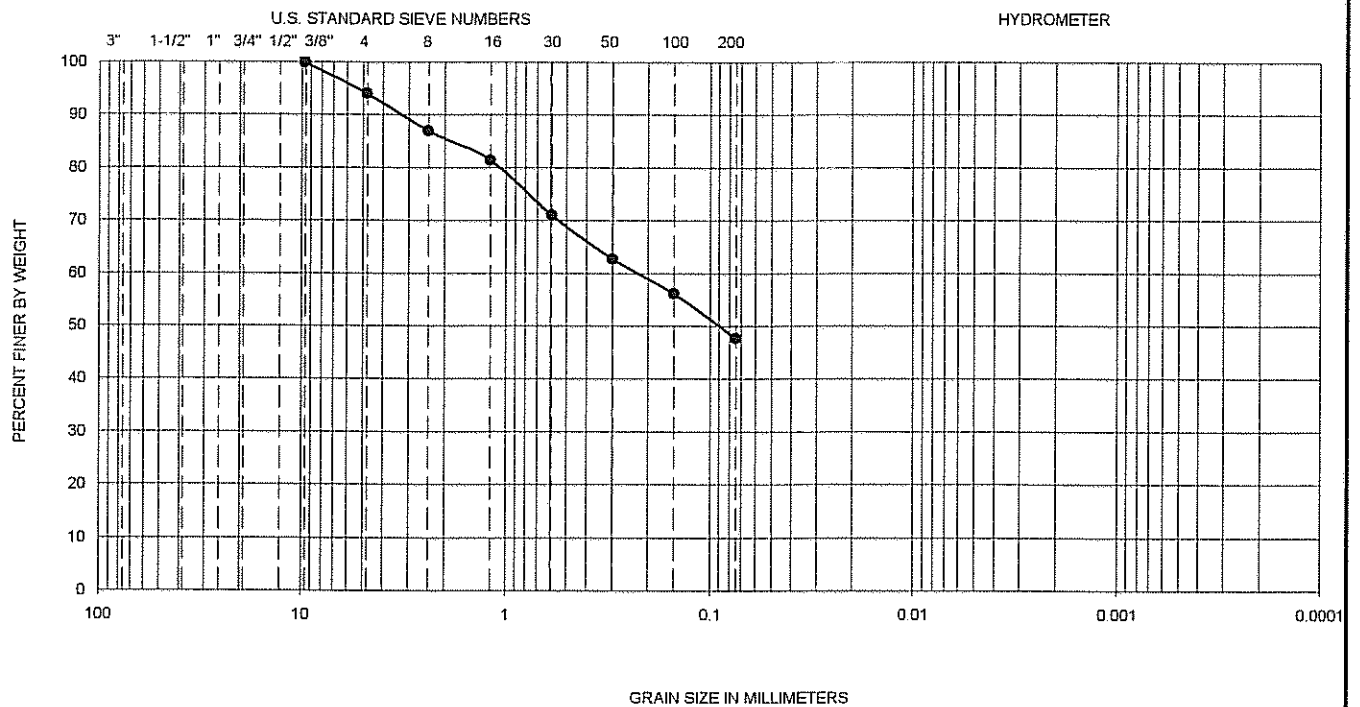


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-6	9.0-10.0	30	15	15	—	—	—	—	—	66	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE B-3
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

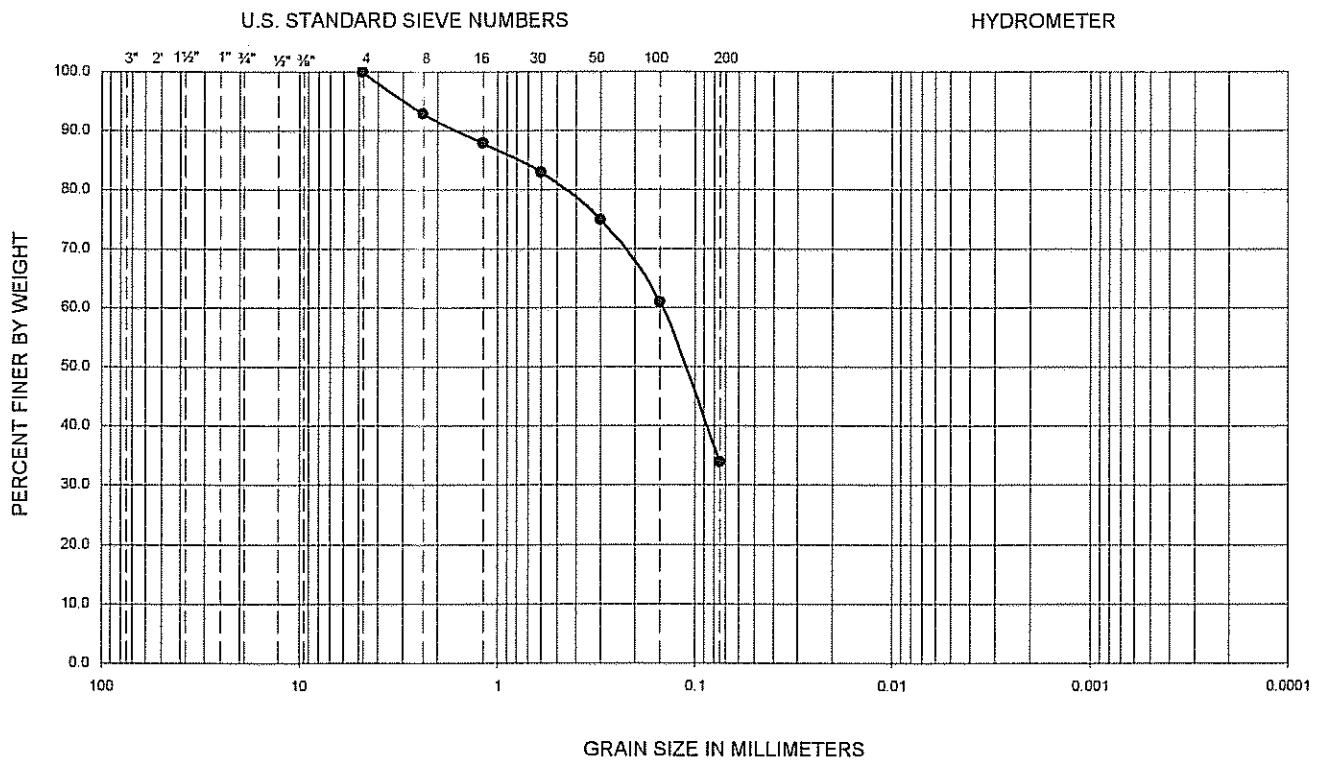


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-9	7.0-8.0	41	22	19	--	--	--	--	--	48	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-4
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

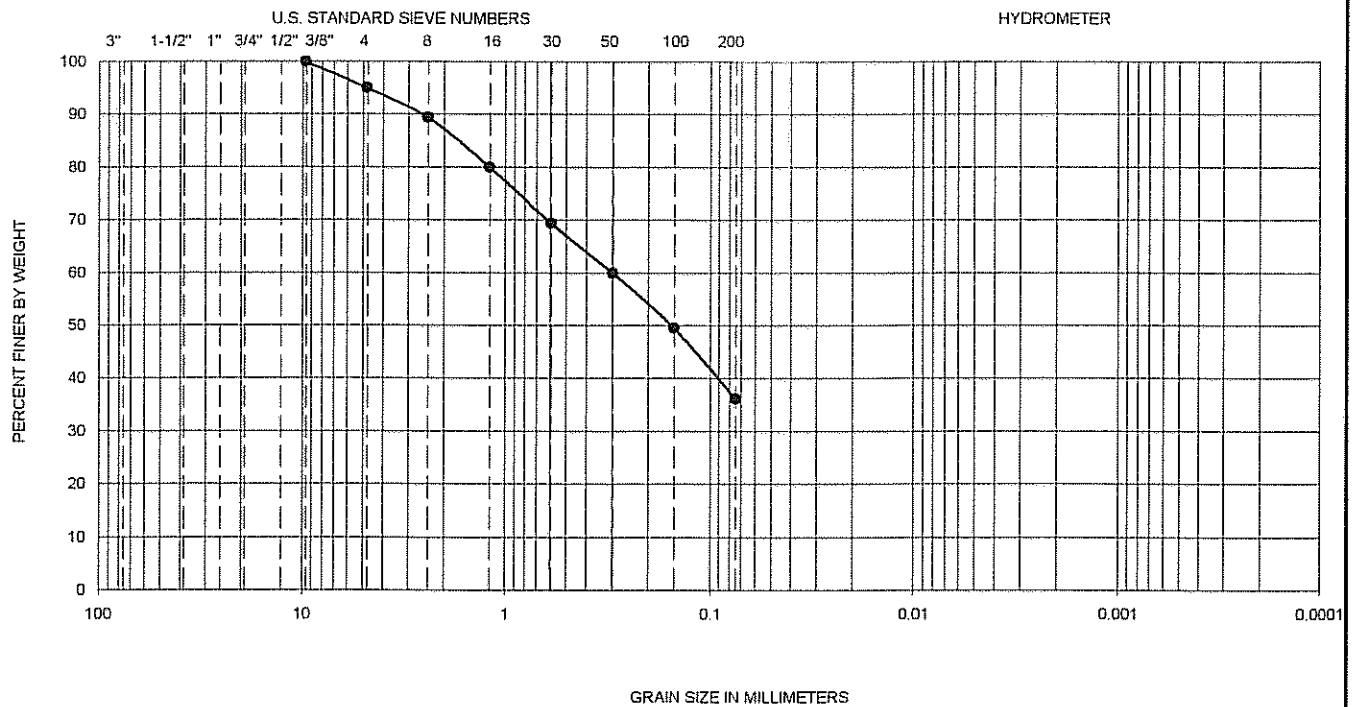


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	USCS
●	B-13	5.0-6.5	25	14	11	--	--	--	--	--	34	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-5
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

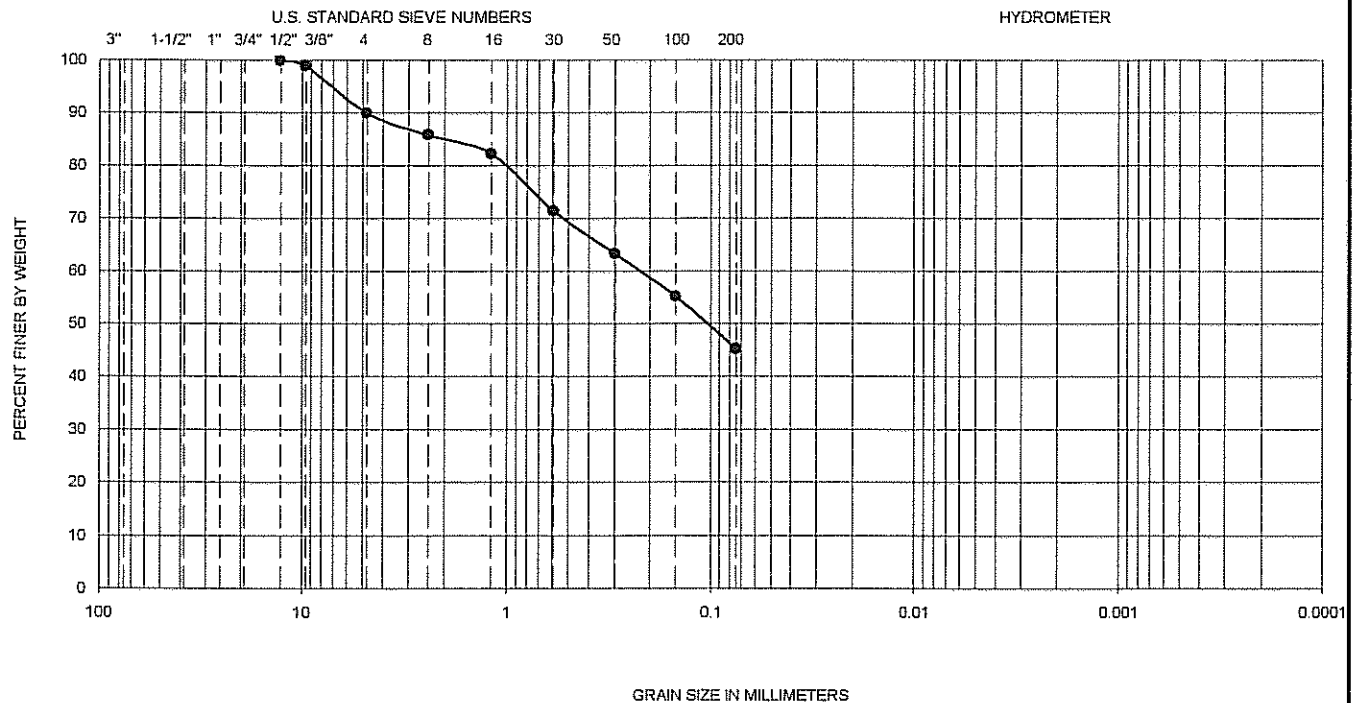


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-14	14.0-15.0	36	20	16	--	--	--	--	--	36	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-6
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

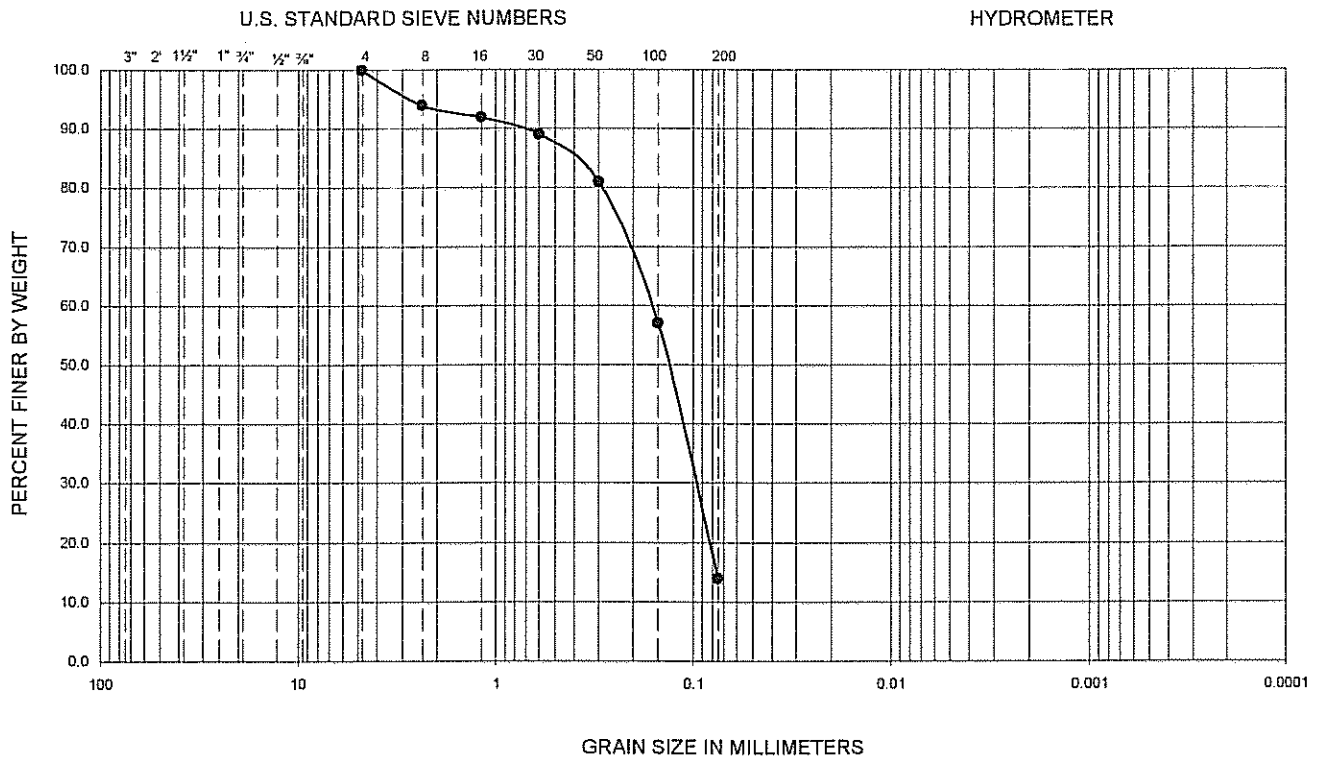


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-16	8.0-10.0	36	20	16	--	--	--	--	--	45	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-7
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

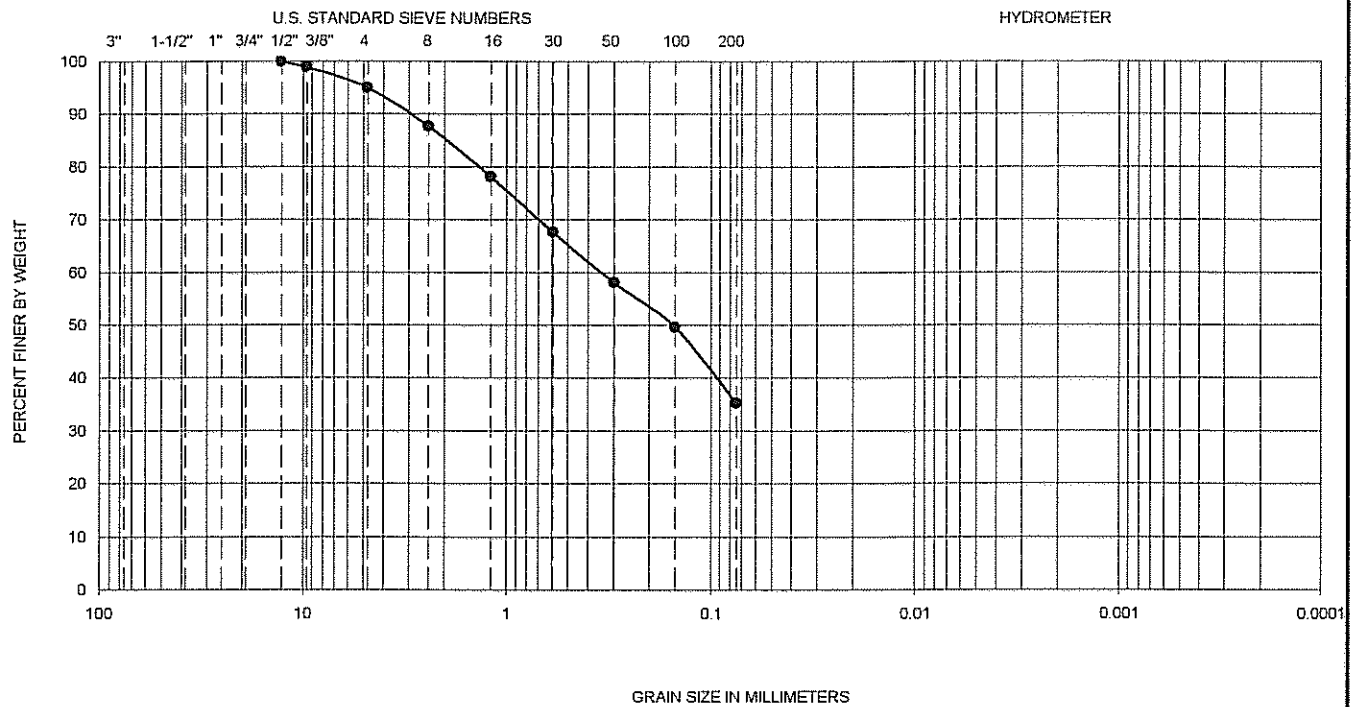


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	USCS
●	B-17	2.0-3.5	--	--	NP	--	--	--	--	--	14	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-8
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

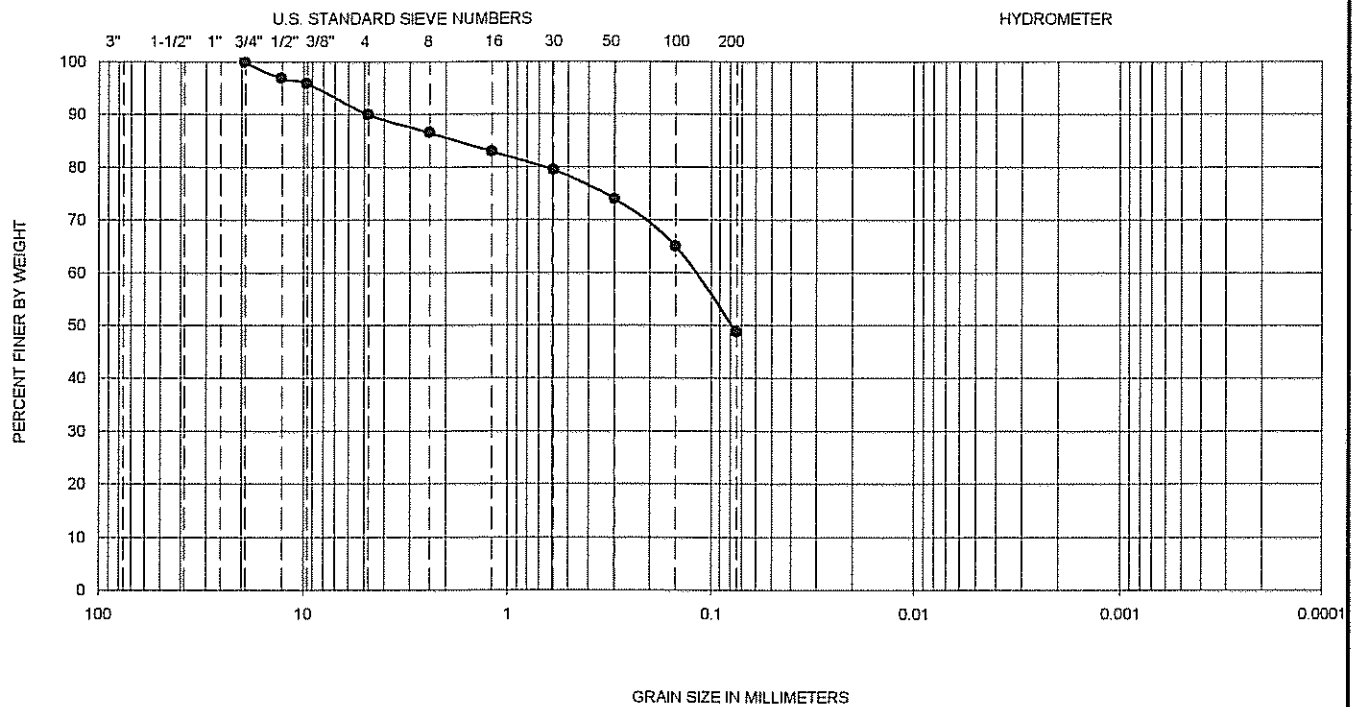


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-19	7.0-8.0	37	16	21	--	--	--	--	--	35	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-9
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

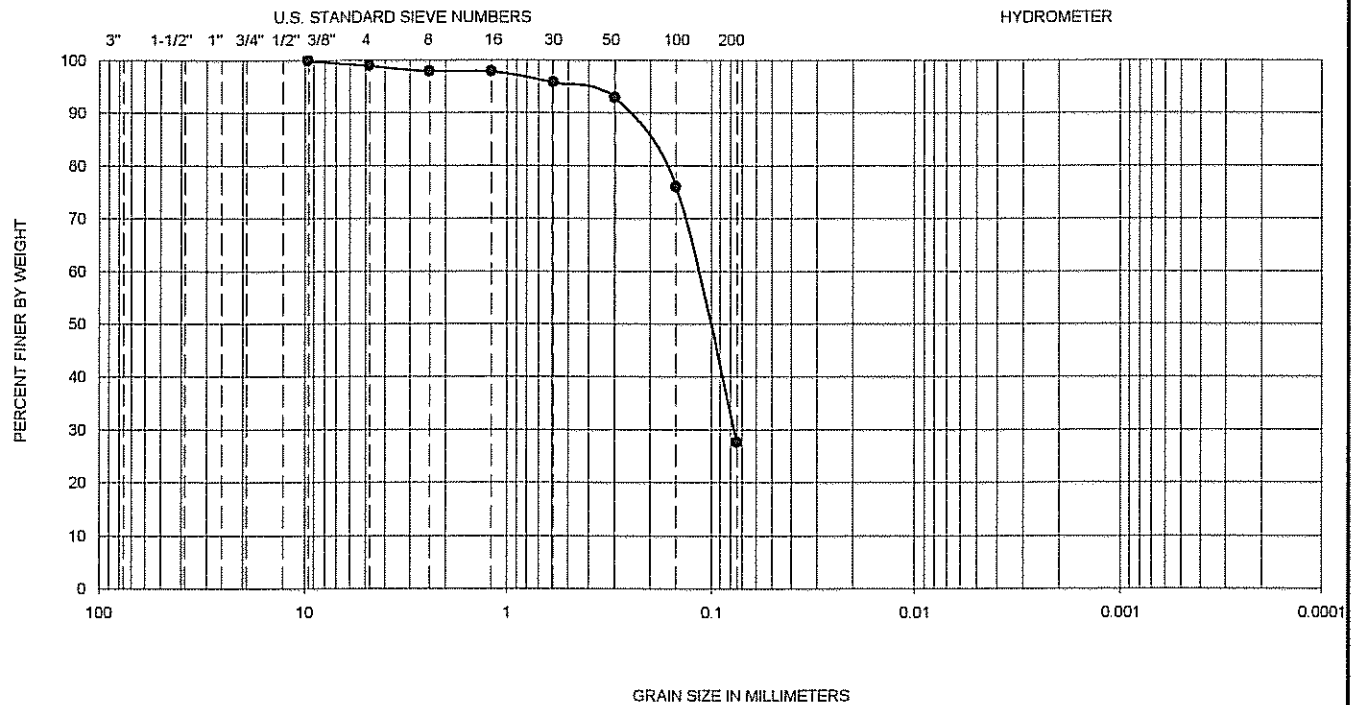


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	B-20	12.0-13.0	24	18	6	—	—	—	—	—	49	SC-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-10
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

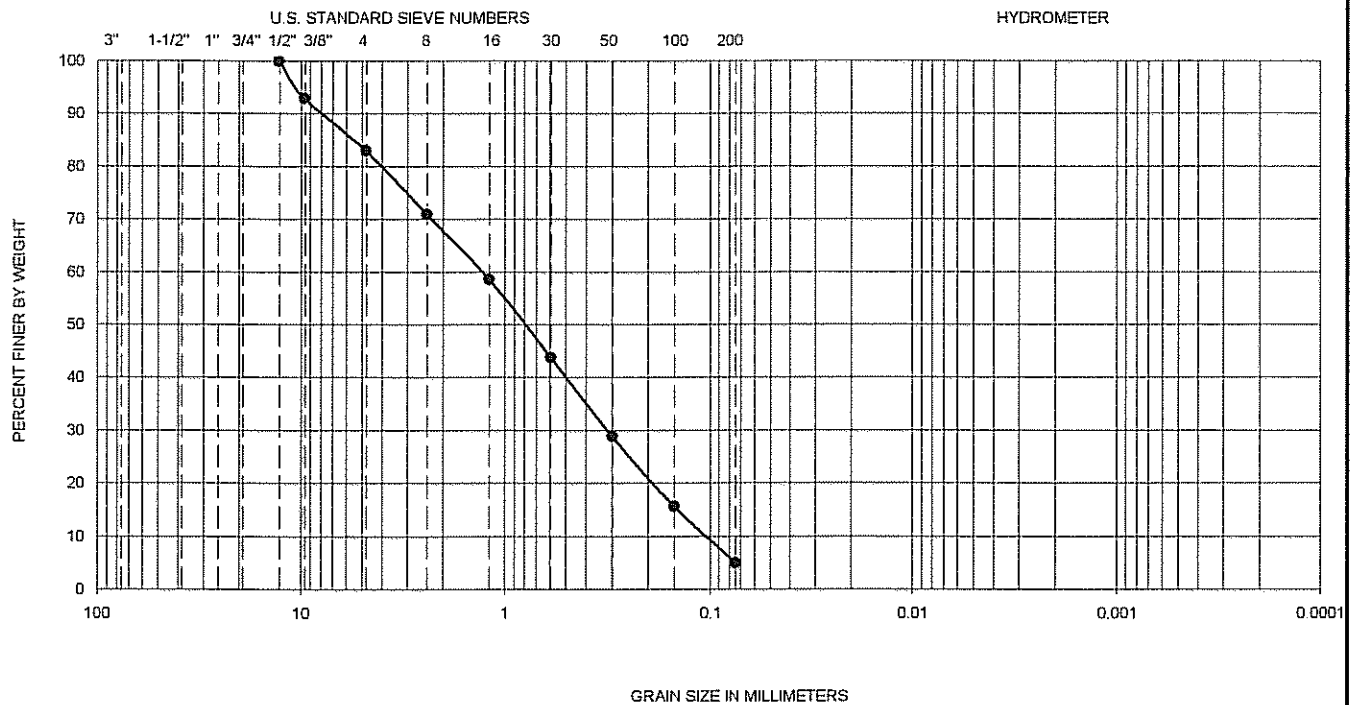


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	TP-2	0.0-1.0	--	--	NP	--	--	--	--	--	28	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-11
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET	
		INYO COUNTY, CALIFORNIA	

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

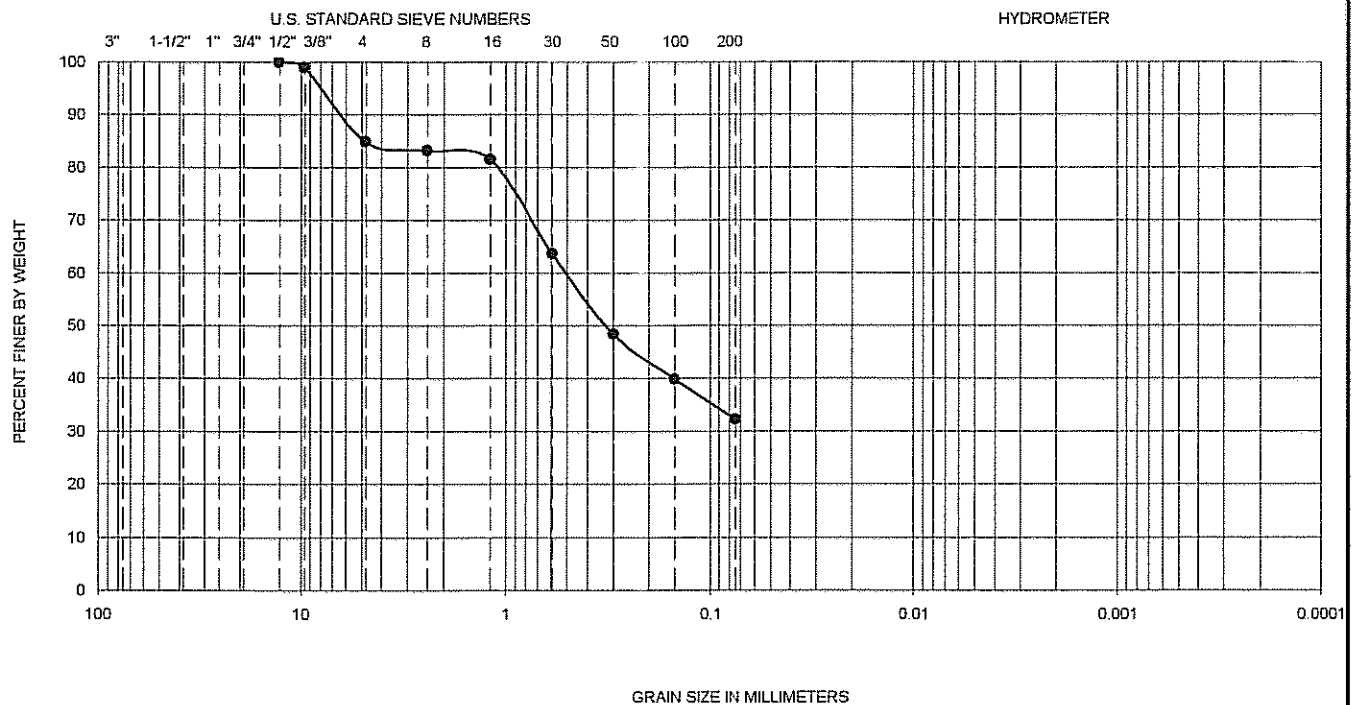


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	TP-5	0.0-2.0	—	—	NP	0.11	0.30	1.20	10.9	0.7	5.0	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS		FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA		B-12
303200001	3/11			

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

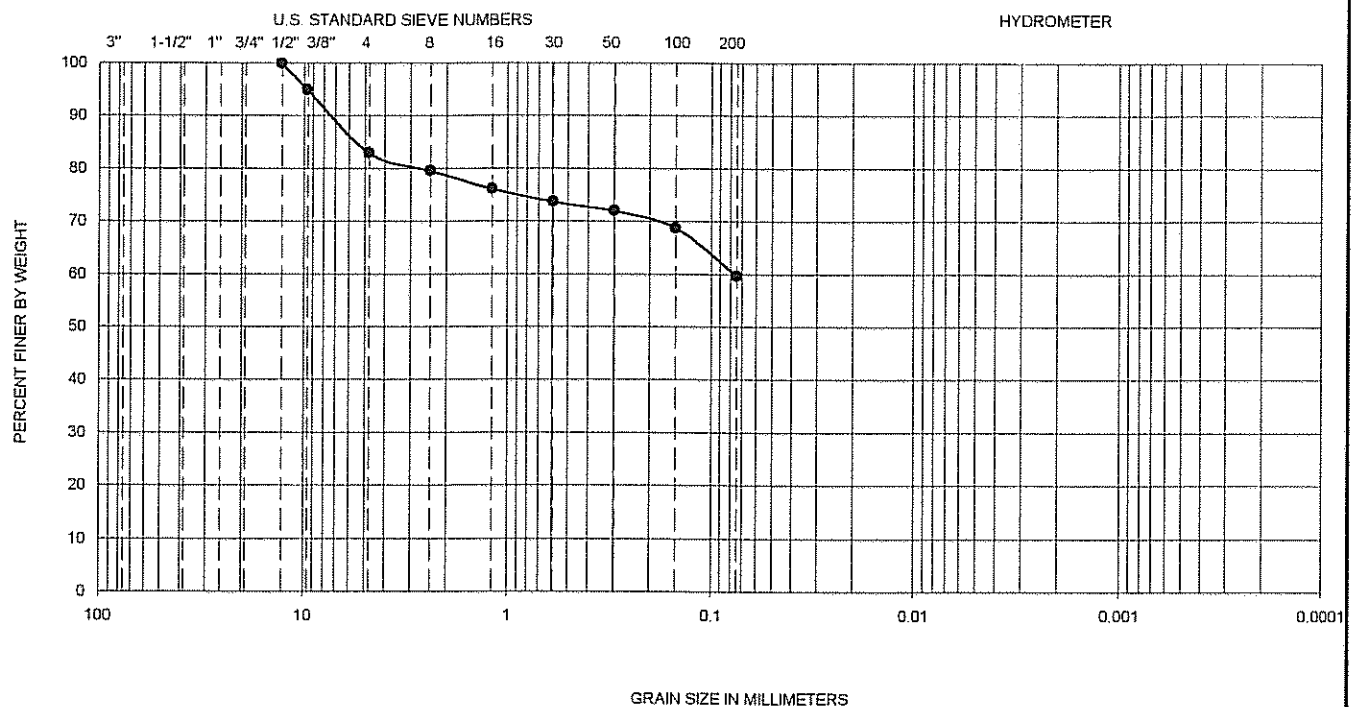


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	TP-6	3.0-4.0	40	22	18	--	--	--	--	--	32	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-13
303200001	3/11		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



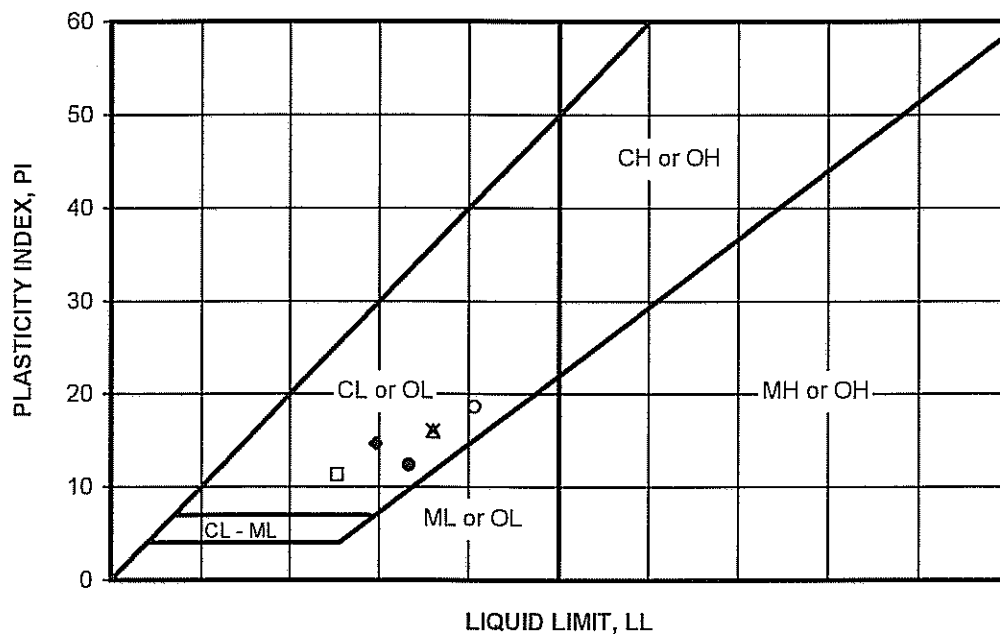
Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	U.S.C.S
●	TP-7	5.0-6.0	34	17	17	—	—	—	—	—	60	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

<i>Ninyo & Moore</i>		GRADATION TEST RESULTS	FIGURE B-14
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
•	B-2	14.0-15.0	33	21	12	CL	SC
■	B-5	0.0-1.0			NP	ML	SM
◆	B-6	9.0-10.0	30	15	15	CL	CL
○	B-9	7.0-8.0	41	22	19	CL	SC
□	B-13	5.0-6.5	25	14	11	CL	SC
△	B-14	14.0-15.0	36	20	16	CL	SC
X	B-16	8.0-10.0	36	20	16	CL	SC
+	B-17	2.0-3.5			NP	ML	SM

NP - INDICATES NON-PLASTIC



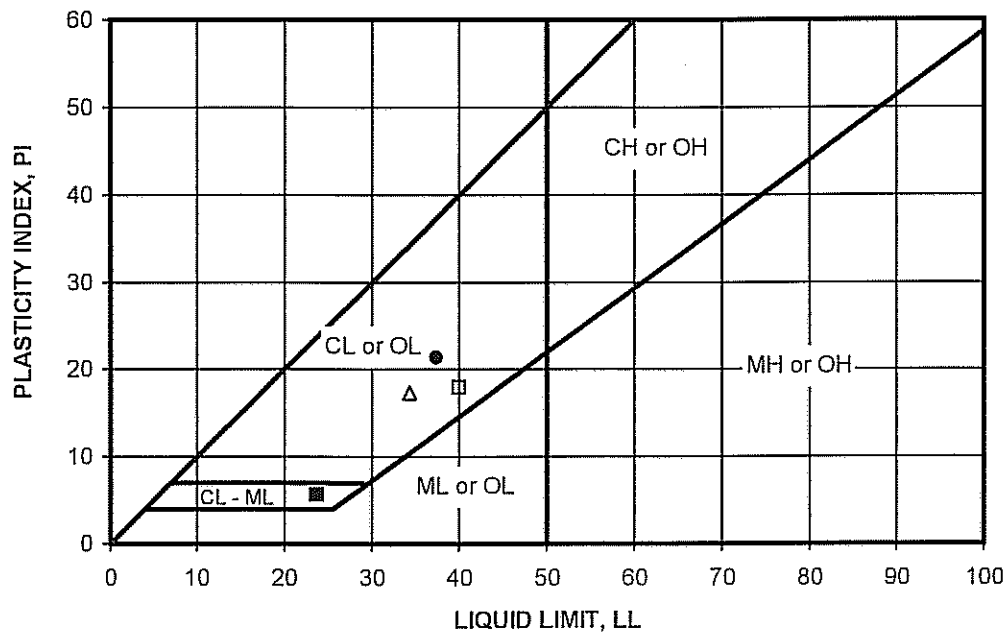
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Ninyo & Moore		ATTERBERG LIMITS TEST RESULTS	FIGURE B-15
PROJECT NO.	DATE		
303200001	3/11		

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

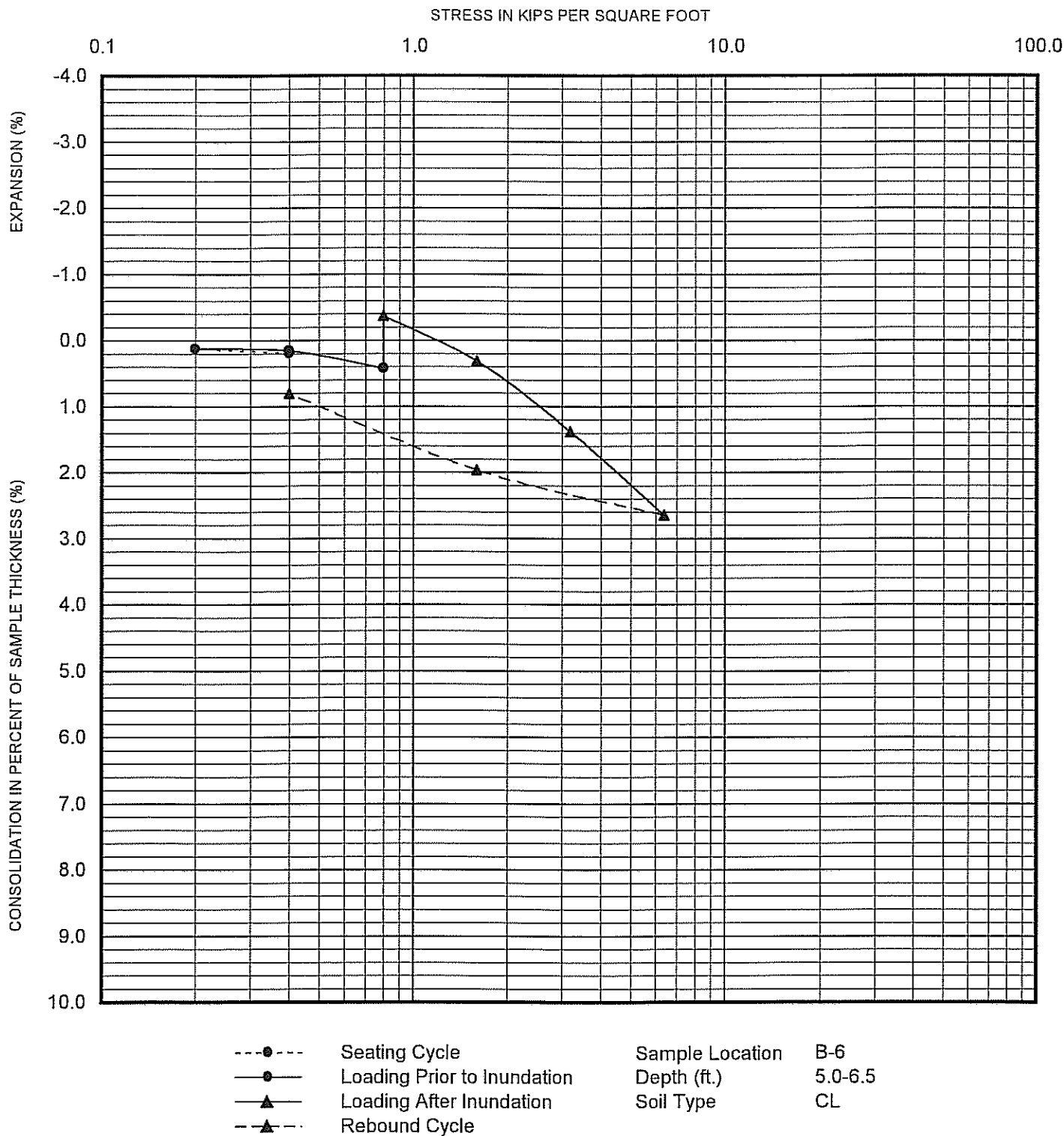
SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
●	B-19	7.0-8.0	37	16	21	CL	SC
■	B-20	12.0-13.0	24	18	6	CL-ML	SC-SM
	TP-2	0.0-1.0	—	—	NP	ML	SM
	TP-5	0.0-2.0	—	—	NP	ML	SP-SM
□	TP-6	3.0-4.0	40	22	18	CL	SC
△	TP-7	5.0-6.0	34	17	17	CL	CL

NP - INDICATES NON-PLASTIC



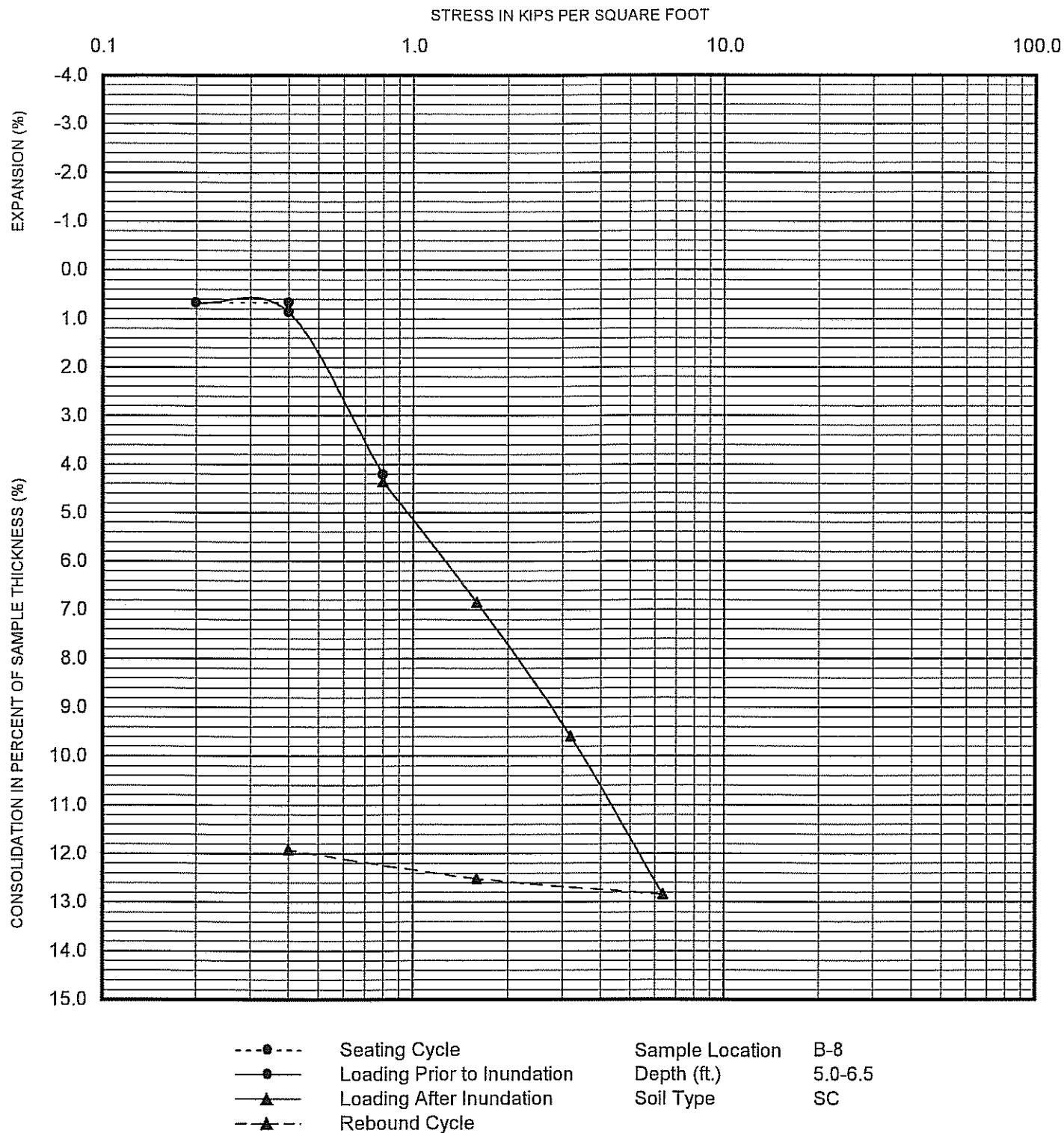
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Ninyo & Moore		ATTERBERG LIMITS TEST RESULTS	FIGURE B-16
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		



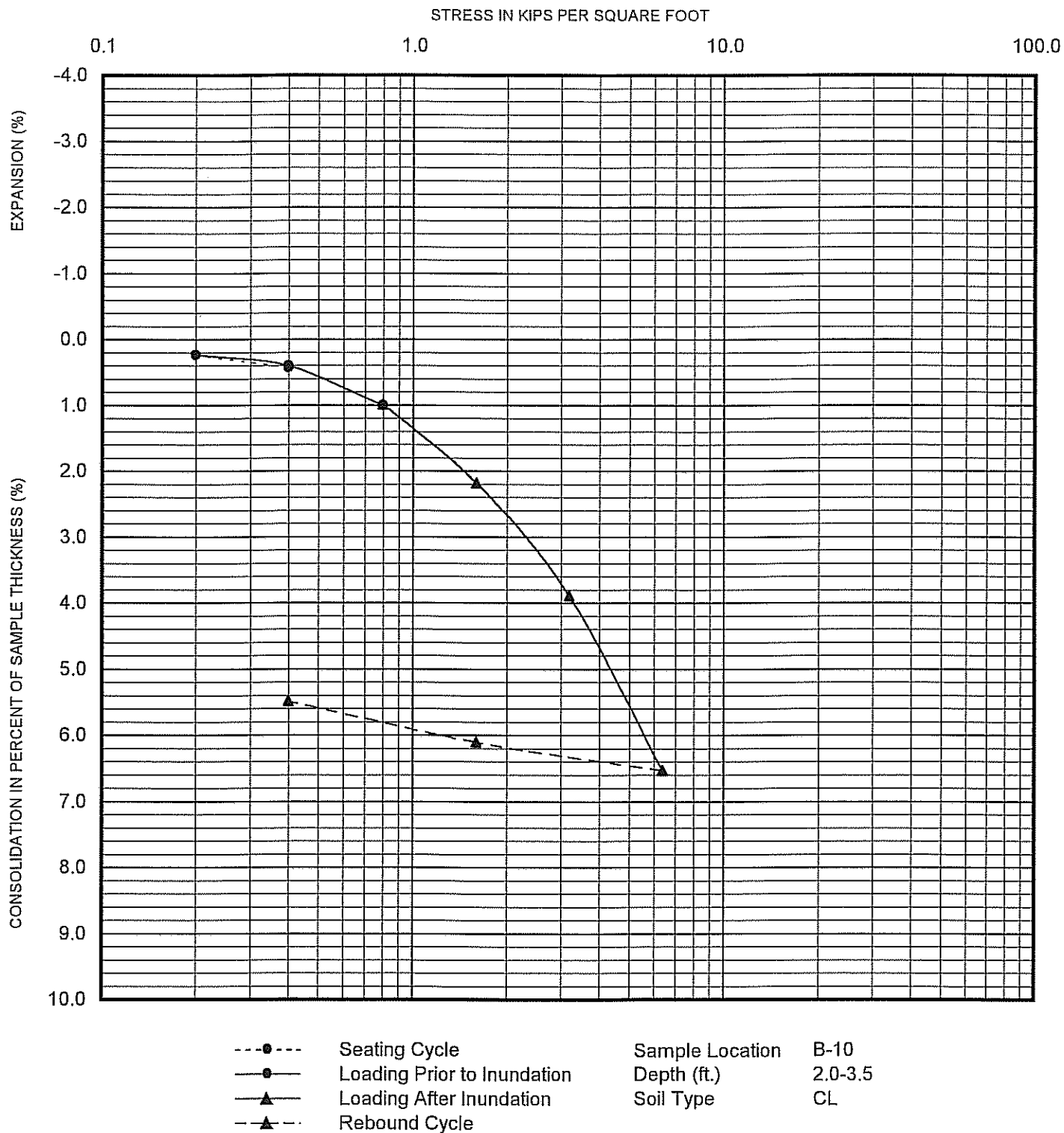
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

Ninyo & Moore		CONSOLIDATION TEST RESULTS	FIGURE B-17
PROJECT NO.	DATE		
303200001	3/11	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	



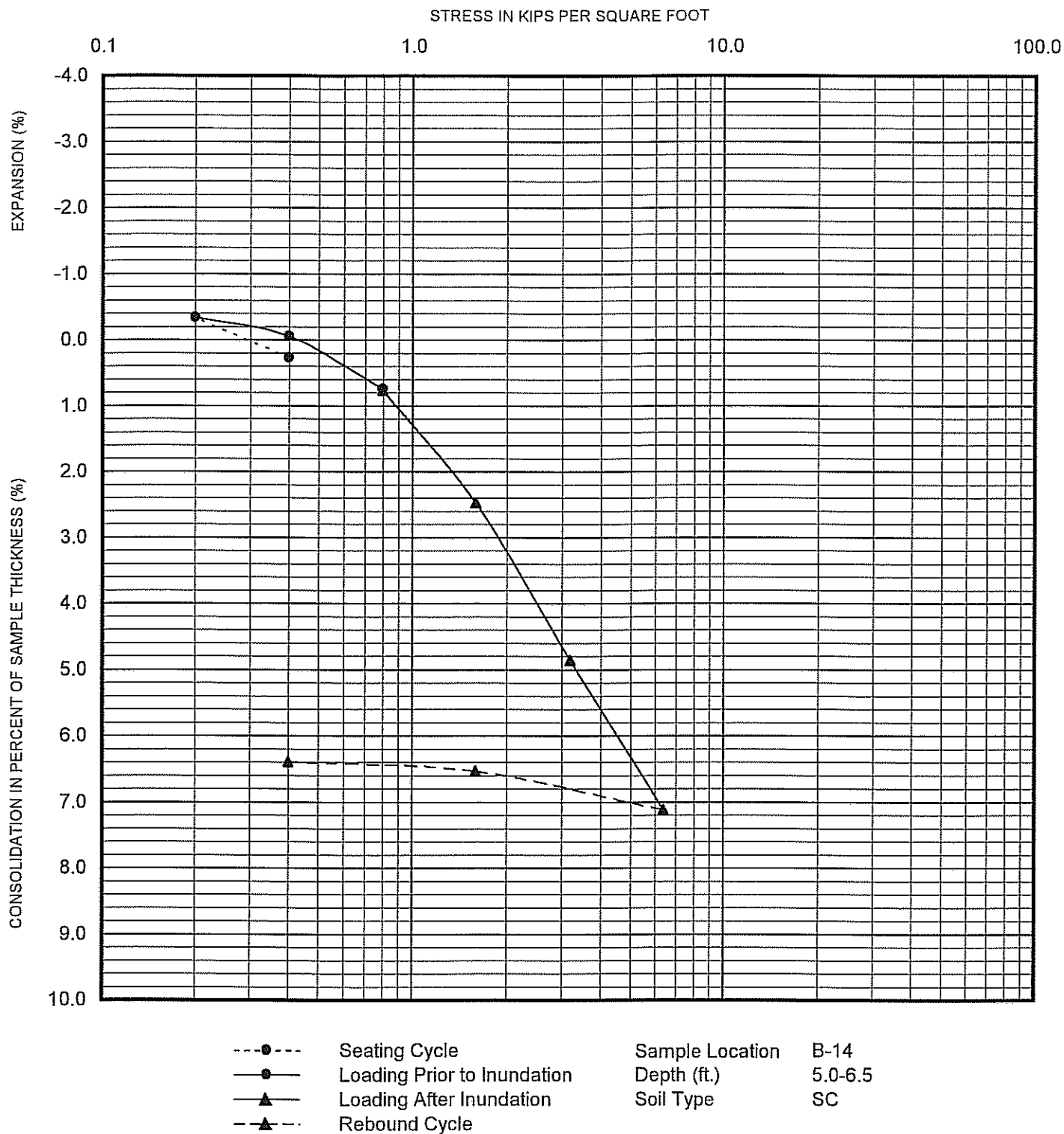
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

		CONSOLIDATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-18
303200001	3/11		



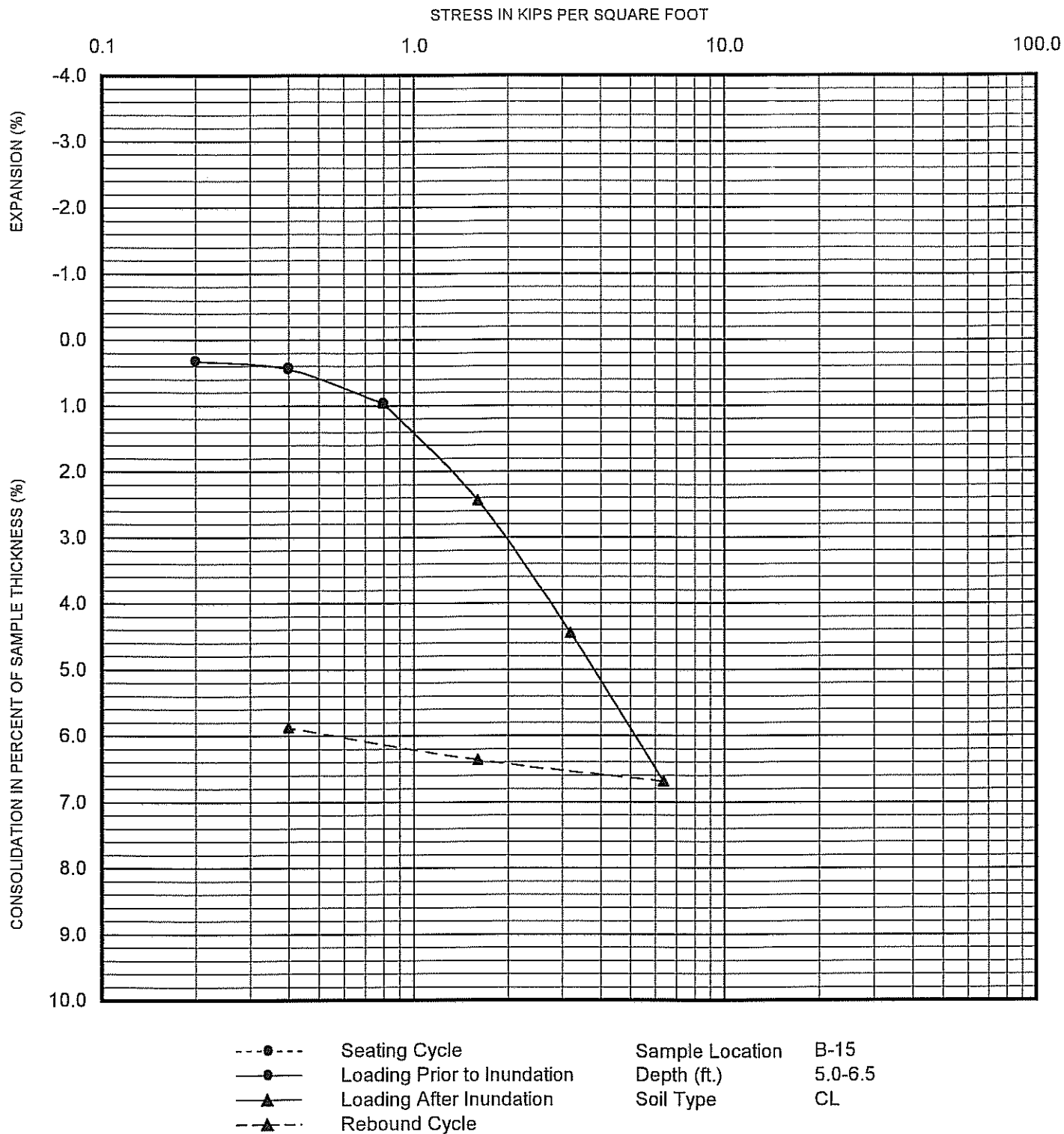
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

Ninyo & Moore		CONSOLIDATION TEST RESULTS	FIGURE B-19
PROJECT NO.	DATE		
303200001	3/11	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	



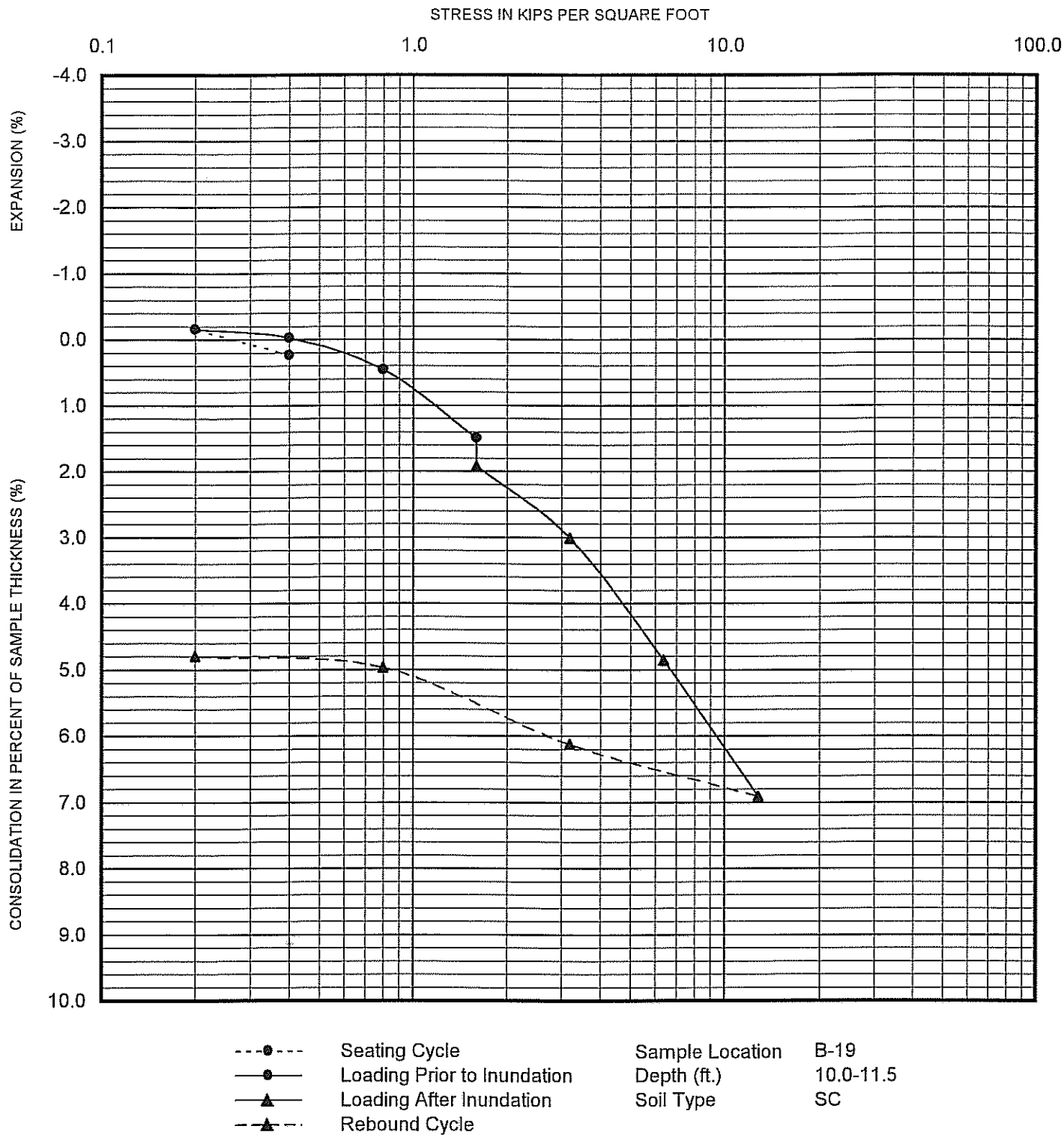
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

		CONSOLIDATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-20
303200001	3/11		



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

		CONSOLIDATION TEST RESULTS		FIGURE B-21
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA		
303200001	3/11			



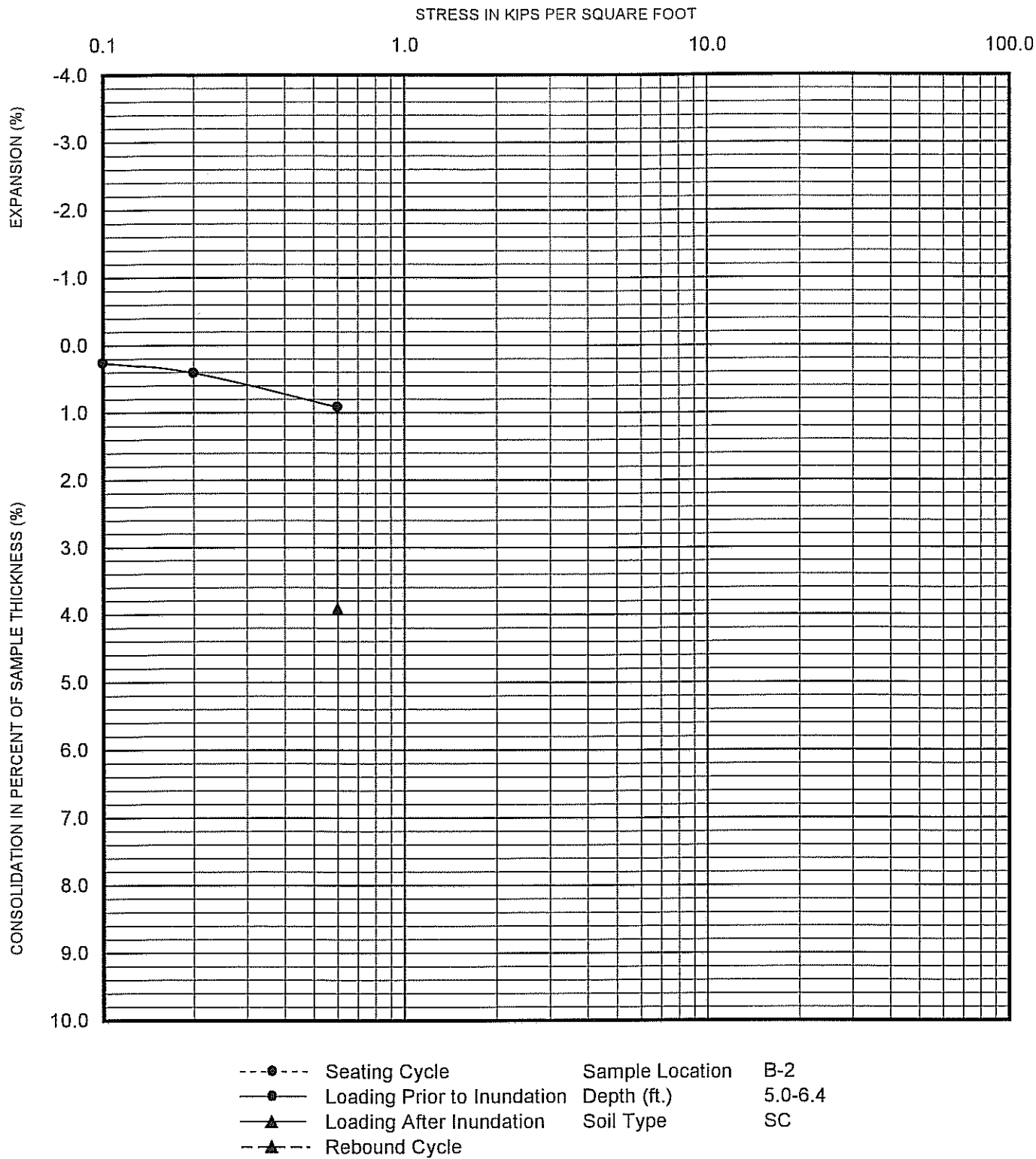
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

Ninyo & Moore		CONSOLIDATION TEST RESULTS	FIGURE B-22
PROJECT NO.	DATE		
303200001	3/11	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	

SAMPLE LOCATION	DEPTH (FT)	IN-PLACE MOISTURE CONTENT (%)	IN-PLACE DRY DENSITY (PCF)	FINAL MOISTURE CONTENT (%)	SURCHARGE (PSF)	EXPANSION POTENTIAL (%)	COLLAPSE POTENTIAL (%)
B-6	5.0-6.5	9.2	110.4	18.8	800	0.8	—
B-8	5.0-6.5	7.1	98.7	20.1	800	—	0.2
B-10	2.0-3.5	9.5	97.9	22.8	800	0.0	0.0
B-14	5.0-6.5	11.8	100.8	23.5	800	0.0	0.0
B-15	5.0-6.5	8.1	101.0	18.8	800	0.0	0.0
B-19	10.0-11.3	10.6	115.0	17.2	1,600	—	0.4

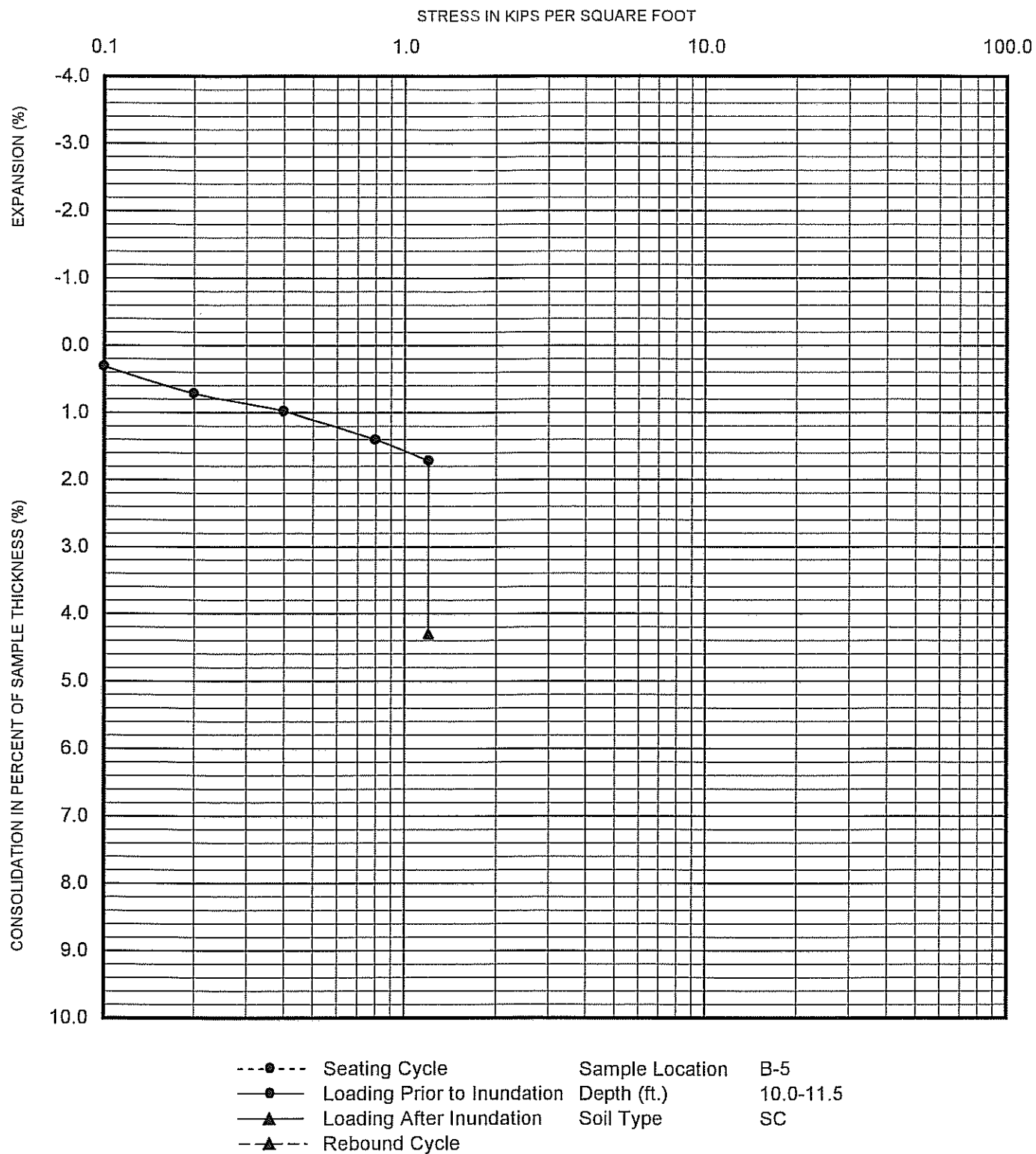
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

<i>Ninyo & Moore</i>		EXPANSION/COLLAPSE POTENTIAL TEST RESULTS	FIGURE B-23
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		



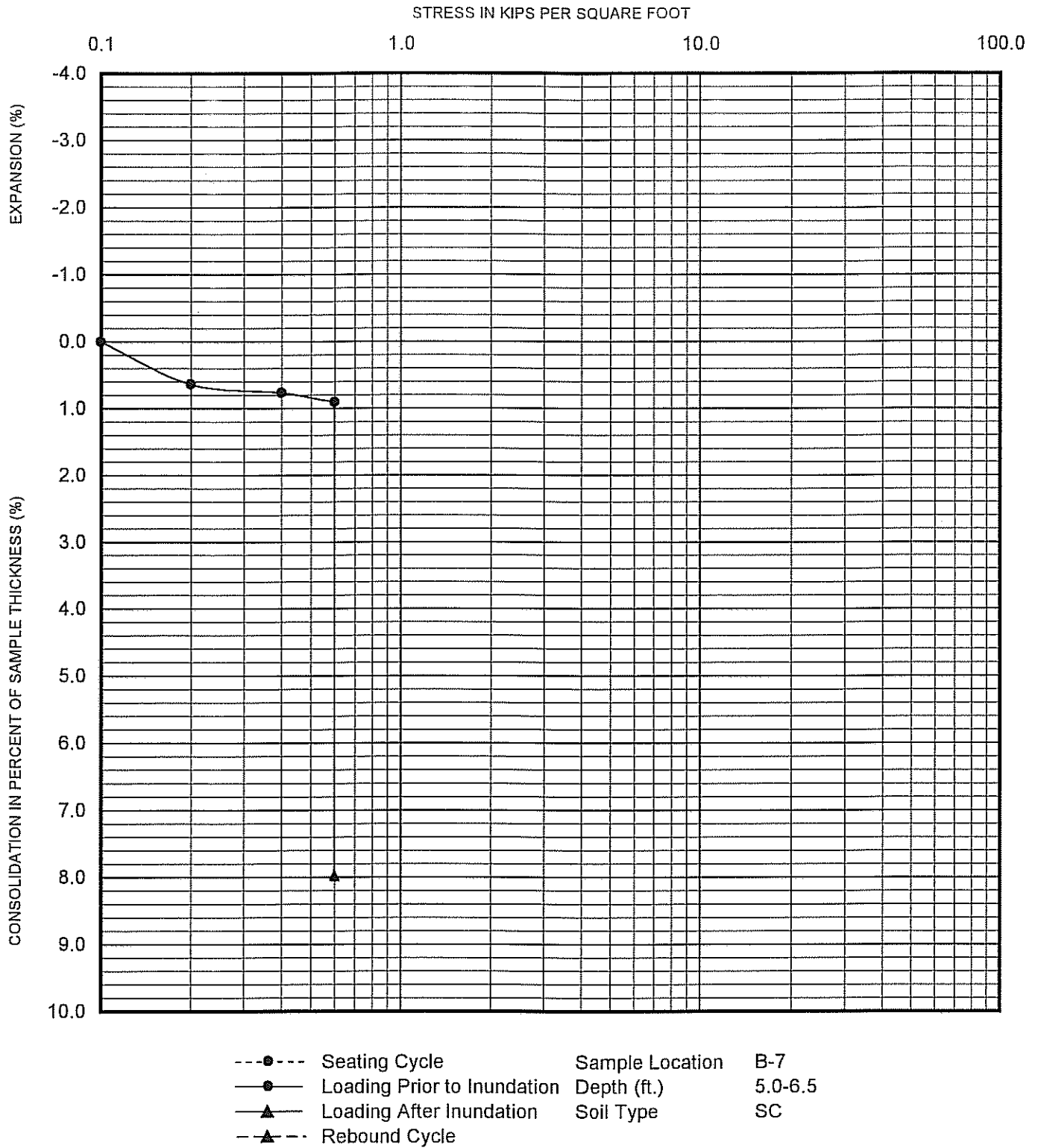
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-24
303200001	3/11		



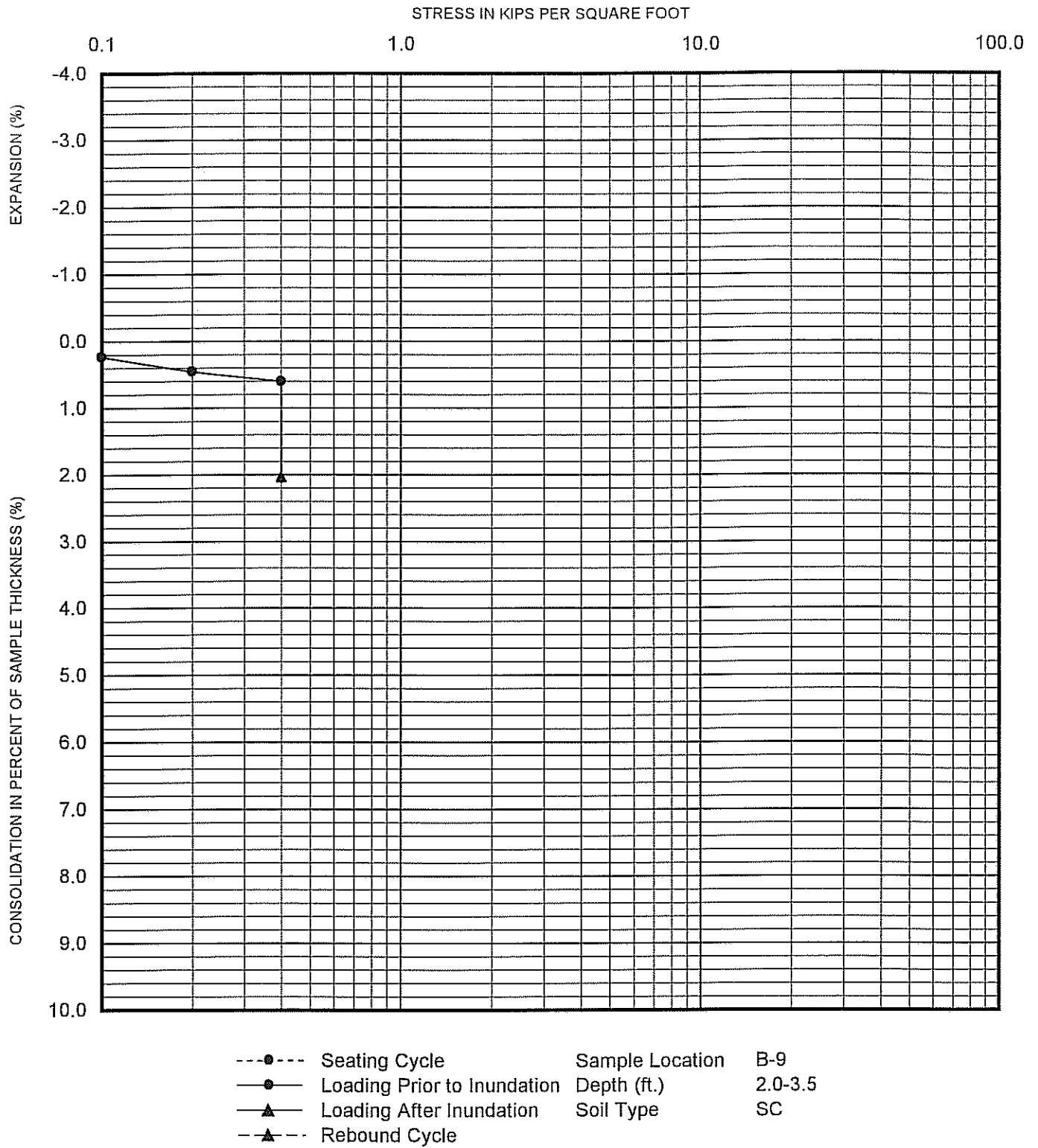
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

Ninyo & Moore		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-25
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET	
		INYO COUNTY, CALIFORNIA	



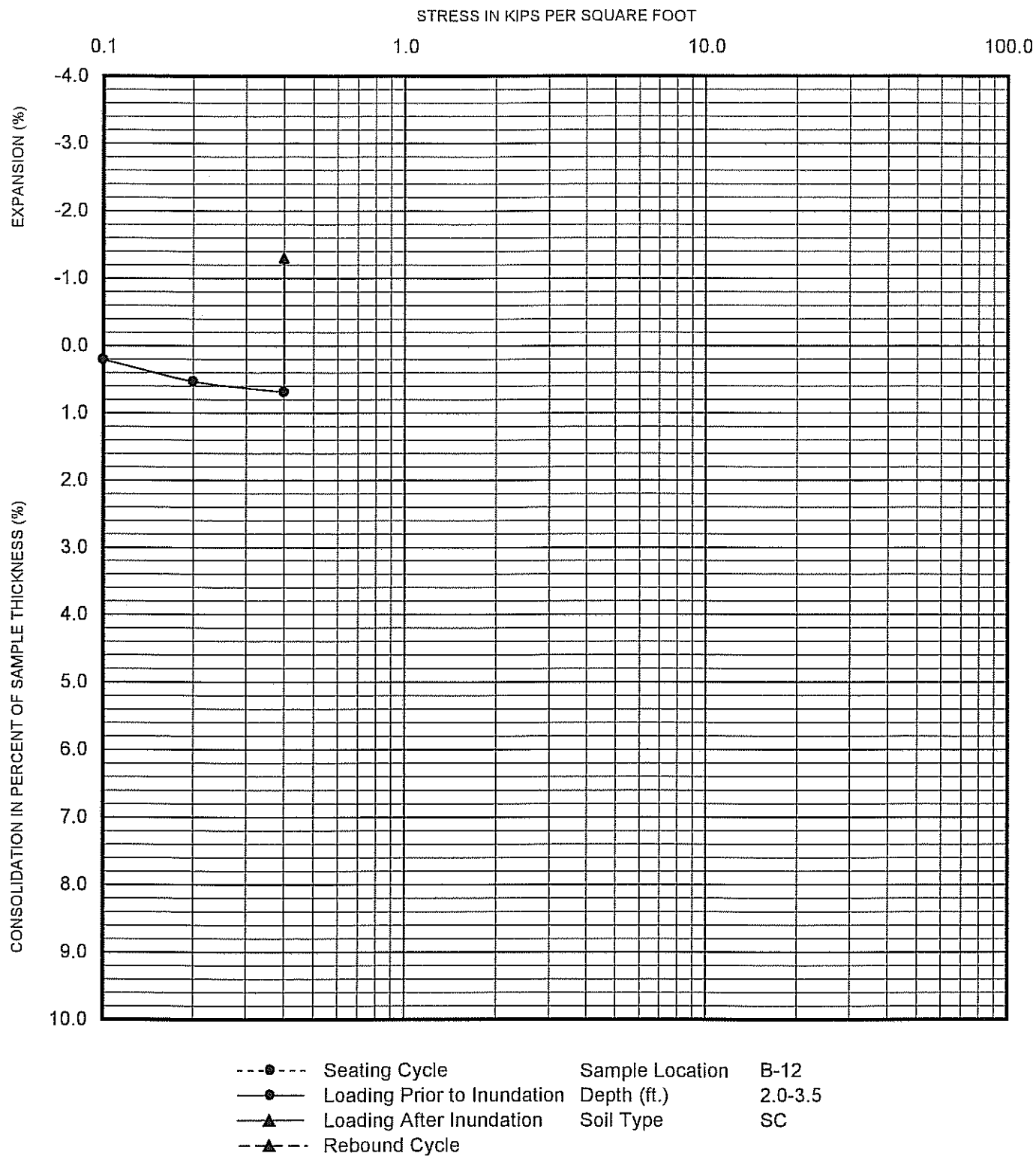
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

Ninyo & Moore		COLLAPSE POTENTIAL TEST RESULTS	FIGURE B-26
PROJECT NO.	DATE		
303200001	3/11		
		HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	



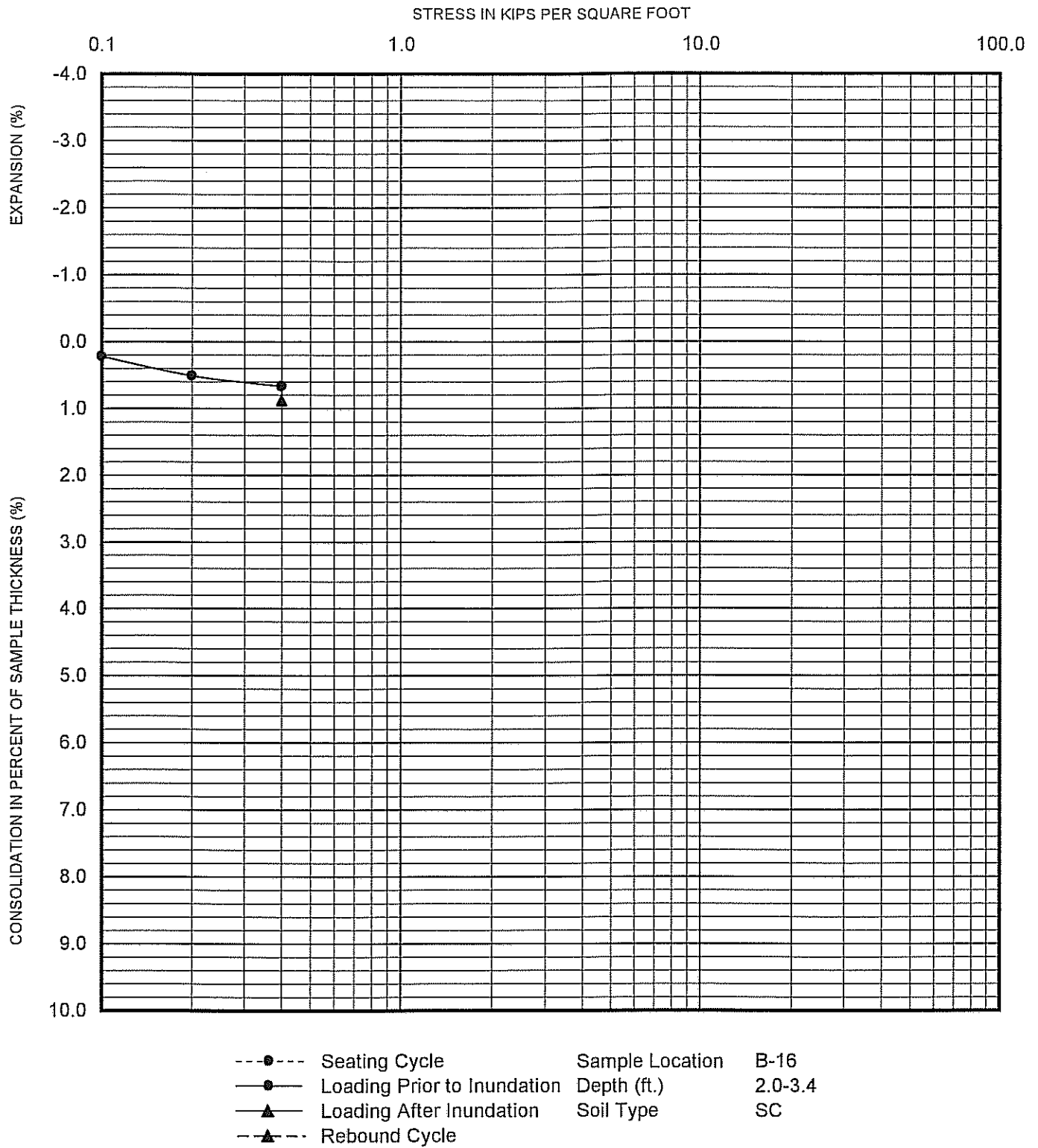
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-27
303200001	3/11		



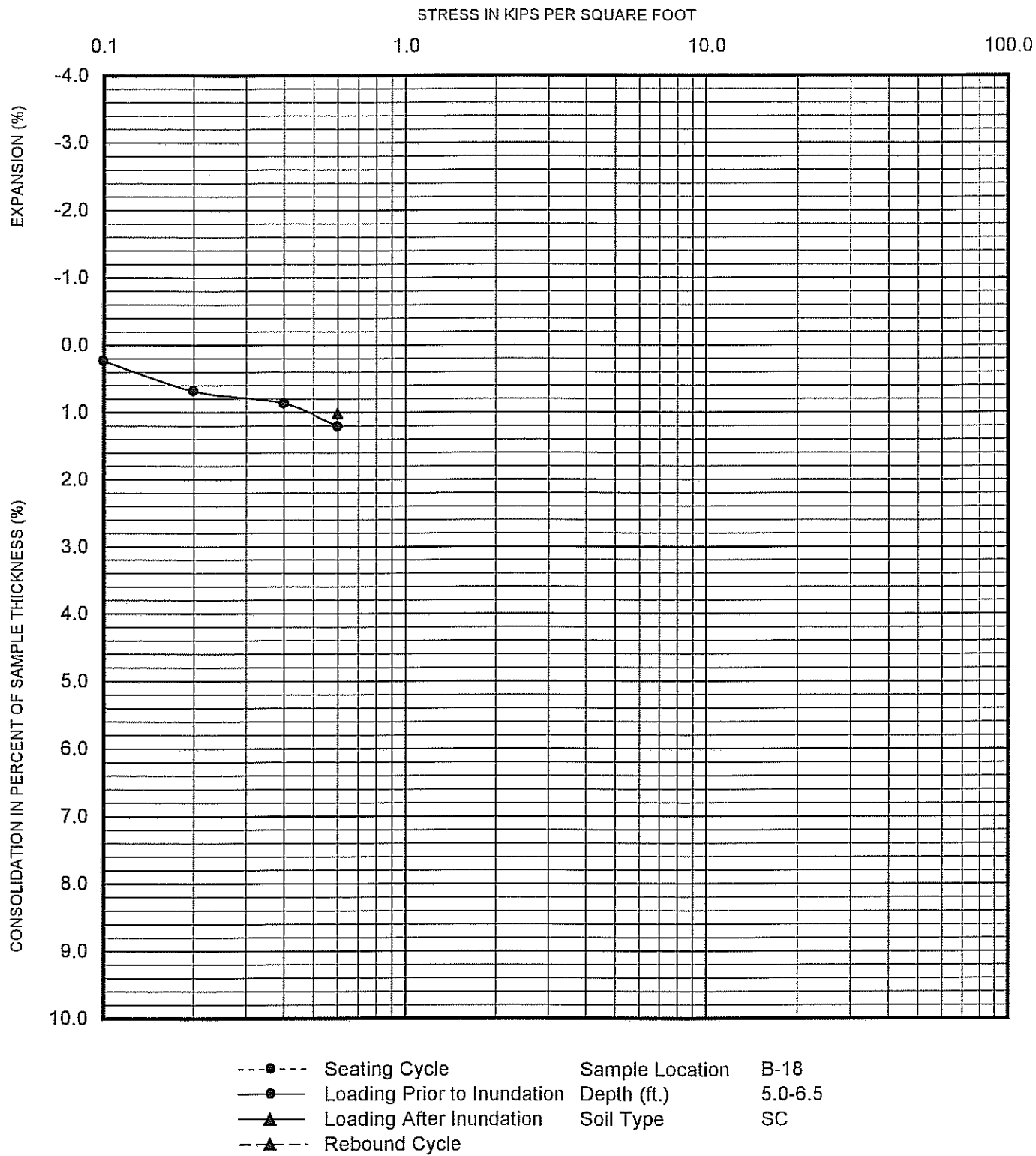
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

Ninyo & Moore		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-28
303200001	3/11		



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

Ninyo & Moore		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-29
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET	
		INYO COUNTY, CALIFORNIA	



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-30
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET	
		INYO COUNTY, CALIFORNIA	

SAMPLE LOCATION	DEPTH (FT)	IN-PLACE MOISTURE CONTENT (%)	IN-PLACE DRY DENSITY (PCF)	FINAL MOISTURE CONTENT (%)	SURCHARGE (PSF)	EXPANSION POTENTIAL (%)	COLLAPSE POTENTIAL (%)
B-2	5.0-6.4	7.8	78.4	33.1	600	--	3.0
B-5	10.0-11.5	8.1	98.0	20.5	1,200	--	2.6
B-7	5.0-6.5	7.6	76.4	31.0	600	--	7.1
B-9	2.0-3.5	10.0	77.2	34.9	400	--	1.4
B-12	2.0-3.5	6.9	107.2	20.5	400	2.0	—
B-16	2.0-3.4	7.0	95.2	23.0	400	--	0.2
B-18	5.0-6.5	7.2	103.4	19.9	600	0.2	—

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 5333

Ninyo & Moore		COLLAPSE POTENTIAL TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY	B-31
303200001	3/11	OLD SPANISH TRAIL HIGHWAY AND GOLD STREET	
		INYO COUNTY, CALIFORNIA	

SAMPLE LOCATION	SAMPLE DEPTH (FT)	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (PCF)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (IN)	EXPANSION INDEX	POTENTIAL EXPANSION
B-1	7.0-8.0	8.5	107.6	18.2	-0.002	-5	#N/A
B-6	9.0-10.0	10.7	112.5	18.9	0.017	21	Low
B-14	14.0-15.0	14.0	103.3	25.6	0.022	27	Low
TP-6	3.0-4.0	14.9	100.7	25.8	0.023	28	Low

PERFORMED IN GENERAL ACCORDANCE WITH

☐ UBC STANDARD 18-2

☒ ASTM D 4829

Ninyo & Moore

EXPANSION INDEX TEST RESULTS

FIGURE

PROJECT NO.

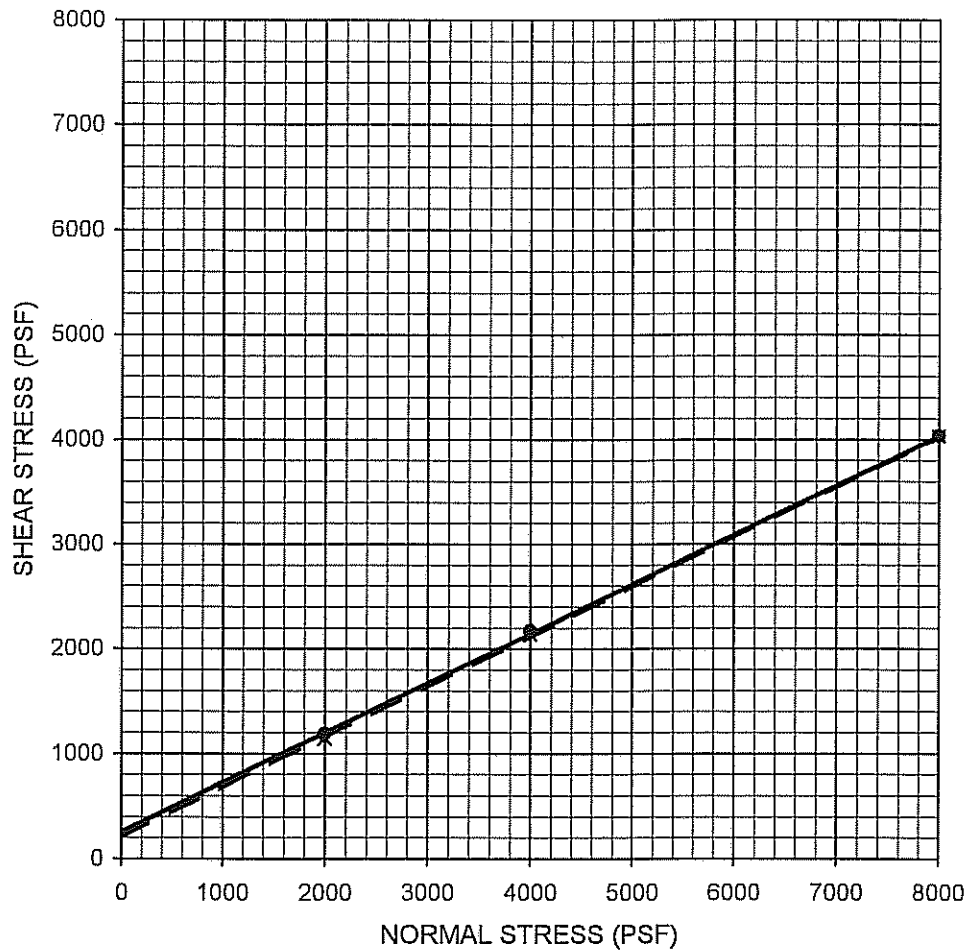
DATE

303200001

3/11

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

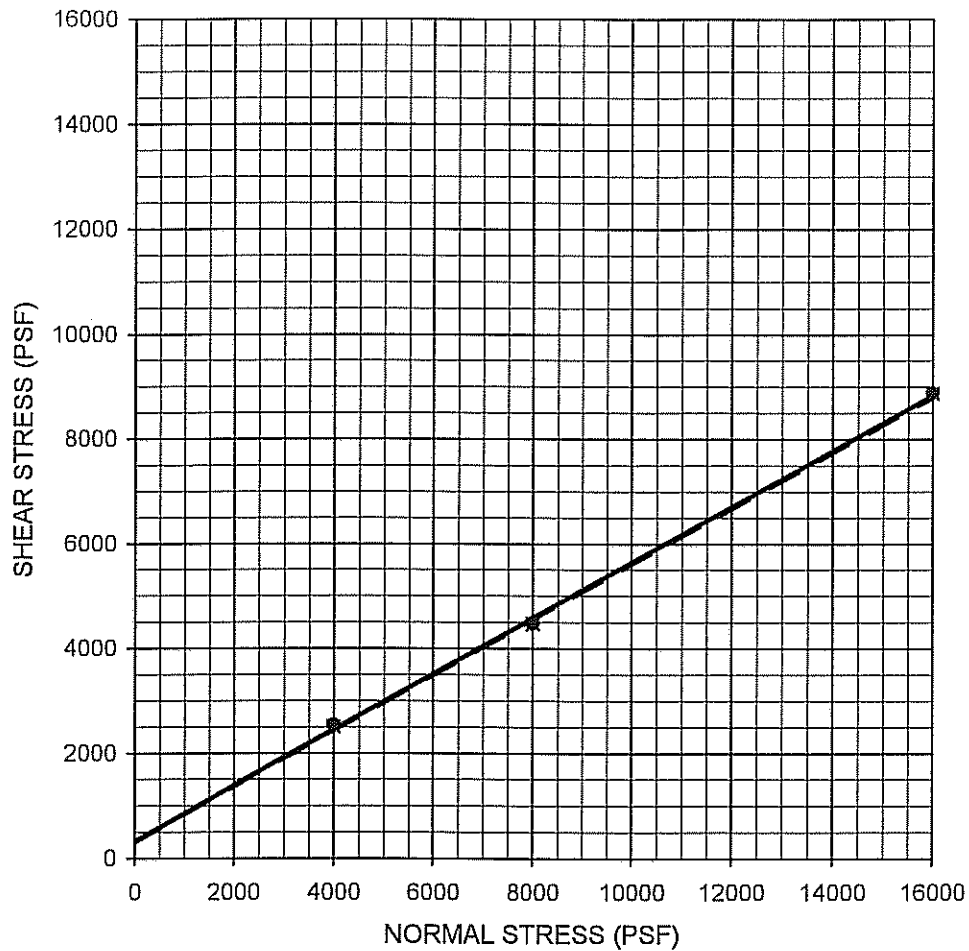
B-32



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-1	2.0-3.5	Peak	260	25	SC
Clayey SAND	- - X - -	B-1	2.0-3.5	Ultimate	195	26	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

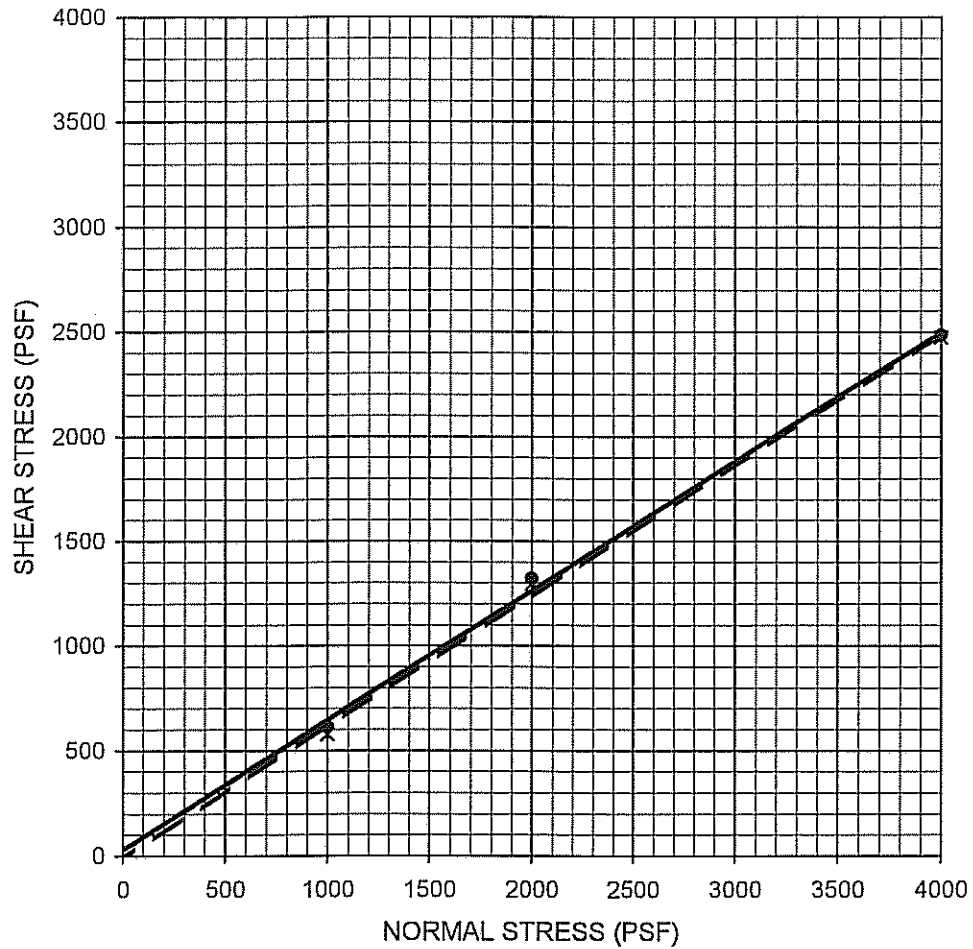
Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-33
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-4	5.0-6.5	Peak	330	28	SC
Clayey SAND	- - X - -	B-4	5.0-6.5	Ultimate	295	28	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

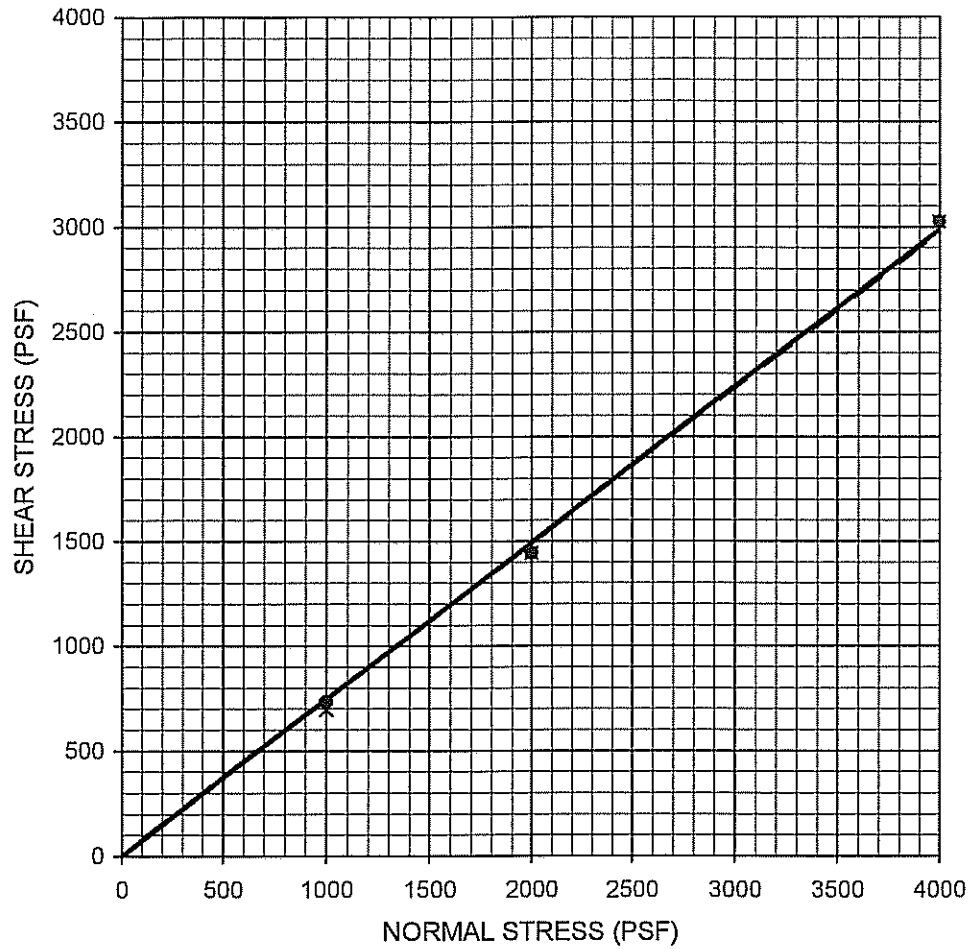
<i>Ninyo & Moore</i>		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-34
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Sandy lean CLAY	—●—	B-6	10.0-10.9	Peak	30	32	CL
Sandy lean CLAY	- - X - -	B-6	10.0-10.9	Ultimate	10	32	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

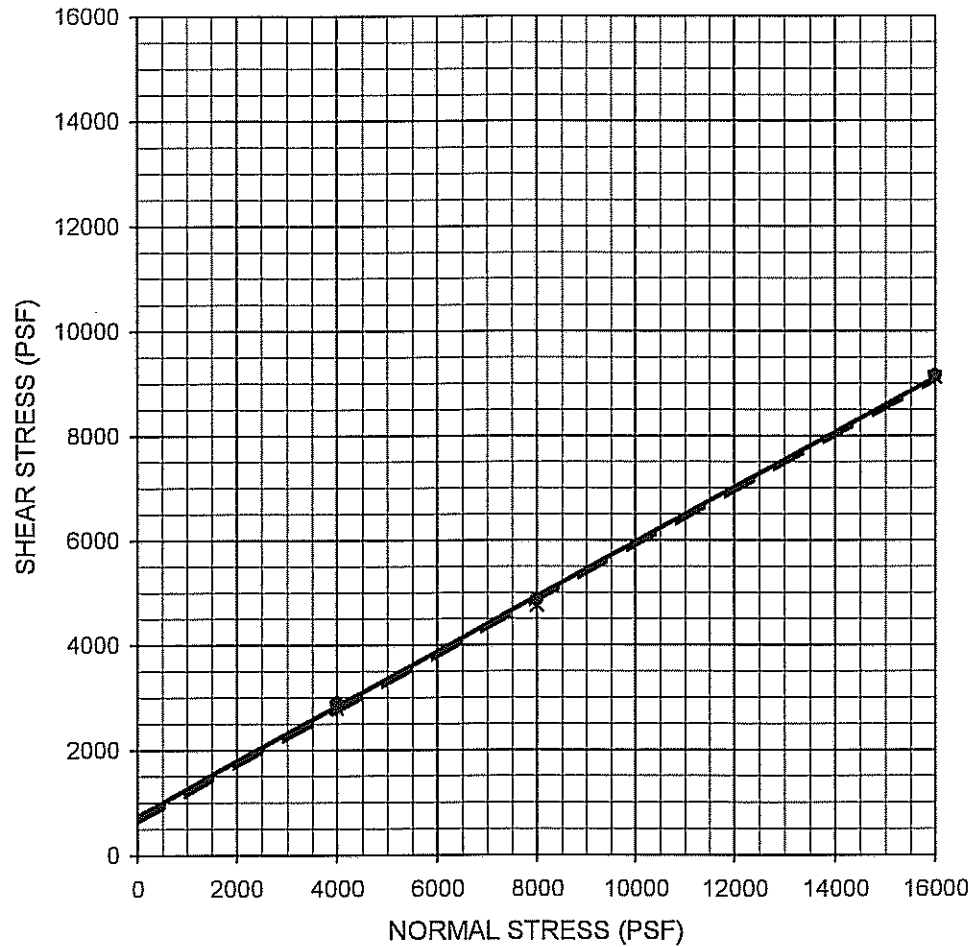
Ninyo & Moore		DIRECT SHEAR TEST RESULTS		FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA		B-35
303200001	3/11			



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Silty SAND	—●—	B-8	10.0-11.5	Peak	100	37	SM
Silty SAND	- - X - -	B-8	10.0-11.5	Ultimate	60	37	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

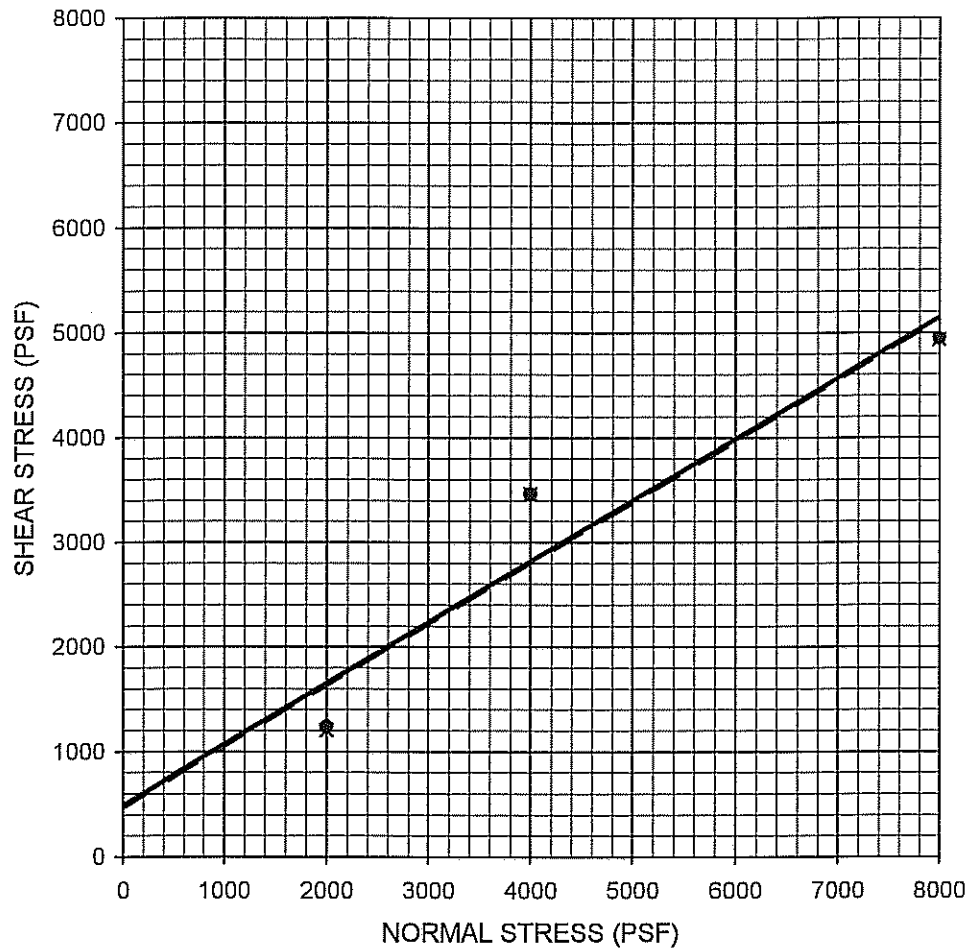
Ninyo & Moore		DIRECT SHEAR TEST RESULTS		FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA		B-36
303200001	3/11			



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Sandy lean CLAY	—●—	B-10	5.0-6.3	Peak	750	28	CL
Sandy lean CLAY	- - X - -	B-10	5.0-6.3	Ultimate	620	28	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

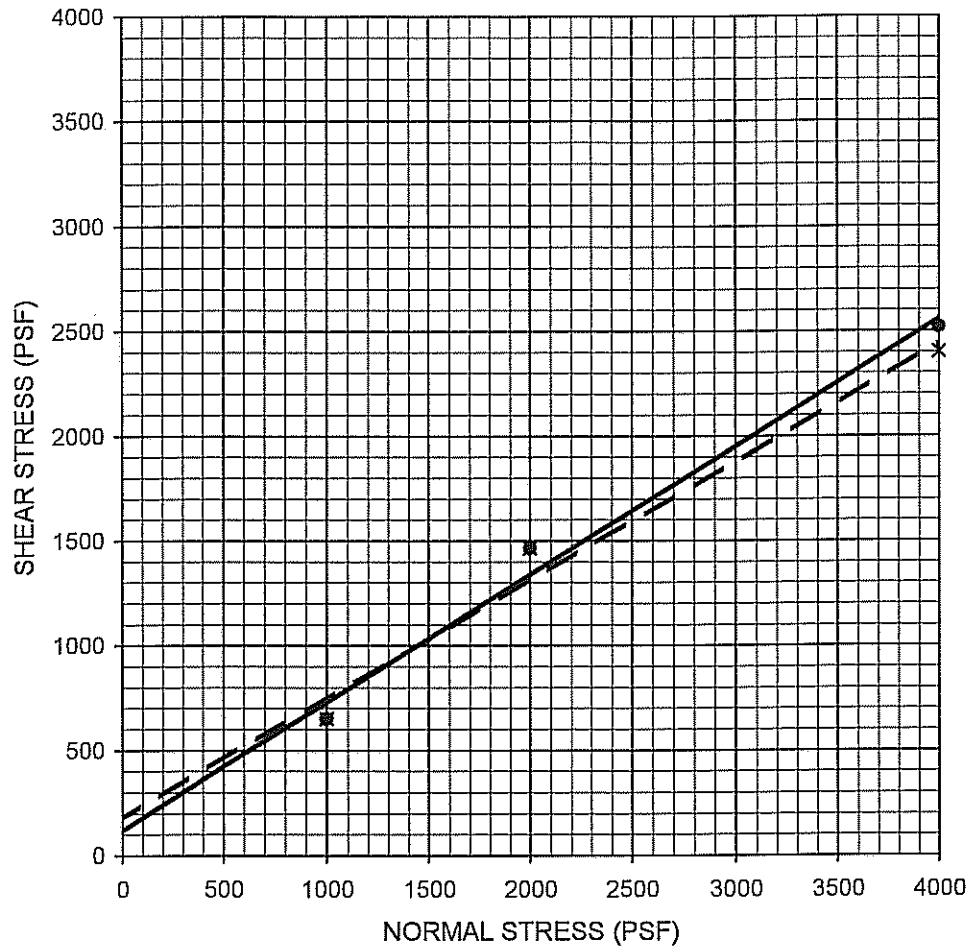
Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-37
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-12	2.0-3.5	Peak	490	30	SC
Clayey SAND	- - X - -	B-12	2.0-3.5	Ultimate	460	30	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

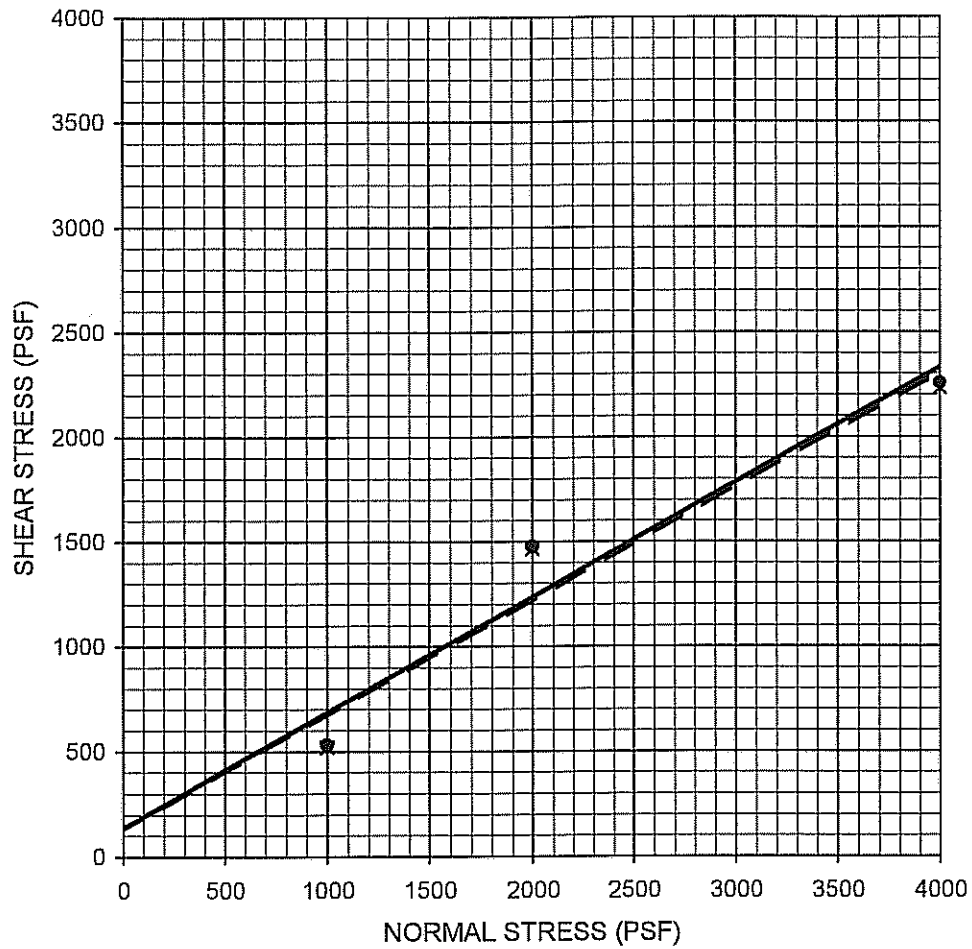
Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-38
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-14	10.0-11.5	Peak	180	31	SC
Clayey SAND	- - X - -	B-14	10.0-11.5	Ultimate	120	30	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

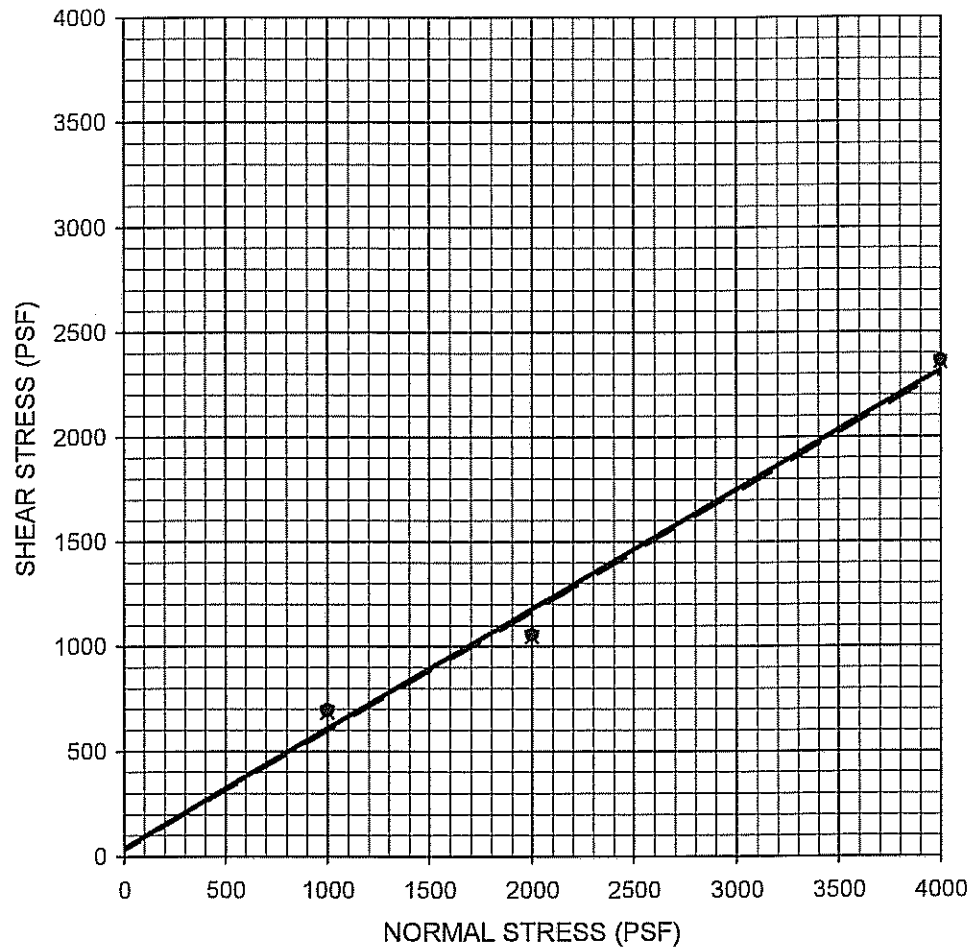
Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE B-39
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-16	5.0-6.4	Peak	140	29	SC
Clayey SAND	- - X - -	B-16	5.0-6.4	Ultimate	130	29	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

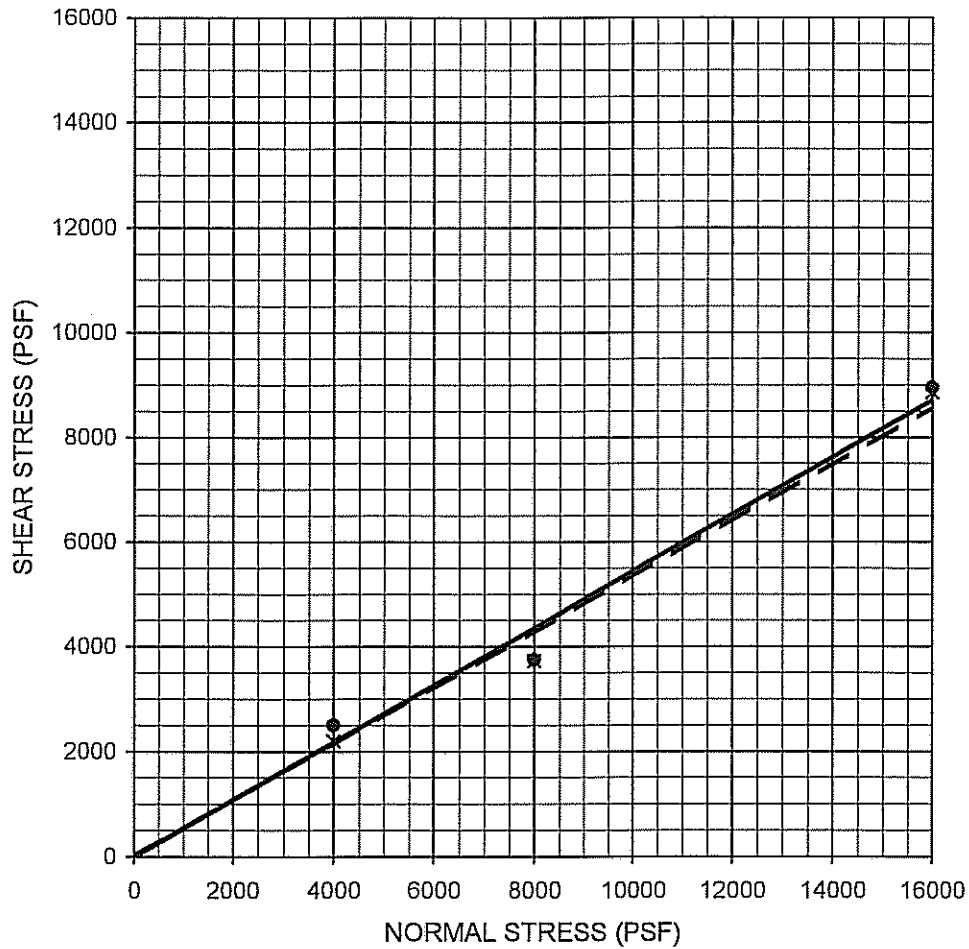
<i>Ninyo & Moore</i>		DIRECT SHEAR TEST RESULTS	FIGURE B-40
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND with gravel	—●—	B-17	10.0-11.5	Peak	40	30	SC
Clayey SAND with gravel	- - X - -	B-17	10.0-11.5	Ultimate	30	30	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	B-41
303200001	3/11		



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Clayey SAND	—●—	B-19	5.0-6.5	Peak	370	28	SC
Clayey SAND	- - X - -	B-19	5.0-6.5	Ultimate	110	28	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE B-42
PROJECT NO.	DATE	HIDDEN HILLS SOLAR FACILITY OLD SPANISH TRAIL HIGHWAY AND GOLD STREET INYO COUNTY, CALIFORNIA	
303200001	3/11		

SAMPLE LOCATION	DEPTH (FT)	SOIL DESCRIPTION	RESISTIVITY (OHM-CM)	
			AT IN-SITU MOISTURE	AT SATURATION
B-1	7.0-8.0	SC	70,000	1,700
B-2	0.0-1.0	SM	30,000	4,500
B-4	0.0-1.0	SM	25,000	6,500
B-6	9.0-10.0	CL	15,000	450
B-8	0.0-1.0	SM	30,000	6,500
B-10	0.0-1.0	CL	25,000	3,000
B-13	8.0-9.0	SM	25,000	700
B-17	0.0-1.0	SM	35,000	10,000
B-19	0.0-1.0	SM	55,000	4,500
TP-3	2.0-3.0	CL	20,000	300
TP-9	1.0-2.0	SC	3,500	500

Ninyo & Moore		MILLER BOX RESISTIVITY TEST RESULTS	FIGURE B-43
PROJECT NO.	DATE		
303200001	3/11		

HIDDEN HILLS SOLAR FACILITY
OLD SPANISH TRAIL HIGHWAY AND GOLD STREET
INYO COUNTY, CALIFORNIA

APPENDIX C
CHEMICAL TEST RESULTS

The results of chemical tests performed are provided in this appendix.



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-1

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-1 @ 7.0-8.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	27.9	mg/kg	SM4500C
pH	7.66	S.U.	SM9045C
Redox	335	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.10	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.89	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

3638 East Sunset Road, Suite 100 Las Vegas, NV 89120
Tel: 702-873-4478 Fax: 702-873-7967 www.ssalabs.com



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-2

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-2 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	7.70	mg/kg	SM4500C
pH	8.12	S.U.	SM9045C
Redox	261	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.03	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.07	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

3638 East Sunset Road, Suite 100 Las Vegas, NV 89120
Tel: 702-873-4478 Fax: 702-873-7967 www.ssalabs.com



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-3

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills TP-3 @ 2.0-3.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	182	mg/kg	SM4500C
pH	7.76	S.U.	SM9045C
Redox	264	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.07	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.64	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

3638 East Sunset Road, Suite 100 Las Vegas, NV 89120
Tel: 702-873-4478 Fax: 702-873-7967 www.ssalabs.com



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-4

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-4 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	17.0	mg/kg	SM4500C
pH	8.47	S.U.	SM9045C
Redox	245	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.00	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.12	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

3638 East Sunset Road, Suite 100 Las Vegas, NV 89120
Tel: 702-873-4478 Fax: 702-873-7967 www.ssalabs.com



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-5

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-6 @ 9.0-10.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	64.8	mg/kg	SM4500C
pH	7.71	S.U.	SM9045C
Redox	284	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.03	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.34	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

3638 East Sunset Road, Suite 100 Las Vegas, NV 89120
Tel: 702-873-4478 Fax: 702-873-7967 www.ssalabs.com



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-6

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-8 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	14.0	mg/kg	SM4500C
pH	8.60	S.U.	SM9045C
Redox	241	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.00	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.13	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-7

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills TP-9 @ 1.0-2.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	89.2	mg/kg	SM4500C
pH	7.71	S.U.	SM9045C
Redox	261	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.02	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.40	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-8

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client
Date Sampled: --
Time Sampled: --

Date Received: 01/27/11
Time Received: 0929

Sample ID: Hidden Hills B-10 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	5.80	mg/kg	SM4500C
pH	8.34	S.U.	SM9045C
Redox	242	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.00	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.18	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-9

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-13 @ 8.0-9.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	32.8	mg/kg	SM4500C
pH	7.78	S.U.	SM9045C
Redox	266	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.12	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.48	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:



John Sloan
Laboratory Director



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-10

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-17 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	7.80	mg/kg	SM4500C
pH	7.90	S.U.	SM9045C
Redox	226	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.00	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.08	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director



LABORATORY REPORT

DATE: January 28, 2011

REPORT NUMBER: 11-0357-11

CLIENT: Ninyo & Moore
6700 Paradise Road, Suite E
Las Vegas, NV 89119

PAGE: 1 of 1

CLIENT PROJECT: 303200001

CLIENT PO #:

ANALYST: RL

Sampled By: Client

Date Sampled: --

Time Sampled: --

Date Received: 01/27/11

Time Received: 0929

Sample ID: Hidden Hills B-19 @ 0.0-1.0'

Analysis	Result	Unit	Method
Soluble Soil Chlorides	10.6	mg/kg	SM4500C
pH	8.44	S.U.	SM9045C
Redox	223	mV	SM2580B
Sodium	0.00	%	ASTMD2791
Sulfate	0.00	%	SM4500E
Sodium Sulfate	0.00	%	Calculation
Total Salts (Solubility)	0.42	%	SM2540B

NOTES: The results for each constituent denote the percentage (%) for that particular element which is soluble in a 1:5 (soil to water) extraction ratio and corrected for dilution.

REVIEWED BY:


John Sloan
Laboratory Director

APPENDIX D

CONE PENETRATION TEST RESULTS

The results of cone penetration tests (CPT) performed are provided in this appendix.



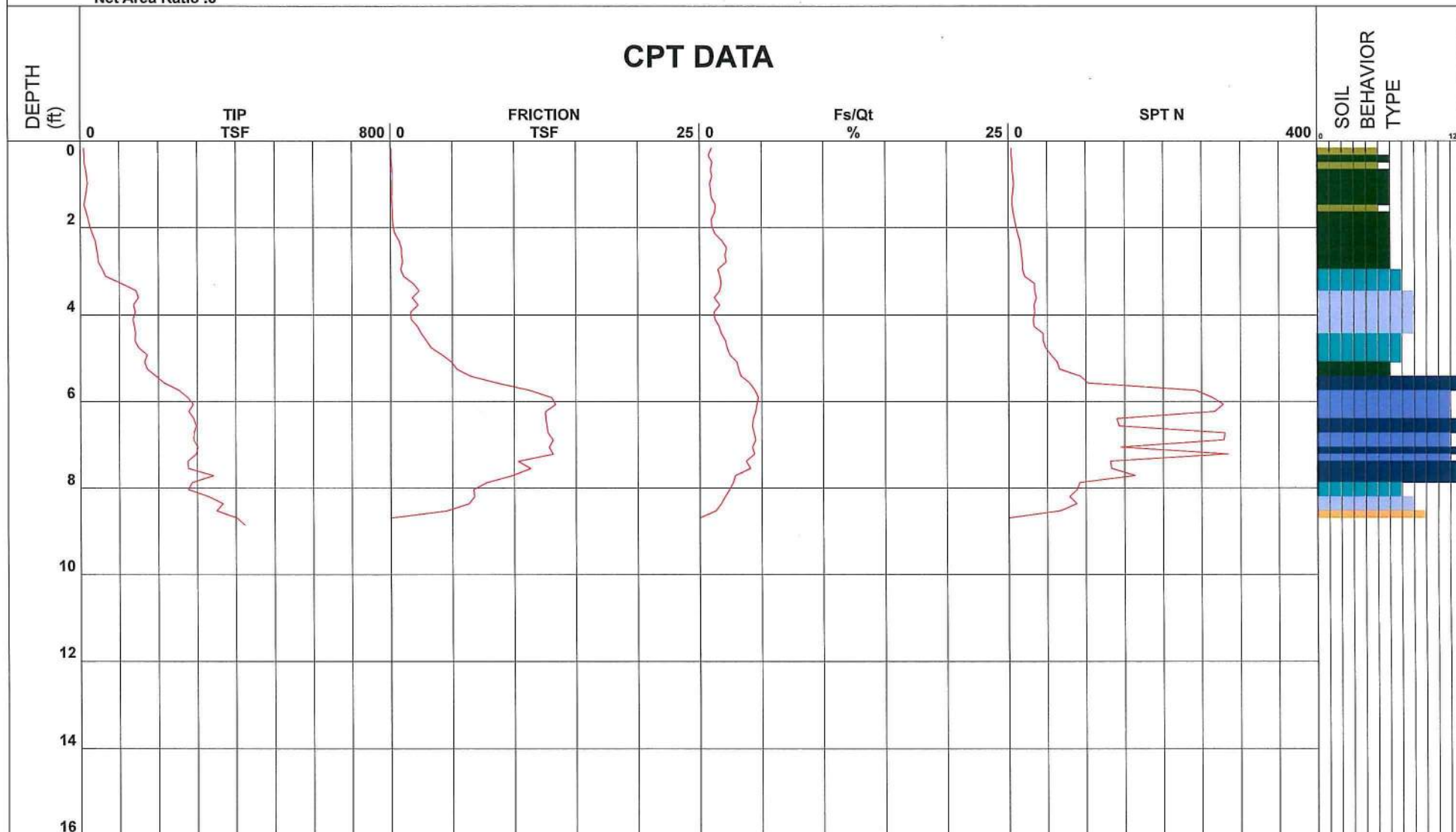
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B1
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 11:03:18 AM
0.00 ft

Filename SDF (748).cpt
GPS _____
Maximum Depth 8.86 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



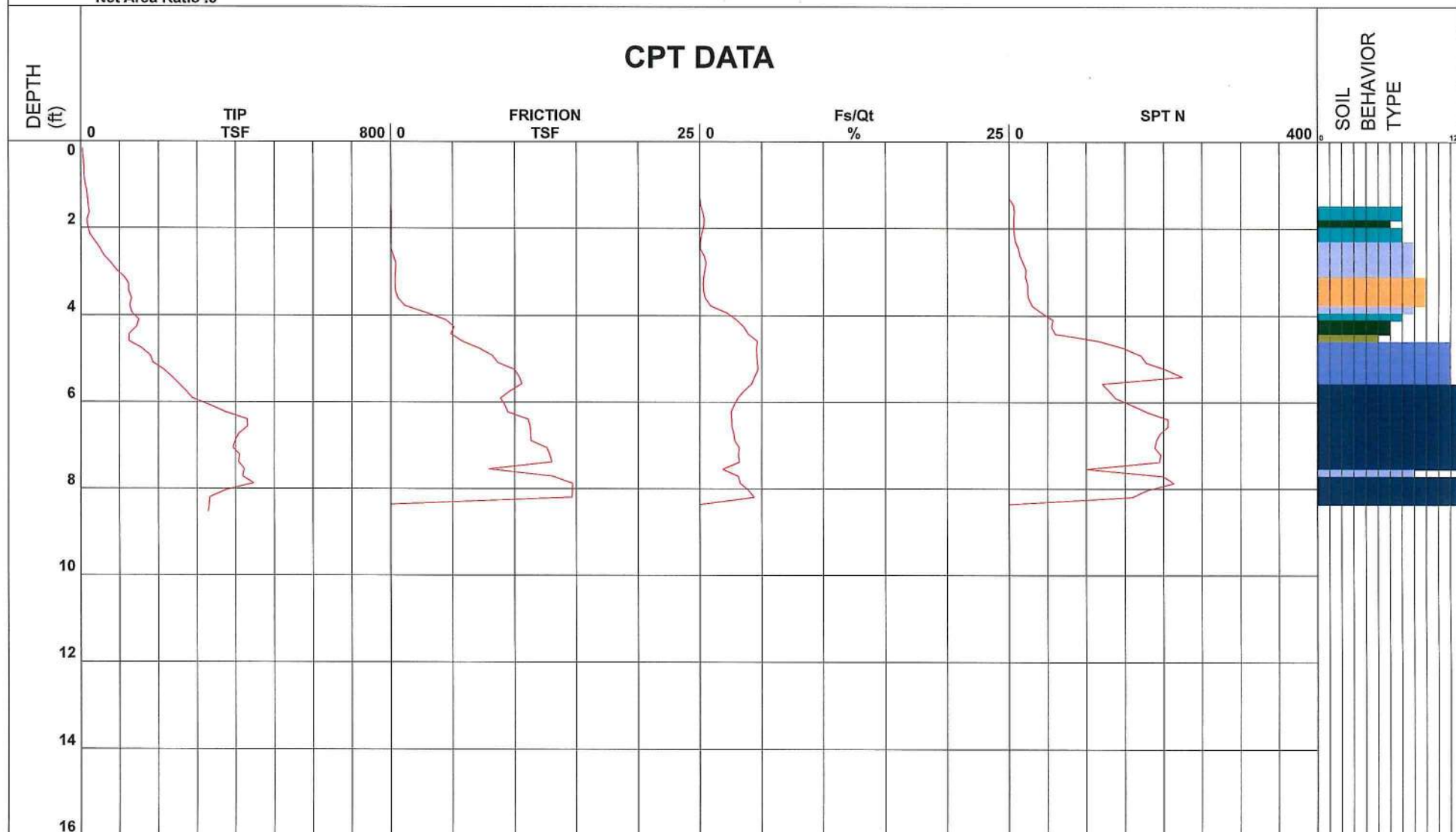
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B2
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 11:31:42 AM
0.00 ft

Filename SDF (749).cpt
GPS _____
Maximum Depth 8.53 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



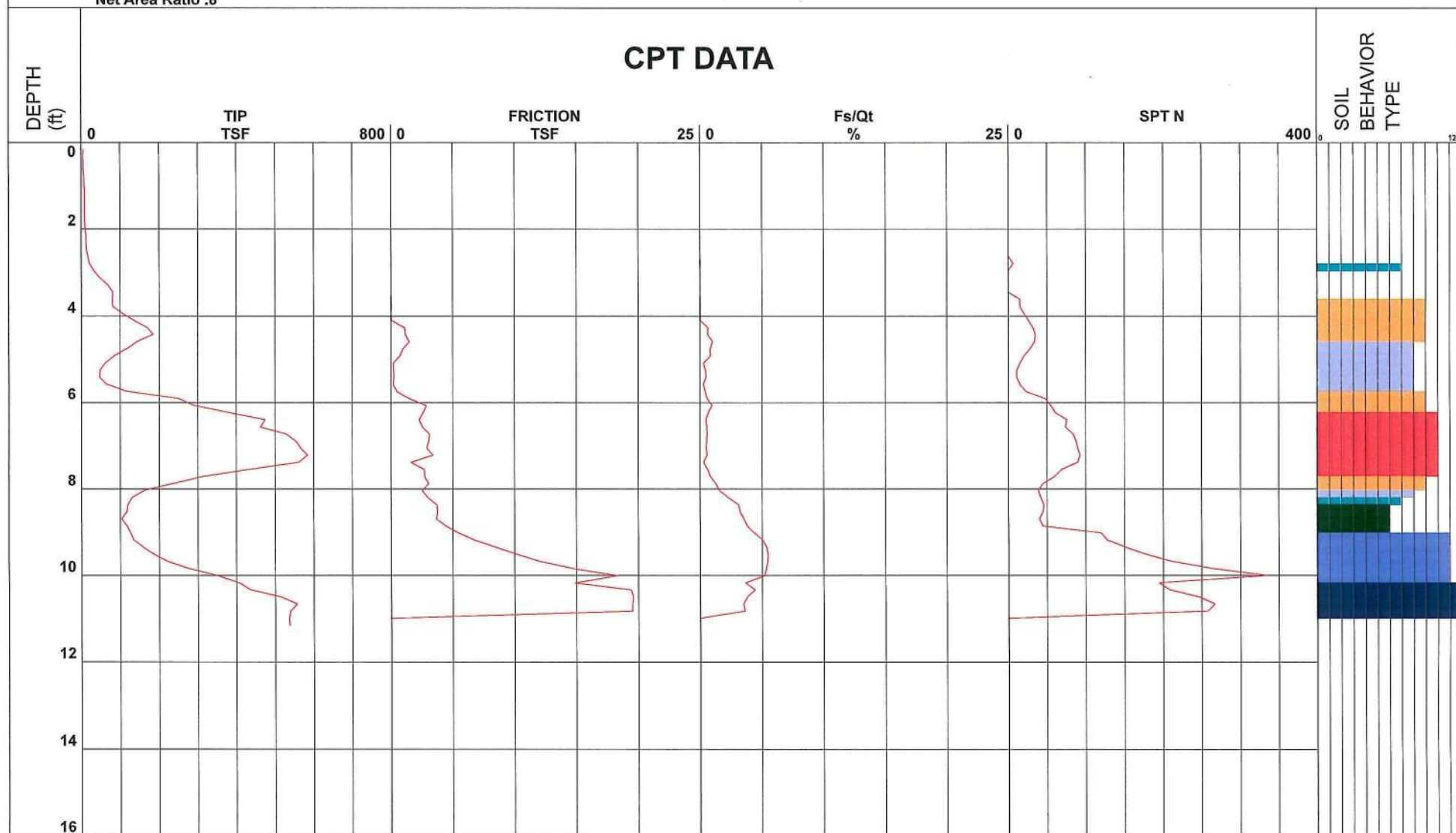
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B3
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 12:02:35 PM
0.00 ft

Filename SDF (750).cpt
GPS _____
Maximum Depth 11.15 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



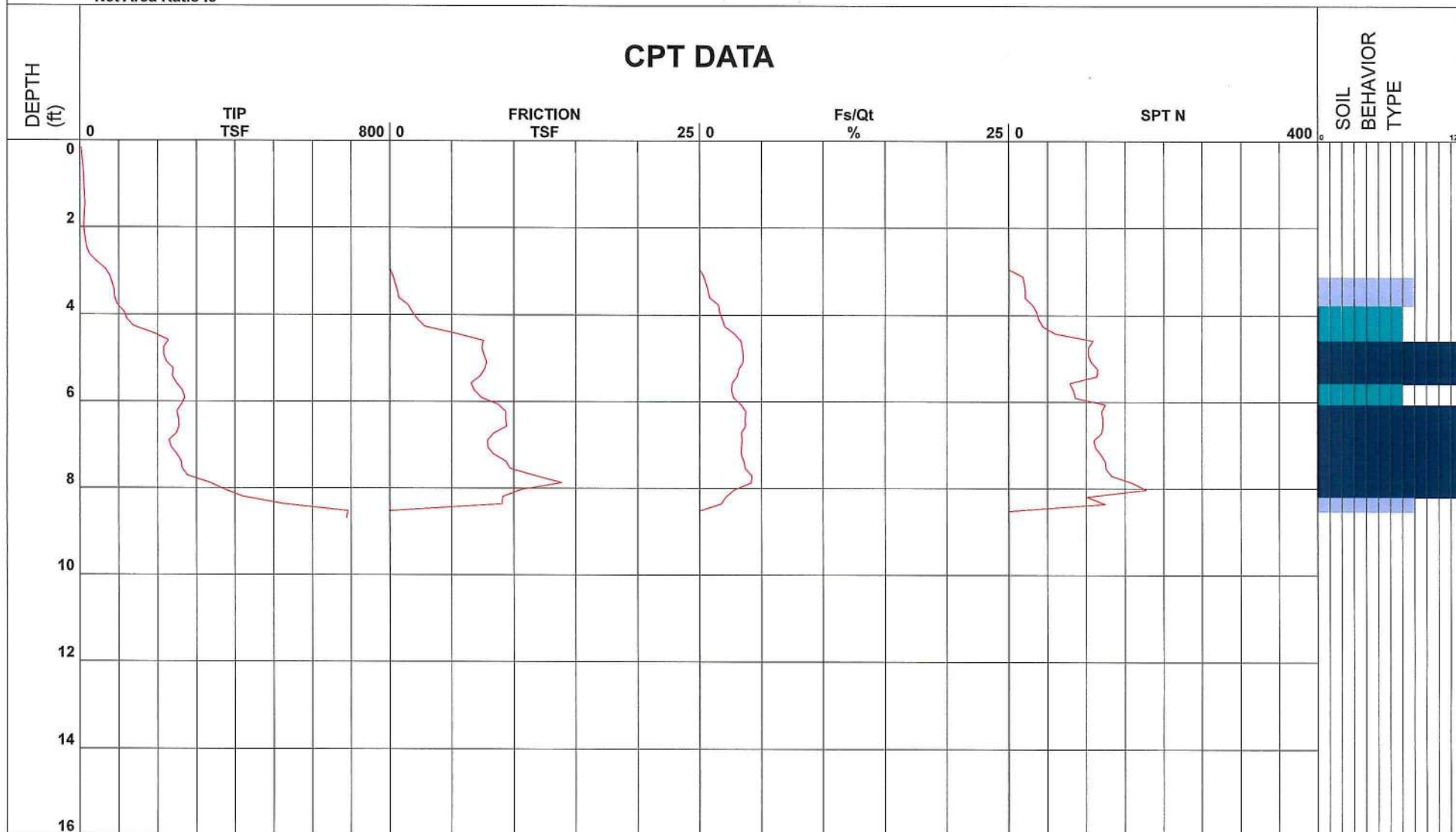
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B4
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 3:15:20 PM
0.00 ft

Filename SDF (757).cpt
GPS _____
Maximum Depth 8.69 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



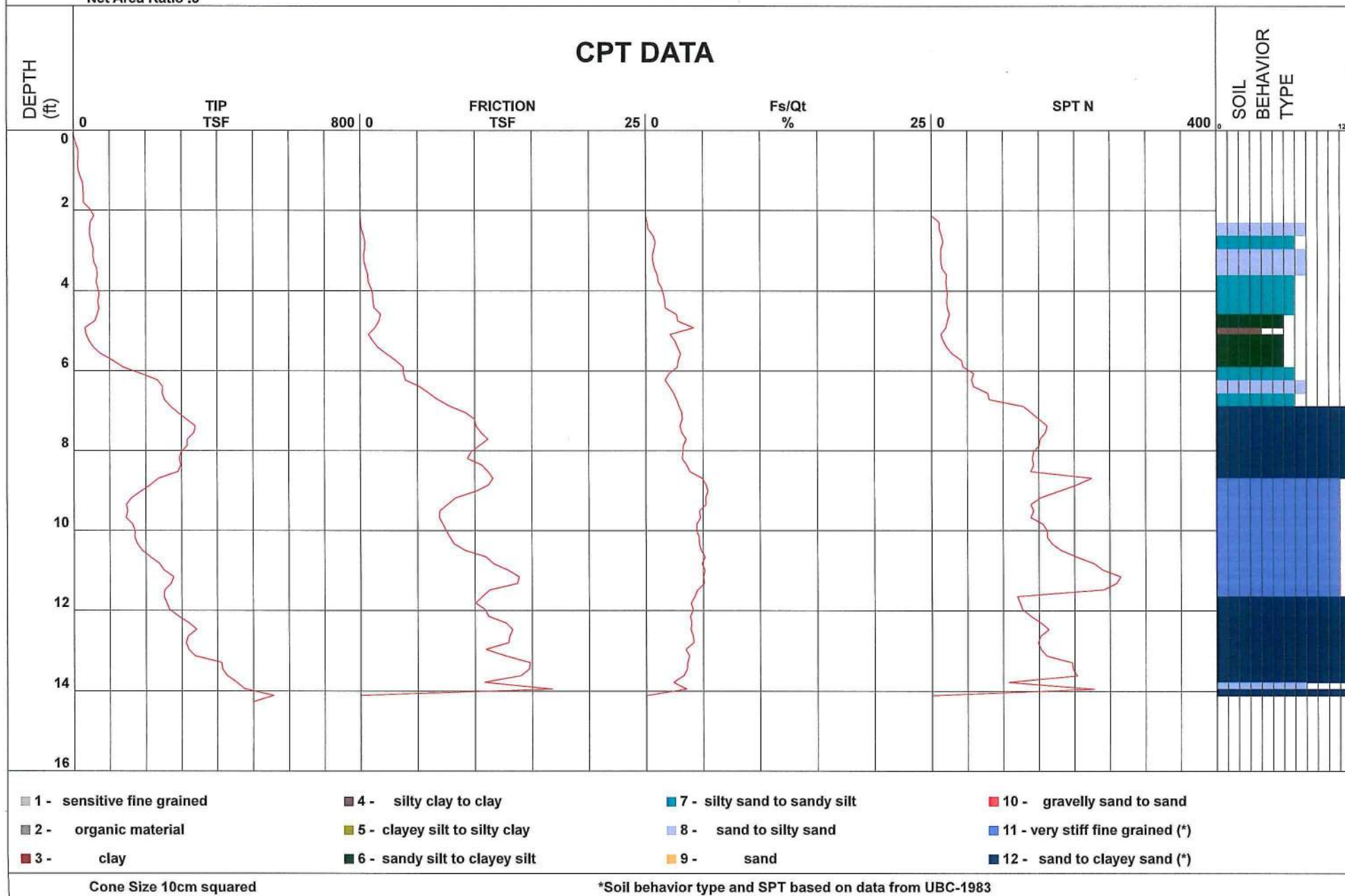
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B5
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 9:56:00 AM
0.00 ft

Filename SDF (747).cpt
GPS _____
Maximum Depth 14.27 ft

Net Area Ratio .8





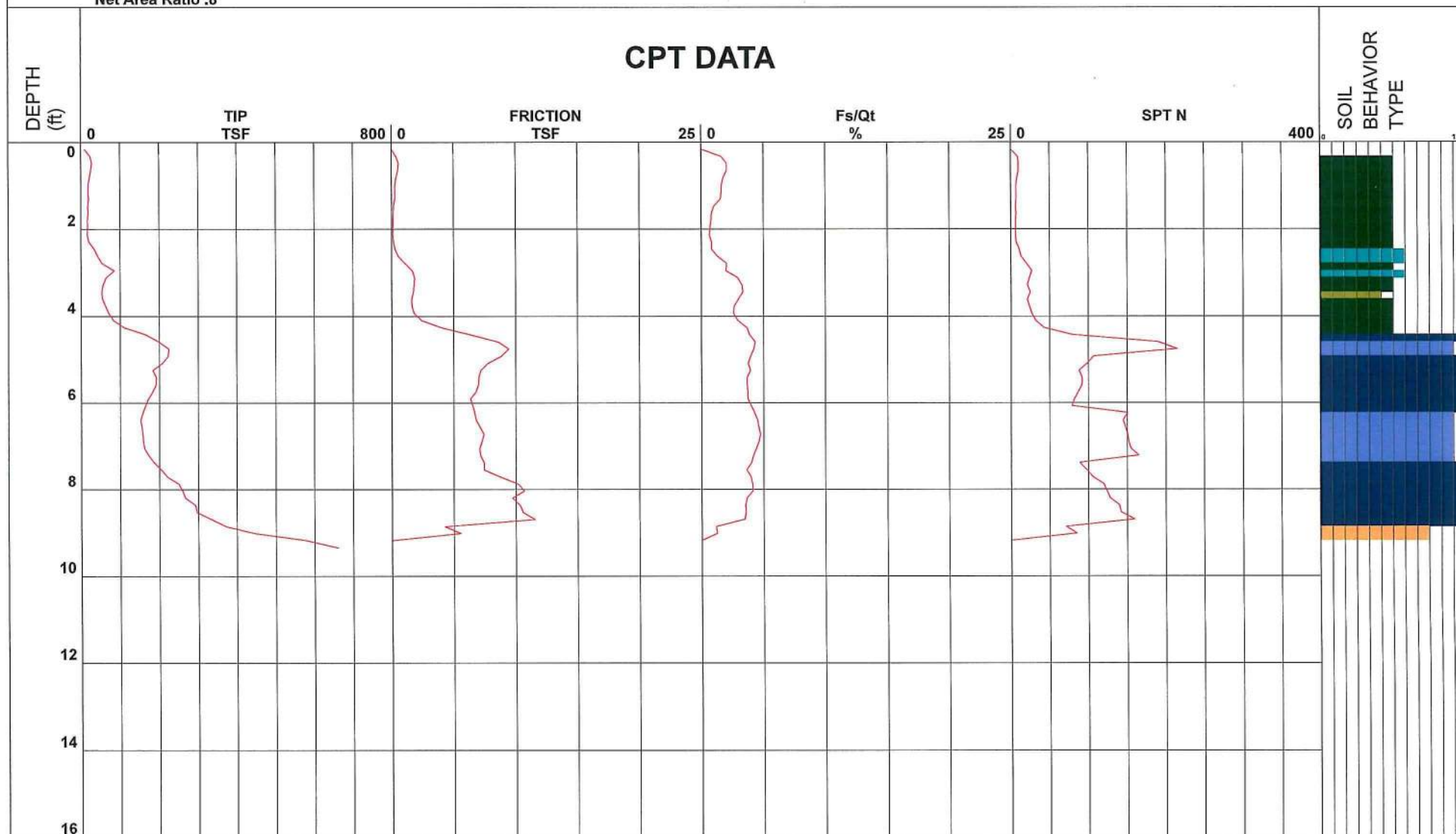
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B6
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 12:26:42 PM
0.00 ft

Filename SDF (751).cpt
GPS _____
Maximum Depth 9.35 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



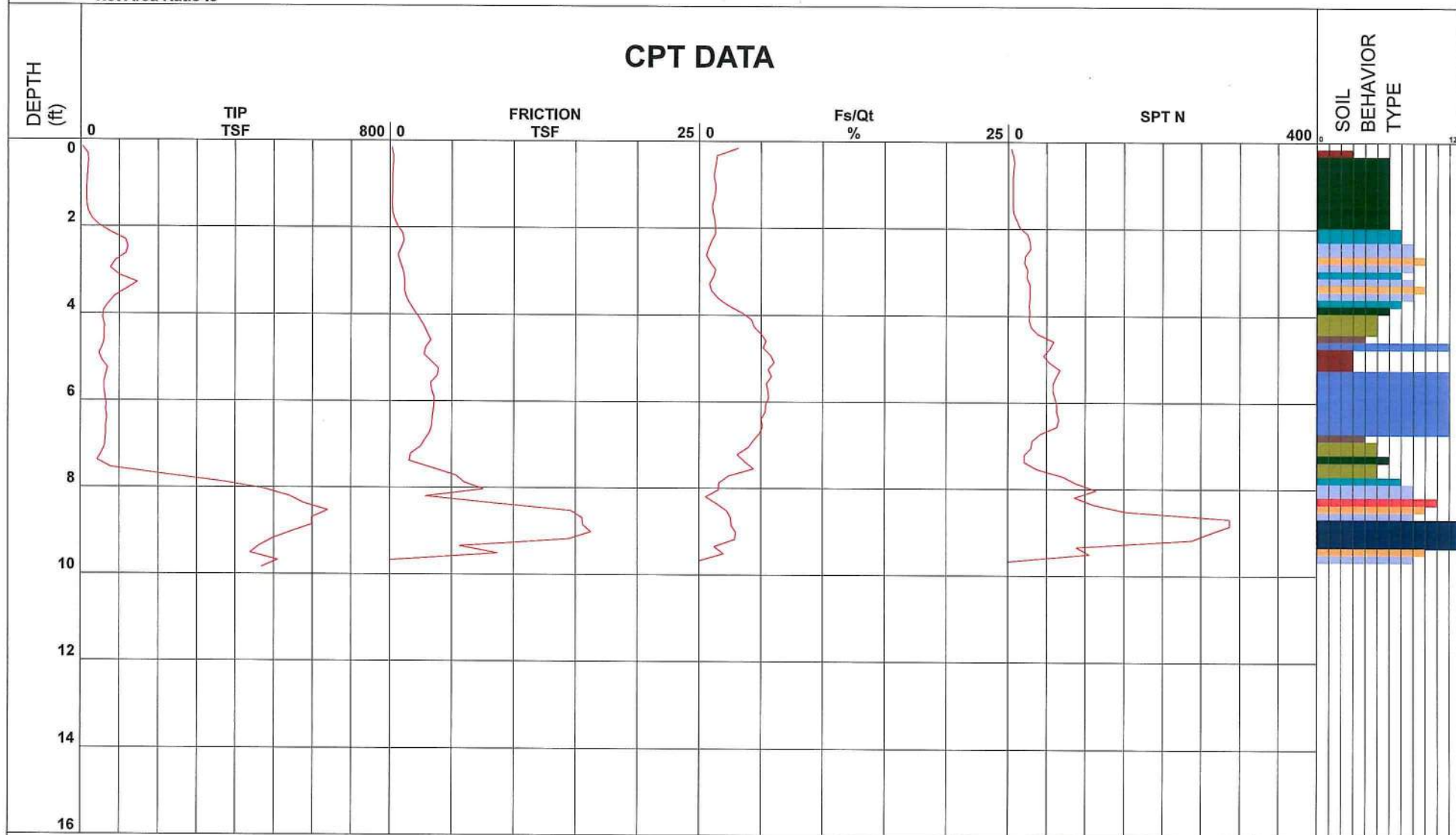
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B7
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 4:19:09 PM
0.00 ft

Filename SDF (759).cpt
GPS _____
Maximum Depth 9.84 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



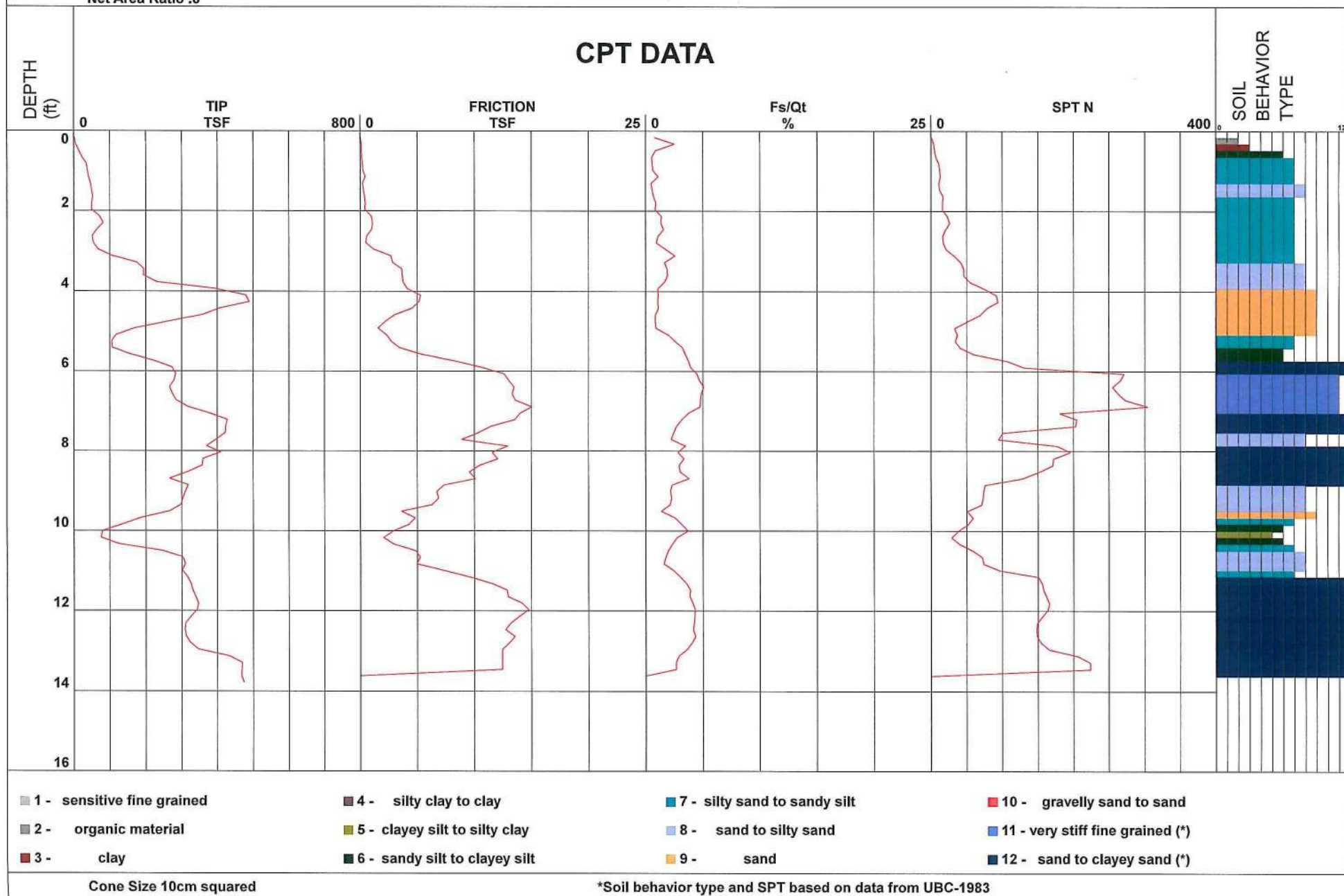
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B8
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 3:42:14 PM
0.00 ft

Filename SDF (758).cpt
GPS _____
Maximum Depth 13.78 ft

Net Area Ratio .8





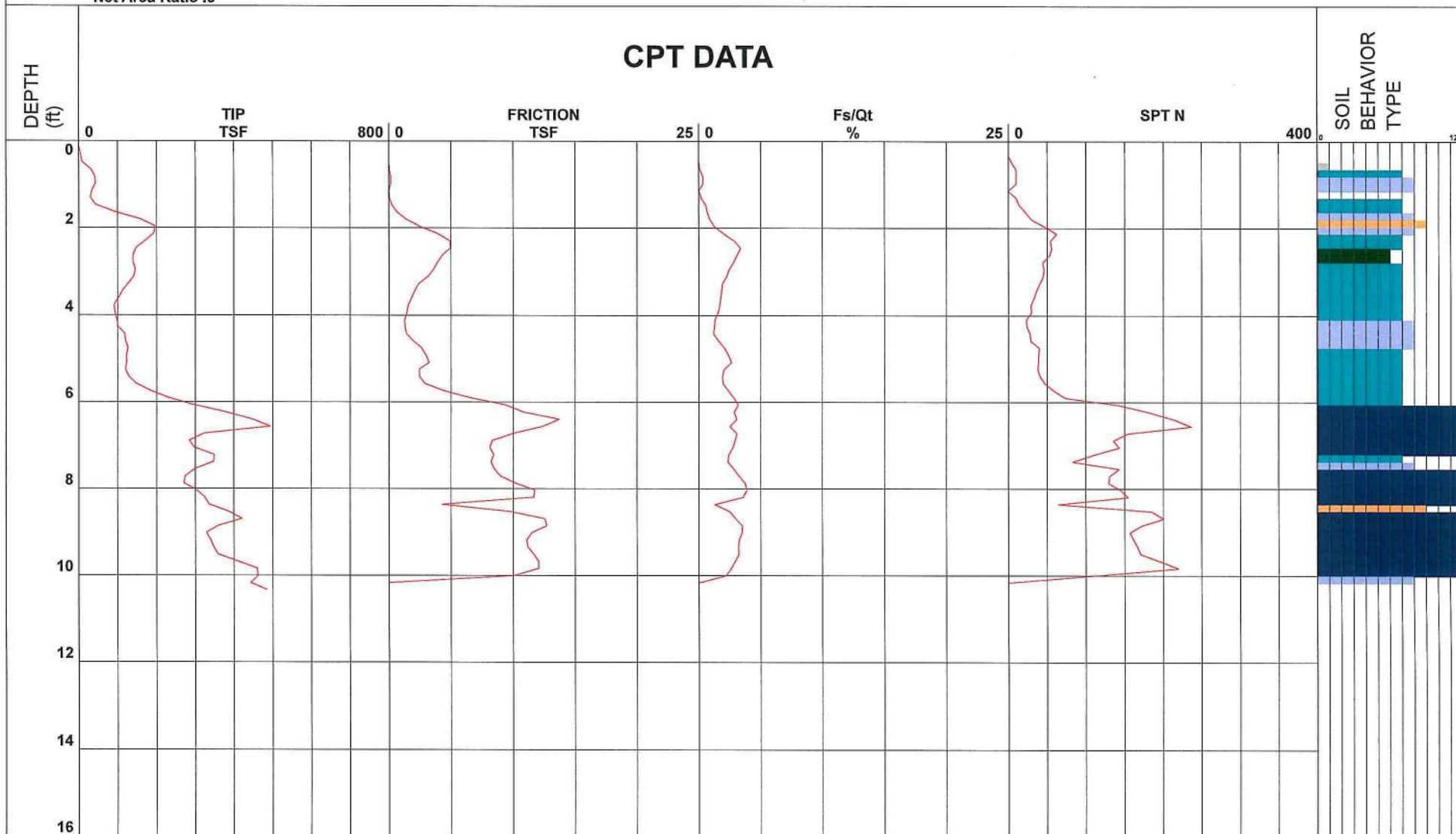
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B9
Water Table Depth _____

Operator _____
Cone Number DSG1104
Date and Time 1/20/2011 9:25:46 AM
0.00 ft

Filename SDF (746).cpt
GPS _____
Maximum Depth 10.33 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



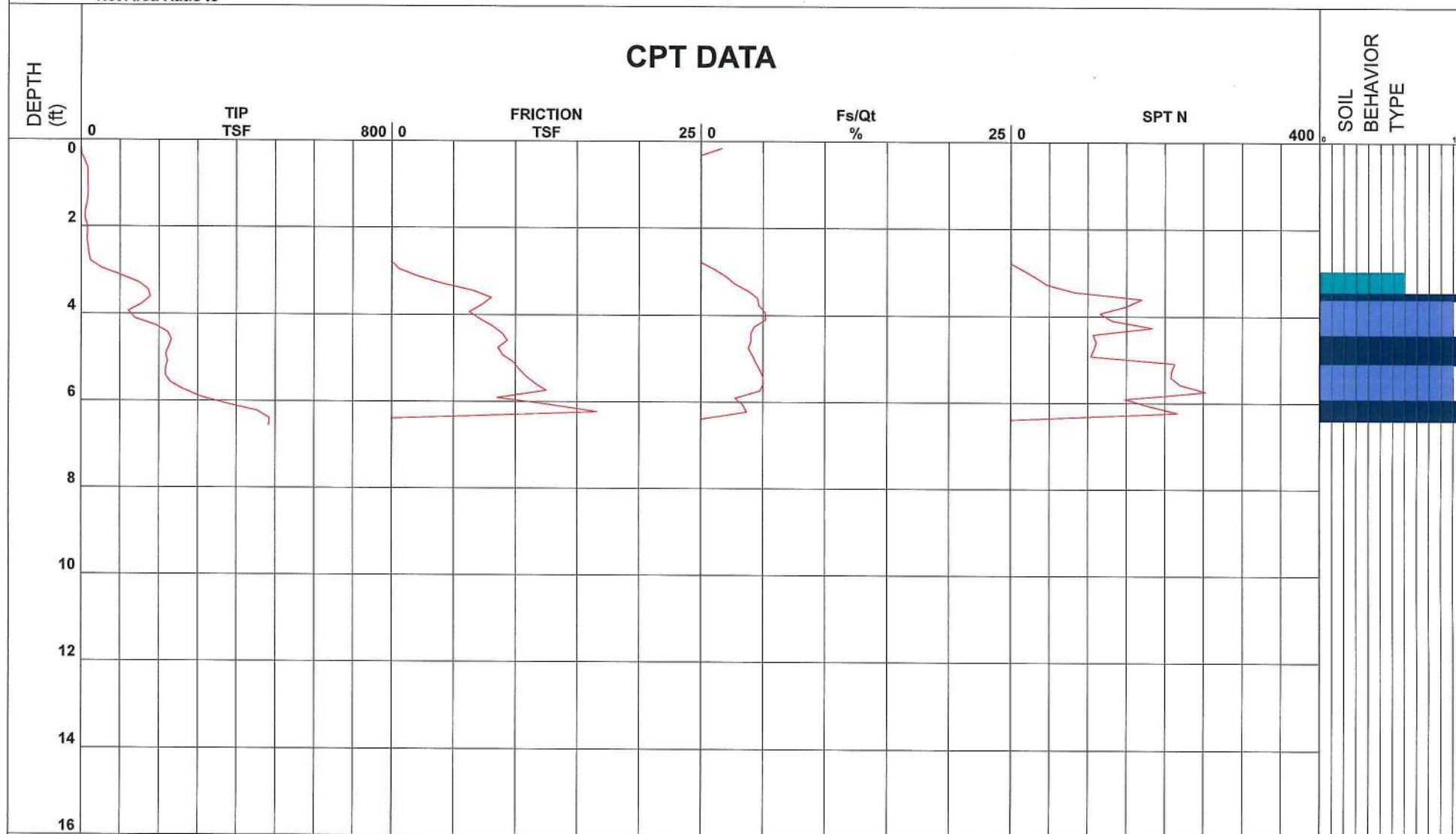
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B10
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 12:55:24 PM
0.00 ft

Filename SDF (752).cpt
GPS _____
Maximum Depth 6.56 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



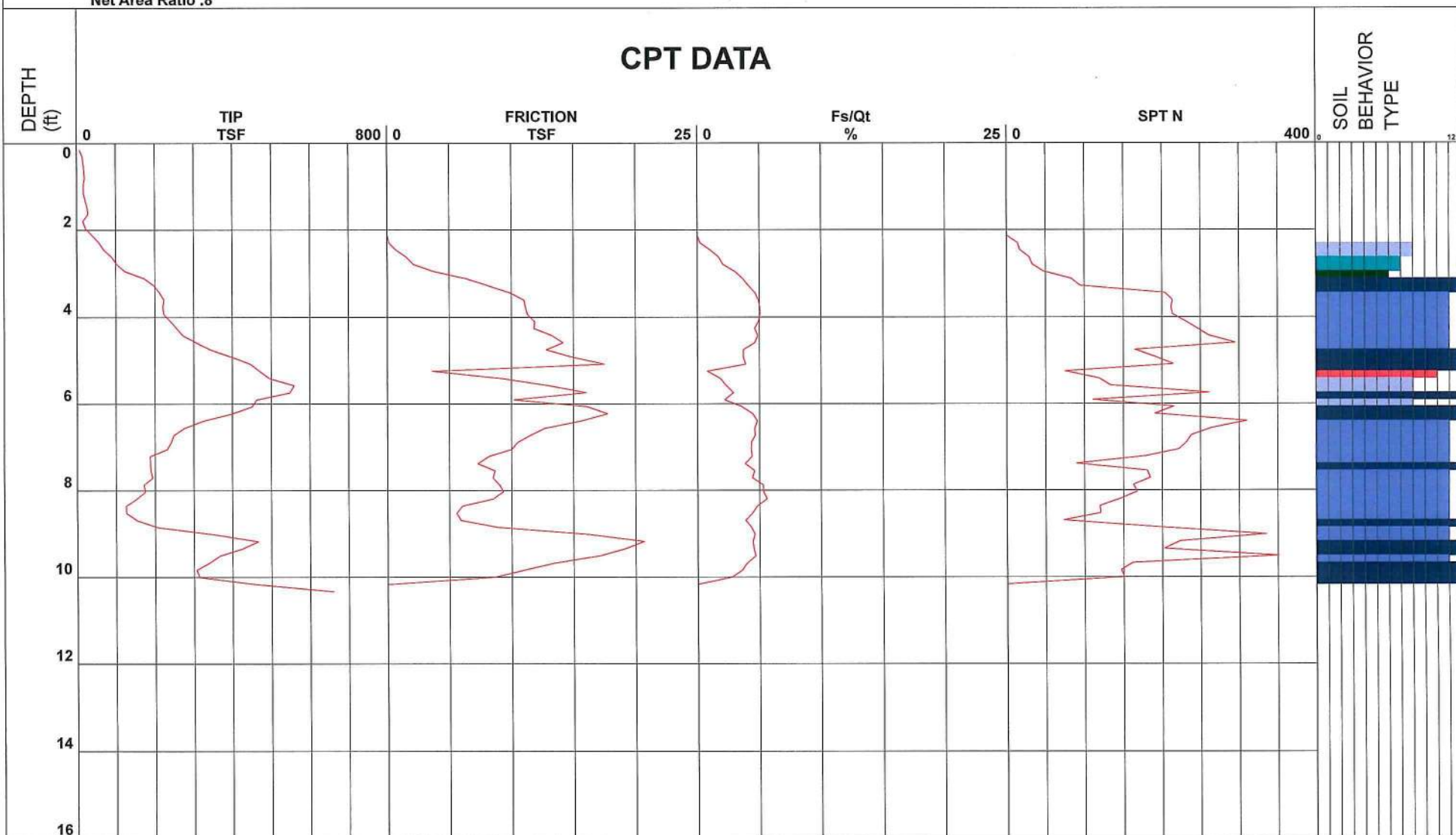
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B11
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/21/2011 8:31:37 AM
0.00 ft

Filename SDF (762).cpt
GPS _____
Maximum Depth 10.33 ft

Net Area Ratio .8



1 - sensitive fine grained

4 - silty clay to clay

7 - silty sand to sandy silt

10 - gravelly sand to sand

2 - organic material

5 - clayey silt to silty clay

8 - sand to silty sand

11 - very stiff fine grained (*)

3 - clay

6 - sandy silt to clayey silt

9 - sand

12 - sand to clayey sand (*)

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



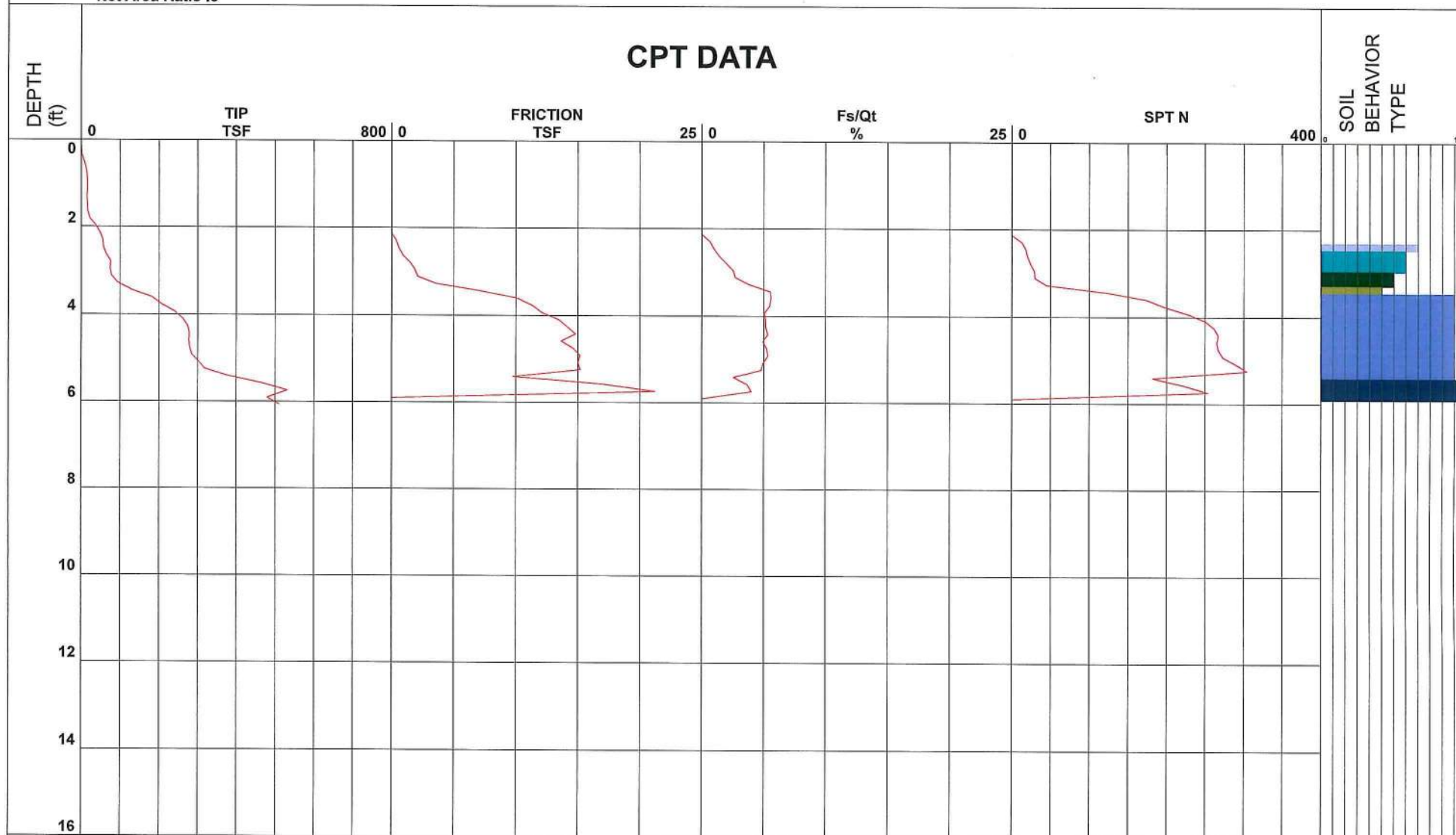
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B12
Water Table Depth _____

Operator _____
Cone Number DSG1104
Date and Time 1/21/2011 9:12:35 AM
0.00 ft

Filename SDF (763).cpt
GPS _____
Maximum Depth 6.07 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



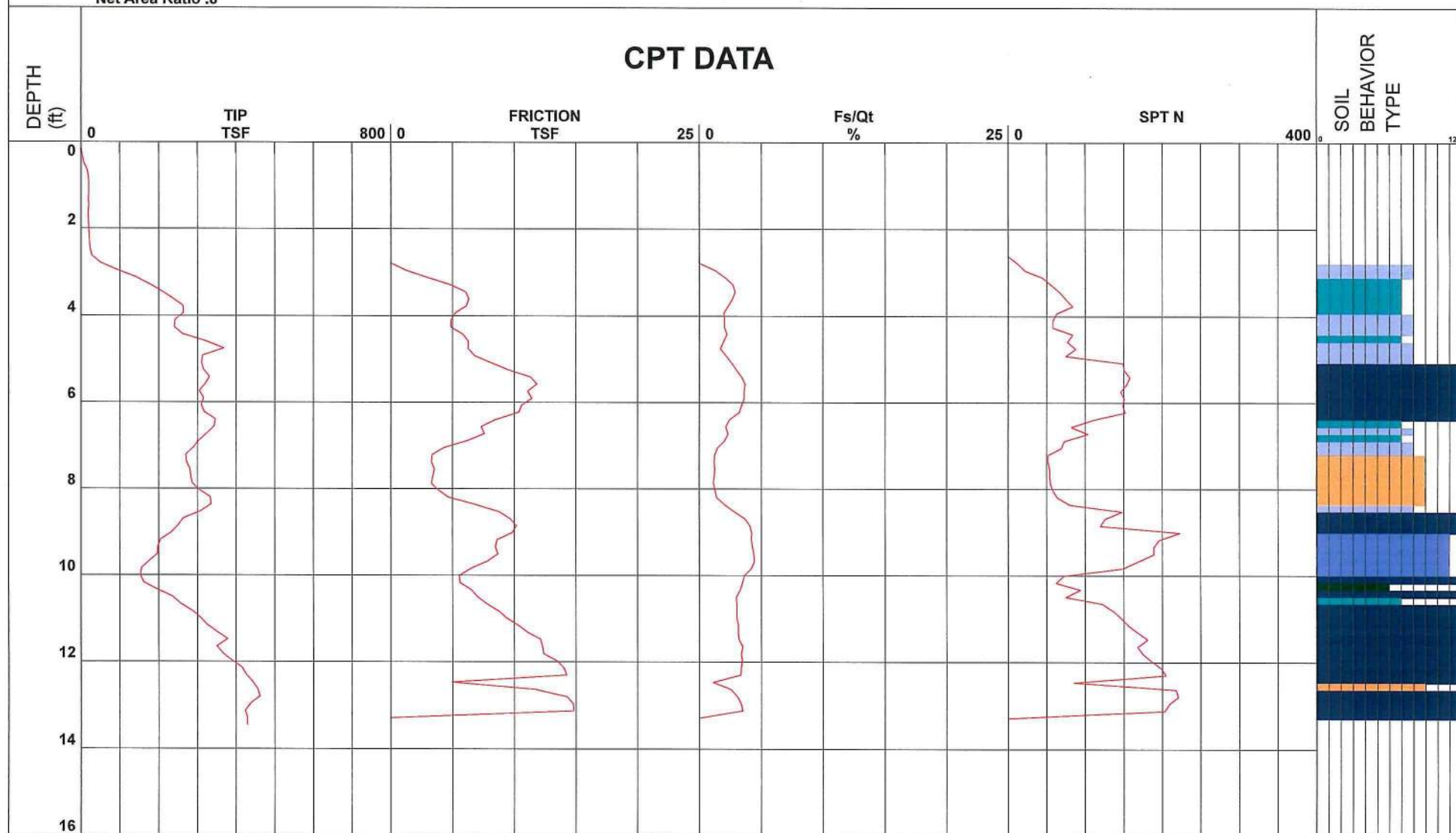
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B13
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/21/2011 9:52:02 AM
0.00 ft

Filename SDF (764).cpt
GPS _____
Maximum Depth 13.45 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



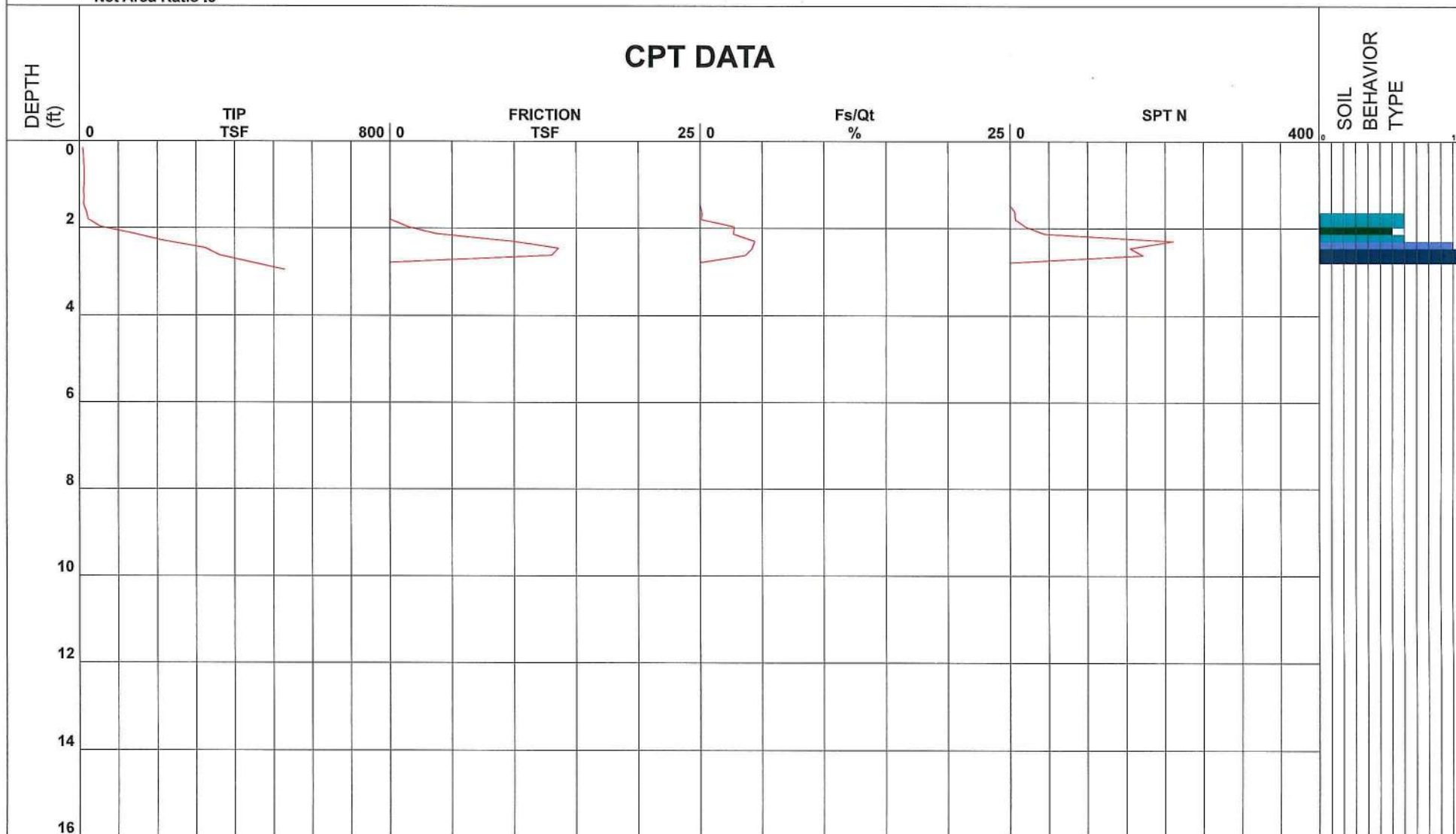
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B14
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 1:20:18 PM
0.00 ft

Filename SDF (753).cpt
GPS _____
Maximum Depth 2.95 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



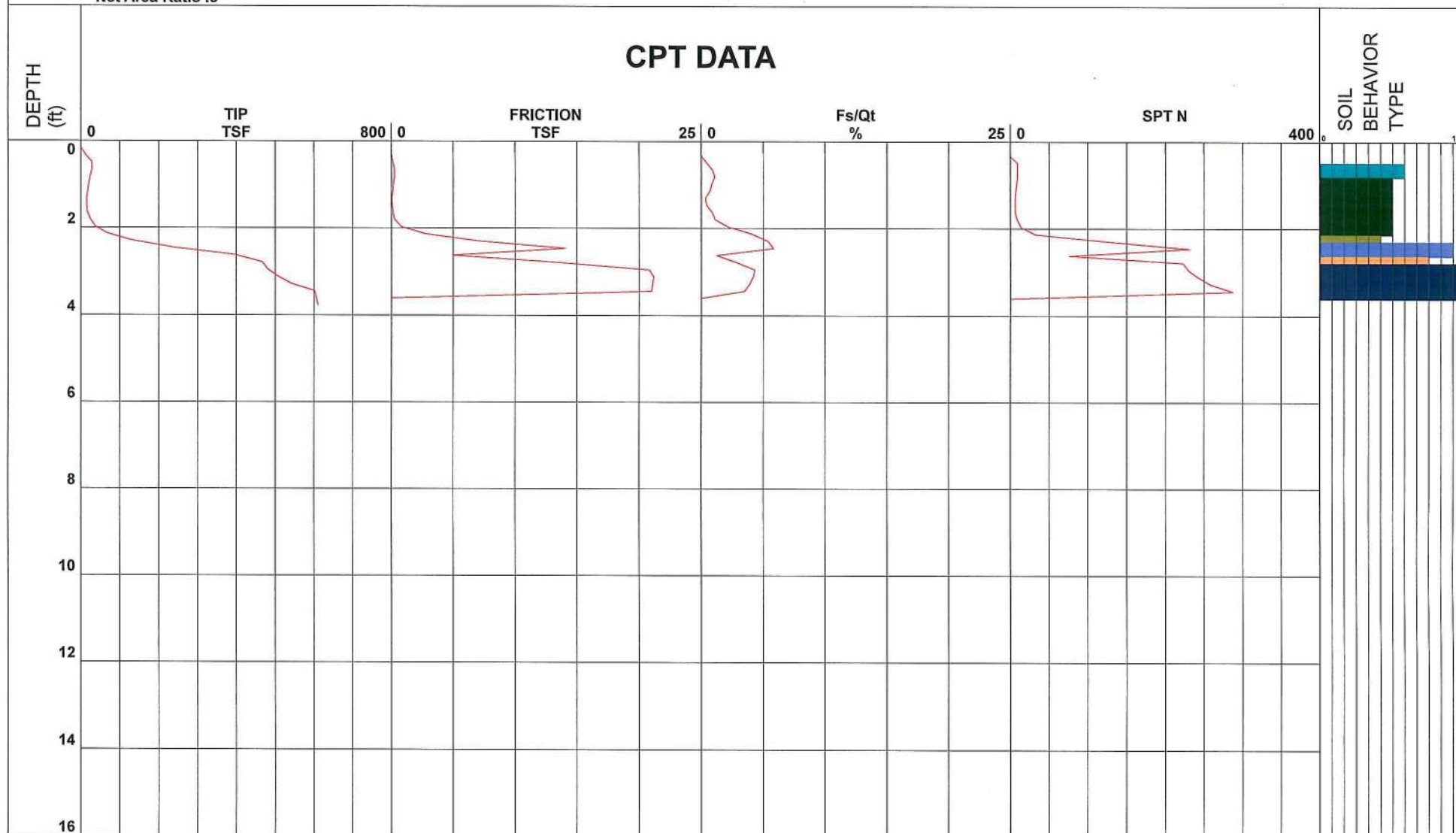
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B14-A
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 1:34:16 PM
0.00 ft

Filename SDF (754).cpt
GPS _____
Maximum Depth 3.77 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



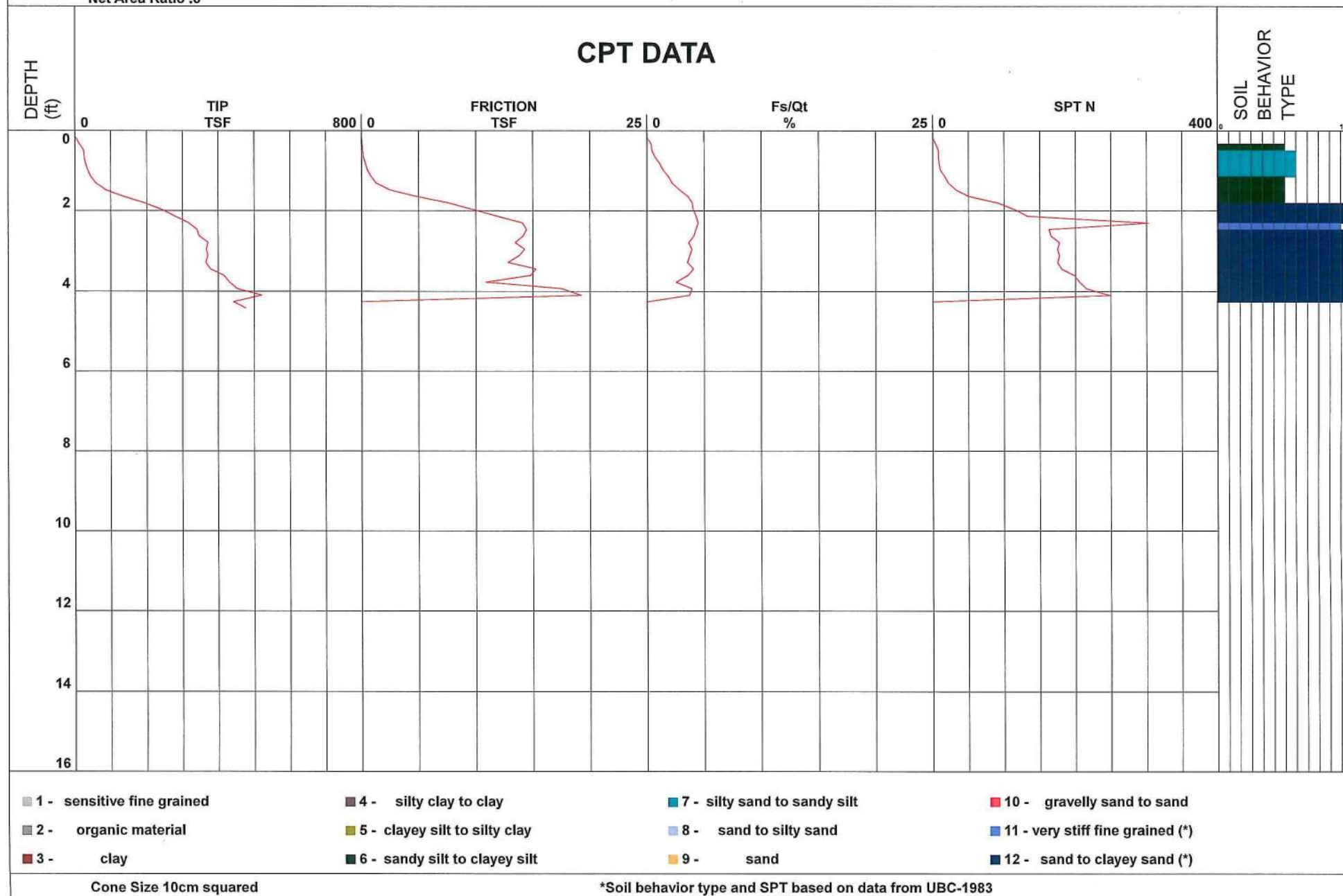
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B15
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/21/2011 8:09:41 AM
0.00 ft

Filename SDF (761).cpt
GPS _____
Maximum Depth 4.43 ft

Net Area Ratio .8





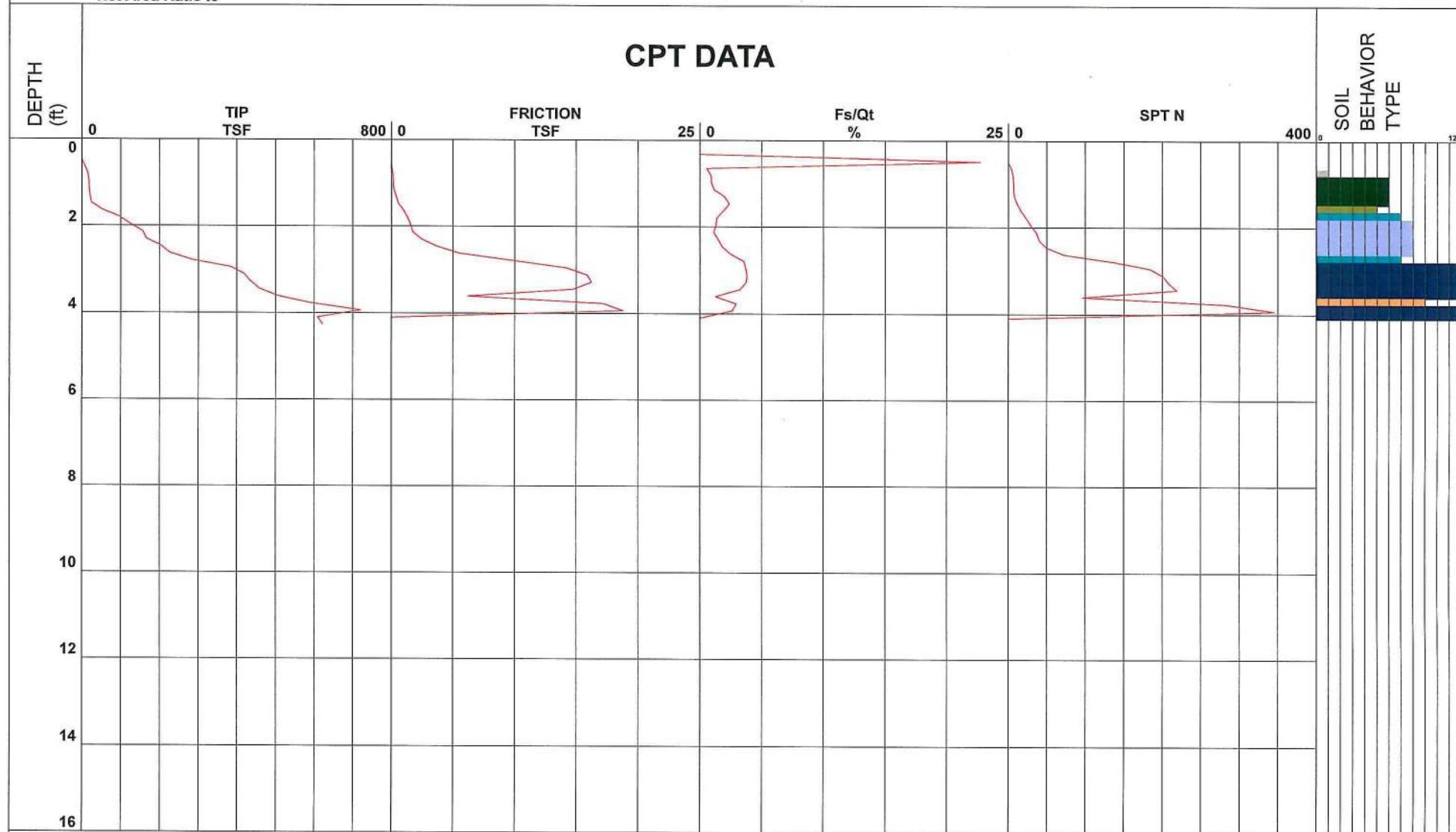
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B16
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/21/2011 7:42:52 AM
0.00 ft

Filename SDF (760).cpt
GPS _____
Maximum Depth 4.27 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



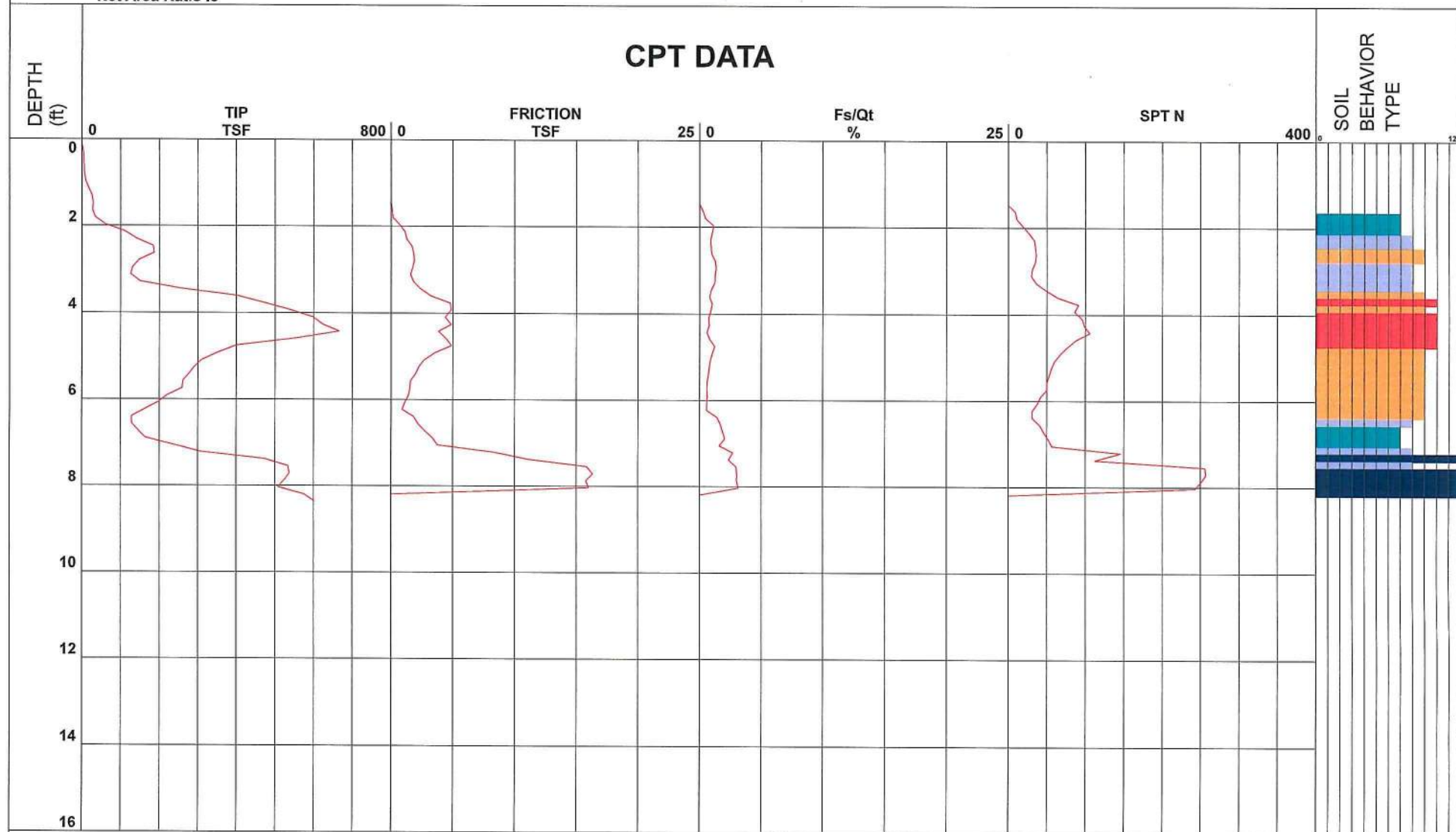
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B17
Water Table Depth _____

Operator _____
Cone Number DSG1104
Date and Time 1/20/2011 2:41:45 PM
0.00 ft

Filename SDF (756).cpt
GPS _____
Maximum Depth 8.37 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983



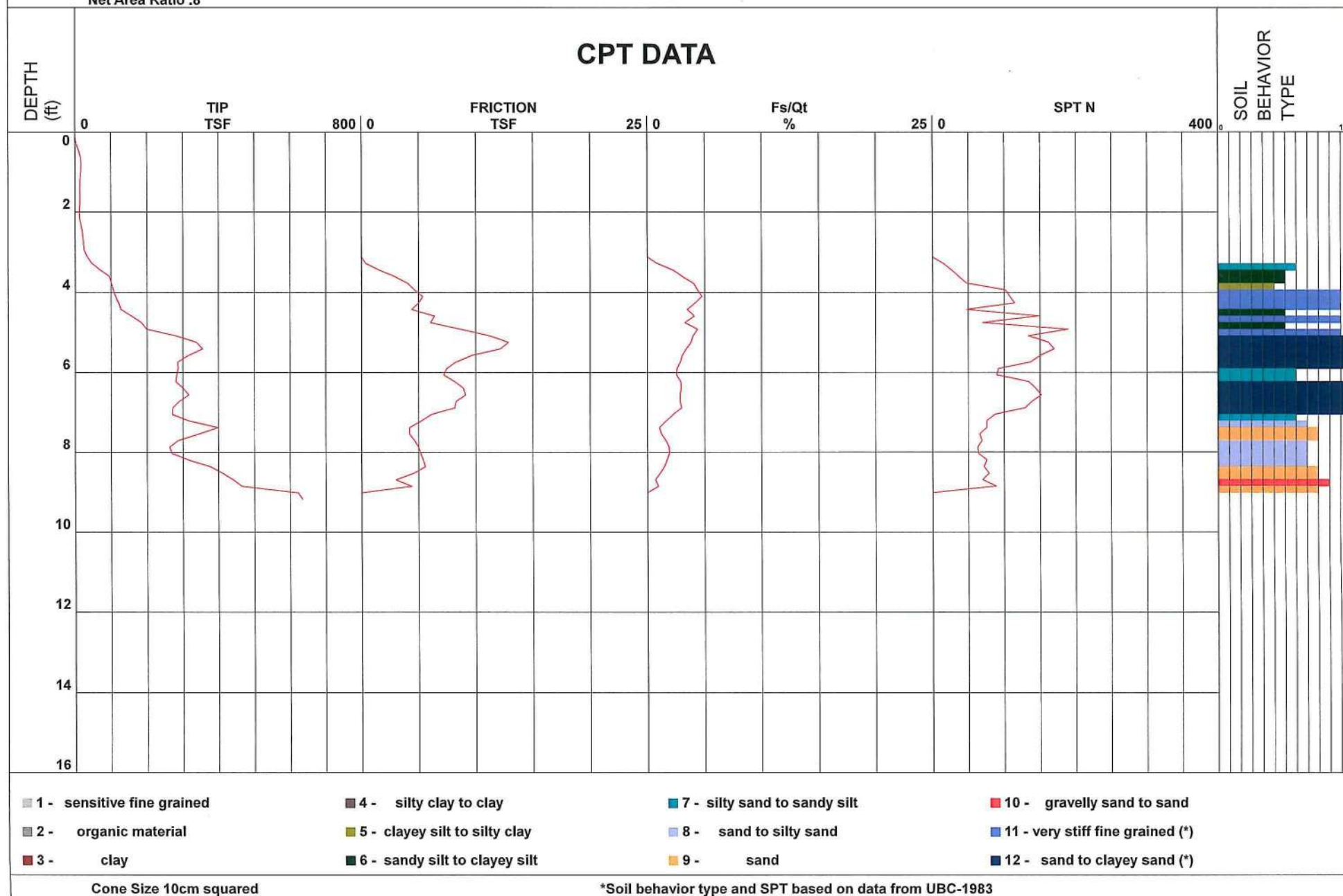
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B18
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/21/2011 10:20:29 AM
0.00 ft

Filename SDF (765).cpt
GPS _____
Maximum Depth 9.19 ft

Net Area Ratio .8





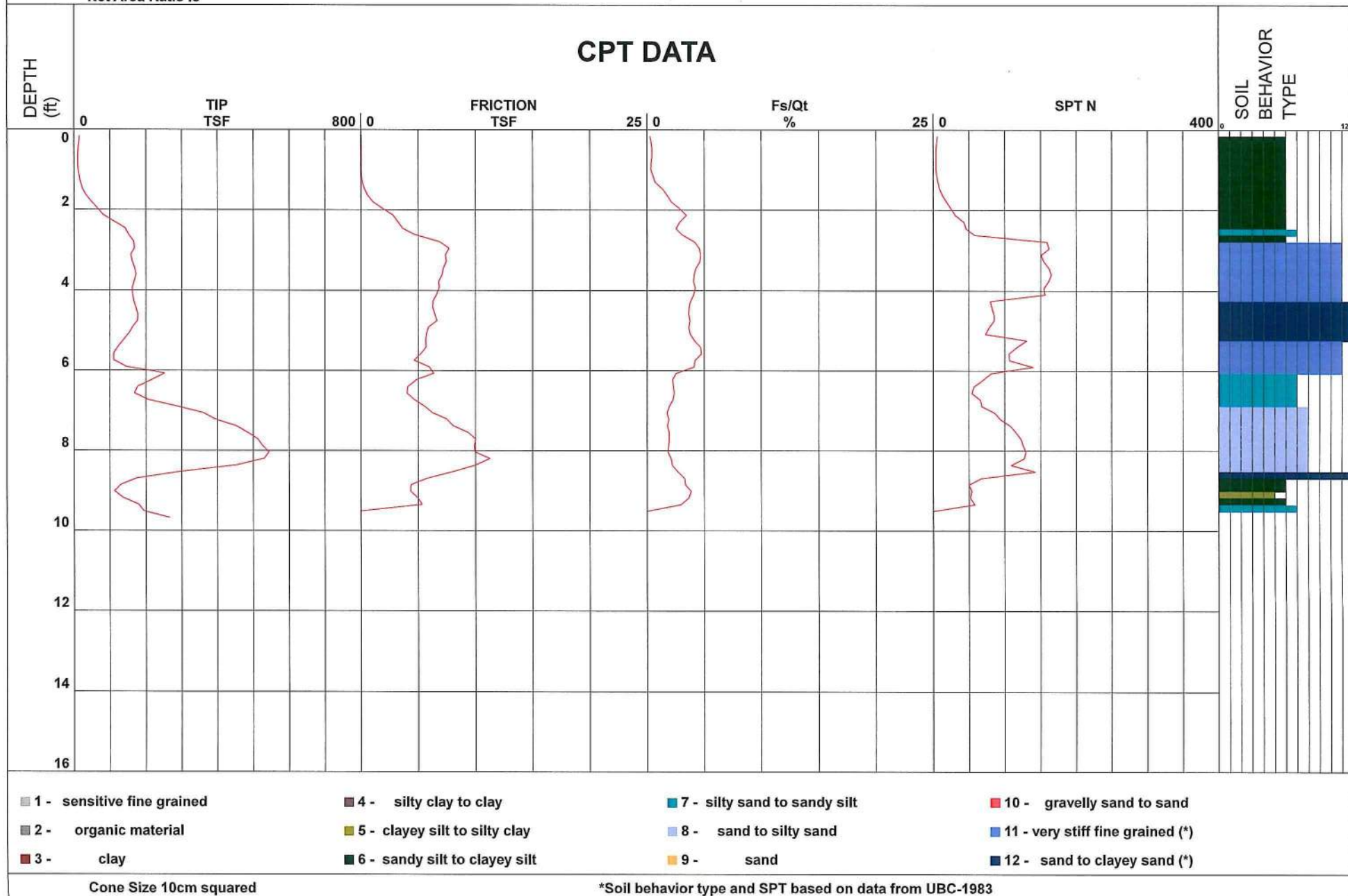
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B19
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 8:52:35 AM
0.00 ft

Filename SDF (745).cpt
GPS _____
Maximum Depth 9.68 ft

Net Area Ratio .8





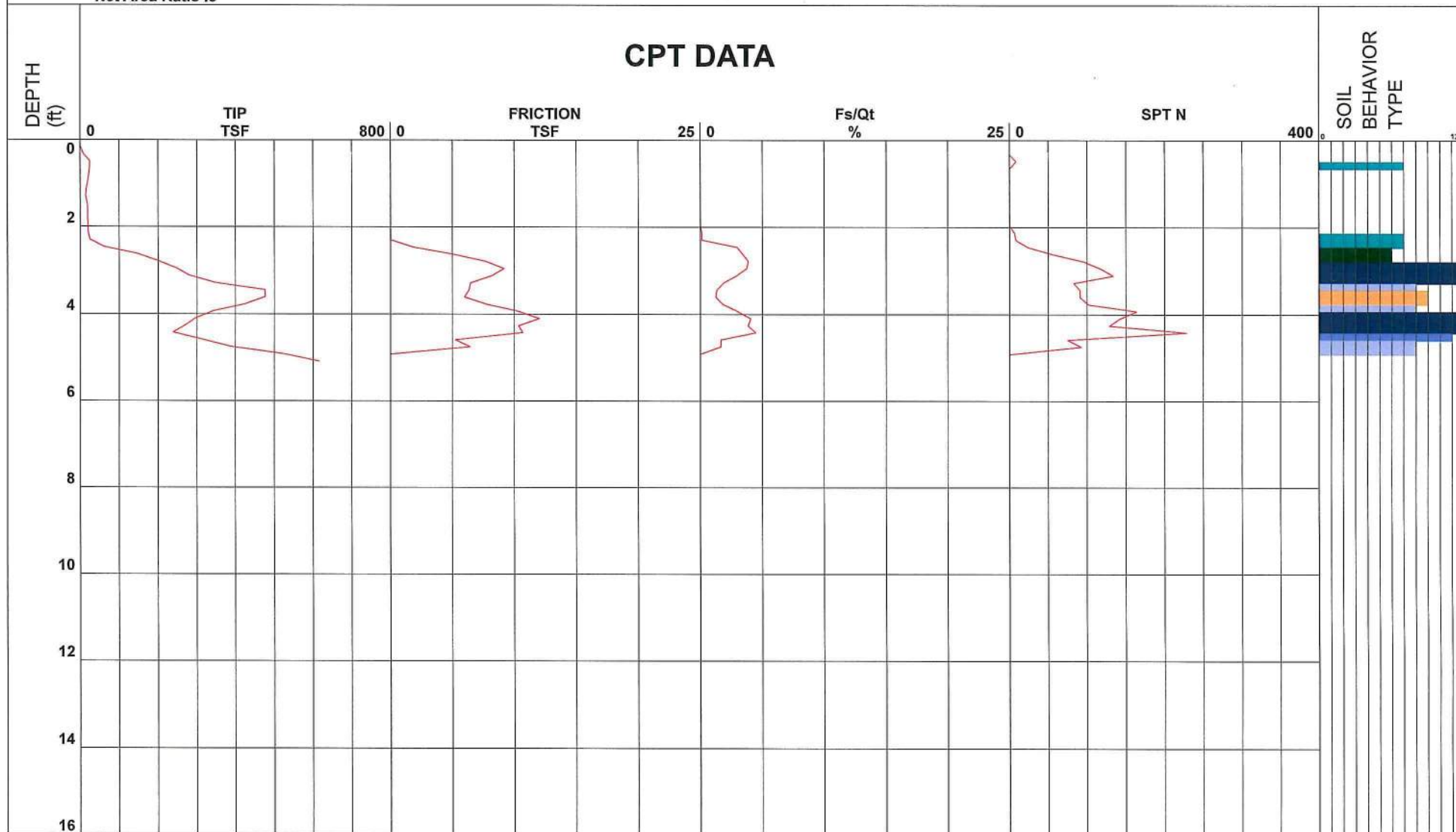
Ninyo & Moore

Project Hidden Hills Solar Facility
Job Number 303200001
Hole Number B20
Water Table Depth _____

Operator RS/TF
Cone Number DSG1104
Date and Time 1/20/2011 2:02:09 PM
0.00 ft

Filename SDF (755).cpt
GPS _____
Maximum Depth 5.09 ft

Net Area Ratio .8



- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

*Soil behavior type and SPT based on data from UBC-1983

