Revised Geotechnical Engineering Report

Rancho Viejo Solar Array, Substation, BESS, and Transmission Line

Near NM 599 and NM 14, Santa Fe, New Mexico April 16, 2024 Terracon Project No. 66225093

Prepared for:

AES Clean Energy 282 Century Place, Suite 2000 Louisville, Colorado 80027

Prepared by:

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April 16, 2024

AES Clean Energy 282 Century Place, Suite 2000 Louisville, Colorado 80027

- Attn: Mr. Jourdan Labonte, P.E., M.Eng.
 - P: (737) 239-9060
 - E: <u>Jourdan.Labonte@aes.com</u>
- Re: Geotechnical Engineering Report Rancho Viejo Solar Facility Santa Fe County, New Mexico Terracon Project No. 66225093

Dear Mr. Labonte,

Terracon Consultants, Inc. (Terracon) has completed the Design-Level Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with our proposal number P66225093 – Revision No. 2 dated June 6, 2023. This geotechnical engineering report presents the results of the subsurface exploration, laboratory testing, pile load testing, engineering analyses and design-level geotechnical engineering recommendations with regard to the design and construction of the proposed Rancho Viejo Solar Array, Substation, BESS, and Transmission Line.

We appreciate the opportunity to continue to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely, Terracon

Stenson D. Lee Staff Professional

SME Review by: Rachel Pott, P.E. (CO)



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TABLE OF CONTENTS

		Page	∍No.
1.0	Intro	duction	1
2.0	Proje	ct Information	2
	2.1	Project Description	2
	2.2	Site Location and Description	3
3.0	Explo	ration and Testing Procedures	3
	3.1	Field Exploration	3
	3.2	Laboratory Testing	6
4.0	Subsu	urface Profile	6
	4.1	Typical Subsurface Profile	6
	4.2	Groundwater	8
	4.3	Thermal Resistivity Laboratory Testing	
	4.4	Field Electrical Resistivity Test Results	9
	4.5	Corrosivity	
	4.6	Seismic Considerations	12
	4.7	Liquefaction	13
	4.8	Slope Hazards	13
5.0	Full-S	Scale Pile Load Testing (PLT) Program	
	5.1	Pile Location Procedures	
	5.2	Test Pile Installation	
	5.3	Testing Under Axial Compressive Load	
	5.4	Testing Under Axial Tensile ("pull-out") Load	
	5.5	Testing Under Lateral Load	16
	5.6	Summary of Pile Load Test Results	
6.0	Pv Sc	lar Array Field – Recommendations For Design And Construction	
	6.1	Geotechnical Considerations	20
	6.2	Solar Panel Support Pile Design Recommendations	21
		6.2.1 Adfreeze Stress and Depth To Which Adfreeze Applies	
		6.2.2 Axial Capacity Recommendations	
		6.2.3 Lateral Capacity Recommendations	
		6.2.4 Construction Considerations	25
	6.3	Mat Slab Foundations	25
		6.3.1 Mat Foundations Design Recommendations	
		6.3.2 Foundation Construction Considerations	28
7.0		ation, Bess, Switching Station, And Overhead Transmission Line –	
	Recor	mmendations For Design And Construction	
	7.1	Geotechnical Considerations	
	7.2	Spread Footing and Isolated Slab Foundations	
		7.2.1 General	
		7.2.2 Spread Footing and Mat /Slab Foundation Design Recommendations	
		7.2.3 Spread Footing and Mat/Slab Construction Considerations	
	7.3	Drilled Shaft Foundation Design	
		7.3.1 Drilled Shaft Design Parameters	31



	7.3.2 7.3.3		
8.0		adways	
0.0	8.1.1	5	
	8.1.2	5	
0.0	8.1.3	, , , , , , , , , , , , , , , , , , ,	
9.0		Operated	
	9.1.1	General	
	9.1.2	•	
	9.1.3	5	
	9.1.4		
	9.1.5	Compaction Requirements	
	9.1.6		
	9.1.7	Grading and Drainage	
	9.1.8	Earthwork Construction Considerations	
	9.1.9	Construction Observation and Testing	
10.0	General Co	omments	
Appe		eld Exploration	Exhibit No.
		on	
	-	n Plan – Borings	-
	•	n Plan – Test Pits	0
		otes	
		I Classification System	
	Boring Log	S	. A-10 through A-65
	Test Pit Pic	tures	. A-66 through A-81
Appe	endix B – La	boratory Testing	
• •		imits Results	B-1 and B-4
	0	Distribution	
		ensity Relationship Results	Ũ
		ensity relationship received and the second s	•
		on Test Results	0
		Festing Results	
		of Laboratory Results	0
	Summary		. D-49 (11100g)1 D-04
Appe	endix C – Th	ermal Resistivity Test Results	
	Thermal R	esistivity Test Location Plan	C-1 through C-2
	Thermal R	esistivity Test Results	C-3 thru C-20
Appe	endix D – Fi	eld Soil Electrical Resistivity Test Data	
		lectrical Resistivity Test Location Plan	D-1 through D-3
		lectrical Resistivity Test Data	•
Appe	endix E – Te	st Pile Driving Data	
171- 0		est Zoning Plan	E-1



Test Pile Driving Records	E-2 thru E-6
Appendix F – Pile Load Testing Results – Axial Compression Load Compression Load Test Results	F-1 thru F-8
Appendix G – Pile Load Testing Results – Axial Tensile Load Tension Load Test Results	G-1 thru G-32
Appendix H – Pile Load Testing Results – Lateral Load Lateral Load Test Results	H-1 thru H-32
Appendix I – Double Ring Infiltration Test Results Double Ring Infiltration Test Location Plan Double Ring Infiltration Test Results	
Appendix J – JDH Corrosion Analysis	. J-1 through J-14



1.0 Introduction

Terracon Consultants, Inc. (Terracon) is pleased to submit this geotechnical engineering report detailing the completed pile load testing and design-level geotechnical engineering services performed for the proposed Rancho Viejo Solar Array, Substation, BESS, and Transmission Line to be located in Santa Fe County, New Mexico. The Site Location (Exhibit A-1) is included in Appendix A of this report. The purpose of these services is to provide subsurface information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Site preparation and earthwork
- Thermal resistivity of trench/backfill
- Pile load test results
- Unpaved access roads

- Groundwater conditions
- Seismic considerations
- Electrical resistivity for grounding design
- Foundation design and construction
- Corrosion considerations

Our geotechnical engineering scope of work for this project included the following:

- A total of 35 test borings drilled to approximate depths from 6 to 41¹/₂ feet below the existing ground surface (bgs);
- A total of 17 test pits excavated approximate depths from 1 to 10 feet;
- Field electrical resistivity testing at 22 locations;
- Pile load testing at 10 locations that includes 1 axial compression load tests, 9 axial tensile load tests, and 9 lateral load tests;
- Thirteen (13) laboratory thermal resistivity dry-out curves tested by Geotherm USA;
- Corrosion testing performed on bulk samples obtained at 6 locations;
- Laboratory testing of soil samples;
- Geotechnical engineering analysis; and
- Preparation of this report.

Terracon previously performed a preliminary geotechnical engineering report, dated December 21, 2022, for the project which included the following scope of work, portions of which have been incorporated into this report:

- Field electrical resistivity testing at 4 locations;
- A total of 16 test borings drilled to an approximate depth of approximately 16¹/₂ to 31¹/₂ feet bgs;
- Pile Load testing at 6 locations that included 6 axial compression tests, 12 axial tensile load tests, and 12 lateral load tests;
- Corrosion testing performed on bulk samples obtained at 16 locations; and
- Laboratory testing of soil samples



The locations of the borings and test pits are shown on the Exploration Plans (Exhibits A-2 and A-5) in Appendix A. A log of each boring and test pit is included in Appendix A (Exhibits A-10 thru A-81) of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and in Appendix B (Exhibits B-1 through B-64) of this report. The location of the thermal resistivity tests is shown on the Thermal Resistivity Test Plan (Exhibit C-1) in Appendix C. The thermal resistivity test results are included in Appendix C of this report. The location of the field electrical resistivity tests is shown on the Field Electrical Resistivity Testing Map (Exhibit D-1) in Appendix D. The field electrical resistivity test results are included in Appendix D of this report. The pile load testing locations are shown on the Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E, along with the pile drive times as shown on Exhibits E-2 through E-8. The pile load testing results are included in Appendices F, G and H.

2.0 Project Information

2.1 Project Description

Item	Description	
Project Description	The project consists of providing site and subsurface conditions for a proposed solar project. The size of the project in acres is estimated to be about 762 acres and will include a Battery Energy Storage System (BESS) and substation. We also understand a 2.3-mile-long gen-tie alignment is planned to tie the project substation to an existing off-site substation. Services associated with the substation and gen-tie have been provided under a separate report.	
Proposed Construction We understand the solar structures will be supported by driven spiles, and equipment structures will be supported by driven spiles or mat foundations.		
Maximum Loads	 Structural loads were not provided, but have been estimated based on our experience on projects using single axis tracking rack systems: Downward: 1 to 7 kips Lateral 1 to 3.5 kips Uplift: 0.5 to 3 kips Moments: 0.1 to 30 kip-ft. 	
Grading/Slopes	The site is relatively flat, and we understand the arrays will generally follow the existing topography, therefore, minimal site grading is anticipated.	
Access Roads	Unpaved access roads are planned for the site as described below:	



Item	Description
	 Interior access roads are to support post-construction traffic which we understand will be primarily light maintenance vehicles. The roads will be required to support a maximum vehicle load of 80,000 pounds for emergency vehicle and/or fire truck access. Additionally, the substation access road should be able to support heavy vehicle delivery (HS-20 loading) up to two times per year throughout the design life. We understand it is acceptable for the access roads to require ongoing maintenance throughout their design life.
Storm Water Management	Terracon understands that up to 2 retention basins are planned as part of the storm water management system for the site. Our scope of services included performing percolation testing within the proposed basin areas.

2.2 Site Location and Description

l tem	Description
Parcel Information	The proposed solar facility is located near the intersection of NM 599 and NM 14 in Santa Fe County, New Mexico. Coordinates near the approximate center of the site are: 35.5445°N latitude and -106.0111°W longitude. Total Area: Approximately 1,000 acres Buildable array area: Approximately 762 Acres See Exhibit D for site location.
Existing Improvements	The project site is currently an undeveloped parcel consisting of ranch and farmland with unimproved trails.
Current Ground Cover	Soil and vegetation
Existing Topography	The site is relatively flat with a slight slope going down from west and southwest. Based on review of topographic map information, the elevation across the site varies from approximately 6,340 to 6,490 feet MSL.

3.0 Exploration and Testing Procedures

3.1 Field Exploration



The field exploration on the project consisted of the following exploration plan. The approximate exploration locations are shown on the Exploration Plans (Exhibits A-2 and A-3) in Appendix A.

Number of Explorations	Type of Exploration	ID Nos.	Approximate Depth (feet)	Location	
30	Borings	A-01 through A-15 B-01 through B-15 ¹	16½ to 21½	Proposed	
14	Test Pits	TP-1 through TP-15	10	Array Areas	
3	Borings	BESS-01 and BESS-03	36½ to 41½	Proposed	
1	Test Pit	TP-BESS	10	BESS Area	
3	Borings	B-Sub ¹ , Sub-01, Sub-02	31½ to 41½	Proposed Substation	
1	Test Pit	TP-SUB	10	Area	
3	Borings	BW-01 through BW-03	311⁄2	Proposed Switching	
1	Test Pit	TP-SW	10	Station	
4	Borings	T-01 through T-04	31½	Proposed T Line Overhead	
8	Borings	P-01 through P-08	6 to 6½	Proposed Access Road	

1. Performed as part of the preliminary phase.

Additionally, 2 double ring infiltrometer tests (DRI-01 and DRI-02) were performed in proposed retention basin areas across the site. The approximate infiltration test locations are shown on the Infiltration Test Location Plan (Exhibit I-1) in Appendix I. The infiltration testing was performed in general accordance with ASTM D3385. The infiltration testing consisted of two cylinders that are driven into the soil with the smaller cylinder inside the larger. Both the outside ring and the inside cylinder are filled with water and measurements are obtained from the inside ring. This method of determining infiltration rates of the soil substantially prevents lateral flow of the water and therefore a more accurate infiltration rate of downward flow. Subsequently, a Terracon geotechnical field geologist/engineer performed the infiltration tests. The field measurements of the infiltration testing in inches per hour are summarized on Exhibits I-2 through I-3 in Appendix I.



The infiltration test field measurements are provided to aid with the design of the proposed storm-water retention basins. We understand the storm-water retention basin design will be performed by others. The field infiltration rates measured are based on the soil conditions encountered at the particular location of the infiltration tests, and the actual infiltration rates may vary from the values reported here. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the on-site areas. The infiltration rates presented in this addendum are unfactored field measurements, and appropriate de-rating factors should be applied to these infiltration rates during the design of the proposed storm-water retention basins (performed by others).

We recommend the proposed retention basins be constructed/excavated with light weight equipment to help reduce compaction of the basin bottom surface, which will ultimately be used for infiltration of storm water. Once constructed, no traffic should be allowed to travel across the basin bottom. It should be noted that compaction of the basin bottom will result in reduced infiltration rates. If compaction of the basin bottom does occur, the exposed surface should be scarified to a minimum depth of 8 inches and left uncompacted.

Exploration Layout and Elevations: Terracon provided the exploration layout. Exploration points in the field were located with a handheld GPS unit (estimated horizontal accuracy of about ± 15 feet). Approximate elevations were obtained from Google Earth Pro. If a more precise layout or elevations are desired, we recommend the explorations be surveyed.

Boring Procedures: We advanced the borings with a truck-mounted CME-75 and CME-55 drill rig utilizing 7 to 8-inch outside diameter hollow-stem augers. At selected intervals, samples of the subsurface materials were taken at each boring location by driving split-spoon (SPT) or ring-lined barrel samplers in general accordance with ASTM Standards. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was used for sampling in the upper ten feet in the soil borings. Ring-lined, split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration. Bulk samples of subsurface materials were obtained from all the borings. For safety purposes, all borings were backfilled with auger cuttings after their completion.

Test Pit Procedures: The test pits were excavated using a Komatsu PC170 excavator equipped with a 36-inch-wide bucket. Continuous lithologic logs of each test pit were recorded by our field engineer during the field exploration. Samples were collected from the test pits and then transported to our laboratory for further observations, testing, and classifications. The test pits were backfilled with the excavated soils upon completion. Groundwater was not encountered in any of the test pits at the time of the field exploration.

Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093



3.2 Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) and Rock Classification described in Exhibits A-5 and A-6 in Appendix A. At that time, the field descriptions were confirmed or modified as necessary, and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples and the test results are presented in Appendix B (Exhibits B-1 through B-64) of this report. These results were used for the geotechnical engineering analyses, and the development of foundation recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards. Selected soil samples obtained from the site were tested for the following engineering properties:

- Atterberg Limits
- Moisture Content
- One-Dimensional Consolidation
- Soluble Sulfate
- Soluble Chloride
- Total Salts
- Oxidation-Reduction Potential

- Sieve Analysis
- Dry Density
- R-Value
- Moisture Density Relationship
- ∎ pH
- Minimum Electrical Resistivity
- Thermal Resistivity

4.0 Subsurface Profile

4.1 Typical Subsurface Profile

Specific conditions encountered at each boring and test pit location are indicated on the individual logs presented in Appendix A (Exhibits A-7 thru A-81) section of this report. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Based on conditions encountered in the borings, subsurface conditions on the project site can be generalized as follows:

Array Area

Description	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 1	2 to 21½ (maximum depth explored)	Silty Sand, Clayey Sand, Silty Clayey Sand, Poorly Graded Sand with Silt, Well Graded Sand with Silt	Loose to Very Dense



Array Area

Description 1	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 2	2 to 21½ (maximum depth explored)	Sandy Lean Clay, Lean Clay with Sand, Silt and Sandy Silt	Soft to Hard

1. Topsoil thickness in array area noted at 2" to 4" with an average depth of approximately 3".

BESS and Substation Area

Description 1, 2	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 1	2 to 61⁄2	Silty Sand, Clayey Sand, Well Graded Sand with Silt, Poorly Graded Sand with Silt	Loose to Dense
Stratum 2	21/2 to 411/2 (maximum depth explored)	Sandy Lean Clay and Lean Clay with Sand	Very Stiff to Hard

1. Topsoil thickness in BESS and Substation area noted at 3" to 4" with an average depth of approximately 3.40".

2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.

Transmission Line Overhead Area

Description 1, 2	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 1	2 to 31½ (maximum depth explored)	Silty Sand, Clayey Sand and Silty Clayey Sand	Loose to Very Dense
Stratum 2	2 to 31½ (maximum depth explored)	Sandy Lean Clay, Lean Clay with Sand and Sandy Silt	Soft to Hard

1. Topsoil thickness in Transmission Line Overhead Area noted at 2" to 4" with an average depth of approximately 3".

2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.



Switching Station Area

Description 1, 2	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 1	2 to 31½ (maximum depth explored)	Silty Sand, Clayey Sand, Poorly Graded Sand with Silt	Loose to Very Dense
Stratum 2	2 to 31½ (maximum depth explored)	Lean Clay with Sand, Sandy Silt	Soft to Hard

1. Topsoil thickness in Switching Station Area noted at 4" to 5" with an average depth of approximately 4.33".

2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.

Access Road Area

Description 1, 2	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency / Relative Density / Strength
Stratum 1a	1 to 6½ (maximum depth explored)	Silty Sand, Clayey Sand	Loose to Very Dense
Stratum 1b	1 to 6½ (maximum depth explored)	Sandy Lean Clay and Sandy Silt	Soft to Hard

1. Topsoil thickness in Access Road Area noted at 3" to 4" with an average depth of approximately 3.40".

2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils

In response to wetting of relatively undisturbed samples while supporting typical foundation pressures, the near surface soils exhibited low to moderate hydro-compaction (collapse) potential at in-situ moisture content and density. Hydro-compactive soils, sometimes referred to as collapsible soils, are capable of supporting typical building loads at natural moisture contents, these same materials however, undergo volume decrease (settlement/consolidation) when subjected to increases in moisture content under constant load. These same soils indicate low to moderate compression under typical foundation pressures.

4.2 Groundwater



Groundwater was not observed in the borings while drilling, or for the short duration the borings could remain open. Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Based on information obtained from the USGS Groundwater database (<u>USGS Groundwater</u> <u>for USA: Water Levels -- 1 sites</u>), the depth to regional groundwater was measured in July 1977 to be approximately 262 feet below the ground surface (approximate elevation of 6,508 feet above mean sea level) at an USGS monitored well site (Local I.D.: USGS 353427105570701) located approximately ³/₄-mile northeast of the site.

4.3 Thermal Resistivity Laboratory Testing

Thermal resistivity testing was performed by Geotherm USA on 16 soil samples obtained at 16 test locations. Tests were conducted on 16 bulk samples from depths of 1 to 5 feet below the existing ground surface. The thermal resistivity testing was performed in general accordance with the Institute of Electrical and Electronics Engineers (IEEE) standard. The dry-out curves were developed from the bulk samples compacted to 85% and 90% of the maximum density determined in accordance with Standard Proctor criteria (ASTM D698) at the optimum moisture content and dried to 0% moisture while obtaining intermediate moisture contents to develop the dry-out curves. Thermal samples compacted to 95% were not completed. Additional samples will be gathered and tested to be included in the final report. The results of the thermal resistivity testing are presented in Appendix C.

4.4 Field Electrical Resistivity Test Results

Field measurements of soil resistivity were performed at 22 locations across the site in general accordance with ASTM Test Method G57, and IEEE Standard 81, using the Wenner Four-Electrode Method. The approximate soil electrical resistivity test locations are shown on Exhibit D-1 in Appendix D. The soil resistivity measurements were performed using a MiniRes Ultra manufactured by L & R Instruments, Inc. The Wenner arrangement (equal electrode spacing) was used with the "a" spacing of 1, 2, 3, 5, 10, 20, and 50 feet at 17 locations (FER-A-01 through FER-A-12, FER-T-01 through FER-T-05) spread throughout the solar array and t-line overhead area. Additionally, five test locations (FER-Sub-01, FER-Bess-01 and FER-Bess-02, FER-BW-01 and FER-BW-02) using "a" spacings of 1, 2, 3, 5, 10, 20, 50, 100, 200, and 300 feet was also performed within the Substation, Switching Station, and BESS area. The testing was performed in both north-south and east-west orientations at each location.

Tests were also performed for the preliminary phase of the project at 3 locations throughout the array area using "a" spacings of 1, 2, 3, 5, 10, 20, 50, and 100 feet. One test was also



completed in the substation area using "a" spacings of 1, 2, 3, 5, 10, 20, 50, 100, 200, and 300 feet. The "a" spacing is generally considered to be the depth of influence of the test. Results of the field soil resistivity measurements are presented in tabular and graphical format in Appendix D (Exhibits D-4 through D-29).

4.5 Corrosivity

The table below lists the corrosivity test results performed on samples collected from the borings. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring	Sample Depth (feet BGS)	рН	Sulfate (mg/kg)	Sulfides (mg/kg) ¹	Chlorides (mg/kg)	Red- Ox (mV)	Total Salts (mg/kg) ¹	Minimum Electrical Resistivity $(\mathbf{\Omega}$ -cm) ²
B-01 ³	0 - 4	7.55	94	_4	97	+734	_4	6,700
B-02 ³	0 - 4	8.16	113	-	120	+733	-	2,345
B-03 ³	0 - 4	8.35	129	-	155	+726	-	1,340
B-04 ³	0 - 4	7.55	76	-	37	+735	-	3,350
B-05 ³	0 - 4	7.52	107	-	65	+735	-	3,484
B-06 ³	0 - 4	7.17	94	-	75	+735	-	4,556
B-07 ³	0 - 4	6.84	120	-	80	+734	-	3,551
B-08 ³	0 - 4	7.08	94	-	70	+735	-	5,427
B-09 ³	0 - 4	6.80	92	-	90	+732	-	3,350
B-10 ³	0 - 4	7.22	127	-	65	+734	-	4,221
B-11 ³	0 - 4	6.66	72	-	47	+728	-	1,474
B-12 ³	0 - 4	6.60	75	-	50	+735	-	5,962
B-13 ³	0 - 4	6.58	95	-	47	+734	-	6,633
B-14 ³	0 - 4	6.84	133	-	102	+732	-	4,891
B-15 ³	0 - 4	7.38	88	-	57	+723	-	1,943
B- 16/B- Sub ³	0 – 4	7.69	103	-	50	+731	-	2,278
A-7	0 - 4	6.35	85	Nil	87	+733	280	3,417

Corrosivity Test Results Summary



Boring	Sample Depth (feet BGS)	рН	Sulfate (mg/kg)	Sulfides (mg/kg) ¹	Chlorides (mg/kg)	Red- Ox (mV)	Total Salts (mg/kg) ¹	$\begin{array}{c} \text{Minimum} \\ \text{Electrical} \\ \text{Resistivity} \\ \left(\mathbf{\Omega} \text{-cm} \right)^2 \end{array}$
BW-2	0 - 4	8.29	74	Nil	62	+725	780	2,144
BW-3	0 - 4	8.26	68	Nil	125	+720	1304	1,273
Sub-1	0 - 4	7.10	24	Nil	75	+733	269	5,896
Bess-1	0 - 4	6.38	27	Nil	87	+732	341	3,350
Bess-2	0 - 4	7.19	52	Nil	100	+733	264	4,087
MINI	MUM	6.35	24		37	+720	264	1273
MAXI	MUM	8.35	133		155	+735	1304	6700
AVEF	RAGE	7.25	88		79	+731	540	3712

Corrosivity Test Results Summary

- 1. Tests not performed on preliminary phase
- 2. Laboratory electrical resistivity testing was performed on saturated samples.
- 3. Tests performed as part of preliminary phase
- 4. Tests not performed as part of preliminary phase

Results of soluble sulfate testing indicate that samples of the on-site soils tested classify as S0 according to Table 19.3.1.1 of Section 318 of the American Concrete Institute (ACI) Building Code Requirements for Structural Concrete. Therefore, the American Society for Testing and Materials (ASTM) Type I/II portland cement is considered suitable for concrete at the site in contact with similar soluble sulfate concentrations. Concrete should be designed in accordance with the provisions of the ACI Building Code Requirements for Structural Concrete, Section 318, Chapter 19.

These test results are provided to assist in determining the type and degree of corrosion protection that may be required. We recommend that a certified corrosion engineer be retained to analyze the need for corrosion protection and to design appropriate protective measures, if required. The test results indicate that some of the samples exhibit elevated levels of total salts and low minimum electrical resistivity values.

As discussed in Section 10.7.5 of the AASHTO LRFD Bridge Manual, 8th Edition, 2017, the following soil or site conditions should be considered as indicative of potential deterioration or corrosion situation for steel piles:

- Soil minimum electrical resistivity less than 2,000 ohm-cm
- pH less than 5.5
- PH between 5.5 and 8.5 with high organic content



Sulfate concentration greater than 1,000 ppm (mg/kg)

4.6 Seismic Considerations

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the Seismic Site Class is D. Subsurface explorations at this site were extended to a maximum depth of 41½ feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth. The values below must be verified by the structural engineer.

Description	Value
Seismic Risk Category	П
2021 International Building Code Site Classification (IBC) $^{\rm 1}$	D ²
Site Latitude	39.56010°
Site Longitude	110.67923°W
$S_{s}MCE_{R}$ ground motion (for 0.2 second period) 3	0.86g
$S_1 MCE_R$ ground motion (for 0.1 second period) ³	0.128g
SDs	0.384g
SD1	0.201g
SMs	0.576
SM1	0.301
PGA _M Site modified peak ground acceleration 3	0.25g

 PGA_M Site modified peak ground acceleration ³ 0

- 1. Seismic site classification in general accordance with the *2018 International Building Code*, which refers to ASCE 7-16.
- 2. The 2021 International Building Code (IBC) uses a site profile extending to a depth of 100 feet for seismic site classification. Borings at this site were extended to a maximum depth of 41½ feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.
- 3. These values were obtained using online seismic design maps and tools provided by the ASCE 7 Hazard Tool (https://gis.asce.org/beta-7-22/).



4.7 Liquefaction

Liquefaction is the phenomenon where saturated soils develop high pore-water pressures during seismic shaking and lose their strength characteristics. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow and loose granular soils or relatively low- to non-plastic fine-grained soils are present. The project site generally exhibited medium dense to very dense granular soils, very stiff to hard cohesive soils, and a lack of shallow groundwater. Due to these factors, the risk of liquefaction is considered very low.

4.8 Slope Hazards

Slopes within the project site generally average between 0 and 5 percent, therefore, slope issues are not anticipated at the project site. Any slopes created by site grading should be placed at a minimum of 3H:1V for slopes less than 5 feet in height. Any slopes anticipated greater than 5 feet in height will require a stability analysis be performed.

4.9 Hydro-collapse

In response to wetting of relatively undisturbed samples while supporting typical foundation pressures, the near surface soils exhibited low to moderate hydro-compaction (collapse) potential at in-situ moisture content and density. Hydro-compactive soils, sometimes referred to as collapsible soils, are capable of supporting typical building loads at natural moisture contents, these same materials however, undergo volume decrease (settlement/consolidation) when subjected to increases in moisture content under constant load. These same soils indicate low to moderate compression under typical foundation pressures.

We recommend a minimum of 4 feet engineered fill placed within the geometric configurations and depths below foundations as outlined in Section 9.0 of this report.

5.0 Full-Scale Pile Load Testing (PLT) Program

We have performed a full-scale pile load testing program that included:

- Directing the installation of a group of two test piles at each of 16 locations (6 during the preliminary phase and 10 during the design-level phase).
- Performing full-scale testing under axial compressive loads for 1 test pile at each of the 7 locations with three test piles.
- Performing full-scale testing under axial tensile loads for 2 test piles in each group.
- Performing full-scale testing under lateral loads for 2 test piles in each group.



These activities are further described in the following sections.

5.1 Pile Location Procedures

The field-testing locations are indicated on the attached Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E. These locations were established in the field by using a hand-held GPS (accurate to about 15 feet). The mapped test locations should be considered accurate only to the degree implied by the means and methods used to define them.

5.2 Test Pile Installation

Pile installation was performed initially in August of 2023 with additional piles installed in March of 2024, all piles were allowed to sit undisturbed for a minimum of 72 hours before testing began. The test piles consisted of wide-flange, bare steel W6x9 sections. A group of 2 test piles were installed at 16 locations across the project site. At 6 of the 16 locations, a third test pile was installed for compression testing with an additional location with just a lone compression test. The test piles have been identified using an alphanumeric system. The pile identification system for each location begins with "PLT-" and is followed by the number corresponding to the test pile group location while the assigned letters "A", "B", and "C" correspond to the embedment depth of the pile. The numeric portion of the identifier that follows the first digit "1" matches the boring location the PLT was performed at. For example, PLT-101 was performed at boring location B-001.

Two instances of refusal (defined as less than 1 foot of advancement in 120 seconds) were observed when driving piles at this site, at PLT-102AC and PLT-110AC, both before 5 feet below grade. Based on pile driving results, two out of 44 piles installed on the site experienced refusal, therefore, Terracon anticipates a small percentage of pile driving refusal may occur during construction.

The pile driving operation was performed with a track mounted GAYK Model HRE 1000 with an Atlas Copco PB420 hydraulic hammer. The pile driving hammer was set up to run at 100 percent of the full driving capacity. A summary of the time required to advance each pile to its specified embedment depth is summarized in the following table:

	P	LE (A)		PILE (B)			PILE (C)		
Test Location	Embedment Depth	Total Drive Time	Average Drive Time	Embedment Depth	Total Drive Time	Average Drive Time	Embedment Depth	Total Drive Time	Average Drive Time
	Ft.	Sec.	Sec./ft.	Ft.	Sec.	Sec./ft.	Ft.	Sec.	Sec./ft.
PLT-01 ¹	5	39.7	7.9	8	50.8	6.4	5	32.8	6.6
PLT-02 ¹	5	35.4	7.1	8	37.1	4.6	5	6.8	1.4





	PILE (A)		PH	PILE (B)			PILE (C)		
Test Location	Embedment Depth	Total Drive Time	Average Drive Time	Embedment Depth	Total Drive Time	Average Drive Time	Embedment Depth	Total Drive Time	Average Drive Time
	Ft.	Sec.	Sec./ft.	Ft.	Sec.	Sec./ft.	Ft.	Sec.	Sec./ft.
PLT-03 ¹	5	97.2	19.4	8	239. 4	29.9	5	61.2	12.2
PLT-04 ¹	5	27.6	5.5	8	208. 7	26.1	5	25.6	5.1
PLT-05 ¹	5	15.0	3.0	8	27.3	3.4	5	10.0	2.0
PLT-06 ¹	5	29.8	6.0	8	75.7	9.5	5	41.4	8.3
PLT-101	5	26.1	5.2	8	14.6	2.9			
PLT-103	5	5.9	1.2	8	11.3	1.4			
PLT-104	5	5.3	1.1	8	15.9	2.0			
PLT-105	5	20.8	4.2	8	56.9	7.1			
PLT-106	5	14.6	2.9	8	39.0	4.9			
PLT-107	5	12.9	2.6	8	23.9	3.0			
PLT-108	5	8.1	1.6	8	9.2	1.2			
PLT-109	5	16.7	3.3	8	37.6	4.7			
PLT-110							5	7.5	1.5
PLT- 102A	5	189	37.8	8	212	26.5	4.42	258	58.4
PLT- 110A	5	52	10.4	8	136. 0	17.0	3.83	154.0	40.2

1. Pile test location was performed as part of the preliminary phase.

Pile installation was performed initially in August of 2023 with additional piles installed in March of 2024, all piles were allowed to sit undisturbed for a minimum of 72 hours before testing began. Testing occurred during September and October of 2023 on the initial piles, with follow up testing in March 2024.

5.3 Testing Under Axial Compressive Load

A total of 7 piles were tested under axial compressive load. Please note that test piles with the designation "C" were tested under axial compressive load. Piles with the designation "C" were all embedded 5 feet below the ground surface.



We performed tests under axial compressive loads as generally described below. These procedures were developed with reference to ASTM D1143, *Test Methods for Deep Foundations under Static Axial Compressive Load.*

A Komatsu PC170 excavator was mobilized to the site to provide a reaction for the applied vertical compression test loads. A load cell was placed on the top of the pile, and a hydraulic cylinder (jack) was placed above the load cell and under the excavator counterweight.

The loads were applied in 500 lbs. increments up to a load of 15,000 lbs. or until the pile reached ³/₄-inch deflection. Each load increment was held for about 60 seconds and the stabilized deflection reading of both indicator gauges were recorded.

Deflections were measured with digital dial gauges and loads were measured with a digital weight indicator connected to a load cell. The gauges were read, and the data was recorded manually by Terracon field personnel.

5.4 Testing Under Axial Tensile ("pull-out") Load

We performed testing under axial tensile load for the piles at each location using the procedures generally outlined below.

A total of 30 piles, two piles at 15 PLT locations, were tested under axial tensile ("pull-out") load. Please note that test piles with the designations "A" and "B" were tested under axial tensile load. Piles with the designation "A" were all embedded 5 feet below the ground surface, and piles with the designation "B" were embedded to 8 feet below the ground surface.

The "pull-out" load reaction was supported using Terracon's proprietary 20-kip tripod frame supported at an appropriate lateral distance from the post. A hydraulic jack and pump were used to apply the test loads using chains and other accessories all rated for at least a 10-ton safe working capacity. Deflections were measured with digital dial gauges with magnetic bases. Loads were measured with a electronic dynamometer.

The axial tension load was applied in load increments of 500 lbs. to a maximum of 10,000 lbs. or until the pile reached ³/₄-inch deflection. Deflection measurements were taken at the end of application of each load increment. Each load increment was sustained for about 60 seconds and the stabilized deflection readings of both indicator gauges were recorded.

5.5 Testing Under Lateral Load

After testing under axial tensile load, the piles at each location were then tested under lateral load as described below.

A total of 30 piles, two piles at 15 PLT locations, were tested under lateral load. Please note that test piles with the designations "A" and "B" were tested under lateral load. Piles with the



designation "A" were all embedded 5 feet below the ground surface, and piles with the designation "B" were embedded to 8 feet below the ground surface. As the test piles were installed in-line with each other, the piles were connected together to provide a reaction for the opposite pile and tested simultaneously in the strong axis direction.

For lateral testing, the pair of piles were pulled toward each other, and deflections of each pile were measured. The load for the lateral tests was applied at about 3½ feet above the ground surface against the strong axis of the posts. The loads were applied in 500 lbs. increments in 5 cycles from 0 pounds to the ultimate lateral load of 7,000 lbs. or the limits of the soil capacity, whichever occurred first for each test pile. The limit of soil capacity during the lateral test is defined as movement in excess of 1-inch at 6 inches above the ground surface. Each load increment was held for at least 60 seconds and the stabilized deflection readings of both indicator gauges were recorded.

Deflections were measured with digital dial gauges and loads were measured with a electronic dynamometer. The gauges were read, and the data was recorded manually by Terracon field personnel.

5.6 Summary of Pile Load Test Results

In general, the axial compressive, tensile, and lateral loads were applied at approximately 500pound increments. The maximum applied load during the axial compression test was 13,000 lbs. or until the deflection exceeded ³/₄ of an inch. The maximum applied load during the axial tension test was 10,000 lbs. or until the deflection exceeded ³/₄ of an inch. The maximum applied load during the lateral load test was 7,000 lbs. or until the deflection exceeded 1- inch when measured at 6 inches above the ground surface.

The following table provides a summary of the tension loads for vertical pile displacement of about $\frac{1}{4}$ -inch.

Pile Load Test	Embedment Depth	Tension Load at ¼″ Disp.	Pile Load Test	Embedment Depth	Tension Load at ¼" Disp.
Location	ft.	lbs.	Location	ft.	lbs.
PLT-001A ¹	5	10,000+	PLT-001B ¹	8	10,000+
PLT-002A ¹	5	10,000+	PLT-002B ¹	8	10,000+
PLT-003A ¹	5	10,000+	PLT-003B ¹	8	10,000+
PLT-004A ¹	5	10,000+	PLT-004B ¹	8	10,000+
PLT-005A ¹	5	4,530	PLT-005B ¹	8	5,350
PLT-006A ¹	5	10,000+	PLT-006B ¹	8	10,000+



Pile Load Test	Embedment Depth	Tension Load at ¼″ Disp.	Pile Load Test	Embedment Depth	Tension Load at ¼" Disp.
Location	ft.	lbs.	Location	ft.	lbs.
PLT-101A	5	10,000+	PLT-101B	8	10,000+
PLT-102A	5	10,000+	PLT-102B	8	10,000+
PLT-103A	5	3,630	PLT-103B	8	6,080
PLT-104A	5	4,290	PLT-104B	8	10,000+
PLT-105A	5	10,000+	PLT-105B	8	10,000+
PLT-106A	5	10,000+	PLT-106B ²	9	10,000+
PLT-107A	5	10,000+	PLT-107B	8	10,000+
PLT-108A	5	3,590	PLT-108B	8	4,360
PLT-109A	5	10,000+	PLT-109B	8	10,000+
PLT-110A	5	4,750	PLT-110B	8	10,000+

1. Pile test location was performed as part of the preliminary phase.

2. Pile accidentally driven an extra foot deep

The following table provides a summary of the pile embedment depth and lateral load at $\frac{1}{2}$ -inch lateral displacement at 6 inches above ground surface.

Pile Load Test	Embedment Depth	Lateral Load at 1⁄2" Disp.	Pile Load Test	Embedment Depth	Lateral Load at ½" Disp.
Location	ft.	lbs.	Location	ft.	lbs.
PLT-01A ¹	5	3,970	PLT-01B ¹	8	3,820
PLT-02A ¹	5	3,690	PLT-02B ¹	8	3,780
PLT-03A ¹	5	5,190	PLT-03B ¹	8	4,980
PLT-04A ¹	5	3,670	PLT-04B ¹	8	4,580
PLT-05A ¹	5	3,190	PLT-05B ¹	8	4,790
PLT-06A ¹	5	3,100	PLT-06B ¹	8	3,790
PLT-101A	5	4,590	PLT-101B	8	4,320
PLT-102A	5	5,000	PLT-102B	8	4,500
PLT-103A	5	3,370	PLT-103B	8	4,570
PLT-104A	5	2,450	PLT-104B	8	3,300
PLT-105A	5	3,930	PLT-105B	8	4,110



Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093

Pile Load Test Location	Embedment Depth ft.	Lateral Load at 1⁄2" Disp. Ibs.	Pile Load Test Location	Embedment Depth ft.	Lateral Load at 1/2" Disp. Ibs.
PLT-106A	5	5,120	PLT-106B	8	5,170
PLT-107A	5	3,840	PLT-107B	8	4,370
PLT-108A	5	2,820	PLT-108B	8	3,260
PLT-109A	5	3,740	PLT-109B	8	4,690
PLT-110A	5	4,000	PLT-110B	8	5,000

1. Pile test location was performed as part of the preliminary phase.

2. Test ended before reaching $\frac{1}{2}$ " lateral deflection due to excessive movement from "B" pile.

The following table provides a summary of the compression loads for vertical pile displacement of about ¼-inch.

Pile Load Test	Embedment Depth	Compression Load at ¼" Disp.	
Location	ft.	lbs.	
PLT-01C ¹	5	13,000+	
PLT-02C ¹	5	7,410	
PLT-03C ¹	5	13,000+	
PLT-04C ¹	5	13,000+	
PLT-05C ¹	5	8,930	
PLT-06C ¹	5	13,000+	
PLT-102C ²	4.42	10,000+	
PLT-110C ³	3.83	7,000+	

1. Pile test location was performed as part of the preliminary phase.

2. Field staff stopped test at 10,000.

3. Test stopped at 7000 due to lateral deflection of the pile.

The compression test load vs. deflection graphs are shown as Exhibits F-1 through F-7 in Appendix F.

The tension test load vs. deflection graphs are shown as Exhibits G-1 through G-29 in Appendix G.

The lateral test load vs. deflection graphs are shown as Exhibits H-1 through H-29 in Appendix H.



6.0 PV Solar Array Field – Recommendations For Design And Construction

6.1 Geotechnical Considerations

We would expect the PV panels to be supported by driven piles, while inverters could be supported on mat foundations and/or driven piles. The proposed structure types and loading information was not available at the time of this report. Settlement and strength parameters were analyzed using soil compressibility properties derived from the SPT borings along with the results of pile load testing program.

Results of the pile load tests indicate that driven steel piles should be suitable for support of the planned solar panels. Piles with embedment depths between 5 and 8 feet or greater should be suitable for support of PV array panels. We have provided geotechnical engineering parameters in this report to assist the designers of production piles. Subsurface conditions that could hinder pile driving were generally not encountered within the borings and test pits, and no pile refusals occurred during the pile load testing to a maximum depth of 8 feet.

Based on the results of the axial and lateral pile load testing program, we have partitioned the site into two (2) zones for axial parameters and two (2) zones for lateral parameters. Each pile load test (PLT) location was assigned into either Zone 1, or 2 based on the axial test performance/results, and into either Zone A or B based on the lateral test performance/results. The project site was then zoned by matching test locations by their axial and lateral group. The resulting zones are then designated as A1, A2, B1, and B2 where the zone numbers correspond to the axial parameter zone and the zone letter corresponds to the lateral parameter zone. The following table presents the results of the designated zones determined on the site:

	Zone A1	Zone A2	Zone B1	Zone B2
Preliminary Phase PTL	PLT-005	PLT-006		PLT-001, PLT-002, PLT- 003. PLT-004
Design Phase PLT	PLT-104, PLT-108		PLT-103, PLT- 110	PLT-101, PLT-102, PLT- 105, PLT-106, PLT-107, PLT-109

A map of these zones is provided on the attached Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E.



It should be noted that the axial tension performance varied significantly across the site, and while an attempt has been made to quantify this variability, isolated areas of lower strength soils within zones of relatively high strength soils may exist, and vice versa. When carrying out the quality control program of testing production piles across the site, some of these relatively weaker soil areas may be encountered.

As part of the overall quality control program, the time rate of installation (seconds per foot of embedment) should be recorded during production post driving. As a direct extension of the design process, additional "proof" testing should be performed on a representative number of production posts that do not meet the minimum installation rate criteria outlined in this report.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined in this report. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

6.2 Solar Panel Support Pile Design Recommendations

6.2.1 Adfreeze Stress and Depth To Which Adfreeze Applies

In cold weather climates, design to resist frost heave forces exerted on foundations is often a significant factor in the foundation design. Specifically, pile lengths will need to be long enough to counteract potential heave forces in the seasonal frost zone. As the frost penetrates deeper into the soil and the ground swells due to freezing, a portion of the soil profile and ground surface will rise due to frost heaving. The upward displacement is due to freezing water contained in the soil voids along with the formation of ice lenses in the soil. The freezing material grips the steel pile and exerts an uplift force due to the adfreeze stress developed around the surface area of the pile. The amount of upward force depends on the following:

- the thickness of ice lenses formed in the seasonal frozen ground
- the bond between the steel pile surface and the frozen ground
- the surface area of the steel pile in the seasonally frozen ground

Adfreeze on pile foundations may be significant. If the anchorage of the foundations and the deadweight of the pile are not sufficient to resist these upward forces, adfreeze load can cause uplift to structures.

Based on the soil type and laboratory data, it is Terracon's professional opinion that the nearsurface soils encountered in the borings drilled at this site are frost susceptible to a depth of 24 inches below ground surface. However, due to the lack of shallow groundwater, we believe the risk of frost heave due to adfreeze stress is negligible. Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093



6.2.2 Axial Capacity Recommendations

The axial uplift capacity of driven piles may be estimated based on skin friction developed along the perimeter of the pile, while the compression capacity may be estimated using the skin friction and end bearing. When determining embedment depths, the perimeter of a wide flange beam should be taken as twice the sum of the flange width and section depth. Terracon assumes the Ultimate End Bearing values provided below are appliable for comparable W6 and W8 piles. The upper 12 inches of soil for each pile should be neglected in the axial capacity analyses due to considerations of strength losses that can occur due to soil moisture variations, shrinkage, and other potential surface disturbances.

The ultimate axial capacity of driven steel piles may be calculated using skin friction and end bearing values as presented in the following table. Based on the results of the axial pile load testing program, we recommend the site be broken into two zones as follows:

Axial Design Parameters					
Axial Zone	Minimum Embedment Depth (feet-bgs)	Ultimate Uplift and Compression Unit Skin Friction (psf)	Ultimate End Bearing (lbs.) ⁴		
1	5 ¹ 5.1 to 8	450 ²	1,0002		
	8.1 to 20	450 ³	1,000 ³		
	5 ¹ 5.1 to 8	1,150 ²	2,000 ²		
2	8.1 to 20	1,150 ³	2,000 ³		

- 1. The minimum embedment depth for the pile is 5 feet, and the uppermost 1 foot of pile embedment should be ignored when considering the axial capacity of driven steel piles.
- 2. The minimum factor of safety to be applied for embedment depths up to 8 ft. should be 1.5.
- 3. The minimum factor of safety to be applied for embedment depths greater than 8 ft. should be 2.0.
- 4. Ultimate end bearing was determined by taking the difference between compression values at 1/4 inch deflection and axial tension values at 1/4 inch deflection.

The above values are to be used in the following equations to obtain the allowable uplift or compression load capacity of a pile:

 $Q_{all (compressive)} = ((Q_{ult (end)}) / FS) + ((H \times P \times q_s) / FS)^*$



 $Q_{all (uplift)} = (H \times P \times q_s) / FS^*$

 $\begin{array}{l} Q_{ult} = \text{Ultimate uplift or compression capacity of pile (lbs.)} \\ Q_{ult \, (end)} = \text{Ultimate end bearing per table above (lbs.)} \\ H = \text{Depth of embedment of pile (ft)} \\ P = \text{Box perimeter of pile. (ex., W6x9 = 1.64 ft.)} \\ q_s = \text{Ultimate skin friction per table above (psf)} \\ ^*\text{Note, the upper 1 foot should be subtracted from the layer thickness (H) for the first layer.} \end{array}$

An example calculation to determine the allowable capacity for a W6x9 pile in tension and founded at a depth of 9 feet in the area of Axial Zone 2 would be as follows:

$$Q_{all\,(up)} = (5-1) x 1.64 x \frac{450}{1.5} + (8-5)x 1.64 x \frac{1,150}{1.5} + (9-8)x 1.64 x \frac{1,150}{2.0} = 6,683$$

The above ultimate skin friction and end bearing values are applicable for piles that are driven for a minimum of 2 seconds per foot for a 5-foot embedment using equipment similar to a GAYK Model HRE 4000 equipped with a hydraulic hammer. If a smaller or larger drive hammer is used, we recommend Terracon be consulted to determine the minimum drive time based on the proposed equipment to be used for driving of the piles.

Piles should have a minimum center-to-center spacing of at least 5 times their largest crosssectional dimension to prevent reduction in the axial capacities due to group effects.

6.2.3 Lateral Capacity Recommendations

Lateral load response of pile foundations was calculated using the computer program LPILE 2022, by Ensoft, Inc. The stiffness of the pile and the stress-strain properties of the surrounding soils determine the lateral resistance of the foundation. We modeled the lateral response of the tested piles to evaluate L-Pile input parameters for each zone. Recommended L-Pile input parameters lateral load analysis for driven pile foundations are shown in the following table:

LPILE Parameters					
Depth Range of Layer (feet)	Soil Type ¹	Effective Unit Weight (pcf)	Friction Angle (°)	Cohesion (psf)	K or € 50 ²
0 - 4	Sand (Reese)	115	36		Allow LPILE to choose
4 - 20	Sand (Reese)	120	40		this value



- 1. See Subsurface Profile in Geotechnical Characterization for more details on Stratigraphy.
- LPILE estimates values of static lateral subgrade modulus (K) and strain modulus (ε50) based on soil properties. We recommend using LPILE spring stiffness default values for both K and ε50 because the p-multiplier presented in the table below was determined with the software default values.

The lateral load test results were varied between the different locations and embedment depths at the site. Therefore, we are providing the following table of p-multiplier values that should be used for the corresponding zone and embedment depth:

Lateral Group	Minimum Embedment Depth	P-Multiplier ^{1, 2, 3}
٥	5	2.7
A	8	3.8
В	5	5.0
	8	5.0

P-Multipliers

- 1. For embedment depths between 5 and 8 feet, linearly interpolate between the values provided. The calculated value should then be applied to the entire pile depth.
- 2. The *p*-multiplier values provided in this table are only applicable to piles installed to a depth of at least 5 feet.
- 3. The *p*-multiplier value for the 8-foot-deep piles may be used for piles installed deeper than 8 feet.

Lateral analyses were performed using LPILE to generate a load versus deflection curve that generally matched the results of the field load tests for each group and each embedment depth. The shear load was applied at approximately 3.5 feet above the ground surface. The effective unit weights, cohesions, and friction angles were based on the subsurface conditions observed from the borings. The cohesions, friction angles, effective unit weights, and p-multipliers were then adjusted (by trial-and-error method) such that the applied load resulted in a deflection value that matched the load test results. Please note that this procedure was based on only one discrete set of data determined at about six inches from the ground surface during the field load testing. These results should be used for LPILE analysis only using the 2022 version of LPILE. These parameters are only applicable to piles installed a minimum of 5 feet below grade. In our evaluation, the piles were modeled as a Steel AISC Section Strong Axis with a yield stress of 50 ksi.

The structural engineer should evaluate the moment capacity of the pile as part of their structural evaluation. Piles should have a minimum center-to-center spacing of at least five times their largest cross-sectional dimension in the direction of the lateral loads, or the lateral capacities should be reduced due to group effects. If piles will be spaced closer than five



times their largest cross-sectional dimension, we should be notified to provide supplemental recommendations regarding resistance to lateral loads.

6.2.4 Construction Considerations

Based on the field exploration and laboratory testing, it is our opinion that the soils on the site are suitable for pile installation. Possible obstructions (very dense soils, gravel, and cobbles) that could impede the installation of the piles were generally not observed within typical pile driving depths within the borings, and no pile driving refusal was encountered during pile installation.

6.3 Pile Design Recommendations for Other Structures

Some structures may require piles to be driven to greater depths than 8 feet in order to achieve the required axial capacities.

For allowable strength design, we recommend the allowable skin friction and end bearing be determined by applying a factor of safety of at least 2 to the ultimate values provided in this section for piles embedded greater than 8 feet. Recommended ultimate skin friction, end bearing, and factor of safety are presented below:

Pile Embedment Depth (ft)	Ultimate Skin Friction <i>q</i> s (psf)	Ultimate End Bearing <i>Q_{ult-(end)}</i> (Ibs)	Factor of Safety
		Zone 1	
0 to 1			
1 to 5	450		1.5
5 to 8	450	1,000	1.5
8+	450	1,000	2.0
		Zone 2	
0 to 1			
1 to 5	1,150	2,000	1.5
5 to 8	1,150	2,000	1.5
8+	1,150	2,000	2.0

For piles embedded between depths of 8 and 16½ feet throughout the site: When determining embedment depths, the perimeter of a wide flange beam should be taken as twice the sum of the flange width and web depth, and the upper 12 inches of soil for each pile should be neglected.



For W6x9 piles or larger pile sections with embedment depths between 8 and $16\frac{1}{2}$ feet: The ultimate unit end bearing for alternate pile sections should be assumed to be the same as the W6x9 piles tested for this project.

We recommend Terracon be consulted to determine the minimum drive time based on the proposed equipment to be used for driving of the piles.

Piles should have a minimum center-to-center spacing of at least five times their largest cross-sectional dimension to prevent reduction in the axial capacities due to group effects.

6.4 Mat Slab Foundations

If the site has been prepared in accordance with the requirements noted in Section 9.0, the following design parameters are applicable for mat foundations for inverters throughout the Array area.

6.4.1 Frost Susceptible Soils

The frost depth for local building code for the design of shallow spread footing and mat foundations for unheated structures is 24 inches (2 feet). If frost action needs to be accommodated for local building code, the use of non-frost susceptible (NFS) fill extending to the building code frost depth requirement of 2 feet could be implemented. Material commonly used as NFS fill consists of granular soils that are free draining and have a relatively high inplace permeability. It has been our experience that using NFS fill consisting of granular materials on sites with low permeable collapsible soils can create zones where water collects, and the underlying collapsible soils become wetted and settle rapidly. This can result in undesirable downward movement for foundations constructed on these materials. An alternative to a free draining NFS material, while not commonly used, is an appropriate low permeable Controlled Low Strength Material (CLSM).

If a low permeable NFS fill material cannot be obtained or is cost prohibitive, structural slabs (for instance, structural stoops in front of building doors), supported on frost-depth footings, should be used. Placement of low permeable NFS material in large areas may not be economically feasible; however, the following recommendations are provided to help reduce potential frost heave for grade supported structures:

- Provide surface drainage away from the structures and slabs, and toward the site storm drainage system.
- Install drains around the perimeter of the structures as well as below exterior slabs and access roadways and connect them to the storm drainage system.
- Grade clayey subgrades, so groundwater potentially perched in overlying more permeable subgrades, such as sand or aggregate base, slopes toward a site drainage system.



- Place low permeable CLSM fill as backfill beneath slabs and access roadways critical to the project.
- Consider structural slabs supported on frost-depth footings.
- Consider placing another type of Frost Protected Shallow Foundation (FPSF) system

6.4.2 Mat Foundations Design Recommendations

Reinforced mat foundations are considered suitable for the support of the proposed inverters on the project. Mat foundations should be designed based on the criteria outlined below:

Design Item	Description/Recommendations	
Foundation Type	Mat foundations	
Maximum Design Contact Stress ^{1,2}	Any practical value up to a maximum of 1,500 psf	
Minimum Embedment Depth Below finished grade ³	24 inches for frost protection 6 inches if underlain by 18 feet of NFS fill (mat/slab foundations) ²	
Bearing Material	A minimum of 4 feet engineered fill placed within the geometric configurations and depths below mat foundations as outlined in Section 9.0 of this report.	
Design Modulus of Subgrade Reaction, k	125 pci	
Minimum Width	4 feet	
Maximum Width	10 feet	
Modulus Correction Factor ⁴	$k_c = k((b+1)/2b)^2$	
Total Estimated Settlement ^{5,6}	1 inch or less	
Differential Settlement	³ / ₄ -inch over 40 feet	
Coefficient of Base Friction	0.35 ⁷	
Passive Pressure	300 pcf ⁸	

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the 2015 International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1. A factor of safety of 3 was utilized for bearing capacity and 1 inch service limit was utilized to determine capacity for settlement.



Design I tem Description/Recommendations

- 2. Finished grade is defined as the lowest adjacent grade within 5 feet of the foundation for perimeter (or exterior) footings and finished floor level for interior footings. The minimum embedment depth is recommended for frost protection. Shallower embedment depths can be considered with no changes to the allowable bearing capacity or estimated settlements outlined above. There is an inherent risk that scour and erosion of the soils beneath the slabs could lead to a partially unsupported mat and/or an increase in the settlements outlined above.
- 3. Embedment necessary to minimize the effects of frost and seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
- It is common to reduce the k-value to account for dimensional effects of large loaded areas. Where k_c is the corrected or design modulus value and b is the mat width (short dimension) or tributary loaded area.
- 5. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Footings should be proportioned to relatively constant dead-load pressure in order to reduce differential movement between adjacent footings.
- 6. These design recommendations are applicable for maximum foundation dimensions of 20 feet.
- 7. Value should be reduced to 0.30 when used in conjunction with the passive pressure.
- 8. No factor of safety applied.

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction. Drainage design is the responsibility of the Civil Designer.

Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

6.4.3 Foundation Construction Considerations

As noted in Section 9.0, the foundation excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the foundation excavations should be removed/reconditioned before foundation concrete is placed.



7.0 Substation, BESS, Switching Station, AndOverhead Transmission Line – RecommendationsFor Design And Construction

7.1 Geotechnical Considerations

We expect several small structures to house equipment and provide storage to be constructed as part of the substation portion of the project. The proposed structure types and loading information were not available at the time of this report. Settlement potential was analyzed using soil compressibility properties derived from the borings drilled in the planned substation and BESS areas and assumed structural loads. We estimate total settlements will be less than 1-inch provided column loads are less than 150 kips and the applied bearing pressure of small, isolated slabs or mats is less than about 2,000 psf. Shallow foundation systems for support of lightly-loaded buildings and equipment pads will be acceptable provided these maximum loads are not exceeded. Once loading for these ancillary structures is better known, detailed settlement analyses can be performed to confirm shallow foundation acceptability. As an alternative to shallow foundations, driven pile foundations may be utilized. Please refer to sections Section 6.2 for capacity.

Proposed substation structures may also be supported as direct embed poles or poles supported on drilled shaft foundations designed using the soil properties presented in this report. Drilled shafts and direct embed poles should be designed and constructed in accordance with Section 7.3 of this report.

The on-site soils exhibited low to moderate compressibility and hydro-collapse potential under typical foundation loads in their existing conditions; therefore, all building structure foundations should bear on a minimum of 4 feet of properly placed and compacted engineered fill material.

7.2 Spread Footing and I solated Slab Foundations

7.2.1 General

We understand within the substation that some equipment may be supported on mat/slab foundations, while other building(s) may be supported on shallow footing foundations.

If the site has been prepared in accordance with the requirements noted in Section 9.0, the following design parameters are applicable for mat foundations for inverters throughout the Array area.

The following sections present design recommendations and construction considerations for the shallow foundations for proposed lightly loaded structures and related structural elements.



7.2.2 Spread Footing and Mat /Slab Foundation Design Recommendations

Description	Columns	Walls	Mat/Slab	
Net allowable bearing pressure ^{1,2}	2,000 psf	2,000 psf	1,500 psf	
Modulus of subgrade reaction for slab-on-grade design	200 pounds per square inch per in (psi/in) for point loading conditions			
Bearing material	Shallow footings and mat/slab foundations should be supported on a minimum of 4 feet engineered fill consisting of on-site soils as outlined in Section 9.0			
Minimum dimensions	30 inches	18 inches	4 feet	
Minimum embedment below finished grade ³	24 inches for frost protection 6 inches if underlain by 18 feet of NFS fill (mat/slab foundations) ²			
Approximate total settlement ^{4,5}	<1 inch	<1 inch	<1 inch	
Estimated differential settlement	< ½ inch between columns	< ½ inch over 40 feet	< 1/2 inch over 40 feet	
Coefficient of Base Friction	0.35 ⁶			
Passive Pressure	300 pcf ⁷			

- 1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. It assumes any unsuitable soils, if encountered, will be replaced with compacted structural fill.
- 2. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the 2012 International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1.
- 3. Embedment necessary to minimize the effects of frost and seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
- 4. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Footings should be proportioned



Description	Columns	Walls	Mat/Slab
to rolatively constant doad	load prossure in or	har to roduce differ	ontial movement between

to relatively constant dead-load pressure in order to reduce differential movement between adjacent footings.

- 5. These design recommendations are applicable for maximum foundation dimensions of 20 feet.
- 6. Value should be reduced to 0.30 when used in conjunction with the passive pressure.
- 7. No factor of safety applied.

Footings, foundations, and walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in walls is recommended.

Foundation excavations should be observed by the Geotechnical Engineer. If the soil conditions encountered differ significantly from those presented in this report, Terracon should be contacted to provide additional evaluation and supplemental recommendations.

7.2.3 Spread Footing and Mat/Slab Construction Considerations

The foundation excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the foundation excavations should be removed/reconditioned before foundation concrete is placed.

7.3 Drilled Shaft Foundation Design

7.3.1 Drilled Shaft Design Parameters

Straight sided drilled shaft foundations drilled into natural soils are also considered suitable for support of the proposed substation, switching station, and transmission line structures. Soil design parameters are provided below in the Drilled Shaft Design Summary table for the design of drilled shaft foundations. The values presented for allowable side friction and end bearing include a factor of safety.

Location	Depth (feet-bgs)	Stratigraphy ²	Allowable Skin Friction (ksf) ^{3,4}	Allowable End Bearing Pressure (ksf) ^{4,5}
	0 to 3 ⁶	IGNORE		

Drilled Shaft Design Summary¹





Drilled Shaft Design Summary¹

Location	Depth (feet-bgs)	Stratigraphy ²	Allowable Skin Friction (ksf) ^{3,4}	Allowable End Bearing Pressure (ksf) ^{4,5}
	3 to 7	Silty Sand; Loose	0.20	2.0
	7 to 14	Clayey Sand; Loose	0.40	10.0
Substation /Bess Area	14 to 29	Well Graded Sand; Dense	0.75	13.0
	29 to 39	Clayey Sand; Medium Dense	0.90	7.0
	39 to 41.5	Silty Sand; Very Dense	1.05	40.0
	0 to 3 ⁶	IGNORE		
	3 to 7	Lean Clay; Very Stiff to Hard	0.75	12.0
T-01	7 to 14	Clayey Sand; Medium Dense	0.35	5.0
1-01	14 to 24	Lean Clay; Stiff	0.35	6.0
	24 to 29	Silty Sand; Dense	0.75	12.5
	29 to 31.5	Lean Clay; Very Stiff	0.55	9.0
	0 to 3 ⁶	IGNORE		
	3 to 7	Sandy Silt; Hard	0.20	24.0
T-02	7 to 14	Sandy Silt; Very Stiff	0.35	11.0
1-02	14 to 24	Lean Clay; Very Stiff	0.55	9.0
	24 to 29	Silty Sand; Medium Dense	0.55	9.0
	29 to 31.5	Silty Sand; Dense	0.75	12.5
	0 to 3 ⁶	IGNORE		
	3 to 9	Lean Clay; Medium Stiff	0.20	3.0
T-03	9 to 14	Silty Sand; Medium Dense	0.40	5.0
	14 to 19	Silty Clayey Sand; Loose	0.50	3.5
	19 to 24	Silty Sand; Loose	0.60	1.5



Drilled Shaft Design Summary¹

Location	Depth (feet-bgs)	Stratigraphy ²	Allowable Skin Friction (ksf) ^{3,4}	Allowable End Bearing Pressure (ksf) ^{4,5}
	24 to 31.5	Silty Sand; Dense	0.75	10.5
	0 to 3 ⁶	IGNORE		
	3 to 9	Silty Sand; Medium Dense	0.25	4.5
T-04, Switching	9 to 15	Sandy Silt; Stiff	0.45	9.0
Station Area	15 to 20	Sandy Silt; Very Stiff	0.60	8.5
	20 to 25	Sandy Silt; Hard	0.70	14.5
	25 to 31.5	Clayey Sand; Medium Dense	0.85	10.5

1. Design capacities are dependent upon the method of installation and quality control parameters. The values provided are estimates and should be verified when installation protocol have been finalized.

- 2. See Subsurface Profile in Typical Subsurface Profile for more details on stratigraphy.
- 3. The effective weight of the shaft can be added to uplift load resistance to the extent permitted by IBC.
- 4. Values presented include a factor of safety of 2.0 for skin friction and 3.0 for end-bearing. Skin frictions should be neglected for direct embed poles.
- 5. The full end bearing pressure is applicable for drilled shafts embedded a minimum of one shaft diameter into the bearing stratum. For example, to use the full end bearing pressure below a depth of 10 feet, the bottom of a 3-foot diameter shaft must be founded at 13 ft. or greater.
- 6. Not recommended to be used due to potential ground disturbance and frost depth.

7.3.2 Drilled Shaft Lateral Loading

<u>LPILE</u>: The following table lists input values for use in LPILE analyses. Recommended geotechnical parameters for lateral load analysis of the drilled shaft foundations have been developed for use in the computer program LPILE that utilizes P-y curve analyses, and they are presented in the following table. Modern versions of LPILE provide estimated default values of k_h and E_{50} based on strength and are recommended for the project. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093



Stratiç	graphy	LPILE Soil	Total Unit	Friction	Cohesion		Soil			
Boring No.	Depth	Model	Weight (pcf)	Angle °	(psf)	£ 50	Modulus, k (pci)			
	3 to 7	Sand (Reese)	100	28						
	7 to 14	Sand (Reese)	125	35						
Substation, BESS Area	14 to 29	Sand (Reese)	125	37						
	29 to 39	Sand (Reese)	120	32						
	39 to 41.5	Sand (Reese)	125	40						
	3 to 7	Stiff Clay w/o Free Water	110		6000					
	7 to 14	Sand (Reese)	100	37						
T-01	14 to 24	Stiff Clay w/o Free Water	100		3500					
	24 to 29	Sand (Reese)	110	33						
	29 to 31.5	Stiff Clay w/o Free Water	110		4000	Allo	Allow LPILE to			
	3 to 7	Sand (Reese)	95	28			e Default			
	7 to 14	Sand (Reese)	100	31			s based on other			
T-02	14 to 19	Stiff Clay w/o Free Water	100		3000	liste	ameters ed in this			
	19 to 24	Stiff Clay w/o Free Water	100		3000		table.			
	24 to 31.5	Sand (Reese)	110	34						
	3 to 7	Stiff Clay w/o Free Water	95		1500					
T 00	7 to 14	Stiff Clay w/o Free Water	95		2500					
T-03	14 to 19	Sand (Reese)	100	35						
	19 to 24	Sand (Reese)	100	28						
	24 to 31.5	Sand (Reese)	105	34						
T-04,	3 to 9	Sand (Reese)	105	30.5						
Switching Station	9 to 15	Sand (Reese)	125	32						
Area	15 to 20	Sand (Reese)	125	35						



Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093

Strati	graphy	LPILE Soil	Total Unit	Friction	Cohesion		Soil
Boring No.	Depth	Model	Weight (pcf)	Angle °	(psf)	£ 50	Modulus, k (pci)
	20 to 25	Sand (Reese)	115	36			
	25 to 31.5	Sand (Reese)	120	35			

<u>MFAD:</u> The following table lists input values for use in Moment Foundation Analysis and Design (MFAD). Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

Stratigraphy			Total			Modulus of
Boring No.	Depth	Soil Type	Unit Weight (pcf)	Friction Angle °	Cohesion (psf)	Deformation, E _p (ksi)
	3 to 7	Granular	100	28		0.5
	7 to 14	Granular	125	35		1.5
Substation, BESS Area	14 to 29	Granular	125	37		3.2
	29 to 39	Granular	120	32		1.0
	39 to 41.5	Granular	125	40		10
	3 to 7	Cohesive	110		6000	4.9
	7 to 14	Granular	100	37		0.6
T-01	14 to 24	Cohesive	100		3500	0.9
	24 to 29	Granular	110	33		3.1
	29 to 31.5	Cohesive	110		4000	1.9
	3 to 7	Granular	95	28		3.5
	7 to 14	Granular	100	31		1.7
T-02	14 to 19	Cohesive	100		3000	2.1
	19 to 24	Cohesive	100		3000	1.7
	24 to 31.5	Granular	110	34		3.1
T-03	3 to 7	Cohesive	95		1500	0.3



Stratig	raphy		Total			Modulus of
Boring No.	Depth	Soil Type	Unit Weight (pcf)	Friction Angle °	Cohesion (psf)	Deformation, E _p (ksi)
	7 to 14	Cohesive	95		2500	1.2
	14 to 19	Granular	100	35		0.9
	19 to 24	Granular	100	28		0.2
	24 to 31.5	Granular	105	34		2.6
	3 to 9	Granular	105	30.5		1.1
T-04,	9 to 15	Granular	125	32		1.3
Switching	15 to 20	Granular	125	35		1.2
Station Area	20 to 25	Granular	115	36		2.0
	25 to 31.5	Granular	120	35		1.7

Lateral load design parameters are valid for maximum soil strain of 5 percent acting over a distance of one shaft diameter. All shafts should be reinforced full-depth for the applied axial and lateral stresses imposed.

7.3.3 Drilled Shaft Construction Considerations

Based on the subsurface conditions encountered during the field exploration, drilled shaft excavations for the proposed structures will be advanced into loose to very dense sand soils and soft to hard clay soils with various amounts of gravel and cementation.

Caving materials (particularly within the upper 5 feet) could be encountered during drilled shaft excavation requiring the use of temporary casing. If temporary casing is used for drilled shaft construction, it should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete to prevent the creation of voids in pier concrete. Drilled shaft concrete should have a relatively high fluidity when placed in cased pier holes or through a tremie. Concrete with a slump in the range of 6 to 8 inches is recommended.

Drilled shaft concrete should be placed upon completion of drilling and cleaning. Free-fall concrete placement in drilled shaft excavations will only be acceptable if provisions are taken to prevent aggregate segregation and avoid striking the concrete on the sides of the hole or reinforcing steel. The use of a bottom-dump hopper, or an elephant's trunk discharging near the bottom of the hole where concrete segregation will be minimized, is recommended. Shaft bearing surfaces should be cleaned prior to concrete placement. A representative of the geotechnical engineer should inspect the bearing surface and shaft configuration. If the soil



conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

8.0 Access Roadways

8.1.1 Aggregate Surface Roadway Design Recommendations

We understand that new roadways for postconstruction traffic within the proposed substation area site will consist of aggregate-surfaced roadways. Design truck load frequencies postconstruction have not been provided. Therefore, we have assumed one pickup truck per day and one fully loaded truck per week with a maximum weight of 80,000 pounds for fire truck loading. Aggregate sections based on a more detailed design could be provided.

Subgrade soils beneath aggregate surfaced roadways should be prepared and constructed as outlined in Section 9.0 of this report. An analysis of the proposed pavement section was performed as outlined in the 1993 AASHTO Design of Pavement Structures for aggregate-surfaced roads (Section 4.1.2). The design analysis evaluates the allowable rutting depth, traffic loading, and subgrade strength as design considerations. The unpaved road sections for postconstruction use have been developed under the following assumptions:

Gravel-Surfaced Roadway Design Parameters					
Parameter	Design Value	Comments			
Traffic Loading	up to 10,000 ESALs ¹	Provided by AES			
Design Life	35 years	Assumed			
Design R-Value	7	Based on lab testing			
Resilient Modulus	2,000 psi (saturated) 5,250 psi (wet) 8,000 psi (dry)	Based on correlations to R- Value			
Chemically Treated Subgrade Resilient Modulus	10,000 psi (wet/saturated) 12,000 psi (dry) 20,000 psi (frozen)	Assumed			
Aggregate Base Elastic Modulus	30,000 psi	Assumed			
Allowable Rut Depth	2 inches	Assumed			
Design Serviceability Loss	2.0	Assumed			
Vehicle Tire Pressure	80 psi	Assumed			

1. ESAL = 18 kips Equivalent Single Axle Load



As a minimum, we recommend the following for gravel-surfaced access roads:

Typical Gravel-Surfaced Road Section (Non Cement Treated) – Post Construction Traffic						
Traffic AreaBase Course Thickness (in)1Subbase TypeGeogrid Stabilization						
Up to 500 ESALs	4					
Up to 1,000 ESALs	4.5	10 inches of	No			
Up to 5,000 ESALs	7	compacted on-site soil	NO			
Up to 10,000 ESALs	10					

1. Base materials should meet NMDOT specifications

Typical Gravel-Surfaced Road Section (Treated) – Post Construction Traffic						
Traffic Area	Base Course Thickness (in) ¹	Treated Subbase Type	Geogrid Stabilization			
Up to 500 ESALs	4	6 inches of compacted				
Up to 1,000 ESALs	4.5	6 inches of compacted treated on-site soil	No			
Up to 5,000 ESALs	5	(5% cement) ²	NO			
Up to 10,000 ESALs	6	(070 001110111)				

- 1. Base materials should meet NMDOT specifications.
- 2. Preliminary based on design experience.

Note that whichever type of road is chosen, there will be a need for an ongoing maintenance program. Ruts or potholes that develop should be filled with additional aggregate base rather than by re-grading.

A concern regarding the use of permeable aggregate materials in large pavement areas is that surface water cannot be drained over the surface before it permeates through the aggregate surfacing, which would create a condition where the subgrade soils in moisture content. If the subgrade soils do become elevated in moisture content, the overall performance of the aggregate surfaced pavement areas will be reduced and could result in excessive rutting and may require maintenance or reconstruction of the gravel surface pavement. To help direct surface water over the aggregate surface, we suggest minimum surface slopes of 2% to 3% be constructed and maintained. Surface drainage should be directed away from the pavement areas, and no ponding of water should be allowed on the paved surface or adjacent to the edges of the pavement areas. Drainage design should



be completed by the Civil Designer. If site stripping lowers site grades, equivalent fill volumes should be utilized to bring roadway back up to original grade.

8.1.2 Compacted Native Soils Access Road Design Recommendations

It is our understanding that AES is considering using compacted native soils for the surface of some interior roadways on the project.

Due to the relatively infrequent rain and minimal traffic in the vicinity of the project, it is our opinion that such unsurfaced roadways are anticipated to perform with periodic maintenance under the anticipated light and temporary traffic loading provided the roadways are compacted and prepared in conformance with the compaction requirements in Section 9.0 to a minimum depth of 10 inches.

Compacted native soils roads could pump and yield, increase in rut depth, and unstable conditions could develop during construction operations particularly if the soils increase in moisture content and/or are subjected to repetitive construction traffic. If pumping and rut depths become excessive as construction work progresses, re-grading and re-compaction should be performed as necessary. Care should be taken to reduce or eliminate trafficking of the unpaved access roads when the subgrade is relatively high in moisture content as this will result in accelerated rutting conditions. Scarification, moisture treatment as necessary, and re-compaction of the roadways will likely be necessary as the roadways deteriorate. To help direct surface water over the aggregate surface, we suggest minimum surface slopes of 2% be constructed and maintained. Surface drainage should be directed away from the access road areas, and ponding of water should not be allowed on the access road surfaces or adjacent to the edges of the roadways areas. Drainage design is the responsibility of the Civil Engineer. If site stripping lowers site grades, equivalent fill volumes should be utilized to bring roadway back up to original grade.

8.1.3 Access Roadway Design and Construction Considerations

The roadway subgrade, if prepared early in the project, should be carefully evaluated as the time for construction approaches. We recommend the roadway area be stripped of existing topsoil/organic subsoil, or otherwise unsuitable material, rough graded, and compacted with a heavy roller compactor with vibration, before being proof-rolled with a loaded tandem-axle dump truck. To reduce the potential of development of low spots, an equivalent volume of material to what was removed during stripping should be replaced. Particular attention should be paid to high traffic areas that were rutted and disturbed during construction, and areas where backfilled trenches are located. Areas where unsuitable conditions are located should be replaced by replacing the materials with properly compacted fill.



Aggregate and native surfaced drives, regardless of the section thickness or subgrade preparation measures, will require on-going maintenance and repairs to keep them in a serviceable condition. It is not practical to design a gravel section of sufficient thickness that on-going maintenance will not be required. This is due to the porous nature of the gravel that will allow precipitation and surface water to infiltrate and soften the subgrade soils, and the limited near surface strength of unconfined gravel that makes it susceptible to rutting. When potholes, ruts, depressions or yielding subgrades develop, they must be addressed as soon as possible in order to avoid major repairs.

Maintenance should consist of periodic grading with a road grader. Typical repairs could consist of placing additional gravel in ruts or depressed areas. Potholes and depressions should not be filled by blading adjacent ridges or high areas into the depression areas. New material should be added to the depressed areas as they develop.

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. The site should be graded to shed water and avoid ponding over the subgrade. Water should not be allowed to pool against foundations (including driven piles) or within roadways. Drainage design is the responsibility of the Civil Designer.

9.0 Earthwork

9.1.1 General

The site work conditions will be largely dependent on the weather conditions and the contractor's means and methods in controlling surface drainage and protecting the subgrade. The near surface soils encountered across the majority of the project site are anticipated to remain relatively stable; however, they may become unstable with increases in moisture content or due to repetitive traffic. Site preparation where inverter mat foundations will be installed should include clearing and grubbing, installation of a site drainage system (if necessary), and subgrade preparation. Site preparation is not necessary in the PV Array field or where inverters will be supported on driven piles except to improve site drainage where necessary. The following paragraphs present our considerations and recommendations for the PV Array Field portion of the site and subgrade preparation.

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations and roadways are contingent upon following the recommendations outlined in this section.



Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

9.1.2 Site Preparation

Strip and remove existing vegetation, debris, and other deleterious materials from proposed access road areas, and any proposed mat foundations supporting invertors. Native trees, tree stumps and large vegetation should be cleared from the site at the location of mat foundations supporting invertors and roadway areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction in proposed array panel, invertor and access road areas.

Stripped materials consisting of vegetation and organic materials should be wasted from the site. If it is necessary to dispose of organic materials on-site, they should be placed in non-structural areas.

Where proposed inverters will be located, the area should be initially graded to create a relatively level surface to receive fill or be constructed upon, and to provide for a relatively uniform thickness of fill beneath structures (if applicable).

9.1.3 Subgrade Preparation

To mitigate hydro collapse potential in proposed mat/slab foundation areas, the upper 4 feet of subgrade soils beneath existing grade should be removed and recompacted as engineered fill material to mitigate the collapse and compression potential of the native soils. The lateral extents should be 2/3 the depth of replacement. The moisture content and compaction of subgrade soils should be maintained until slab construction. If new mat/slab foundations are in close proximity of each other, the subgrade preparation for the entire footprint that covers the new mat/slab foundations should be completed at the same time.

Subgrade soils beneath roadways should be scarified, moisture conditioned and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until pavement construction.

Subgrade soils beneath any new interior floor slabs should be scarified, moisture conditioned and compacted to a minimum depth of 12 inches. On-site medium and high plasticity clay soils should be excluded from within the upper 16 inches of subgrade soils beneath any proposed interior floor slabs. The moisture content and compaction of subgrade soils should be maintained until floor slab construction.



Exposed areas which will receive fill, once properly cleared and benched where necessary, including at the base of the recommended over-excavation below foundations, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

9.1.4 Fill Material Type

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 4 inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site soils or approved imported materials may be used as fill material for the following:

Fill Type ¹	USCS Classification	Acceptable Location for Placement
On-Site Medium Plasticity Clay Soils	CL	The near-surface on-site clay soils with Plasticity Index (PI) greater than 15 are not considered suitable for use as engineered fill beneath lightly loaded structures such as mat slabs supporting inverters and BESS structures. These soils may be utilized in non structural areas and as landscaping fill.
On-Site Sand Soils	SM, SC-SM, SC, CL	The on-site low plasticity and non-plastic sand soils with Plasticity Index (PI) less than 15 are considered suitable for use as engineered fill at all locations and elevations.
Imported Material	Varies	All locations and elevations
Non-Frost Susceptible (NFS)	GW, GP, SW and SP	Maximum particle size of 2 inches Maximum of 3 percent passing the No. 200 US sieve size. Below foundations to a depth of at least 24 inches.

1. Controlled, compacted fill should consist of approved materials that are free of organic matter, debris, and oversized materials. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

Imported soils (if required) for use as fill material in foundation and slab areas should conform to low volume change materials as indicated in the following specifications:



Percent Finer by Weight (ASTM C 136)

Gradation

4"		
No. 4	Sieve	50-100
No. 20	00 Sieve	15 (min) to 45 (max)
	Liquid Limit	30 (max)
	Plasticity Index	10 (max)
	Maximum expansive potential (%)*	

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 2 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged/inundated.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness. The EPC is responsible for selecting appropriate compaction equipment, and loose lift thickness (up to a maximum of 10 inches), to ensure the recommendations in this report are achieved and verifiable. Corrosion properties of all imported soils should be determined and verified to be in agreement with construction material design.

9.1.5 Compaction Requirements

	Per the Standard Proctor Test (ASTM D698)			
Material Type and Location	Minimum Compaction Requirement (%) ¹	for Compacti from optim	sture Contents on (referenced um moisture tent) ¹	
	(70)	Minimum	Maximum	
On-site and imported soils:				
Beneath foundations	95	-2%	+3%	
PV Array Pile Areas	96	-2%	+2%	
Compacted Native and Aggregate Surfaced Roadways (subgrade)	92	-2%	+2%	
Aggregate base ²	95	-2%	+3%	
Cable Trench Backfill (non-structural areas)	85	-2%	+2%	
Cable Trench Backfill (structural areas and roadways)	95	-2%	+2%	

Engineered fill should meet the following compaction and moisture requirements:



	Per the Stand	lard Proctor Tes	st (ASTM D698)
Material Type and Location	Minimum Compaction Requirement (%) ¹	for Compacti from optim	sture Contents on (referenced um moisture tent) ¹
	(70)	Minimum	Maximum
Miscellaneous backfill	95	-2%	+3%

- 1. The moisture content and compaction should be measured for each lift of engineered fill during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
- 2. Moisture percentage is not a pass/fail criteria for aggregate base course.

9.1.6 Earthwork Factors

The earthwork factors are based on a comparison of the in-situ dry densities from ring samples to the density of bulk samples compacted to 98, 95, 90, and 85 percent of the maximum dry density as determined by ASTM D698. The estimated shrinkage of the upper roughly 2 feet of the site soils when used as compacted fill is presented in the table below:

Percent Compaction (%)	Shrink/Swell (%) ¹								
Percent compaction (78)	Minimum	Maximum	Average						
98	- 4	34	18						
95	-7	32	15						
90	-13	28	10						
85	-20	24	5						

1. Positive numbers are shrink, while negative numbers are swell. All values are in percent.

These estimates are general in nature, and are based on our experience, limited data from our field exploration, and the soil conditions we encountered at the site. Earthwork factors may vary dependent upon the actual subsurface conditions, which may include variations in soil gradations and gravel contents.

9.1.7 Grading and Drainage

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. The site should be graded to shed water and avoid ponding over the subgrade.



9.1.8 Earthwork Construction Considerations

Shallow excavations up to 10 feet for the proposed construction are anticipated to be accomplished with conventional construction equipment. However, if excavations penetrate into very dense soils, some additional effort may be need for excavation of these materials. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of the access roads. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed, or these materials should be scarified, moisture conditioned, and re-compacted prior to access road construction.

The individual contractors are responsible for designing and constructing stable, temporary excavations (including utility trenches) as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations to the completed subgrade.

9.1.9 Construction Observation and Testing

The exposed subgrade and the full extend of each lift of compacted fill should be tested, evaluated and reworked, as necessary, until approved by the geotechnical engineer's representative prior to placement of additional lifts of fill. We recommend each lift of fill be tested for density and moisture content at a minimum frequency of at least one test for every 15,000 square feet of compacted fill in the structure areas. We recommend at a minimum at least one density and moisture content test for every 500 linear feet of compacted roadway and utility trench backfill. If engineered fill is placed beneath individual structures, we recommend at least one density and moisture content test per each vertical lift per structure.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proofrolling; placement and compaction of controlled compacted fills; and backfilling of excavations into the completed subgrade.



10.0 General Comments

Terracon should be retained to review the final design plans and specifications, so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings, test pits, and pile load testing performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The results of the test pile program should be interpreted in consideration of the subsurface conditions at the time when and locations where testing was performed. Inherent variations within near surface soil layers, seasonal groundwater fluctuations, seasonal wet and dry season effects, and site disturbance (due to construction activities including clearing, grubbing, grading, or modifications to site drainage) can significantly affect the geotechnical capacity of short pile foundations. The results of the test pile program should also be interpreted in consideration of the test pile connection method and test pile characteristics including the section properties, surface texture, and installation methods.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

Appendix A – Field Exploration	Exhibit No.
Site Location	A-1
Exploration Plan – Borings	A-2 through A-5



Exploration Plan – Test Pits General Notes	0
Unified Soil Classification System	A-9
Boring Logs	A-10 through A-65
Test Pit Pictures	A-66 through A-81
Appendix B – Laboratory Testing	
Atterberg Limits Results	B-1 and B-4
Grain Size Distribution	
Moisture-Density Relationship Results	0
R-Value Test Results	6
Consolidation Test Results	B-34 through B-42
Corrosion Testing Results	B-42 through B-48
Summary of Laboratory Results	B-49 through B-64
Appendix C – Thermal Resistivity Test Results	
Thermal Resistivity Test Location Plan	C-1 through C-2
Thermal Resistivity Test Results	•
-	
Appendix D – Field Soil Electrical Resistivity Test Data	D 1 through D 2
Field Soil Electrical Resistivity Test Location Plan Field Soil Electrical Resistivity Test Data	Ũ
	D-4 through D-29
Appendix E – Test Pile Driving Data	
Pile Load Test Zoning Plan	
Test Pile Driving Records	E-2 thru E-6
Appendix F – Pile Load Testing Results – Axial Compression Loa	d
Compression Load Test Results	F-1 thru F-7
Appendix G – Pile Load Testing Results – Axial Tensile Load	
Tension Load Test Results	G-1 thru G-29
Appendix H – Pile Load Testing Results – Lateral Load	
Lateral Load Test Results	H-1 thru H-29
Appendix I – Double Ring Infiltration Test Results	
Double Ring Infiltration Test Location Plan	I-1
Double Ring Infiltration Test Results	I-2 through I-3
Appendix J – JDH Corrosion Analysis	J-1 through J-14

Revised Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico April 16, 2024 | Terracon Project No. 66225093



APPENDIX A

Responsive Resourceful Reliable

Geotechnical Engineering Report

Rancho Viejo | Santa Fe County, NM February 19, 2024 | Terracon Proposal No. P66225093

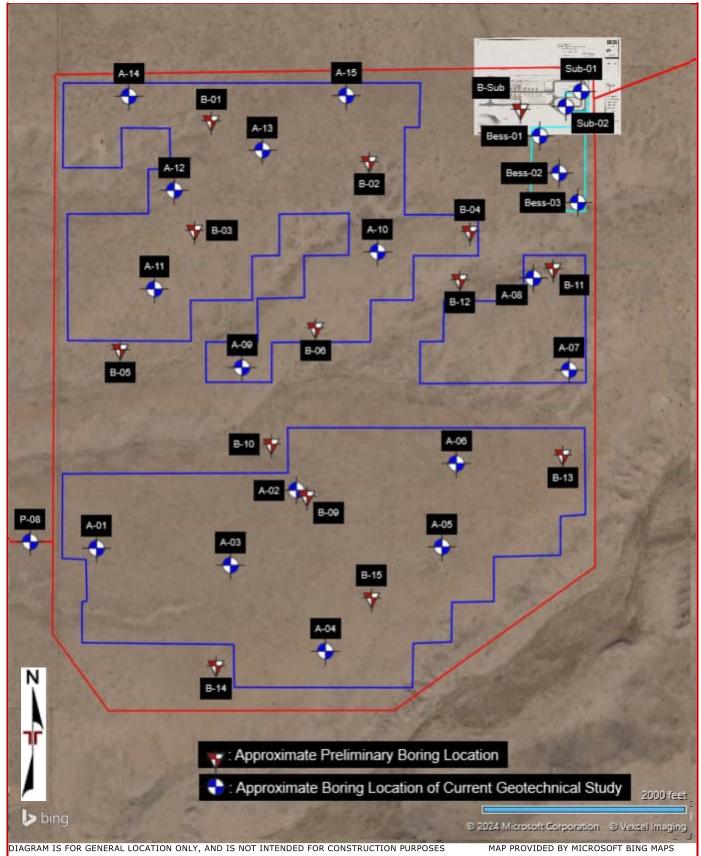


Site Location





Exploration Plan – Solar Array, BESS, and Substation Borings



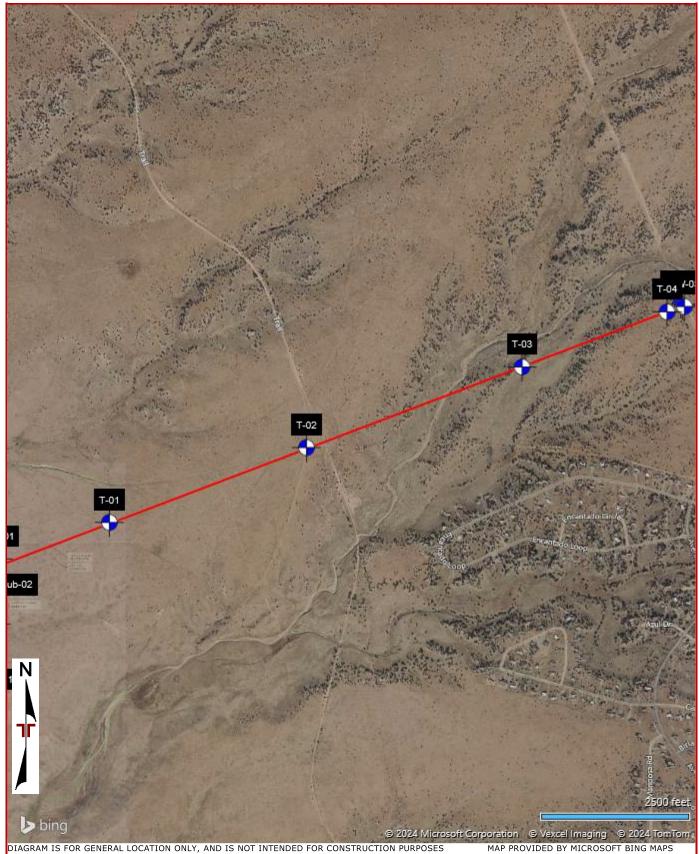


Exploration Plan – Access Road Borings





Exploration Plan – Transmission Line Borings





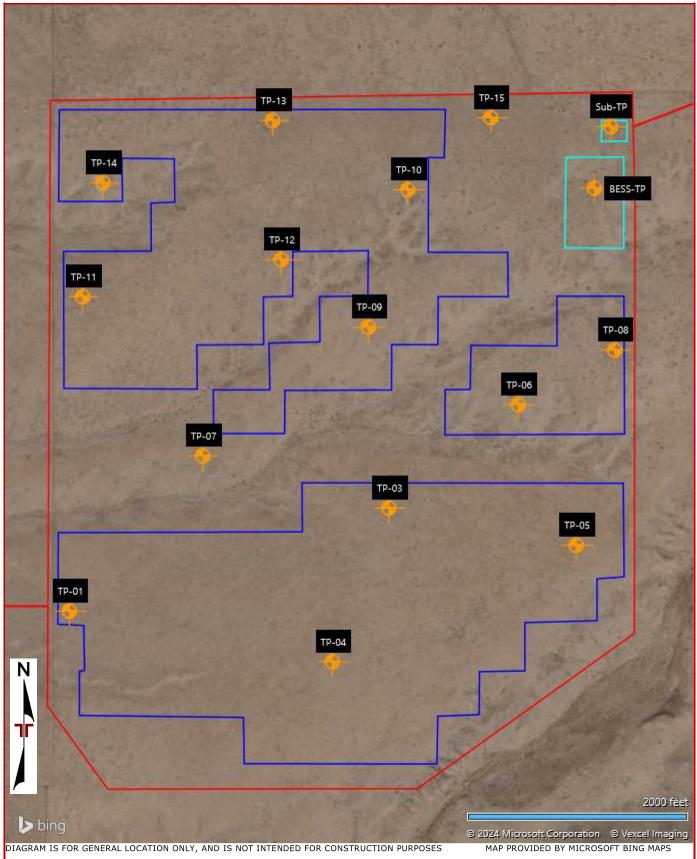
Exploration Plan – Switching Station Borings



Geotechnical Engineering Report Rancho Viejo | Santa Fe County, NM February 19, 2024 | Terracon Proposal No. P66225093



Exploration Plan – Test Pits





Exploration Plan – Test Pits



MAP PROVIDED BY MICROSOFT BING MAPS



General Notes

Auger Cuttings Rock Core Water Initially Encountered N Standard Penetration Test Resistance (Blows/Ft.) Water Level After a Specified Period of Time Water Level After a Specified Period of Time (HP) Hand Penetrometer Ring Sampler Standard Penetration Test Water Level After a Specified Period of Time (T) Torvane Water Level After a Specified Period of Time Cave In (DCP) Dynamic Cone Penetrometer	Sampling	Water Level	Field Tests
Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater level observations.UCUnconfined Compressive Strength(PID)Photo-Ionization Detector(OVA)Organic Vapor Analyzer	Ring Sampler Standard Test	 Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term 	Resistance (Blows/Ft.)(HP)Hand Penetrometer(T)Torvane(DCP)Dynamic Cone PenetrometerUCUnconfined Compressive Strength(PID)Photo-Ionization Detector

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

	Strength Terms												
Density determin	retained on No. 20 ed by Standard Pe Resistance	0 sieve.)	(50%) Consistency det	sistency of Fin % or more passing rermined by labora I procedures or sta	the No. 200 siev	Bedrock							
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Ring Sampler (Blows/Ft.)	pler Consistency Strength or N-Value		Ring Sampler (Blows/Ft.)	Ring Sampler (Blows/Ft.)	Standard Penetration or N-Value (Blows/Ft.)	Consistency					
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3	< 30	< 20	Weathered				
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4	30 - 49	20 - 29	Firm				
Medium Dense	10 - 29	19 - 58	Medium Stiff	0.50 to 1.00	4 - 8	5 - 9	50 - 89	30 - 49	Medium Hard				
Dense	30 - 50	59 <u>-</u> 98	Stiff	1.00 to 2.00	8 - 15	10 - 18	90 - 119	50 - 79	Hard				
Very Dense	> 50	> 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42	> 119	>79	Very Hard				
			Hard	> 4.00	> 30	> 42							

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.



Unified Soil Classification System

^A Based on the material passing the 3-inch (75-mm) sieve.

D₁₀ x D₆₀

^c Gravels with 5 to 12% fines require dual symbols: GW-GM well-

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-

^F If soil contains \geq 15% sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

graded sand with silt, SW-SC well-graded sand with clay, SP-SM

poorly graded sand with silt, SP-SC poorly graded sand with clay.

graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

cobbles or boulders, or both" to group name.

Criteria for A	ssianina Group	Symbols and G	roup Names Using	Soi	l Classification								
		atory Tests ^A	,	Group Symbol	Group Name ^B								
	Gravels:	Clean Gravels:	Cu≥4 and 1≤Cc≤3 ^E	GW	Well-graded gravel ^F								
	More than 50% of	Less than 5% fines ^c	Cu<4 and/or [Cc<1 or Cc>3.0] $^{\mbox{\scriptsize E}}$	GP	Poorly graded gravel F								
	coarse fraction retained on No. 4	Gravels with Fines:	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}								
Coarse-Grained Soils:	sieve	sieve More than 12% fines ^C Sands: 50% or more of coarse fraction	Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}								
More than 50% retained on No. 200 sieve	on No. 200 sieve Clean Sands: Less than 5% fines	Clean Sands:	Cu≥6 and 1≤Cc≤3 ^E	SW	Well-graded sand ^I								
	Sands: Less than 5% fines Cu<6 and/or [Cc<1 or Cc>2		Cu<6 and/or [Cc<1 or Cc>3.0] E	SP	Poorly graded sand ^I								
			Fines classify as ML or MH	SM	Silty sand ^{G, H, I}								
	p	More than 12% fines ^D	Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}								
		Inorganic:	PI > 7 and plots above "A" line 3	CL	Lean clay ^{K, L, M}								
	Silts and Clays: Liquid limit less than	inorganic:	PI < 4 or plots below "A" line ³	ML	Silt ^{K, L, M}								
	50	Organic:	$\frac{LL \text{ oven } dried}{LL \text{ not } dried} < 0.75$	OL	Organic clay ^{K, L, M, N}								
Fine-Grained Soils: 50% or more passes the		organic.	LL not dried < 0.75	UL	Organic silt ^{K, L, M, O}								
No. 200 sieve		Inorganic	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}								
		inorganic.	PI plots below "A" line	MH	Elastic silt ^{K, L, M}								
		LL oven dried	ОН	Organic clay ^{K, L, M, P}									
		$\frac{1}{LL \text{ not dried}} < 0.75$		$\frac{1}{LL \text{ not dried}} < 0.75$		$\frac{1}{LL \text{ not dried}} < 0.75$		LL not dried < 0.75		Organic: $\frac{LL \text{ oven } dried}{LL \text{ not } dried} < 0.75$		UII	Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily of	organic matter, dark in color, and organic odor PT		PT	Peat								

^E $Cu = D_{60}/D_{10}$ $Cc = (D_{30})^2$

^H If fines are organic, add "with organic fines" to group name.

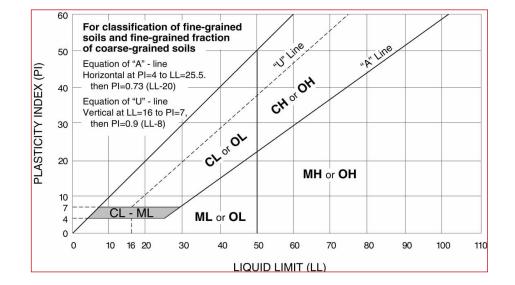
^B If field sample contained cobbles or boulders, or both, add "with If soil contains \geq 15% gravel, add "with gravel" to group name.

If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay. J

^K If soil contains 15 to 29% plus No. 200, add "with sand" or

"with gravel," whichever is predominant.

- ^L If soil contains \geq 30% plus No. 200 predominantly sand, add "sandy" to group name.
- ^M If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
- [▶] PI ≥ 4 and plots on or above "A" line.
- PI < 4 or plots below "A" line.
- P PI plots on or above "A" line.
- ^Q PI plots below "A" line.





					-					A b b c c b c c c c c c c c c c	
yer	Бо-	Location: See Exploration Plan	E	el ns	ype	s t	(%	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	ц.
Model Layer	Graphic Log	Latitude: 35.5416° Longitude: -106.0171°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ater ent (it (p		Percent Fines
ode	rapł		epth	/ater	amp	Re.	WEI	onte Ni	Dry eigt	LL-PL-PI	Per
Σ		Dopth (Et) Eloyation + 6411 (Et)		≤ö	S S	_	S	Ŭ	N		
		Depth (Ft.) Elevation.: 6411 (Ft.) 0.2 \TOPSOIL, approximately 2" thick \6410.8	3		Κ7	4-8-6					
2		SILTY SAND (SM) , fine to coarse grained, brown,	-		A	N=14		6.6			
		2.0 medium dense 640 SANDY LEAN CLAY (CL), light brown, very stiff to	9 _	_							
		hard	-	_	Ŵ	6-10-11		0 -		20 10 20	62
						N=21		8.5		39-19-20	62
			-								
3			5-		\geq	17-29/0"		6.7	104		
			-								
			-	-							
		8.0 640 SILTY SAND (SM), fine to coarse grained, brown,	3 -	_	\mathbb{N}	6-8-8		7.9			
		very loose			\vdash	N=16					
			10-								
2			_		IX	2-2-1 N=3		7.3			
		12.0 639	9		\vdash						
		<u>POORLY GRADED SAND (SP</u>), fine to coarse grained, brown, medium dense									
		14.0 639	7		X	5-6-5 N=11		1.2			
		POORLY GRADED SAND WITH SILT (SP-SM), trace	7 7								
		gravel, fine to coarse grained, brown, medium dense to dense	15-			5-11-13					
					M	N=24		1.4			
			-	_							
4											
			_								
			20-								
		20.9 6390.0			\boxtimes	16-50/5"					
		Boring Terminated at 20.92 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory proceduditional data (If any).	ires			evel Observations				Drill Rig	
		rting Information for explanation of symbols and abbreviations.		Gro	undw	ater not encounterec	1			D-50	
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Not	es					ement Method V Stem Auger				Logged by ED	
						-				Boring Starte	ed
				A !-	- 1- 00	mont Math-d				08-01-2023	
				Bori	ng ba	nment Method ackfilled with auger o	uttings upo	n		Boring Comp 08-01-2023	leted
				com	pletio	. וונ					



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	ť.)	Water Level Observations	Sample Type	est	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ي خ
el La	hic	Latitude: 35.5432° Longitude: -106.0105°	h (F	r Le	ole T	d Te sult	LLL (ater	/ Un ht (Percent Fines
1ode	èrap		Depth (Ft.)	Vate	Samp	Field Test Results	SWELL (%)	ont, V	/Dŋ	LL-PL-PI	Pe
2	0	Depth (Ft.) Elevation.: 6434 (Ft.)		>0	0		0)		5		
		0.3 \TOPSOIL, approximately 3" thick /6433.75			\bigtriangledown	3-4-9		6.7			
2		CLAYEY SAND (SC) fine to coarse grained, brown to 2.0 light brown, medium dense 6432	-		\wedge	N=13		0.7			
		2.0 Ight brown, medium dense 6432 SANDY LEAN CLAY (CL), trace gravel, brown, hard,	-								
		moderate cementation	-		M	12-17-22 N=39		9.4			
			-		ΚÞ	N=39			-		
3			5		_	24-43/0"		8.3	100	38-18-20	56
			_			24 45/0		0.5	100		
		7.0 6427	_								
		SILTY CLAYEY SAND (SC-SM), fine to coarse grained, reddish brown, medium dense			\mathbf{k}	6-5-5					
		g			X	N=10		7.2			
			-		ſ						
			10-		\bigtriangledown	5-7-7		47			
			-		\square	N=14		4.7			
		12.0 6422 SILTY SAND (SM), trace gravel, fine to coarse	-								
		grained, brown, medium dense	-	-	\mathbb{N}	6-5-6		1.7			
2			_		\sim	N=11			-		
			15-						-		
			_		IX	6-7-7 N=14		2.4			
			_		\vdash						
		•	20-		Κ/	6-9-18					
		21.5 6412.5	_		\land	N=27		1.9			
		Boring Terminated at 21.5 Feet									
See	Explor	ration and Testing Procedures for a description of field and laboratory procedure	es			evel Observations				Drill Rig	
		additional data (If any). I <mark>rting Information</mark> for explanation of symbols and abbreviations.		Grou	undw	ater not encountered	1			D-50	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Not	es			Adv 7" H	ance	ement Method v Stem Auger				Logged by SS	
						2				Boring Starte	ed
				A	nda	nment Method				08-24-2023	
				Bori	ng bi	ackfilled with auger o	uttings upo	'n		Boring Comp 08-24-2023	leted
				com	pleti	011.					



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	1 te
La	hic I	Latitude: 35.5412° Longitude: -106.0127°	Depth (Ft.)	- Lev vatic	e T	Field Test Results	SWELL (%)	ater ent (r Un		Percent Fines
ode	rapl		eptł	/atei oser	amp	Rec	ME	onte.	Dry eigl	LL-PL-PI	Per
Σ			ă	≥g	Ň	<u> </u>	S	Ŭ	×		
		Depth (Ft.) Elevation.: 6426 (Ft.) 0.3 \sigma TOPSOIL , approximately 4" thick \sigma 6425.67				5.6.0					
2		SILTY SAND (SM), fine to coarse grained, brown,	_		XI	5-6-8 N=14		6.6			
		2.0 medium dense 6424	_								
		SANDY LEAN CLAY (CL), trace gravel, light brown, stiff to hard			\sim	6-7/0"		10.2	88		
			_			0 7/0		10.2			
			_								
			5 —								
3			_		XI	16-17-15 N=32		7.4			
					K Y						
			_								
			_		IXI	6-6-10 N=16		6.8		30-16-14	65
		9.0 6417 SILTY SAND (SM), fine to coarse grained, brown,	_		\wedge						
ľ		medium dense to very dense	10-	-							
			_		XI	16-50/5"		8.1			
					\land						
			_								
			-		X	6-15-16 N=31		5.9			
			-		\land	N-31					
			15-								
4			10		$ \mathcal{N} $	3-6-8 N=14		4.0			
			_		\mathbb{X}	IN=14					
			-								
			-								
ŀ			_								
l i			20-								
			20-		М	9-9-12		6.2			
		21.5 6404.5		 	\land	N=21		0.2			
		Boring Terminated at 21.5 Feet									
500	Evala	ation and Tecting Drocoduros for a description of field and laboration	26								
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).	-5			vel Observations iter not encountered				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations.									
LIEV	acion R	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Note	es			Adv 7" H	ance ollow	ment Method Stem Auger				Logged by ED	
											be
										Boring Starte 08-01-2023	eu
				Aba Borie	ndon	ment Method ckfilled with auger c	uttings upo	n		Boring Comp	leted
				com	pletio	n.	actings upo			08-01-2023	



L.	D	Location: See Exploration Plan	_	(0)	е		~	0	G	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5388° Longitude: -106.0095°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	LITTICS	Percent Fines
ode	raph		epth	ater	ample	Resi	WEL	Wa onter	Dry eight	LL-PL-PI	Perc Fin
Σ	ס	Depth (Ft.) Elevation.: 6427 (Ft.)	ă	≥g	Š	ш.	Ň	ŭ	≥		
	((<i>1</i> , · · ()	0.3 TOPSOIL , approximately 4" thick6426.67			\bigtriangledown	4-8-8		5.8			
		SILTY SAND (SM), trace calcareous nodules, trace gravel, fine to coarse grained, brown to light brown,	_		\bowtie	N=16		5.0	-		
		medium dense to very dense, moderate cementation	_			2 (11					
4			_		X	3-6-11 N=17		9.3			
			5-								
			5-		\ge	30-37/0"		6.0	101	NP	39
		7.0 6420									
		SILTY CLAYEY SAND (SC-SM), trace gravel, fine to coarse grained, brown, medium dense	_			6-11-15			-		
		9.0 6418	_		\square	N=26		1.7			
		POORLY GRADED SAND (SP) , trace gravel, fine to coarse grained, brown to brown, medium dense	10-								
			10		\geq	10-13/0"		1.7	113		
		12.0 6415	_	_							
2	••••• •••••	WELL GRADED SAND (SW), trace gravel, fine to coarse grained, brown, medium dense	_	_	\bigtriangledown	5-7-10		0.0			
	•••••	14.0 6413	_		\square	N=17		0.9	-		
		POORLY GRADED SAND (SP) , trace gravel, fine to coarse grained, brown, medium dense	15-						-		
			_	-	X	7-11-11 N=22		1.0			
			_								
			-	-							
	///	19.0 6408 CLAYEY SAND (SC), fine to coarse grained, brown,	_	-							
4		dense	20-	-					-		
		21.5 6405.5	-		X	4-14-22 N=36		5.5			
		Boring Terminated at 21.5 Feet									
	L										
use	d and a	ration and Testing Procedures for a description of field and laboratory procedure additional data (If any).	25			evel Observations ater not encountered	i			Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic Driller	
										Terracon	
Not	es					ment Method Stem Auger				Logged by ED	
										Boring Start	ed
						ment Method				08-01-2023 Boring Comp	leted
				Bori com	ng ba pletio	ickfilled with auger con.	uttings upo	n		08-01-2023	



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	L.
La	l Jic I	Latitude: 35.5417° Longitude: -106.0057°	Depth (Ft.)	- Lev vatic	e T	Field Test Results	SWELL (%)	ater ent (r (Jn		Percent Fines
ode	apł		epth	ater	dme	Rec	MEI	N Ki	Dry eigh	LL-PL-PI	Per
Σ	Ū		å	≥g	Š	Ľ	Ñ	U U	Ň		
_		Depth (Ft.) Elevation.: 6449 (Ft.) 0.2∧TOPSOIL, approximately 2" thick ∕6448.83				2.6.6					
1		SANDY SILT (SM), brown, stiff	_		Х	3-6-6 N=12		5.4			
		2.0 6447	_		$ \rightarrow$						
		SANDY LEAN CLAY (CL), trace gravel, brown to dark brown, very stiff to hard			\sim	29		12.3	94		
		brown, very sun to hard	-	1				1215			
			_								
			5 —								
			_	-	Х	7-16-29 N=45		6.0			
3			_		\leftarrow						
Ŭ											
			_		Х	7-17-14 N=31		5.4		31-15-16	56
			_		\leftarrow						
			10-	-		7 40 45					
			_		Х	7-10-15 N=25		3.4			
		12.0 6437	_		()						
		POORLY GRADED SAND WITH SILT (SP-SM) , fine to coarse grained, brown, medium dense				F 11 1F					
2		14.0 6435	_		Х	5-11-15 N=26		1.7			
		WELL GRADED SAND WITH SILT (SW-SM), trace	-		()						
	<mark>.</mark>	gravel, fine to coarse grained, tan to light brown, dense	15-			6-17-16					
			-		Х	N=33		1.1			
4	°°°		_								
			_								
		19.0 6430									
		SILTY SAND (SM), fine to coarse grained, brown,									
2		medium dense	20–			8-11-11					
		21.5 6427.5	_		\wedge	N=22		3.0			
		Boring Terminated at 21.5 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).	es			vel Observations				Drill Rig	
See	Suppo	rting Information for explanation of symbols and abbreviations.		Grou	indwa	ter not encountered				D-50	
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Not	es					ment Method Stem Auger				Logged by	
				Л	onow	Stem Auger				ED	
										Boring Starte 08-01-2023	ea
						ment Method ckfilled with auger c	uttings upo	'n		Boring Comp	leted
				com	pletio	n.	attings upo			08-01-2023	



				-						A ++	
er	бo	Location: See Exploration Plan		la s	be	, st	(%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5439° Longitude: -106.0052°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ter it (°	Unit D		Percent Fines
<u>a</u>	ihdi		t l	erva	hple	sest	/ELI	Wat	ght		Fin
Mo	Gra		Dep	Wa	Sar	ы Ц	SV	Con	≤ S	LL-PL-PI	_ ₽_
	-	Depth (Ft.) Elevation.: 6456 (Ft.)						Ū			
		0.3 TOPSOIL , approximately 3" thick	5		\mathbb{N}	3-4-7		F 4			
2		SILTY SAND (SM), fine to coarse grained, brown,	-			N=11		5.4			
		2.0 medium dense 645	4 _		Í				1		
		SILT WITH SAND (ML) , trace caliche, trace gravel, tan to white, very stiff to hard, moderate cementation				4.16.24					
			-		IX	4-16-24 N=40		4.8			
	l <mark>.</mark> .		-	_	Ĥ				-		
			5-		I						
					\mathbb{N}	10-9-10		6.2		NP	71
3			-		\square	N=19					
			-	_							
			-		\geq	9-11/0"		6.5	92		
		10.0 644 CLAYEY SAND (SC), fine to coarse grained, brown to	10-	_					-		
		dark brown, very dense	_		IX	14-28-36 N=64		6.2			
					\vdash	11-0+			-		
4			-								
			-								
		14.0 644	2 _								
		LEAN CLAY WITH SAND (CL), brown to dark brown, hard	4 -								
		lidiù	15-			9-22-30			1		
			-		X	N=52		6.6			
			_		ſ						
3											
Ŭ			-								
			-								
			20-								
			20		\mathbb{N}	12-14-16		9.0			
		21.5 6434.	5 -		\square	N=30		5.0			
		Boring Terminated at 21.5 Feet									
See	Explor	ration and Testing Procedures for a description of field and laboratory procedu additional data (If any).	ires			evel Observations				Drill Rig	
		rting Information for explanation of symbols and abbreviations.		Gro	undw	ater not encountered	1			D-50	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic	
										Driller Terracon	
Not	es			Adv 7"⊦	lollov	ement Method v Stem Auger				Logged by ED	
										Boring Start	ed
										08-01-2023	
				Aba	ando	nment Method ackfilled with auger o		n		Boring Comp	leted
					ng b pleti		attings upo			08-01-2023	

Rancho Viejo Solar NM 599 and NM 14 | Santa Fe, NM Terracon Project No. 66225093



Model Layer										Atterberg	1
1 1	bo.	Location: See Exploration Plan		us e	be	, st	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	
ן ב	Graphic Log	Latitude: 35.5464° Longitude: -106.0014°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	nter Dt	t Dui		Percent Fines
del	aph		pth	ater serv	du	eld Res	VEL	Na Dtei	r d	LL-PL-PI	Fir
β	5 U		De	e N O SqO	Sai	μ	SV	Co	Хе		1
		Depth (Ft.) Elevation.: 6470 (Ft.)									
		0.3 TOPSOIL , approximately 3" thick6469.75			\bigvee	3-5-7 N=12					
		LEAN CLAY WITH SAND (CL), trace gravel, brown, stiff to very stiff			\triangle	N=12					
		Still to very Still									
			_			4-7-7					
					Х	N=14		6.9		32-17-15	80
			5								
					\mathbf{X}	4-3-6 N=9		7.2			
					\square	N=9					
			-								
			_		\geq	10-15/0"		7.6	90	-	
			10–			0 12 12					
3					Х	8-13-12 N=25		8.8			
					$ \rightarrow$						
					\mathbf{X}	4-3-5		8.9			
					\square	N=8					
			15-								
			15-		\bigvee	4-4-7		0.4			
					\wedge	N=11		8.4			
		10.0									
f	/////	19.0 6451 SILT (ML), tan, hard									
		SILI (ML), tan, hatu	20-								
					\bigvee	10-32-50/4"		8.5			
		21.5 6448.5			\square	, -					
		Boring Terminated at 21.5 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory procedur	es			evel Observations				Drill Rig	
		ation and Testing Procedures for a description of field and laboratory procedur dditional data (If any).	es			evel Observations ater not encountered				Drill Rig D-50	
See	Suppo	ation and Testing Procedures for a description of field and laboratory procedur dditional data (If any). ting Information for explanation of symbols and abbreviations. leference: Elevations were provided by Google Earth Pro (2023).	es							D-50 Hammer Typ	e
See	Suppo	rting Information for explanation of symbols and abbreviations.	es							D-50	e
See	Suppo	rting Information for explanation of symbols and abbreviations.	es							D-50 Hammer Typ Automatic Driller	e
See Elev	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou	indwa	ater not encounterec				D-50 Hammer Typ Automatic	e
See	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou	indwa ance	ater not encountered				D-50 Hammer Typ Automatic Driller Terracon Logged by	e
See Elev	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou	indwa ance	ater not encounterec				D-50 Hammer Typ Automatic Driller Terracon Logged by ED	
See Elev	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou	indwa ance	ater not encountered				D-50 Hammer Typ Automatic Driller Terracon Logged by ED	
See Elev	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou Adva 7" H	ance ollow	ment Method Stem Auger				D-50 Hammer Typ Automatic Driller Terracon Logged by ED Boring Starte 08-02-2023	ed
See Elev	Suppo ation F	rting Information for explanation of symbols and abbreviations.	es	Grou Adva 7" H	ance ollow ndor	ment Method Stem Auger		20		D-50 Hammer Typ Automatic Driller Terracon Logged by ED	ed



						Г				Atterberg	
yer	Log	Location: See Exploration Plan	t.)	/el	ype	s	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	L.
Model Layer	Graphic Log	Latitude: 35.5489° Longitude: -106.0026°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ater nt (rt C		Percent Fines
ode	rapł		epth	ater/	dme	-ielc Rec	WEI	W; inte	Dry	LL-PL-PI	Per
Σ			ă	≥g	ဟိ	Ľ.	Ñ	ပိ	Š		
		Depth (Ft.) Elevation.: 6477 (Ft.) 0.2 \TOPSOIL, approximately 2" thick \6476.83			-	256					
		LEAN CLAY (CL) fine to coarse grained light brown	_		X	3-5-6 N=11		7.7			
1		2.0 to brown, stiff 6475	_		Ĩ						
•		<u>SILT (ML)</u> , tan, stiff				3-3-6					
		4.0 6473	_		Ж	N=9		6.2			
		SILTY CLAY (CL-ML), tan, very stiff	_		Í						
3			5 –		\leq	8-14/0"		6.4	95		
3			-								
		7.0 6470	_								
1		SANDY SILT (ML) , trace gravel, light tan, stiff	_		/	4-4-5					
		9.0 6468			X	N=9		4.8		NP	57
		LEAN CLAY (CL), tan to light brown, hard	_								
			10-		/	9-15-22					
			_		K.	N=37		6.6			
3			_								
			_								
		14.0 6463									
		CLAYEY SAND (CL), fine to coarse grained, brown,	-								
		medium dense	15-		/	15-19-15					
			-		X	N=34		10.3			
2			_								
		19.0 6458	_								
		LEAN CLAY (CL), brown, hard	_								
3			20-			6-18-19					
		21.5 6455.5	_		X	N=37		8.2			
		Boring Terminated at 21.5 Feet									
See used	Exploration and a	ation and Testing Procedures for a description of field and laboratory procedure ditional data (If any).	es			evel Observations ater not encountered				Drill Rig D-50	
See	Suppor	rting Information for explanation of symbols and abbreviations.		3,00							
Elev	ation R	teference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Not	es					ment Method Stem Auger				Logged by ED	
				, 1	51101	Stell Auger					
										Boring Starte 08-02-2023	a
						ment Method ackfilled with auger c	uttings upo	n		Boring Comp	leted
				com	pletio	on.	accings upo			08-02-2023	



				1						Atterberg	
iyer	Log	Location: See Exploration Plan	ť.)	Water Level Observations	ype	sst	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ا بر
Model Layer	Graphic Log	Latitude: 35.5465° Longitude: -106.0123°	Depth (Ft.)	r Le	Sample Type	Field Test Results	SWELL (%)	ate. ent	ht (Percent Fines
ode	rap		eptl	/atel	amp	Field	ME	onte V	Dry eigl	LL-PL-PI	Fi
Σ	ט	Depth (Ft.) Elevation.: 6430 (Ft.)		≤õ	N N	_	S	Ŭ	>		
	<u>``\ 1, ``\</u>	0.3 \ TOPSOIL, approximately 4" thick \(6429.65)			\mathbf{k}	5-7-6					
		LEAN CLAY (CL), trace calcareous nodules, brown to	-	-	X	N=13		6.1			
		light brown, stiff to hard	-	-							
			_		\mathbf{k}	10-12-14					
3					\mathbb{N}	N=26		6.9			
		6.0 6424	5-	1	\geq	9-18/0"					
		<u>SILTY SAND (SM)</u> , trace gravel, brown, very dense		1							
			-	-							
4			-	-	\mathbb{N}	31-43-24		4.7		NP	45
		9.0 6421		-	\square	N=67		/		111	
		SANDY LEAN CLAY (CL), brown to dark brown, hard	10-								
			10		\mathbb{N}	12-21-26		6.5			
3		12.0 6418	_	1	$ \rangle$	N=47					
		LEAN CLAY (CL), brown, very stiff		1							
	////		-		$ \mathcal{M} $	8-9-11 N=20		9.0			
		14.0 6416 SILTY SAND (SM), brown to light brown, medium	- 1	-	\mathbb{K}	N=20					
		dense to very dense	15-	4							
					X	4-7-12 N=19		5.2			
					\mathbb{R}						
4			_	1							
 			-	1							
			-	-							
			20-	-	$ \downarrow $						
		21.5		-	IXI	8-25-28 N=53		6.0			
	·	21.5 6408.5 Boring Terminated at 21.5 Feet									
See	Explor	l ation and Testing Procedures for a description of field and laboratory procedu idditional data (If any).	es	Wə	ter Lo	evel Observations				Drill Rig	
		idditional data (If any). rting Information for explanation of symbols and abbreviations.				ater not encountered				D-50	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic	
										Driller Terracon	
Not	es					ment Method Stem Auger				Logged by ED	
				, 1		_ terri nuger				Boring Starte	ed
						ment Method				08-02-2023	lote d
				Bori		ckfilled with auger c	uttings upo	n		Boring Comp 08-02-2023	recea

Rancho Viejo Solar NM 599 and NM 14 | Santa Fe, NM Terracon Project No. 66225093



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s st	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	L L
La	l jr	Latitude: 35.5496° Longitude: -106.0078°	Depth (Ft.)	- Lev vatic	e T	Field Test Results	SWELL (%)	ater ent (r (J		Percent Fines
bde	apt		pth	ater sen	dm	Res	NEL	N Võ	Pr L Dr	LL-PL-PI	Per
Σ	้อ		De	8°≲	Sa	ш	S	ပိ	1 ×		
		Depth (Ft.) Elevation.: 6464 (Ft.)									
		0.3 TOPSOIL , approximately 4" thick6463.67			\mathbb{N}	3-5-7 N=12		5.4			
		SANDY LEAN CLAY (CL) , trace calcareous nodules, trace gravels, brown to light brown, soft to very stiff	_		\backslash	N=12					
			-								
			_		$\overline{\mathbf{N}}$	3-6-11					
					M	3-6-11 N=17		9.8			
			_		ŕ						
			5 –								
			_		IX.	6-6-7 N=13		7.7		34-16-18	57
					\vdash	N=15					
			_								
			_		\times	5-4		6.8	92		
			_								
			10-		K7	3-2-2					
3			_		X	N=4		4.7			
			_		ŕ						
			-		IX.	3-8-8 N=16		8.8			
			-		\vdash	N=10					
			15-								
			15		\mathbb{N}	5-9-8		9.9			
			_		\square	N=17		5.5			
			-								
			_								
			-								
			20-								
			_		IX.	8-12-13 N=25		9.9			
_		21.5 6442.5 Boring Terminated at 21.5 Feet			\vdash	11 25					
		boring reminated at 21.5 reet									
-											
See	Explor d and a	ation and Testing Procedures for a description of field and laboratory procedure ditional data (If any).	es	Wat	ter L	evel Observations ater not encountered				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations.		Grot	anuw						
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller Terracon	
Not	es			Adv 7" H	ance	ement Method / Stem Auger				Logged by ED	
										Boring Starte	ed
				Aba	ndor	nment Method					
				Bori	ng ba pletio	ackfilled with auger c	uttings upo	n		Boring Comp 08-02-2023	reced
				com	pieut						



										Atterberg	
Model Layer	Log	Location: See Exploration Plan	t.)	Water Level Observations	ype	s	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	t i
l La	Graphic Log	Latitude: 35.5486° Longitude: -106.0152°	Depth (Ft.)	r Lev vatic	Sample Type	Field Test Results	SWELL (%)	ater ent (v Un ht (j		Percent Fines
ode	rapł		epth	ater	dme	-ielo Ree	WEI	N.	Dry eigh	LL-PL-PI	Per
Σ			ð	≥g	လိ	Ľ.	Ś	ပိ	Ň		
	1. 1. · . 1	Depth (Ft.) Elevation.: 6431 (Ft.) 0.3 _TOPSOIL, approximately 4" thick _6430.67									
		SANDY LEAN CLAY (CL), trace calcareous nodules.	_		X	4-9-8 N=17		6.5			
		SANDY LEAN CLAY (CL) , trace calcareous nodules, trace gravel, brown to light brown, soft to very stiff									
			_								
			-		X	7-11-16 N=27		6.6			
			_	-	Κ	N=27					
			5 –			17.10/0		7.0	01	22 10 14	66
			-		\sim	17-16/0"		7.0	81	32-18-14	66
1											
			_								
			_		X	4-2-2 N=4		8.3			
			_	-	$ \land$	N-+					
			10-								
					Y	4-8-9 N=17		6.3			
		12.0 6419			$ \land$	N-17					
		SILTY SAND (SM), trace gravel, fine to coarse	_								
		grained, light brown, medium dense	-		\mathbb{N}	5-6-15 N=21		7.4			
			-		$ \land$	N-21					
			15-								
					X	7-7-6 N=13		5.1			
2					$ \land$	N=15					
			_								
			-								
			_	-							
			20-								
			20		\mathbb{N}	10-9-10		4.6			
	···	21.5 6409.5 Boring Terminated at 21.5 Feet		 	\land	N=19					
		Boring Terminaleu al 21.5 Feel									
				L							
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure disting and laboratory procedure	es			evel Observations				Drill Rig	
		dditional data (If any). rting Information for explanation of symbols and abbreviations.				ater not encountered				D-50	
		Leference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic	
										Driller Terracon	
Not	es			Adv	ance	ment Method				Logged by	
				7" H	ollow	/ Stem Auger				ED	
										Boring Starte 08-02-2023	ed
				Aba	ndor	nment Method					lated
				Bori	ng ba pletio	ckfilled with auger c	uttings upo	n		Boring Comp 08-02-2023	recea
				2011	p. cut						



—						I				Attorbarg	
ē	Бс	Location: See Exploration Plan		<u> </u>	e	÷	(0)	(%	1.G	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5513° Longitude: -106.0145°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
	hid	Latitude: 35.5513° Longitude: -106.0145°	h (er L	Be	L pl	L.	/ati	ht U		ine
po	irap		ept	Vat∈ bse	am	Fie Re	ME	ont⊲	/eig	LL-PL-PI	Per
ľΣ	-		Δ	>ō	v		0	Ŭ	3		
		Depth (Ft.) Elevation.: 6443 (Ft.) 0.3 \TOPSOIL, approximately 3" thick \circle{6442.75}									
		LEAN CLAY (CL), brown, very stiff	_		IXI	3-6-13 N=19		3.5			
		<u>LEAN CEAT (CEJ</u> , brown, very sun			$\langle \cdot \rangle$	N=15					
3			_								
			_		$\mathbb{N}/$	9-15-12		- 0			
		4.0 6439				N=27		5.0			
		SILTY SAND (SM), trace gravel, fine to coarse	_								
		grained, tan to brown, medium dense to dense	5 —								
					imes	13-12		2.8	100		
			_								
4			_		\mathbb{N}	10-12-18 N=30		4.2		ND	42
						N=30		4.3		NP	42
			10-		$ \downarrow $	0.10.11					
					X	9-10-11 N=21		7.3			
		12.0 6431									
		LEAN CLAY (CL), brown to dark brown, hard									
			-		$ \bigvee $	15-25-30		7.8			
			_		\square	N=55		,.0			
			15-		\mathbf{k}	14-17-19					
			_		IXI	N=36		9.7			
3					r 1						
			-								
			20-		\land	12-18-20					
		21.5 6421.5	-		$ \mathcal{N} $	N=38		9.2			
		Boring Terminated at 21.5 Feet			Ħ						
1											
1											
1											
1											
1											
1											
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1											
See	Explored and a	ation and Testing Procedures for a description of field and laboratory procedur dditional data (If any).	es			evel Observations				Drill Rig	
		ting Information for explanation of symbols and abbreviations.		Grou	undwa	ater not encountered				D-50	
		eference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	е
										Automatic	
										Driller	
										Terracon	
				Adv	ance	ment Method Stem Auger				Logged by ED	
Not	.63			, 11	5100	Stern Auger				LD	
Not	.53										
Not										Boring Starte	ed
Not	.63			Aba	ndor	nment Method				08-02-2023	
Not	.53			Borir	ndor ng ba pletic	ckfilled with auger c	uttings upo	n		Boring Starte 08-02-2023 Boring Comp 08-02-2023	



										Attorborg	
/er	бо	Location: See Exploration Plan			be	, st	(%	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits]
Model Layer	Graphic Log	Latitude: 35.5523° Longitude: -106.0116°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ter (,	t (p		Percent Fines
de	ihdi		oth	erva	hple	eld	ILI (ELI	Wat	i y l		Fin
Moo	Gra		Dep	Wa	Sar	ie tr	SV	Con	∧ o	LL-PL-PI	<u> </u>
-	-	Depth (Ft.) Elevation.: 6461 (Ft.)	-	- 0					-		
		0.2\TOPSOIL, approximately 2" thick /6460.83			K/	5-7-3					
2		CLAYEY SAND (SC) fine to coarse grained brown	-		XI	N=10		6.4			
		2.0 medium dense 6459			r Y						
		SILTY CLAYEY SAND (SC-SM), fine to coarse	_								
4		grained, brown to white, medium dense	-		\times	13-17		5.7	84		
		4.0 6457	_								
		SANDY LEAN CLAY (CL) , trace gravel, brown to beige, very stiff to hard	_								
		beige, very still to hard	5-		K/	19-21-15					
			-		$ \mathcal{N} $	N=36		8.4		35-16-19	59
			_								
					$ \downarrow $						
3					X	5-31-15 N=46		6.8			
			_		\land	N=40					
			10-								
			10-		М	4-7-11		74			
						N=18		7.4			
		12.0 6449	_								
		CLAYEY SAND (SC), fine to coarse grained, brown to tan, medium dense to very dense			$ \downarrow $						
			-		IXI	7-11-17 N=28		7.2			
			-		\mathbb{K}						
			15-								
			15		\mathbb{N}	33-50/5"		6.9			
					\mathbb{N}	33 30/3		0.5			
4			_								
			_								
			-								
			20-								
			20		$ \vee $	19-19-13		6.9			
		21.5 6439.5	. –		/	N=32					
		Boring Terminated at 21.5 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory procedur	es	347						Deill Die	
use	d and a	dditional data (If any).				vel Observations ater not encountered	1			Drill Rig CME 75	
		rting Information for explanation of symbols and abbreviations.									
Elev	ation R	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										EDI	
Not	es			Adv	ance	ment Method				Logged by	
						Stem Auger				MBG	
										Boring Starte	ed
										08-18-2023	
						ment Method ckfilled with auger of	uttinas uno	n		Boring Comp	leted
				com	pletio	n.	.ge apo			08-18-2023	



									Atterberg	
Model Layer Granhic Log	n Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s ist	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	L L
Model Layer Granhic Lon	Latitude: 35.5538° Longitude: -106.0160°	Depth (Ft.)	- Lev vatic	e T	Field Test Results	SWELL (%)	ater ent (r Un		Percent Fines
ode		eptł	/atei oser	amp	Reic	WEI	onte.	Dry eigl	LL-PL-PI	Per
צ ט		Δ	≤ġ	S S	_	S	Ŭ	>		
	Depth (Ft.) Elevation.: 6438 (Ft.) →0.3 ∧ TOPSOIL , approximately 3" thick ^6437.75			k 7	7-7-6					
2	CLAYEY SAND (SC) , fine to coarse grained, brown,	_		\mathbb{A}	7-7-6 N=13		7.5			
	2.0 medium dense 6436	_								
	SANDY SILT (ML), trace clay, sandy silt, white to light brown, stiff to hard	_		$\mathbf{\nabla}$	18-32		10.7	83		
				4	10 52		10.7			
		_								
		5 –			7-7-5		0.0		ND	60
		_		\square	7-7-5 N=12		9.0		NP	60
		-								
		_	-	\bigvee	11-12-10		10.0			
		_		\square	N=22		10.0			
		10-								
3		10		\mathbb{N}	15-24-39		39.0			
		_		\land	N=63					
		_								
		-		\mathbb{N}	13-16-16 N=32		8.9			
		-		\land	N=32					
		15-								
		_		IX	16-21-24 N=45		7.8			
	19.0 6419	_								
	SILTY SAND (SM), fine to coarse grained, beige,	_								
4	dense	20-								
	21.5 6416.5	_	-	X	21-16-15 N=31		4.0			
	Boring Terminated at 21.5 Feet									
See Exp	loration and Testing Procedures for a description of field and laboratory procedure d additional data (If any).	es			evel Observations				Drill Rig	
	porting Information for explanation of symbols and abbreviations.		Grou	undw	ater not encountered				CME 75	
Elevatio	n Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
									Driller	
									EDI	
Notes			Adv 8" H	ance	ement Method v Stem Auger				Logged by MBG	
									Boring Starte	ed
									08-16-2023	
			Borii	ng ba	nment Method ackfilled with auger c	uttings upo	n		Boring Comp 08-16-2023	leted
			com	pletio	on.				20 10 2023	



					<u> </u>					Attorborg	
/er	bo	Location: See Exploration Plan		la el	þe	ti	(%	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5538° Longitude: -106.0088°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ter (Unit t (p		Percent Fines
de l	hde		oth	ter l	nple	eld	/ELI	Wa	yry	LL-PL-PI	Fin
δ	Gra		Dep	Wa Obs	Sar	ιĔΨ	SV	Co	× P	LL-PL-PI	<u>а</u>
		Depth (Ft.) Elevation.: 6474 (Ft.)		Ŭ				-			
		0.3 \TOPSOIL, approximately 3" thick /6473.75			\mathbb{N}	2-2-2					
		<u>SILTY SAND (SM)</u> , trace clay, silty sand, fine to coarse grained, light brown to brown, loose to medium	-		\mathbb{N}	N=4					
	. .	dense	_								
					$ \downarrow $	9.0.12					
			_		IXI	8-9-12 N=21		6.7		NP	48
			-		ĽΥ						
			5 —								
			0		\times	5-6					
2			_								
-			_								
			_		\mathbb{N}	5-10-14		F 0			
					$ \mathcal{N} $	N=24		5.9			
			_								
			10-		k d	F 14 12					
			_		IXI	5-14-13 N=27		7.2			
					Κ¥						
		13.0 6461	_								
		13.0 6461 CLAYEY SAND (SC), fine to coarse grained, light	-		$ \vee $	12-12-10		10.0			
		brown, medium dense to dense	_		\mathbb{N}	N=22					
			15-								
			15-		М	29-20-23		8.1			
			_		\square	N=43		0.1			
			_								
4											
			-								
			20-		$ \downarrow $						
			_		X	4-9-8 N=17		4.8			
		21.5 6452.5 Boring Terminated at 21.5 Feet			\mathbb{K}	N-17					
		Bornig Terminateu al 21.5 Feel									
Sec	Evolor	ation and Testing Procedures for a description of field and laboratory presedure	20					I			
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).				evel Observations ater not encountered	i			Drill Rig CME 75	
		rting Information for explanation of symbols and abbreviations.									
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										EDI	
Not	es					ment Method				Logged by	
				8" H	ollow	Stem Auger				MBG	
										Boring Starte 08-16-2023	ed
				Aba	ndon	ment Method					
				Borii	ng ba pletio	ckfilled with auger c	uttings upo	'n		Boring Comp 08-16-2023	leted
				com	PIECO						



					, ,			1		A ++ 1	
/er	bo.	Location: See Exploration Plan		el ns	þe		(%)	(%	cf t	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5527° Longitude: -106.0024°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
de	ihde		oth	ter I	nple	eld	/ELI	Wat	iry l		Fin
δ	Gra		Dep	Wa Obs	Sar	ić "	SN	Cor	Ne Ne	LL-PL-PI	
		Depth (Ft.) Elevation.: 6493 (Ft.)									
		0.3 TOPSOIL , approximately 4" thick6492.67			\mathbb{N}	4-5-7					
2		CLAYEY SAND (SC), fine to coarse grained, brown, medium dense	_		$ \rangle\rangle$	N=12					
_		2.0 medium dense 6491 LEAN CLAY WITH SAND (CL), trace gravel, brown,	-								
		hard	_		\mathbb{N}^{1}	10-19-28		7.4		30-14-16	77
					\square	N=47		7.4		30-14-10	//
			_								
			5 —		\bigtriangledown	25-50/4"		7.9	105		
			_		$ \bigtriangleup$				100		
3		7.0 6486	_								
		SANDY SILT (ML) , trace gravel, beige, stiff to very stiff	_		k /	4-5-8					
					IXI	N=13		8.0			
			-		r 1						
			10-		$ \downarrow $	6.6.11					
					X	6-6-11 N=17		6.6		NP	67
		12.0 6481			r f						
		POORLY GRADED SAND WITH SILT (SP-SM) , fine to coarse grained, beige, medium dense			$ \downarrow $						
2			_		X	5-10-11 N=21		4.7			
		14.0 6479 SILTY SAND (SM), fine to coarse grained, beige,	_		κ						
		medium dense to dense	15-								
			_		IXI	15-17-14 N=31		5.3			
					KΥ						
			_								
			-								
			_								
			20-								
			20		$ \mathcal{M} $	10-12-13		4.4			
			_		$ \rangle$	N=25		L			
			-								
4		24.0 6469	_								
	<mark></mark>	POORLY GRADED SAND WITH SILT (SP-SM) , trace gravel, fine to coarse grained, beige, medium dense to	25								
		very dense	25–		\mathbb{N}^{\uparrow}	13-14-14		1.3			
					\bowtie	N=28		1.5			
			_		[
	<mark>. </mark>										
			30–		$ \land \uparrow$	7-11-19					
					\mathbb{N}	N=30		2.5			
	<mark>. </mark>				Ī						
			_								
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure									
used	l and a	idditional data (If any).	55			vel Observations ter not encountered	i			Drill Rig CME 75	
		rting Information for explanation of symbols and abbreviations.									•
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										EDI	
Not	es					ment Method Stem Auger				Logged by MBG	
				5 11							bd
										Boring Starte 08-18-2023	su
						ment Method ckfilled with auger o	uttings upo	'n		Boring Comp	leted
				com	pletio	n.	actings upo			08-18-2023	



 _			1	<u> </u>	- 1					Attorbara	
yer	bo-	Location: See Exploration Plan		la Us	/pe	y, st	(%	Water Content (%)	it Xcf)	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5527° Longitude: -106.0024°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	nt (Dry Unit Weight (pcf)		Percent Fines
ode	hqe'		epth	ater serv	dma	Res	NEL	Wa	Dry eigh	LL-PL-PI	Per
Σ	Ģ		ď	Ş₫	S	LL.	S	ပိ	- ×		
		Depth (Ft.) Elevation.: 6493 (Ft.) POORLY GRADED SAND WITH SILT (SP-SM), trace									
		gravel, fine to coarse grained, beige, medium dense to	35-								
		very dense (continued)			\mathbb{N}	21-25-50/5"		8.0			
			-		/	,					
			-								
4			-								
			-								
			40-								
			0		\bigvee	25-50/4"		8.3			
		41.5 6451.5			\bigtriangleup	23 33, 1		0.5			
		Boring Terminated at 41.5 Feet									
See	Explo	ration and Testing Procedures for a description of field and laboratory procedur additional data (If any).	es	Wat	er Le	evel Observations				Drill Rig	
		additional data (If any). o <mark>rting Information</mark> for explanation of symbols and abbreviations.				ater not encountered	ł			CME 75	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic	
										Driller EDI	
Not	es			Adv	ance	ment Method				Logged by	
				8" H	ollow	Stem Auger				MBG	
										Boring Starte 08-18-2023	ed
				Aba	nder	ment Method					
				Borir	ng ba	ckfilled with auger c n.	uttings upo	n		Boring Comp	leted
				CO	n cti -					08-18-2023	



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	sst	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	÷
La	JIC .	Latitude: 35.5517° Longitude: -106.0018°	Depth (Ft.)	- Lev vatio	e T	Field Test Results	SWELL (%)	ater ent	r Un		Percent Fines
ode	apł		epth	ater	dmg	Rec	MEI	Wa	Dry eigh	LL-PL-PI	Per
Σ	ษั		ð	≥g	N N	LL.	Ś	ပိ	Ň		
	<u></u>	Depth (Ft.) Elevation.: 6492 (Ft.)			$ \downarrow $						
		0.3 TOPSOIL , approximately 4" thick6491.67 CLAYEY SAND (SC), fine to coarse grained, brown,	_		X	6-5-3 N=8					
		2.0 loose 6490	_		$\langle \mathbf{I} \rangle$	N-0					
		SILTY SAND (SM), trace clay, trace gravel, fine to	-								
		coarse grained, light brown to white, loose to very	-	-	X	3-15		12.7	76		
		dense, weak to moderate cementation	_								
			-								
			5 –		$\overline{\mathbf{N}}$	28-29-23		0.0			
			-		\mathbb{N}	N=52		9.8			
2			_								
-			_		k /	2-3-2					
					XI	N=5		6.8		NP	46
			_		r t						
			10-		$ \downarrow $						
			_		IXI	6-5-1 N=6		7.7			
					ĽΥ						
			_		$ \downarrow $						
			-		IXI	6-3-4 N=7		6.4			
_		14.0 6478 SANDY LEAN CLAY (CL), trace gravel, very stiff	-	-	KΥ	11-7					
		SANDT LEAN CLAT (CL), trace graver, very sun	15-								
			15			16-13-9		7.7		26-16-10	62
			_		\mathbb{N}	N=22					
			_	-							
			_								
3			_								
			20-		k/t	8-9-8					
			-	-	$ \mathcal{N} $	N=17		9.0			
			_								
		23.0 6469									
		POORLY GRADED SAND WITH SILT (SP-SM), trace	_								
		gravel, fine to coarse grained, beige to brown, loose to dense	-								
			25-	-	$ \downarrow $						
			_		IXI	12-11-10 N=21		9.3			
					KΥ						
			_								
2			_								
2			_								
			30–								
			50		\mathbb{N}	7-4-4					
			_		\mathbb{N}	N=8					
			_								
			_								
			_								
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es	Wat		vel Observations				Drill Rig	
		ation and Testing Procedures for a description of field and laboratory procedure additional data (If any).				ter not encountered	I			CME 75	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
-100	acioni									Automatic	
										Driller	
										EDI	
Not	es					nent Method Stem Auger				Logged by MBG	
										Boring Starte	he
										08-18-2023	cu
						ment Method ckfilled with auger o	uttings upo	n		Boring Comp	leted
				com	pletio	n.	actings upo			08-18-2023	



er	Бс	Location: See Exploration Plan	(- S	be	ŗ	(%)	(%	cf)	Atterberg Limits	
l Lay	nic Lu	Latitude: 35.5517° Longitude: -106.0018°	ו (Ft.	⁻ Leve	le Ty	Field Test Results	-L (9	ater nt (°	, Unit pr		Percent Fines
Model Layer	Graphic Log		Depth (Ft.)	Water Level Observations	Sample Type	Fielc Re	(%) SWELL	Water Content (%)	Dry Unit Weight (pcf)	LL-PL-PI	Per
Ĺ		Depth (Ft.) Elevation.: 6492 (Ft.)									
		POORLY GRADED SAND WITH SILT (SP-SM) , trace gravel, fine to coarse grained, beige to brown, loose	35-								
2		to dense <i>(continued)</i> 36.5 6455.5			X	11-17-18 N=35		3.0			
		Boring Terminated at 36.5 Feet									
See	Exploi d and a	ration and Testing Procedures for a description of field and laboratory procedure additional data (If any).	es			evel Observations	d			Drill Rig	
See	Suppo	orting Information for explanation of symbols and abbreviations.		Grou	indw	ater not encountered	L			CME 75	•
Ele/	ation	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller EDI	
Not	es					ment Method V Stem Auger				Logged by MBG	
						2				Boring Starte	ed
						nment Method				08-18-2023 Boring Comp	leted
				Borir	ng ba pletio	ackfilled with auger o	cuttings upo	'n		08-18-2023	ierea



		Location: See Exploration Plan						-		Atterberg	
Model Layer	Graphic Log)	Water Level Observations	Sample Type	est ts	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ي خ
	hic	Latitude: 35.5509° Longitude: -106.0012°	Depth (Ft.)	er Le rvati	ple	Field Test Results	ELL (/ate ent	y Ur Iht (Percent Fines
lode	èrap		ept	Vate	Samp	Fiel	SWE	ont	/eig	LL-PL-PI	Pe
		Depth (Ft.) Elevation.: 6480 (Ft.)		>0			07		>		
		0.3 TOPSOIL , approximately 3" thick /6479.75				11-7-10		5.0			
		<u>CLAYEY SAND (SC)</u> , fine to coarse grained, brown, medium dense	-		\wedge	N=17		5.9			
		medium dense	-								
			-		\bigtriangledown	18-10		5.4	102		
		4.0 6476	_								
		SILTY SAND (SC) , fine to coarse grained, brown, loose	5-								
			5		\mathbb{N}	4-4-4		5.1			
		7.0 6473	_		$\langle \cdot \rangle$	N=8					
2		CLAYEY SAND (SC), fine to coarse grained, brown,									
		medium dense	-		X	7-10-8 N=18		11.5			
					$\langle \cdot \rangle$	N-10					
			10-								
			_		X	10-14-13 N=27		11.8			
			_								
						10.12.16					
		14.0 6466	_		Х	10-13-16 N=29		6.8			
	•••••	WELL GRADED SAND WITH SILT (SW-SM), trace	-								
	°°°	gravel, fine to coarse grained, brown to tan, medium dense to dense	15-			17-18-14					
	°°°		-		\mathbb{N}	N=32		6.8			
	<mark>```</mark>		-								
	••• •••		_								
	°°°		_								
	•••		20-								
	<mark></mark>		20-		\mathbb{N}	10-14-24		1.6		NP	8
4	••• •••		_		\land	N=38					
	°°°		-								
	••• •••		-								
	<mark>```</mark>		-								
	••• •••		25-								
	<mark>```</mark>		_		X	6-13-13 N=26		2.5			
	°°°		_								
	••• •••	29.0 6451	_								
		CLAYEY SAND (SC), fine to coarse grained, brown,	_								
		medium dense	30–		\wedge	4-8-7					
2			-		\wedge	N=15		8.5			
_			-								
			_								
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es			evel Observations		_		Drill Rig	
		dditional data (If any). rting Information for explanation of symbols and abbreviations.		Grou	undwa	ater not encountered				CME 75	
		eference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										EDI	
Not	es					ment Method Stem Auger				Logged by MBG	
										Boring Starte	ed
										08-18-2023	
				Borii	ng ba	ment Method ckfilled with auger c	uttings upo	'n		Boring Comp 08-18-2023	leted
				com	pletic	n.				10 2020	



ver	bo-	Location: See Exploration Plan		us us	/pe	, st	(%	(%	it ocf)	Atterberg Limits	L.
Model Layer	Graphic Log	Latitude: 35.5509° Longitude: -106.0012°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	(%) SWELL	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
Mode	Grap		Dept	Wate Obse	Sam	Fiel	SWE	Cont	Dr Weig	LL-PL-PI	Pe
		Depth (Ft.) Elevation.: 6480 (Ft.) CLAYEY SAND (SC), fine to coarse grained, brown,									
		medium dense (continued)	35-			2-6-5					
2			_		$ \Delta$	N=11		9.2			
			_	-							
		39.0 6441	_								
		SILTY SAND (SM) , fine to coarse grained, brown, very dense	40-	-							
4		41.5 6438.5			X	12-29-50/5"		5.9			
		Boring Terminated at 41.5 Feet									
Sec	Explo	ation and Testing Procedures for a description of field and laboratory procedur	es							D. (II. D.)	
		ation and Testing Procedures for a description of field and laboratory procedur additional data (If any). rting Information for explanation of symbols and abbreviations.				evel Observations ater not encountered				Drill Rig CME 75	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Type Automatic	e
										Driller EDI	
Not	tes					ement Method V Stem Auger				Logged by MBG	
										Boring Starte	ed
				Borii		nment Method ackfilled with auger o	cuttings upc	'n		Boring Comp 08-18-2023	leted



										Atterberg	
yer	Бо-	Location: See Exploration Plan	Ē.	/el	ype	s st	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	ц.
Model Layer	Graphic Log	Latitude: 35.5656° Longitude: -105.9625°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ater ent (r (Jn		Percent Fines
bde	apł		epth	ater	dme	Res	NEI	N W	Dry	LL-PL-PI	Per
Σ	ບັ		ă	ЯQ	S	LL I	S	ပိ	- ×		
		Depth (Ft.) Elevation.: 6662 (Ft.) 0.4 TOPSOIL , approximately 5" thick 6661.58									
			_		Ť						
		SILTY SAND (SM) , trace gravel, fine grained, brown, loose to medium dense									
			_								
			-		Y	2-2-6 N=8		4.5		NP	50
			_			N=8					
			F								
			5		$\overline{\mathbf{X}}$	18-21		7.4	100		
			-		$ \longrightarrow $						
			-	-							
2			_		$\backslash /$	10-12-14					
					\wedge	N=26		7.0			
			_								
			10-			11-9-13					
			_		Х	N=22		6.9			
			_		()						
			_								
			-								
		15.0 6647	15-								
		SANDY SILT (ML) , trace gravel, brown, very stiff			\mathbf{X}	15-14-11 N=25		7.3			
					$\langle \cdot \rangle$	N=23					
			-								
			_	-							
			_								
			20								
			20–		\bigvee	16-9-10		C 1			60
			-		\wedge	N=19		6.1		NP	00
3			-								
		23.0 6639	_								
		LEAN CLAY WITH SAND (CL), brown, medium stiff to hard, moderate cementation									
			_								
			25-	-		16-14-19					
			_		Х	N=33		6.1			
			_		()						
			_								
		29.0 6633 CLAYEY SAND (SC), fine to coarse grained, brown,	-								
		dense	30–								
			_		Х	11-14-16 N=30		3.2			
		31.5 6630.5 Boring Terminated at 31.5 Feet		<u> </u>		11-30					
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es			evel Observations				Drill Rig	
		additional data (If any). rting Information for explanation of symbols and abbreviations.		Grou	Indwa	ater not encountered				D-50	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
										Automatic	
										Driller Terracon	
Not	es			Adv	ance	ment Method				Logged by	
						Stem Auger				SS	
										Boring Starte	ed
				Aba	ndon	ment Method				08-25-2023	
				Borir	ng ba	ckfilled with auger c	uttings upo	n		Boring Comp 08-25-2023	leted
				com	pletio						



L	-	Location: See Exploration Plan			0			2		Atterberg	
Model Layer	Graphic Log	Latitude: 35.5656° Longitude: -105.9624°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ent es
del I	aphi		pth	ater L serva	mple	ield ⁻ Resu	VELL	Wat	ory L ight	LL-PL-PI	Percent Fines
δ	Ğ		De	ХŐ	Sa	Ē,	SV	Ō	We		-
	1. <u></u> .	Depth (Ft.) Elevation.: 6661 (Ft.) 0.3 \sqrt{TOPSOIL}, approximately 4" thick \circle660.67									
		LEAN CLAY WITH SAND (CL), brown, very stiff	-								
3			_								
			_	_	\times	9-14		2.5	90		
		4.0 6657	_		$ \frown $						
		SILTY SAND (SM), trace gravel, fine to coarse grained, brown, medium dense	5								
2			_	_	X	6-12-16 N=28		4.0		NP	35
		7.0 6654	_								
		POORLY GRADED SAND WITH SILT (SP-SM) , fine to coarse grained, brown to gray, medium dense to	_		\mathbf{k}	16-18-20					
		dense			M	N=38		2.2			
			10								
4			10-		\mathbb{N}	10-13-15		2.3			
			_		$ \rangle$	N=28					
			_								
		14.0 6647	-	1							
		SILTY SAND (SM), trace gravel, fine to coarse	_								
		grained, brown to gray, medium dense	15-			6-7-10		4 5			
			-	-	M	N=17		4.5			
		·	-								
			-								
			-								
			20-	-							
			-	-	X	6-9-9 N=18		1.7			
2			_	-	ľ						
			_								
			_								
			25-								
					\mathbb{N}	7-8-10 N=18		4.8		NP	40
			_		\mathbb{R}	N=10					
		•29.0 6632									
		LEAN CLAY WITH SAND (CL), fine to coarse grained, brown, very stiff									
3			30–		\mathbb{N}	7-9-11		8.8			
		31.5 6629.5			\square	N=20		0.0			
		Boring Terminated at 31.5 Feet									
	Evel	ention and Testing Drassdurgs for a description of field and laborat									
use	d and a	ration and Testing Procedures for a description of field and laboratory procedure additional data (If any).	25			vel Observations ter not encountered				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
		. , 2,								Automatic	
										Driller Terracon	
Not	es			Adv	ance	nent Method Stem Auger				Logged by SS	
				7 11	SHOW	Stem Auger				Boring Start	he
										08-25-2023	
				Bori	ng ba	ment Method ckfilled with auger c	uttings upo	n		Boring Comp 08-25-2023	leted
				com	pletio						



										Atterberg	
Model Layer	Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	با با
l La	Graphic Log	Latitude: 35.5655° Longitude: -105.9622°	Depth (Ft.)	r Le [,] vatio	ole T	Field Test Results	SWELL (%)	atei ent	/ Un ht (Percent Fines
ode	rap		eptl	/atel oser	amp	Field	ME	ont€	Dry eigl	LL-PL-PI	Pel
Σ	U		Δ	≤ö	ŝ	_	S	Ŭ	×		
	1. <u>1</u>	Depth (Ft.) Elevation.: 6660 (Ft.) 0.3 \sigma TOPSOIL approximately 4" thick \sigma 659.67									
		LEAN CLAY WITH SAND (CL), brown, very stiff,									
		moderate cementation	_								
			_		$\wedge 1$	10-11-12					
		4.0 6656			$ \mathcal{N} $	10-11-12 N=23					
3		SANDY SILT (ML), trace gravel, brown, very stiff									
			5 —		\bigtriangledown	7-11		4.2	97	NP	56
			_		$ \frown $				-		
			_								
			_		\bigvee	3-7-10		6.8			
		9.0 6651	_		\square	N=17		0.0			
		SILTY SAND (SM), trace gravel, fine to coarse grained, light brown to brown, loose to medium dense	10								
		grained, light brown to brown, loose to mediam dense	10–		\mathbb{N}	5-8-12		5.4			
			_		\square	N=20		5.4			
l l			_								
ŀ			_								
ŀ			_								
l l			15-								
ŀ			12-		\mathbb{N}	6-6-9		2.3		NP	20
4			-		\square	N=15		2.5		INF	20
			-								
l i			_								
			_								
			20-								
l l			20-		\mathbb{N}	6-12-17		2.9			
l l			_		\square	N=29		2.5			
			_								
ŀ			_								
		24.0 6636	_								
		LEAN CLAY WITH SAND (CL), light brown, very stiff	25-								
			25		M	13-12-14		3.5			
					\land	N=26		515			
			_								
3			_								
			_								
			30-								
			50		\mathbb{N}	11-11-14		8.5			
		31.5 6628.5 Boring Terminated at 31.5 Feet			\land	N=25					
		Boring Terminated at 31.5 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure additional data (If any).	es			vel Observations				Drill Rig	
		rting Information for explanation of symbols and abbreviations.		Grou	undwa	iter not encountered				D-50	
Eleva	ation I	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Note	es					ment Method Stem Auger				Logged by SS	
				7 11	SHOW	Stem Auger					a d
										Boring Start 08-25-2023	ea
						ment Method ckfilled with auger c	uttings upo	n		Boring Comp	leted
				comp	pletio	n.	upo			08-25-2023	



										Atterberg	
/er	bo.	Location: See Exploration Plan		ns e	/be	s t	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	
Model Layer	Graphic Log	Latitude: 35.5400° Longitude: -106.0543°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	ter (t (p		Percent Fines
de	hqe		pth	iter serv:	hple	eld Resi	/ELI	Wa	yn	LL-PL-PI	Fin
δ	Gra		Del	Va Obs	Sar	ΕĽ	SV	Co	Хе		
		Depth (Ft.) Elevation.: 6303 (Ft.)		Ū				_	-		
		0.3 TOPSOIL , approximately 3" thick6302.75			\mathbb{N}	4-4-4 N=8		7.3			
		CLAYEY SAND (SC), fine to coarse grained, brown, loose to very dense, moderate cementation	-		\square	N=8		7.5			
		loose to very dense, moderate cementation	_								
			_		\bigtriangledown	4-10		7.3	90		
2					$ \bigtriangleup $	4 10		/.5	50		
			-								
			5 –								
			_		X	10-15-15 N=30		6.9			
		6.5 6296.5 6296.5 6296.5		<u> </u>	$\langle \cdot \rangle$	N=50					
		Boring Terminated at 6.5 Feet									
	Evelow	ation and Testing Presedures for a description of field and laborate a second second	26								
used	d and a	ation and Testing Procedures for a description of field and laboratory procedure ditional data (If any).	es	Grou	er Le	evel Observations ater not encountered	4			Drill Rig D-50	
See	Suppor	rting Information for explanation of symbols and abbreviations.		5,00							
Elev	ation R	eference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	е
										Driller Terracon	
Not	es			Adv	ance	ment Method				Logged by	
				7" H	ollow	Stem Auger				MBG	
										Boring Starto 08-23-2023	ed
										08-23-2023	
				Borii	na ba	ment Method ockfilled with auger of	uttings upo	n		Boring Comp	leted
				com	pletic	on.	5 P -			08-23-2023	



		Location: See Exploration Plan							-	Atterberg	
Model Layer	Graphic Log)	Water Level Observations	Sample Type	est ts	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	۰. ۲
	hic	Latitude: 35.5418° Longitude: -106.0524°	Depth (Ft.)	er Le rvati	ple 7	Field Test Results	L.	/ate ent	ht U		Percent Fines
lode	irap		ept	Vate bsei	am	Fiel	ME	ont ≤	/eig	LL-PL-PI	Ре
Σ		Depth (Ft.) Elevation.: 6313 (Ft.)		>0	S		05	0	<		
		Depth (Ft.) Elevation.: 6313 (Ft.) 0.3 \TOPSOIL, approximately 3" thick \6312.75				4-5-5					
2		CLAYEY SAND (SC) , fine to coarse grained, brown,	_	-	X	N=10		5.5			
		2.0 medium dense 6311	_				-				
		SANDY LEAN CLAY (CL), trace gravel, light brown, very stiff to hard, moderate cementation				0.0.22					
			_		X	8-9-23 N=32		10.2		39-24-15	61
3			-				-				
			5 –	-							
	/////	6.0 6307	_		\wedge	9-27		7.8	95		
		Boring Terminated at 6 Feet									
See	Explor	dition and Testing Procedures for a description of field and laboratory procedure ditional data (If any).	es	Wat	ter Lo	evel Observations				Drill Rig	
						ater not encountere				D-50	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
-107	action P									Automatic	
										Driller	
										Terracon	
Not	es					ment Method / Stem Auger				Logged by MBG	
				, 11		Auger					
										Boring Starte 08-23-2023	ed
						nment Method				Boring Comp	leted
				Borii	ng ba pletio	ackfilled with auger on.	cuttings upo	'n		08-23-2023	iereu



				-							
er	бо	Location: See Exploration Plan		<u> </u>	be	ţ	(%)	(%	cf)	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5418° Longitude: -106.0477°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
de	hde		oth	ter l	nple	eld Resi	/ELI	War	ight	LL-PL-PI	Fin
δ	Gra		Del	Va Obs	Sar	ΞĽ	SV	Co	Хе		
		Depth (Ft.) Elevation.: 6326 (Ft.)									
		0.3 TOPSOIL , approximately 3" thick			\mathbb{N}	4-5-6		6.6			
		CLAYEY SAND (SC) , fine to coarse grained, brown, medium dense, weak cementation	_		\square	N=11		0.0			
		medium dense, weak cementation	-								
			_		\bigtriangledown	7-16		6.6	95		
2					$ \bigtriangleup$, 10					
			_								
			5 -			16 10 10					
		6.5 6319.5	_	-	X	16-10-10 N=20		6.6		NP	
		6.5 6319.5 Boring Terminated at 6.5 Feet			\vdash						
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es	Wat	ter L	evel Observations				Drill Rig	لـــــــ
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).				ater not encountered				D-50	
		rting Information for explanation of symbols and abbreviations.								Hammer Typ	A
ciev		eference: Elevations were provided by Google Earth Pro (2023).								Automatic	5
										Driller	
										Terracon	
Not	es			Adv	ance	ment Method				Logged by	
				7" H	ION	/ Stem Auger				MBG	
										Boring Starte 08-23-2023	ed
				Aba	ndor	nment Method					
				Bori	ng ba	ackfilled with auger on.	cuttings upo	n		Boring Comp 08-23-2023	reced
				com	pieut						



Depth (Ft.) Elevation.: 6336 (Ft.) Depth (Ft.) Ft.) Depth (Ft.)										Attorborg	
absolution and Testing Disponent Net and absolution of field and laboratory procedures explored and of the state of th	/er	Location: See Exploration Plan		us e	/pe	st	(%	(%	t cf)	Atterberg Limits	
absolution and Testing Disponent Net and absolution of field and laboratory procedures explored and of the state of th	lic L	Latitude: 35.5418° Longitude: -106.0427°	(F	Lev	e T)	Te	ь) Г	nter nt	t (p		cent
absolution and Testing Disponent Net and absolution of field and laboratory procedures explored and of the state of th	aph		pth	ater serv	mp	ield Res	VEL	nte Nu	2ry eigh	LL-PL-PI	Fer
a. Just Soll, approximately 4" thick A333.62 3-4-7 6-3 Image: Constraints of the constraint of the constraints of the constraints of the constraints of the constraints of the constraint of the constraint of the constraints of the constraint of the constraint of the constraint of the constraints of the constraint of the consthe constraint of the constraint of the constr	ຮັບັ		De	ÿð	Sa	Ш.	S	ပိ	1 ×		
CLAST Service (SEC), in the coase grained, brown, organized and service (Second Second Sec											
bit with damage 6.3 6.3 6.4 7.4 NP 6.5 6.0 6.3 6.3 6.3 9.2 0.4 1.4			_		X	3-4-7		6.9			
SANEY SILT (ML), trace day, trace gravel, brown to begin, medium stiff to hard, moderate comentation NP 63 Boring Terminated at 6 Feet 6330 5 0 0.50/3* 8.3 92 Boring Terminated at 6 Feet 6330 5 0 0.50/3* 8.3 92 0 Boring Terminated at 6 Feet 6330 5 0 0.50/3* 8.3 92 0 Boring Terminated at 6 Feet 6330 6 0 0 0 0 0 0 0 Boring Terminated at 6 Feet 6330 6 0 <t< td=""><td>2</td><td>madium dance</td><td></td><td></td><td>\square</td><td>N-11</td><td></td><td></td><td></td><td></td><td></td></t<>	2	madium dance			\square	N-11					
Boring Terminated at 6 Feet N=7 1/4 NP P Boring Terminated at 6 Feet 633 92 Image: Completed in the second secon	T	SANDY SILT (ML), trace clay, trace gravel, brown to	-								
b 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		beige, medium stiff to hard, moderate cementation	-	-	\mathbb{N}	2-3-4		7.4		NP	65
Boring Terminated at 6 Feet Size Boring Terminated at 6 Feet Size Boring Terminated at 6 Feet Size S	3		-	-	\square	N=7					
Boring Terminated at 6 Feet Size Boring Terminated at 6 Feet Size Boring Terminated at 6 Feet Size S			5-								
Boring Terminated at 6 Feet Image: Complete Section 1 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Terminated at 6 Feet Image: Complete Section 2 Bering Complete Section 2 Image: Complete Section 2 Bering Complete Section 2 Image: Complete Section 2 Outs Avancement Nethod Section 2 Bering Complete Section 2 Image: Complete Section 2 Bering Complete Section 2 Image: Complete Section 2 Avancement Nethod Section 2 Bering Complete Section 2 Bering Complete Section 2 Bering Complete Section 2 Bering Complete Section 2 Bering Complete Section 2 Bering Complete Section 2 Bering Complete Section 2		6.0 6330			\times	8-50/3"		8.3	92		
eee Supporting Information for explanation of symbols and abbreviations. Hammer Type Automatic levation Reference: Elevations were provided by Google Earth Pro (2023). Hammer Type Automatic otes Advancement Method Network and Started 08-23-2023 otes Advancement Method Boring backfilled with auger cuttings upon			-								
eee Supporting Information for explanation of symbols and abbreviations. Hammer Type Automatic levation Reference: Elevations were provided by Google Earth Pro (2023). Hammer Type Automatic otes Advancement Method Network and Started 08-23-2023 otes Advancement Method Boring backfilled with auger cuttings upon											
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otes Advancement Method 7" Hollow Stem Auger 4 Abandonment Method Boring backfilled with auger cuttings upon Boring completed										Hammer Typ	e
otes Advancement Method 7" Hollow Stem Auger MEG Abandonment Method Boring backfilled with auger cuttings upon Boring completed Boring backfilled with auger cuttings upon											
otes Advancement Method 7" Hollow Stem Auger Auger Boring Started 08-23-2023 Abandonment Method Boring backfilled with auger cuttings upon Boring backfilled with auger cuttings upon											
7" Hollow Stem Auger MBG Boring Started 08-23-2023 Abandonment Method Boring backfilled with auger cuttings upon Boring Completed on an 2020 Pleted	Notes			Adv	anco	ment Method					
Abandonment Method Boring backfilled with auger cuttings upon Boring Completed	notes			7" H	ollow	/ Stem Auger				MBG	
Abandonment Method Boring backfilled with auger cuttings upon Boring Completed										Boring Starte	ed
Boring backfilled with auger cuttings upon										08-23-2023	
completion. 08-23-2023				Aba Boriu	ndor	ackfilled with auger of	cuttings upo	on		Boring Comp	leted
				com	pletic	on.	upu			08-23-2023	



Location: See Exploration Plan (i) iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii		Atterberg Limits	Percent Fines
Depth (Ft.) Elevation.: 6354 (Ft.) 1/2 0.3 (TOPSOIL), approximately 4" thick CLAYEY SAND (SC), fine grained, brown, medium dense -		LL-PL-PI	erce ine
Depth (Ft.) Elevation.: 6354 (Ft.) 1/2 0.3 (TOPSOIL), approximately 4" thick CLAYEY SAND (SC), fine grained, brown, medium dense -		LL-PL-PI	
Depth (Ft.) Elevation.: 6354 (Ft.) No.3 TOPSOIL, approximately 4" thick 6353.67 CLAYEY SAND (SC), fine grained, brown, medium dense -			ٽ آه
1/2:30.3 TOPSOIL, approximately 4" thick 6353.67 CLAYEY SAND (SC), fine grained, brown, medium dense -			
2 dense	1		
	81	-	
4.0 6350	+	-	
SANDY LEAN CLAY (CL), beige, medium stiff			
	_	28-17-11	62
6.5 6347.5	<u></u>	20 17 11	02
Boring Terminated at 6.5 Feet			
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).		Drill Rig	
used and additional data (If any). Groundwater not encountered See Supporting Information for explanation of symbols and abbreviations.		D-50	
Elevation Reference: Elevations were provided by Google Earth Pro (2023).		Hammer Typ	e
		Automatic	
		Driller Terracon	
Notes Advancement Method		Logged by	
		MBG	
7" Hollow Stem Auger		Boring Charl	he
7" Hollow Stem Auger		Boring Starte 08-23-2023	cu
7" Hollow Stem Auger Abandonment Method Boring backfilled with auger cuttings upon		Boring Starte 08-23-2023 Boring Comp	



				1							1
ē	бс	Location: See Exploration Plan		<u> </u>	be	y.	(%)	(%	G	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5418° Longitude: -106.0316°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
e –	phi		ţ	er L erva	ple	est -		Vat	ght L		Fine
1od	gra		дер	Nat bse	San	Fie	N N N		Vei D	LL-PL-PI	<u>م</u> _
2		Depth (Et)		>0	0		0,		>		
		Depth (Ft.) Elevation.: 6367 (Ft.) 0.3 \TOPSOIL, approximately 3" thick \circle{6366.75}			\mathbf{k}	4.6.0					
2		CLAYEY SAND (SC), fine to coarse grained, brown,	_		IX.	4-6-9 N=15		7.4			
_		2.0 medium dense 6365									
		SILTY SAND (SM), trace clay and gravel, fine to coarse grained, brown to beige, loose to very dense	-								
		coarse grained, brown to beige, loose to very dense	-	-	\mathbb{N}	6-35-29		5.9			
					\square	N=64		5.9			
4											
			5 -								
		6.0 6361	_		\wedge	5-9		5.5	91	NP	41
		Boring Terminated at 6 Feet									
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es	Wet	tor I					Drill Rim	
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).				evel Observations ater not encountere				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations.									
Elev	ation R	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller Terracon	
Not	es					ment Method / Stem Auger				Logged by MBG	
				, ,,	.5100	Auger					
										Boring Start 08-23-2023	ed
				Aba	ndo	nment Method					
				Bori	ng ba	ckfilled with auger	cuttings upo	n		Boring Comp 08-23-2023	leted
				com	pletio	on.				50 25-2025	



		Location: See Exploration Plan								Atterberg	
Model Layer	Graphic Log		Ft.)	Water Level Observations	Sample Type	est ts	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ي بر
e Ľ	ohic	Latitude: 35.5418° Longitude: -106.0252°	Depth (Ft.)	er Le rvati	ple -	Field Test Results	IL	/ate ent	y U jht (Percent Fines
1od	Grap		Dept	Nate Dbse	Sam	Fie	SWE	Cont	Veig	LL-PL-PI	A L
		Depth (Ft.) Elevation.: 6385 (Ft.)		-0	0,		0,		>		
		0.3 \TOPSOIL, approximately 3" thick /6384.75			\bigtriangledown	3-8-8		6.6			
		<u>SILTY SAND (SM)</u> , trace gravel, fine to coarse grained, brown, loose to medium dense, moderate	-		\bigtriangleup	N=16		0.0			
		cementation	_								
2			-	-	\times	3-5		6.1	76	NP	36
2			_								
			5 –								
			5		\mathbb{N}	2-7-9 N=16		6.1			
		6.5 6378.5	_		\square	N=16					
		Boring Terminated at 6.5 Feet									
See	Explor d and a	ation and Testing Procedures for a description of field and laboratory procedure ditional data (If any).	es			evel Observations				Drill Rig	
		rting Information for explanation of symbols and abbreviations.		Grou	indw	ater not encounterec	1			D-50	
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	е
										Driller	
										Terracon	
Not	es			Adv	ance	ement Method V Stem Auger				Logged by SS	
				, п	onow	Stem Auger					
										Boring Starte 08-24-2023	ea
				Aba	ndor	nment Method ackfilled with auger o	uttings upo	'n		Boring Comp	leted
				com	pletic	on.	actings upo			08-24-2023	



										Atterberg	1
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	s	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	t y
La	l oir	Latitude: 35.5418° Longitude: -106.0193°	Depth (Ft.)	. Le∖ vatic	e I	Field Test Results	(%) SWELL	ater int (L C		Percent Fines
de	aph		pth	ater sen	du	ield Res	VEL	nte 8	Z	LL-PL-PI	Per
Σ	ษั		De	Š₫	Sa	LL.	Ś	ပိ	×		
		Depth (Ft.) Elevation.: 6402 (Ft.)									
		0.3 TOPSOIL, approximately 4" thick 6401.67			\mathbb{N}	5-6-7 N=13		5.6			
		SANDY LEAN CLAY (CL) , trace gravel, brown, stiff to hard	_		\square	N=13	-				
		hara	-	-							
			_		ΚZ	8-19-19					
3					X	8-19-19 N=38		7.2		35-24-11	64
			-		\vdash						
			5 -	_			-				
		6.0 6396	-		\times	8-16		7.8	83		
		Boring Terminated at 6 Feet	-								
				1							
See	Explor	ation and Testing Procedures for a description of field and laboratory procedure	es	Wat	ter I	evel Observations				Drill Rig	
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).		Grou	undw	ater not encountere	d			D-50	
		rting Information for explanation of symbols and abbreviations.								Hawren -	
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e.
										Driller Terracon	
Not	e s			۸dv	ance	ment Method					
						/ Stem Auger				Logged by SS	
										Boring Start	ed
										08-24-2023	
						ment Method	outtings			Boring Comp	leted
				com	ng ba pletio	ackfilled with auger on.	cuttings upo	41		08-24-2023	



Ľ	Ď	Location: See Exploration Plan	-	0	ø		0	(9	f)	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5539° Longitude: -106.0010°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	LL-PL-PI	Percent Fines
2		Depth (Ft.) Elevation.: 6500 (Ft.) 0.3 \TOPSOIL, approximately 3" thick _6499.75 CLAYEY SAND (SC), fine to coarse grained, brown, 2.0 medium dense 6498			X	8-11-9 N=20					
3		SANDY LEAN CLAY (CL), beige to white, very stiff 4.0 6496	_		\times	20		9.1	93	30-17-13	58
		<u>CLAYEY SAND (SC)</u> , with silt, fine to coarse grained, brown to beige, loose	5-		\times	7-5-4 N=9		8.4			
			-			3-2-4		8.2			
			_ 10—			N=6		0.2			
2		12.0 6488 SILTY SAND (SM), trace clay, fine to coarse grained,	-		Х	4-3-4 N=7		7.6			
		brown to beige, medium dense	_		X	4-5-6 N=11		8.7			
			15- -		X	5-6-9 N=15		7.1			
		17.0 6483 SANDY LEAN CLAY (CL), brown to beige, hard, moderate cementation	_								
			_ 20–		\searrow	17-27-50/1"		8.3		29-16-13	69
			_								
			- 25-								
3			_		X	6-8-50/1"		7.6			
		29.0 6471 SILTY SAND (SM), fine to coarse grained, beige to	_								
		brown, medium dense to dense	30 -		X	27-15-10 N=25		6.0			
			_								
used	d and a	ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any). rting Information for explanation of symbols and abbreviations.	es —			vel Observations	I			Drill Rig CME 75	
		Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic Driller	e
Not	es					ment Method Stem Auger				EDI Logged by MBG	
				Borii		ment Method ckfilled with auger c n.	uttings upo	n		Boring Starte 08-16-2023 Boring Comp 08-16-2023	



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5539° Longitude: -106.0010°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	(%) SWELL	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		Depth (Ft.) Elevation.: 6500 (Ft.) SILTY SAND (SM) , fine to coarse grained, beige to brown, medium dense to dense (continued)	35		\times	9-13-19 N=32		5.9			
3		41 6 6450 6	- - 40		\mathbf{X}	10-14-17 N=31		5.9			
		41.5 6458.5 Boring Terminated at 41.5 Feet									
See	Suppo	ration and Testing Procedures for a description of field and laboratory procedur additional data (If any). rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).	es	Wat Grou	er Lo	evel Observations ater not encountered	1			Drill Rig CME 75 Hammer Type Automatic	e
Not	es			Adv 8" H	ance ollow	ment Method Stem Auger				Driller EDI Logged by MBG	
				Aba Borir com	na ba	nment Method ackfilled with auger o on.	cuttings upo	'n		Boring Starte 08-16-2023 Boring Comp 08-16-2023	



		Location: See Exploration Plan						_	_	Atterberg	
Model Layer	Graphic Log		Ft.)	Water Level Observations	Sample Type	est ts	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ي ۲
el Ľ	ohic	Latitude: 35.5535° Longitude: -106.0016°	Depth (Ft.)	er Le ervat	ple.	Field Test Results	ELL	Vate	ght (Percent Fines
Мод	Graj		Dep	Wate	Sam	Fie	SWI	Cont <	Veig	LL-PL-PI	A H
-		Depth (Ft.) Elevation.: 6499 (Ft.)		- 0				Ŭ	1		
		0.3 TOPSOIL , approximately 3" thick6498.75			\mathbb{N}	6-7-4		7.3			
2		CLAYEY SAND (SC), fine to coarse grained, brown to 2.0 beige, medium dense 6497	_			N=11					
		SANDY LEAN CLAY (CL), brown to beige, very stiff to	_								
		hard	-		Х	11-18-22 N=40		8.9		30-22-8	62
3			-								
Ŭ			5 —			8-12		0.0	00		
			_		\bigtriangleup	0-12		9.6	90		
			_								
		CLAYEY SAND (SC), fine to coarse grained, brown to beige, medium dense	_			8-8-5					
2			_		\land	N=13		8.8			
		10.0 6489	10								
		SILTY SAND (SM), trace clay, trace gravel, fine to coarse grained, brown to beige, medium dense to very	10-		\mathbb{N}	6-6-8		8.6			
		dense	_		\land	N=14					
			_								
			_		X	6-6-7 N=13		7.5			
			_		\sim						
			15-			11.6.5					
			_		X	11-6-5 N=11		5.2			
			_								
			_								
			_								
			20								
			20-		\bigvee	19-14-16		3.2		NP	22
			_		\square	N=30		512			
4			_								
			-								
			_								
			25-			17 10 15					
			_		Х	17-18-15 N=33		6.7			
			_								
			_								
			20								
			30–		\bigvee	17-19-50/2"		6.4			
					\square	1, 15 50,2					
			_								
			_								
See	Explor and a	ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).	es			evel Observations ater not encountered	ł			Drill Rig CME 75	
See	Suppo	rting Information for explanation of symbols and abbreviations.		2.00						Hammer Typ	e e
ciev	auon F	Reference: Elevations were provided by Google Earth Pro (2023).								Automatic	
										Driller EDI	
Not	es			Adv	ance	ment Method				Logged by	
				8" H	ollow	Stem Auger				MBG	
										Boring Start 08-16-2023	ed
						ment Method	uttin an			Boring Comp	leted
				com	ng ba pletic	ckfilled with auger con.	uttings upo	41		08-16-2023	



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5535° Longitude: -106.0016° Depth (Ft.) Elevation.: 6499 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	(%) SWELL	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
4		SILTY SAND (SM) , trace clay, trace gravel, fine to coarse grained, brown to beige, medium dense to very dense (continued)	35- - -		X	10-11-17 N=28		6.7			
4		41.5 6457.5	- - 40 -		\times	19-24-19 N=43		5.6			
		Boring Terminated at 41.5 Feet									
See	Suppo	ation and Testing Procedures for a description of field and laboratory procedur idditional data (If any). rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).	es			evel Observations ater not encountered	1			Drill Rig CME 75 Hammer Type Automatic Driller EDI	e
Not	es			Adv : 8" H	ance ollow	e ment Method V Stem Auger				Logged by MBG	
				Aba Borir com	na ba	nment Method ackfilled with auger o on.	cuttings upc	n		Boring Starte 08-16-2023 Boring Comp 08-16-2023	



						I		<u> </u>		Atterberg	
yer	60-	Location: See Exploration Plan	t.)	Water Level Observations	ype	s st	(%	Water Content (%)	Dry Unit Weight (pcf)	Limits	L L
Model Layer	Graphic Log	Latitude: 35.5556° Longitude: -105.9948°	Depth (Ft.)	. Lev vatio	Sample Type	Field Test Results	SWELL (%)	ater int (r C L		Percent Fines
ode	rapł		epth	ater	amp	-ielo Res	WEI	Wa	Dry eigh	LL-PL-PI	Per
Σ			ă	≥g	Ň	Ľ.	Ŵ	Ŭ	Š		
		Depth (Ft.) Elevation.: 6521 (Ft.) 0.3 \TOPSOIL, approximately 3" thick \circle{6520.75}									
		SANDY LEAN CLAY (CL), brown, very stiff to hard	-								
			_								
						3-5-14					
3			_		X	N=19		10.2			
			_								
			5 –			20 50/41		6.6	102	21 12 10	C 4
			_	-	\bigtriangleup	30-50/4"		6.6	103	31-12-19	64
		7.0 6514	_	-							
		<u>CLAYEY SAND (SC)</u> , fine to coarse grained, tan to red brown, medium dense			\mathbf{k}	5-7-6					
			_		XI	N=13		5.8			
			_								
2			10-	-	\mathbf{k}	3-6-7					
2			_		XI	N=13		6.6			
			_		ĺÌ						
			_								
		14.0 6507	_								
		SANDY LEAN CLAY (CL), brown, stiff	_								
			15-		\mathbf{k}	6-7-8					
			-		XI	N=15		6.7			
			_								
			_								
1			-								
			20-		\mathbf{k}	13-6-5					
			-		XI	N=11		5.0			
			_								
		24.0 6497	_	1							
		SILTY SAND (SM), trace gravel, fine to coarse	_								
		grained, brown, dense	25-		\mathbf{k}	26-16-15					
			_		XI	N=31		4.2		NP	38
4			_		ÍÌ						
			_								
		29.0 6492									
		SANDY LEAN CLAY (CL), brown to red brown, very	_								
3		stiff, moderate cementation	30–		k /	26-12-14					
		31.5 6489.5	_	-	$ \mathcal{N} $	N=26		7.9			
		Boring Terminated at 31.5 Feet									
Sec	Explor	ation and Testing Procedures for a description of field and laboratory procedure	25					L		B. (11 - 1	
use	d and a	dditional data (If any)				vel Observations				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
LICV	acion R	and a solution of the provided by Google Lattin Fro (2023).								Automatic	-
										Driller Terracon	
Not				Adv		ment Method					
NOL						Stem Auger				Logged by SS	
										Boring Start	ed
				Aba	ndor	ment Method				08-24-2023	
				Borir	ng ba	ckfilled with auger c	uttings upo	n		Boring Comp 08-24-2023	leted
				com	pletio						



	Leasting Coo Evployation Plan							_		Atterberg	
Model Layer	Location: See Exploration Plan U Latitude: 35.5590° Longitude: -105.9836° C D		ft.)	Water Level Observations	Sample Type	est ts	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	۳. T
el Ľ	<u>u</u> Latitude: 35.5590° Longitude: -105.9836°		Depth (Ft.)	er Le ervati	ple_	Field Test Results		Vate	y U jht (Percent Fines
Мод			Dept	Wate Obse	Sam	Fie Re	SWE	Cont	Neig	LL-PL-PI	L A L
-	Depth (Ft.)	Elevation.: 6553 (Ft.)	1	-0	.,				_		
	0.2 \TOPSOIL, approximately 2" thick	/6552.83			\bigvee	7-20-33					
	CLAYEY SAND (SC) , with silt, fine grain beige, very dense, moderate cementatio	nea, brown to n	_	1		N=53					
4			_								
			-								
			_								
	5.0 SANDY SILT (ML), brown, very stiff to	6548 hard	5 —		<u> </u>	50/4"		6.3	91		
			-			50/4		0.5	51		
			_	-							
			_		\bigvee	7-10-19		5.5		NP	63
			_		$\land \downarrow$	N=29					
			10-								
			_		XI	10-14-13 N=27		7.8			
			_								
			_								
	14.0	6539	_								
3	SANDY LEAN CLAY (CL), brown, very s	stiff	15-								
			15-		\bigvee	10-12-15		5.7			
			_		\land	N=27					
			_								
			_								
			_								
			20–			8-9-11					
			-		\wedge	N=20		7.5		26-16-10	58
			-								
			_								
	24.0 SILTY SAND (SM), fine to coarse grain	6529 ed. tan to	_								
	beige, medium dense to dense		25-			10.0.0					
			_		Х	10-8-8 N=16		6.9			
ŀ			_								
4			_								
			_								
			30–								
					\times	6-24-22 N=46		7.4			
•	Boring Terminated at 31.5 Feet	6521.5			$ \rightarrow$	11-10					
	_										
See E	ا xploration and Testing Procedures for a description of fie and additional data (If any).	ld and laboratory procedure	es	Wat	erle	vel Observations	I		1	Drill Rig	1
	and additional data (If any). Supporting Information for explanation of symbols and ab					ter not encountered				D-50	
	tion Reference: Elevations were provided by Google Earth									Hammer Typ Automatic	е
										Driller	
										Terracon	
Note	S					nent Method Stem Auger				Logged by SS	
										Boring Starte	ed
				Aba	ndon	nent Method				08-24-2023	
				Borir		kfilled with auger of	cuttings upo	on		Boring Comp 08-24-2023	leted



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	t.)	Water Level Observations	Sample Type	st	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	t.
el La	hic	Latitude: 35.5627° Longitude: -105.9714°	Depth (Ft.)	r Le [,] vatio	ole T	Field Test Results	SWELL (%)	atei ent	/ Un ht (Percent Fines
ode	rap		eptl	/ate bser	amp	Rel	WE	onte	Dry (eig	LL-PL-PI	Pel
Σ	0	Dopth (Et)	Δ	≤ō	S		S	Ŭ	3		
	·	Depth (Ft.) Elevation.: 6580 (Ft.) 0.3 \TOPSOIL, approximately 3" thick \^6579.75									
		LEAN CLAY WITH SAND (CL), brown, soft to medium	-	-							
		stiff	_								
			_		Ж	5-3-3 N=6		4.6			
			-								
1			5 —								
			_		\ge	6-3		4.5	89		
			_								
			_		\mathbf{X}	3-2-1 N=3		3.3			
		9.0 6571 SILTY SAND (SM), trace gravel, fine to coarse	_		$\langle \cdot \rangle$	N=5					
		grained, brown, loose to medium dense	10-								
			10			3-5-7 N=12		2.1		NP	23
			_		$\langle \gamma \rangle$	N=12					
			-								
			-								
			_								
			15-								
			15		М	3-4-5		5.4			
2			-		$ \land $	N=9		5.1			
_			_								
			_								
		19.0 6561	_								
		SILTY CLAYEY SAND (SC-SM), trace gravel, fine to coarse grained, brown, loose	20								
		coarse granied, brown, loose	20–		\bigvee	3-2-2		3.9			
			_		\wedge	N=4		5.9			
			_								
			_								
		24.0 6556									
		SILTY SAND (SM), fine to coarse grained, brown, medium dense to very dense									
		medium dense to very dense	25-		$\backslash /$	6-4-6					
			-		\wedge	N=10		2.7			
			_								
4			_								
			_								
			30–			8-24-18					
		31.5 6548.5	_		М	N=42		1.6			
		Boring Terminated at 31.5 Feet									
Sac	Evolar	ation and Testing Procedures for a description of field and laboratory are advert	26								
		ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any).	:5			vel Observations ter not encountered				Drill Rig D-50	
		rting Information for explanation of symbols and abbreviations.									•
Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Terracon	
Not	es			Adv: 7" H	ance ollow	ment Method Stem Auger				Logged by SS	
						2				Boring Starte	ed
										08-25-2023	
				Borir	ng ba	ment Method ckfilled with auger c	uttings upo	n		Boring Comp	leted
				com	pletio	n.				08-25-2023	



L		Location: See Exploration Plan							\sim	Atterberg	
Model Layer	Graphic Log	Latitude: 35.5653° Longitude: -105.9632°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ent
del I	aphio		pth (ater L serva	mple	eld ⁻ Zesu	VELL	Wat Iten	ory L ight	LL-PL-PI	Percent Fines
β	G		De	e No SdO	Sai	ΞŤ	SV	Cor	۸e		
	<u>` </u>	Depth (Ft.) Elevation.: 6654 (Ft.) 0.3 _TOPSOIL, approximately 4" thick 6653.67									
		CLAYEY SAND (SC), fine grained, brown, medium	-								
		2.0 dense, moderate cementation 6652 SILTY SAND (SM) , fine grained, brown, medium									
		dense	_		X	8-13		3.7	101		
			_								
			5-								
			_		Х	7-9-10 N=19		1.3			
		7.0 6647 SILTY CLAYEY SAND (SC-SM), fine grained, brown,									
		medium dense	_		\bigvee	2-6-7		3.4			
		9.0 6645 SANDY SILT (ML), brown, medium dense				N=13		5.4			
		SANDY SILI (ML), blown, medium dense	10-								
			_		X	6-9-13 N=22		3.8			
2			_								
_			_								
			_								
			15-								
			_		X	6-8-13 N=21		5.8		NP	61
			_								
			_								
			_								
			20-								
			_		X	8-13-23 N=36		4.0			
			_								
			_								
		24.0 6630									
		CLAYEY SAND (SC), fine grained, brown, medium dense to dense	25-								
			_		X	29-14-16 N=30		11.3			
			_								
4			_								
			_								
			30–								
		31.5 6622.5	-		Х	10-12-11 N=23		4.3			
٦	<u> </u>	Boring Terminated at 31.5 Feet									
See	Explor and a	ation and Testing Procedures for a description of field and laboratory procedure additional data (If any).	es			evel Observations ater not encountered				Drill Rig D-50	
See	Suppo	rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).		2.00						Hammer Typ	e
v	acion r									Automatic	
										Driller Terracon	
Not	es					ment Method Stem Auger				Logged by SS	
				7	onow	Stelli Augel				Boring Starte	ed
				Aba	ndor	ment Method				08-25-2023	
				Borir		ckfilled with auger c	uttings upo	'n		Boring Comp 08-25-2023	leted

		BOF	RING LO	G NO	D. I	B-C)1			F	Page 1 of	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES	Clean Energy der, CO	/ Develo	pme	nt LL	_C	
S	ITE:	NM 599 and NM 14 Santa Fe, NM				Jour						
MODEL LAYER	GRAPHIC LOG	DEPTH	face Elev.: 6455 (Ft ELEVATION (Ft	<i>`</i>	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), brown, medium stiff to very st	iff	-			1-5-7 N=12		5.2		NP	57
				-	-	X	11-17		7.6	86		
				5 -	-		5-6-8 N=14		4.9			
1				-	-		1-2-4 N=6		4.7			
				10-	-		4-9-17 N=26		7.6			
				-	-		14-16-13 N=29		4.8			
		16.5	6438	15- 3.5			7-9-11 N=20		7.7			
4.	Advancement Method: See Exploration and Te description of field and and additional data (If an additional data (If a addititional				es for a setures attion of	used	Hammer Type: Au Notes:	ıtomatic				
	oring ba	onment Method: ing backfilled with auger cuttings upon completion. WATER LEVEL OBSERVATIONS		field			Boring Started: 07-25	5-2022	Borin		leted: 07.25.20	122
							Drill Rig: CME 55	J-2U22		er: Terrac	leted: 07-25-20	522
Exł	nibit /	A-50	6805 Academy P Albuquerq		NE	-	Project No.: 6622509	93				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		В	ORING LC)G N	0.	B-()2			ſ	Page 1 of [·]	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES	Clean Energy	v Develo	pme		-	
s	ITE:	NM 599 and NM 14 Santa Fe, NM				sour	der, CO					
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5520° Longitude: -106.0081° DEPTH	Surface Elev.: 6478 (F ELEVATION (F		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		SILT WITH SAND (ML), brown, soft to very	stiff	-		X	1-2-4 N=6		5.1			
					_	\square	6-3-4 N=7		5.8			
				5 -	-	X	3-3		8.7	86	NP	75
1						\square	1-2-2 N=4		8.0			
I				10-		\square	2-4-4 N=8		7.0			
					_	\square	4-10-11 N=21		9.7			
		16.5	646	15- 01.5	_	\square	5-9-12 N=21		7.0			
	Boring Terminated at 16.5 Feet Boring Terminated at 16.5 Feet Stratification lines are approximate. In-situ, the transition may be gradual. Advancement Method:				tes for a	a sused	Hammer Type: Au Notes:	tomatic				
Aba	5° Hollow Stem Auger description of field and additional data (ff and additional data (ff See Supporting Inform symbols and abbrevia oring backfilled with auger cuttings upon completion.		description of held and lat and additional data (If any See Supporting Informatio symbols and abbreviations Elevations measured in th). <mark>n for explan</mark> 3.								
E							Boring Started: 07-25	5-2022	Borin	ig Comr	leted: 07-25-20)22
	N	Not encountered		DC			Drill Rig: CME 55	v_	_	er: Terra		
ExI	nibit	A-51	6805 Academy Albuquer	Pkwy West		-	Project No.: 6622509	03				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66226033 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		B	ORING LC)G No). I	B-()3			F	Page 1 of [·]	1
F	PROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES	Clean Energy der, CO	[,] Develo	pme	nt LL	_C	
5	SITE:	NM 599 and NM 14 Santa Fe, NM				Jour						
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5502° Longitude: -106.0139° DEPTH	Surface Elev.: 6441 (F ELEVATION (F		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), brown, very stiff to hard		-		X	4-11-16 N=27		9.4			
8/22				-	-	X	10-19-27 N=46		8.8			
		SILTY SAND (SM), light brown, loose	0	⁴³⁶ 5 -		X	8-6		7.6	93		
3 ATEMPLAT				-	_	\square	2-4-5 N=9		6.7			
		10.0 SANDY SILT (ML), light brown, very stiff to h moderate cementation		⁴³¹ 10-	-	\square	3-7-8 N=15		7.0		NP	61
GPJ TERR					-	\square	11-15-16 N=31		11.2			
EJO SOLA.		16.5	642	24.5 -	_	\square	16-25-19 N=44		6.8			
NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCH	SILTY SAND (SM), light brown, loose 10.0 10.0 SANDY SILT (ML), light brown, very stiff to hard, none to moderate comentation 10.1 10.5 Boring Terminated at 16.5 Feet It.5 Statification lines are approximate. In-situ, the transition may be gradual. Xivancement Method: 4.5' Hollow Stem Auger Additional data Ibandonment Method: Borng accutings upon completion. WATER LEVEL OBSERVATIONS Not encountered Stribit A-52				edures	used	Hammer Type: Au Notes:	tomatic				
	Boring b	Inment Method: Ig backfilled with auger cuttings upon completion. WATER LEVEL OBSERVATIONS		e field			Boring Started: 07-21	-2022	Borin	ng Comp	leted: 07-21-20)22
BOKIN	N	Not encountered		DC	_		Drill Rig: CME 55			er: Terra		
SH Ex	hibit	A-52	6805 Academy Albuquen		NE		Project No.: 6622509	3				

		BC	ORING LO	G	NC). I	B-0)4			F	Page 1 of	1
P	PROJ	ECT: Rancho Viejo Solar Facility		CLI	EN	Г: А	ES	Clean Energy der, CO	v Develo	pme		-	
S	SITE:	NM 599 and NM 14 Santa Fe, NM				D	oui	uer, CO					
ÈR	Ŋ	LOCATION See Exploration Plan			<u>,</u>	EL	ЪЕ	⊢		(%	cl)	ATTERBERG LIMITS	VES
MODEL LAYER	GRAPHIC LOG	Latitude: 35.5502° Longitude: -106.0047°			DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)		PERCENT FINES
MODE	GRAP		Surface Elev.: 6474 (F	t.)	DEP.	VATE	AMPI	FIELD	SWE	CONT	DRY	LL-PL-PI	ERCE
_		DEPTH SANDY SILT (ML), brown, medium stiff to ver	ELEVATION (F	t.)		>0	S			-			ā
			y our		_		\mathbb{N}	2-2-7 N=9		4.1			
					_			13-19		6.9	99	NP	75
					_								
1					5			3-3-4		6.8			
		•			_		\square	N=7					
					-		\square	1-2-3 N=5		6.0			
					- 10-								
I		11.5	646		-		X	4-9-11 N=20		6.6			
4		SILTY SAND (SM), brown, medium dense			_			7 40 40					
-		SANDY SILT (ML), brown, stiff		0.5	_		Д	7-10-12 N=22		6.0			
1					15—			6-4-7		40.0			
_		16.5 Boring Terminated at 16.5 Feet	645	7.5	_		\square	N=11		10.0			
	St	atification lines are approximate. In-situ, the transition may be gra	idual.					Hammer Type: Au	Itomatic				
	5" Hollow Stem Auger description of field and		e Exploration and Testir scription of field and lab d additional data (If any)	oratory	cedure / proce	s for a edures	used	Notes:					
Aba	ndopme	See	e Supporting Information	n for ex	xplana	tion of							
		ing backfilled with auger cuttings upon completion.											
	• •	WATER LEVEL OBSERVATIONS						Boring Started: 07-25	5-2022	Borin	ıg Comp	leted: 07-25-20)22
	No							Drill Rig: CME 55		Drille	er: Terra	con	
Еx	hibit	A-53	6805 Academy I Albuquero	Pkwy V que, NN	Vest N M	١E		Project No.: 6622509	03				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66226093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		BORING LOG NO. B-05 Page 1 of 1											
Р	ROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES (Clean Energy	/ Develc	pme		-		
s	ITE:	NM 599 and NM 14 Santa Fe, NM			B	oui	der, CO						
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5470° Longitude: -106.0163° DEPTH	Surface Elev.: 6421 (Ft ELEVATION (Ft		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	(%) SWELL	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES	
		SANDY SILT (ML), light brown, stiff to hard, strong cementation	none to	-		\mathbf{X}	4-11		10.7	82			
				-	-	X	16-36-39 N=75		6.9				
				5-		X	20-25-30 N=55		6.5		NP	61	
3				-	-	X	13-16-16 N=32		7.4				
				10-	-	X	4-6-6 N=12		5.9				
				-	_	X	5-8-9 N=17		3.8				
		16.5	6404	15- 1	-	X	4-6-10 N=16		3.0				
Interventional and the second seco				pratory proce	es for a set for a set of the set	used	Hammer Type: Au Notes:	ıtomatic					
		onment Method: ng backfilled with auger cuttings upon completion. Elevations measured in			ation of								
		WATER LEVEL OBSERVATIONS Groundwater not encountered					Boring Started: 07-21	1-2022	Borin	g Comp	leted: 07-21-20)22	
	Gr	oundwater not encountered					Drill Rig: CME 55		Drille	er: Terrao	con		
Exł	nibit /	A-54	6805 Academy P Albuquerq	⁰kwy West N ∣ue, NM	NE		Project No.: 6622509	93		_			

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		I	BORING LO)G	NC). I	B-0	6			I	Page 1 of [·]	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		CL	IEN1	Г: А	ES	Clean Energy	[,] Develo	pme		-	
s	ITE:	NM 599 and NM 14 Santa Fe, NM				В	oul	der, CO					
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5476° Longitude: -106.0099° DEPTH	Surface Elev.: 6438 (f ELEVATION (f		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), brown, stiff to hard			_		X	2-6-9 N=15		6.9			
					-		\square	9-11-11 N=22		6.2			
					5 — _		X	17-26		6.8	98		
3					_ _ _		X	13-16-20 N=36		9.6			
					10 -		\mid	10-13-16 N=29		6.5		NP	59
					_		X	4-8-10 N=18		8.5			
		16.5	64;	21.5	15— _		X	7-7-6 N=13		7.1			
	Str	Boring Terminated at 16.5 Feet	e gradual.					Hammer Type: Au	tomatic				
	ancement Method: See Exploration and		See Exploration and Testi	ing Pro	ocedure	s for a	l	Notes:					
Aba	ndonme	nt Method: ckfilled with auger cuttings upon completion.	description of field and lat and additional data (If any - See Supporting Informatic symbols and abbreviation Elevations measured in th	/). on for e Is.	explana								
F								Boring Started: 07-25	-2022	Borin	ig Comp	leted: 07-25-20)22
	Gr	Groundwater not encountered						Drill Rig: CME 55		Drille	er: Terrao	con	
ExI	nibit /	A-55	6805 Academy Albuque	Pkwy rque, N	West N NM	IE		Project No.: 6622509	3				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		E	BORING LC	G NG). E	3-0)7			F	Page 1 of ^r	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES (Clean Energy der, CO	v Develo	pme		-	
S	ITE:	NM 599 and NM 14 Santa Fe, NM			D	oun						
ER	g	LOCATION See Exploration Plan			NS	Ш	L		(%)	f)	ATTERBERG LIMITS	ES
MODEL LAYER	GRAPHIC LOG	Latitude: 35.5429° Longitude: -106.0302°	Surface Elev.: 6361 (F		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	LL-PL-PI	PERCENT FINES
		DEPTH <u>SANDY SILT (ML)</u> , brown with black and w stiff to hard, none to strong cementation	ELEVATION (F hite streaks,	<u>t.)</u>	-	X	2-4-5 N=9		6.6		 	
				-	-		10-11		9.3	84	NP	70
				5-	-		10.05.50					
				-	-	Д	12-35-50 N=85		7.8			
3				-	-	X	21-37-50 N=87		8.4			
				10-	-	\times	16-18-19 N=37		11.2			
				-	-	$\mathbf{\vee}$	13-14-15		11.0			
				- 15-	-		N=29 6-10-13					
		16.5 Boring Terminated at 16.5 Feet	634	4.5 -		Д	N=23		7.7			
	Str	atification lines are approximate. In-situ, the transition may be	• gradual.				Hammer Type: Au	tomatic				
۸ مار ۱۰		nt Method:	-				•					
4. Abai	5" Hollo	w Stem Auger	See Exploration and Testin description of field and lab and additional data (If any) See Supporting Informatio symbols and abbreviations). n for explana		used	Notes:					
B	oring ba	ckfilled with auger cuttings upon completion.	Elevations measured in the	e field								
-	Gr	WATER LEVEL OBSERVATIONS oundwater not encountered	Torr				Boring Started: 07-21	-2022	Borin	g Comp	leted: 07-21-20	022
			6805 Academy				Drill Rig: CME 55		Drille	er: Terrad	on	
Exł	hibit /	A-56	Albuquer		·		Project No.: 6622509	13				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

			BORING L	00	g No). I	3-0)8			I	Page 1 of	1
	Ρ	ROJ	ECT: Rancho Viejo Solar Facility	C		T: A	ES	Clean Energy der, CO	v Develo	pme		-	
	S	ITE:	NM 599 and NM 14 Santa Fe, NM			D	our						
	MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5417° Longitude: -106.0235° Surface Elev.: 6389 DEPTH ELEVATION		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits	PERCENT FINES
			SANDY SILT (ML), tan, stiff to hard		-		X	4-7-5 N=12		9.1			
	3				-	-	X	3-5-10 N=15		8.9			
.GDT 9/2			6.0 SILTY SAND (SM), light brown, medium dense	6383	5-	-	X	36-12		7.1	96	NP	59
ATEMPLATE	4				-	-	X	4-5-5 N=10		5.6			
RACON_DAT			11.0 SANDY SILT (ML), brown, stiff to hard, none to moderate cementation	6378	10-	-	\mid	5-6-10 N=16		8.6			
LA.GPJ TER	3				-	-	X	2-6-6 N=12		10.7	-		
IEJO SOI			16.5 6	372.5	15-		X	18-30-53 N=83		9.3			
ALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCH	Adva 4	SILTY SAND (SM), light brown, medium dense 11.0 SANDY SILT (ML), brown, stiff to hard, none to moderate cementation 16.5 Boring Terminated at 16.5 Feet Stratification lines are approximate. In-situ, the transition may be gradual. Stratification lines are approximate. In-situ, the transition may be gradual. ranoement Method: See Exploration and distribution						Hammer Type: Au Notes:	tomatic				
OG IS NOT VAL	Abai Bi	ndonme oring ba	and additional data (if a See Supporting Informa symbols and abbreviation ckfilled with auger cuttings upon completion.	ition fo		ition of							
SING LC		Gr	WATER LEVEL OBSERVATIONS oundwater not encountered					Boring Started: 07-21	-2022	Borir	ng Comp	leted: 07-21-20)22
HIS BOF		nihit	A-57	ıy Pk				Drill Rig: CME 55		Drille	er: Terra	con	
t E	:xr	i JIQII	A-57 Albuqu	ierque	e, NM			Project No.: 6622509	3				

		B	ORING LO	G N	0	. E	3-0)9			F	Page 1 of [·]	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		CLIE	NT:	A	ES (Clean Energy der, CO	v Develo	pme		-	
s	ITE:	NM 599 and NM 14 Santa Fe, NM				D	oui	uer, CO					
ER	DG	LOCATION See Exploration Plan	1		ū	NS	ЪЕ	Г	0	(%	tf)	ATTERBERG LIMITS	ES
MODEL LAYER	GRAPHIC LOG	Latitude: 35.5430° Longitude: -106.0101°		(† DEPTH (Ft.)		OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)		PERCENT FINES
ODEI	RAPI		Surface Elev.: 6414 (F	DEPT		SER\	MPL	LIELD RESI	SWEI	WA.	DRY VEIGF	LL-PL-PI	RCEN
Σ	U	DEPTH	ELEVATION (F	´	141	OB	SA	ш.		Ö	5		Ы
		SANDY SILT (ML) , light brown and white, tar hard, none to strong cementation	n, stiff to		_		X	3-5-13 N=18		9.5			
					_		X	23-24		5.8	97		
				5	_		\mathbf{X}	14-21-36		7.9			
					_			N=57					
3					_		\times	50/4" ,		6.4			
				10)			35-15-11 N=26		6.4			
					_								
					_		Х	3-5-10 N=15		6.5			
		16.5	639	15 7.5	; 		X	10-10-9 N=19		6.6			
		Boring Terminated at 16.5 Feet											
	Str	atification lines are approximate. In-situ, the transition may be g	radual.	·				Hammer Type: Au	tomatic				
		w Stem Auger de	ee Exploration and Testir escription of field and lab nd additional data (If any)	oratory pr	ures ocedi	for a ures	used	Notes:					
		ment Method: See Suppo		n for expla	anatic	on of							
		ckfilled with auger cuttings upon completion.	levations measured in the										
F		WATER LEVEL OBSERVATIONS						Boring Started: 07-21	-2022	Borin	ig Comp	leted: 07-21-20)22
	Gr	oundwater not encountered						Drill Rig: CME 55		Drille	er: Terrac	con	
ExI	nibit /	4-58	6805 Academy I Albuquero		st NE			Project No.: 6622509	3				

			E	ORING LO	G	NC). E	3-1	0			F	Page 1 of	1
Р	R	oJ	ECT: Rancho Viejo Solar Facility		CLI	EN٦	Г: А В	ES (Clean Energy der, CO	[,] Develo	pme		-	
S	IT	E:	NM 599 and NM 14 Santa Fe, NM				5	oun						
MODEL LAYER		GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5444° Longitude: -106.0113° DEPTH	Surface Elev.: 6419 (Fi ELEVATION (Fi	´	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
1			1.0 SANDY SILT (ML), brown, stiff SILTY SAND (SM), light brown, loose to me		118	l		X	4-3-9 N=12		6.1			
2									10-14		6.8	90		
			6.0 <u>SILT (ML)</u> , brown, stiff to hard, none to mod		113	5 — _		X	2-3-1 N=4		7.4			
			cementation					X	12-28-34 N=62		7.3			
3						10 -		X	10-15-12 N=27		16.5		NP	86
								X	5-9-6 N=15		9.5			
			16.5 Boring Terminated at 16.5 Feet	640		15		X	5-14-37 N=51		7.3			
		Str	atification lines are approximate. In-situ, the transition may be	gradual.					Hammer Type: Au	tomatic				
			nt Method: w Stem Auger	See Exploration and Testin	ng Proc	cedure	s for a		Notes:					
Aba	ndc	nme	nt Method: ckfilled with auger cuttings upon completion.	description of field and labo and additional data (If any) See Supporting Information symbols and abbreviations Elevations measured in the	n for ex									
		C	WATER LEVEL OBSERVATIONS oundwater not encountered						Boring Started: 07-21	-2022	Borin	g Comp	leted: 07-21-20)22
		GI	ounawater not encountered						Drill Rig: CME 55		Drille	er: Terrac	con	
Exł	nik	oit /	4-59	6805 Academy F Albuquero			IE		Project No.: 6622509	3				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		E	BORING LC)G	6 NC). I	3- 1	1			F	Page 1 of	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		С	LIEN ⁻	Г: А В	ES	Clean Energy der, CO	v Develo	pme	nt LL	_C	
s	ITE:	NM 599 and NM 14 Santa Fe, NM				D	oui	uer, CO					
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5492° Longitude: -106.0020° DEPTH	Surface Elev.: 6478 (f ELEVATION (f	· ·	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		SANDY SILT (ML), brown, soft to very stiff			_		X	2-2-3 N=5		4.7			
					_		\mid	2-3-3 N=6		5.2		NP	61
					5		X	4-15		7.3	90		
1					_			1-2-2 N=4		7.7			
					10- -		\square	9-11-12 N=23		7.5			
					_		X	6-7-8 N=15		7.3			
		16.5	64	61.5	- 15 -			7-11-15 N=26		8.4			
	anceme	Boring Terminated at 16.5 Feet	gradual. See Exploration and Testi	ing Pl	rocedure	s for a		Hammer Type: Au Notes:	tomatic				
4. Aba	.5" Hollo	nt Method: ckfilled with auger cuttings upon completion.	See Exploration and Testi description of field and lat and additional data (If any See Supporting Informatic symbols and abbreviation	borato /). on for	ory proce	edures	used						
			Elevations measured in th	ne fie	ld				- 0000				200
	Gr	oundwater not encountered	lerr	2	С		ר	Boring Started: 07-25 Drill Rig: CME 55	-2022	_	ig Comp er: Terrac	leted: 07-25-20	JZZ
Exł	nibit /	4-60	6805 Academy Albuque	Pkw	y West N	_	-	Project No.: 6622509	3				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		В	ORING LO	G NO). E	3-1	2			I	Page 1 of	1
F	PROJ	ECT: Rancho Viejo Solar Facility		CLIEN	T: A	ES (Clean Energy der, CO	/ Develo	pme		-	
ę	SITE:	NM 599 and NM 14 Santa Fe, NM			D	oun	uer, CO					
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5489° Longitude: -106.0051°	Surface Elev.: 6462 (Ft		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits LL-PL-PI	PERCENT FINES
		DEPTH SANDY SILT (ML), brown, very soft to hard, moderate cementation	ELEVATION (Fi	<u>t.)</u>		\mathbf{X}	<u>-1</u> 1-2-1	/	7.5			
				-	-		N=3 1-2		7.7	84		
T 9/28/22	Stu vanceme 1.5" Holka andonme Boring ba Gr hibit			5-	-		2-2-2		8.1		NP	58
LATE.GD				-	-		N=4		0.1			50
1 TATEMP				-		А	5-14-50 N=64		6.7			
KACON D/				10-		X	11-10-8 N=18		4.1			
GPJ TERF				-	-	\times	3-5-7 N=12		4.9			
		16.5	644	5.5 15- -	-	\times	4-7-8 N=15		6.0			
NCHO VIE		Boring Terminated at 16.5 Feet										
225093 RA												
NELL 662												
LOG-NO V												
) SMART												
ORT. GEO												
NAL REP												
OM ORIG												
RATED FR	Str	atification lines are approximate. In-situ, the transition may be	gradual.				Hammer Type: Au	utomatic				
Adv Adv	/anceme	nt Method:	See Exploration and Testin	a Procedure	s for a		Notes:					
	4.5" Hollo	w Stem Auger	See Exploration and Testin description of field and labo and additional data (If any). See Supporting Informatior	oratory proc	edures	used						
	andonme Boring ba	nt Method: ckfilled with auger cuttings upon completion.	symbols and abbreviations Elevations measured in the	•								
	Gi	WATER LEVEL OBSERVATIONS oundwater not encountered					Boring Started: 07-25	5-2022	Borir	ng Comp	leted: 07-25-20)22
S BOR	0						Drill Rig: CME 55		Drille	er: Terra	con	
≝ Ex	hibit .	A-61	Pkwy West I que, NM	NE		Project No.: 6622509	93					

			BORING L	.OG	i NC). E	3- 1	3			F	Page 1 of	1
	Ρ	ROJ	ECT: Rancho Viejo Solar Facility	CI	LIEN'	T: A	ES	Clean Energy der, CO	v Develo	opme	nt LL	.C	
	S	ITE:	NM 599 and NM 14 Santa Fe, NM			D	our						
	MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5441° Longitude: -106.0017° Surface Elev.: 647 DEPTH ELEVATIO		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits	PERCENT FINES
ľ			SANDY SILT (ML), brown, very soft to very stiff		_	-	\times	4-6-9 N=15		4.9			
N					_	-		7-8-8 N=16		5.1			
DT 9/28/22	1				5-	-		1-1		5.5			
MPLATE.G			8.0 SILTY SAND (SM), trace gravel, brown, loose to medium	6467	-	-	$\mathbf{\nabla}$	2-3-5		4.5			
DATATE			dense		- 10-	-	\sim	N=8 8-6-12					
RACON	2				_	-	\triangle	N=18		3.1		NP	23
A.GPJ TEF					_	-	X	10-10-12 N=22		2.0			
EJO SOLA			16.5 Boring Terminated at 16.5 Feet	6458.5	15- -	-	\boxtimes	8-9-15 N=24		3.5			
THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT	4. Aba	anceme 5" Hollo ndonme	atification lines are approximate. In-situ, the transition may be gradual. nt Method: ws Stem Auger mt Method: ws Stem Auger mt Method: see Supporting Inform symbols and abbrevial ckfilled with auger cuttings upon completion.	l laborate any). ation for	ory proc	edures	used	Hammer Type: Au Notes:	ıtomatic				
IG LUG I	_		Elevations measured i WATER LEVEL OBSERVATIONS	_				Boring Started: 07-25	5-2022	Borir	ng Comp	leted: 07-25-20)22
BORIN		Gr		0			٦	Drill Rig: CME 55			er: Terra		
THIS	Exł	nibit /	A-62 6805 Acade Albuc	my Pkw <u>;</u> juerque,		NE		Project No.: 6622509					

		E	BORING LC)G	G NC). I	3-1	4			F	Page 1 of	1
Р	ROJ	ECT: Rancho Viejo Solar Facility		С	LIEN	Г: А	ES	Clean Energy	Develo	pme		-	
s	ITE:	NM 599 and NM 14 Santa Fe, NM		-		B	oul	der, CO					
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5385° Longitude: -106.0131° DEPTH	Surface Elev.: 6421 (F ELEVATION (F		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	Atterberg Limits	PERCENT FINES
		SANDY SILT (ML), brown, stiff to very stiff			_	-		3-7-10 N=17		3.4			
1					_	-	X	10-22		4.8	93	NP	51
		6.0 SILTY SAND (SM), brown, medium dense t		6415	5 — _	-	\square	4-5-8 N=13		5.0			
					_	-	\square	4-5-6 N=11		3.9			
4					10 -	-	\mid	11-13-19 N=32		1.4			
					_	-	\square	10-16-15 N=31		1.4			
		16.5 Boring Terminated at 16.5 Feet	64(04.5	15- -	-	X	12-13-14 N=27		1.7			
		bonng renninated at 10.5 reet											
	Str	atification lines are approximate. In-situ, the transition may be	gradual.					Hammer Type: Au	Itomatic				
		ment Method: See Exploration an ollow Stem Auger description of field and additional data			rocedure ory proce	s for a edures	used	Notes:					
		and additional data (ff See Supporting Inform symbols and abbreviat ackfilled with auger cuttings upon completion. Elevations measured i				tion of							
		WATER LEVEL OBSERVATIONS						Boring Started: 07-25	-2022	Borin	ig Comp	leted: 07-25-20)22
	Gr	oundwater not encountered	llerra	2	C			Drill Rig: CME 55		-	er: Terra		
ExI	nibit /	4-63	6805 Academy Albuquer	Pkw	y West N		-	Project No.: 6622509	3				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66226033 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		В	ORING LO	G	NC). I	3-1	5			F	Page 1 of	1
P	ROJ	ECT: Rancho Viejo Solar Facility		CL	IEN	Г: А	ES	Clean Energy	Develo	pme		-	
	нг.					В	oul	der, CO		-			
3	ITE:	NM 599 and NM 14 Santa Fe, NM											
ER	g	LOCATION See Exploration Plan			~	NS NS	ЫП	L	0	(%	tf)	ATTERBERG LIMITS	ES
MODEL LAYER	GRAPHIC LOG	Latitude: 35.5403° Longitude: -106.0080°			DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)		PERCENT FINES
AODEI	GRAPI		Surface Elev.: 6435 (Fi	t.)	DEPT	/ATEF 3SER	AMPL	FIELD RES	SWEI	WA	DRY VEIGI	LL-PL-PI	RCEN
2		DEPTH <u>SANDY SILT (ML)</u> , brown, medium stiff to v	ELEVATION (F	t.)		≤ö	/S			0			Щ
		SANDT SILT (ML) , brown, medium sum to v			_		\square	2-5-11 N=16		4.7			
1					_		S	5-8-9					
Ľ.					_		\square	N=17		6.5			
		6.0	64	129	5 —			3-4		4.0	94	NP	41
		SILTY SAND, light brown, medium dense		120	_								
					_		\square	3-4-9		2.9			
					_		\square	N=13					
					10		\mathbf{X}	7-14-15 N=29		1.5			
2					_			11 20					
					_		\mathbb{N}	7-13-14 N=27		1.3			
					_ 15—								
		16.5	641		_		Х	9-13-12 N=25		2.8			
		Boring Terminated at 16.5 Feet											
⊢	Sti	tification lines are approximate. In-situ, the transition may be	gradual.					Hammer Type: Au	tomatic				
Adv	anceme	at Method						Notes:					
		ement Method: See Exploration a Hollow Stem Auger description of fiel and additional da			ry proce	s for a dures	used	110165.					
Aha	ndonme	and additional data (See Supporting Infor ment Method: symbols and abbrev			explana	tion of							
		ckfilled with auger cuttings upon completion.	symbols and abbreviations Elevations measured in the		I								
E	-	WATER LEVEL OBSERVATIONS					_	Boring Started: 07-21	-2022	Borin	g Comp	leted: 07-21-20)22
	Gı	oundwater not encountered	lierra				٦	Drill Rig: CME 55		Drille	er: Terra	con	
ExI	nibit .	A-64	6805 Academy F Albuquero			IE		Project No.: 6622509	3				

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66226033 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

		BORING LC	G	NO	. B	S-S	ub			F	Page 1 of	1
P	ROJ	ECT: Rancho Viejo Solar Facility	C	LIEN	Г: А Е	ES (Bould	Clean Energy der, CO	Develo	opme	nt LL	.C	
S	ITE:	NM 599 and NM 14 Santa Fe, NM										
MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 35.5534° Longitude: -106.0031° Surface Elev.: 6493 DEPTH ELEVATION	• •	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	SWELL (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		SANDY SILT (ML), light brown, stiff	491.5	5 –	-		6-12	-0.39 @ 500psf	11.9	78		
2		3.0 SANDY SILT (ML), tan, stiff to hard, none to moderate cementation	6490)	-	X	2-4-8 N=12		9.8		NP	59
3			486.5	5 -	-		14-32-23 N=55		7.3			
		SILTY SAND (SM), light brown, medium dense		-			3-7-6 N=13		6.4			
				10-	-		3-4-7 N=11		4.5		NP	33
				-	-		5-6-8 N=14		3.3			
2				15-	-		4-7-10 N=17		2.4			
				-	-		6-10-22 N=32		1.3			
				20-	-		8-17-20 N=37		1.9			
	· · · · · · · · · · · · · · · · · · ·	<u>SILT (ML)</u> , trace gravel, light brown, very stiff to hard, none to moderate cementation	<u>471.5</u>	2 -			6-10-11 N=21					
3				25-			10-20-49 N=69		8.2		NP	71
				-	-		11-13-19 N=32		7.6			
			461.5	30-			6-16-27 N=43		8.8			
;;		Boring Terminated at 31.5 Feet										
	Str	catification lines are approximate. In-situ, the transition may be gradual.		I	I	<u> </u>	Hammer Type: Au	Itomatic	I			L
		ent Method: See Exploration and Tee description of field and I and additional data (If an	abora ıy).	atory proce	edures	used	Notes:					
		ent Method: ackfilled with auger cuttings upon completion. Elevations measured in	ns.		tion of	f						
		WATER LEVEL OBSERVATIONS roundwater not encountered	2				Boring Started: 07-21	-2022			leted: 07-21-20	322
2	nibit /	A-65 6805 Academ Albuqu	y Pk	wy West N	JE NE		Drill Rig: CME 55 Project No.: 6622509	03	Drille	er: Terrac	con	



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e l	۶ و	Location: See Exploration Plan	\sim	<u>s</u>	ЭС		(0)	(%	_f	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5417° Longitude: -106.0178°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	2	Percent Fines
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Μo	0 U		Dep	Wa Obs	Sar	ĒĽ	SN	Cor	Ne Ne	LL-PL-PI	^{LL}
	3 L · . 3	Depth (Ft.) Elevation.: 6408 (Ft.)									
		0.3 \TOPSOIL, approximately 3" thick	_								
		weak cementation									
		2.5 6405.5	_	1							
		SANDY LEAN CLAY (CL) , fine grained, light brown to tan, moderate cementation	-								
			-								
			5 –	-							
		6.5 6401.5	_	-							
		CLAYEY SAND (SC), fine to coarse grained, brown	_								
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		10.0	_								
		10.0 6398 Boring Terminated at 10 Feet	10-								
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See	Explore	a <mark>tion and Testing Procedures</mark> for a description of field and laboratory procedure dditional data (If any).	es			evel Observations				Drill Rig JD Backhoe	
		dditional data (if any). rting Information for explanation of symbols and abbreviations.		Grou	Indw	ater not encountered				JD Backhoe	
		eference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
										Driller	
										Driller Terracon	
Not	es					ment Method				Logged by	
				36" '	wide	Bucket				ED	
										Boring Starte 10-06-2024	ed
						ment Method with soil cuttings u		tion		Boring Comp	
				Dack	met	a man son cuttings u	son comple			10-06-2024	



Status Latitude: 14.5442* Longinde: -166. D081* Lun_unit Explore Status S											Attorborg	
Depth (Pr) Elevation: 644 (Pr) B - MOSPOLL approximately 3° thick 644.32 LIATEY SAND (SC). Trice grained, light brown to 644.32 B - Santay LEAN (LAY (CL). fine crained, light brown to 644.32 B - Santay LEAN (LAY (CL). fine crained, light brown to 644.32 B - Santay LEAN (LAY (CL). fine crained, light brown to 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (CL). fine to coarse grained, brown 644.32 B - Santay LEAN (LAY (LAY (LAY (LAY (LAY (LAY (LAY (LAY)er	60	Location: See Exploration Plan	$\overline{\cdot}$	ls e	be	ti	(%	(%	£	Atterberg Limits	
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Sampu Learn CLAY (CL), fine grained, light brown to 8.0 CLAYEY SAND (SC), fine to coarse grained, brown 10 Boring Terminated at 10 Feet 10 Boring Terminated at 10 Feet 10 Boring Terminated at 10 Feet 10 Set Exclusion and Teletra Provide at 10 Feet 10 Boring Terminated at 10 Feet 10 10 Boring Terminated at 10 Feet 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 11 12 12 13 14 15 15 16 17 18 19 10 10 10 10 10			brown, weak cementation	_								
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See Supporting Information for explanation of symbols and abbreviations. Figure 1 Figure 2 Figure	See	Explor d and a	ation and Testing Procedures for a description of field and laboratory procedure additional data (If any).	es							Drill Rig JD Backhoe	
Notes Advancement Method 36" Wide Bucket Logged by ED Boring Started 10-06-2024 Boring Started 10-06-2024	See	Suppor	rting Information for explanation of symbols and abbreviations.		e, ou							•
Notes Advancement Method 36" Wide Bucket Logged by ED Boring Started 10-06-2024 Boring Started 10-06-2024	Elev	ation R	Reference: Elevations were provided by Google Earth Pro (2023).								Automatic	e
Notes Advancement Method 36" Wide Bucket ED ED Boring Started 10-06-2024 Abandonment Method Device Completed												
36" Wide Bucket ED Boring Started 10-06-2024 Abandonment Method Begins Commisted	Not	.05			Adve	anco	ment Method					
Abandonment Method	100	.3									ED	
Abandonment Method											Boring Starte	ed
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Backfilled with soil cuttings upon completion. Backfilled with soil cuttings upon completion. Boring Completed 10-06-2024					Back	filled	with soil cuttings u	oon comple	tion.		boring comp	leteu



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5404° Longitude: -106.0098° Depth (Ft.) Elevation.: 6434 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		1.0 2/TOPSOIL, approximately 2" thick /6433.83 1.0 SILTY SAND (SM), trace gravel, fine grained, brown /6433 SANDY LEAN CLAY (CL), fine grained, light brown to tan, moderate cementation	-	-							
		7.0 6427 CLAYEY SAND (SC), fine to coarse grained, brown	5 - - -	-							
		10.0 6424 Boring Terminated at 10 Feet	10-								
See	Suppo	ration and Testing Procedures for a description of field and laboratory procedures and abbreviations.	es	Wat	rer Lundwy	eter not encountered				Drill Rig JD Backhoe	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic Driller Terracon	e
Not	es			Adv : 36" 1	ance Wide	ment Method Bucket				Logged by ED Boring Starte 10-06-2024	ed
						ment Method					

Abandonment Method Backfilled with soil cuttings upon completion.

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Boring Completed 10-06-2024



										Attorborg	
/er	Бo	Location: See Exploration Plan		el Is	/pe	, st	(%	(%	cf)	Atterberg Limits	<u>ц</u>
Model Layer	Graphic Log	Latitude: 35.5433° Longitude: -106.0023°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
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Σ	0		ð	×₀	Š	LL L	S	ပိ	Š		
	i li i	Depth (Ft.) Elevation.: 6465 (Ft.) 0.2 TOPSOIL , approximately 2" thick /6464.83									
		SILTY SAND (SM), trace gravel, fine grained, brown 6463.5	_								
	min	SANDY SILT (ML), trace clay, fine grained, light brown to tan, moderate cementation	_								
		brown to tan, moderate cementation									
			_								
			5 –								
		6.5 6458.5	-								
		SANDY LEAN CLAY (CL), fine grained, light brown	-	-							
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		10.0 6455	10-								
		Boring Terminated at 10 Feet	10-								
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See	Explor	l ation and Testing Procedures for a description of field and laboratory procedures	25	1 47						Daill Dia	
		ation and Testing Procedures for a description of field and laboratory procedure additional data (If any).				evel Observations ater not encountered				Drill Rig JD Backhoe	
		rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
210	actor r									Automatic	
										Driller Terracon	
Not	·ec			۵dv	ance	ement Method					
NO	.3			36"	Wide	Bucket				Logged by ED	
										Boring Starte	ed
				Aba	ndor	nment Method					
				Back	filled	d with soil cuttings up	oon comple	tion.		Boring Comp 10-06-2024	leted



Model Layer		Location: See Exploration Plan Latitude: 35.5468° Longitude: -106.0041° Depth (Ft.) Elevation.: 6462 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		0.3 \TOPSOIL, approximately 3" thick \6461.75 CLAYEY SAND (SC), trace gravel, fine to coarse grained, brown, weak cementation 4.0 6458 SANDY LEAN CLAY (CL), fine grained, light brown to	-								
		tan, moderate cementation 8.0 6454 SILTY SAND (SM), trace gravel, fine grained, brown,	5 — - -								
		weak cementation 6452 Boring Terminated at 10 Feet	- 10-								
See	Evolaria	tion and Testing Procedures for a description of Field and laboratory procedure									
See	Suppo	ation and Testing Procedures for a description of field and laboratory procedure (dditional data (If any). rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).		Grou	indwa	evel Observations ater not encountered				Drill Rig JD Backhoe Hammer Typ Automatic Driller Terracon	e
Note	es					ment Method Bucket				Logged by ED Boring Starte	ed
				Aba Back	ndor filled	ment Method d with soil cuttings u	oon comple	tion.		10-07-2024 Boring Comp 10-07-2024	



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5455° Longitude: -106.0138° Depth (Ft.) Elevation.: 6424 (Ft.) 0.3 \[Depta] TOPSOIL, approximately 3" thick \[\chi_6423.75]	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		CLAYEY SAND (SC), trace gravel, fine to coarse grained, brown, weak cementation 6420 SANDY LEAN CLAY (CL), fine grained, light brown to tan, moderate cementation	- - - 5								
		8.0 6416 <u>SILTY SAND (SM)</u> , trace gravel, fine grained, brown, weak cementation 10.0 6414 Boring Terminated at 10 Feet	- - 10-			7.4/2014-2411010107-02					
See S	Suppo	ation and Testing Procedures for a description of field and laboratory procedure additional data (If any). rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).	25			evel Observations ater not encounterec	I			Drill Rig JD Backhoe Hammer Typ Automatic Driller	e
Note	25			36" \ Aba i	Wide ndor	ment Method Bucket ment Method d with soil cuttings u	pon comple	tion.		Terracon Logged by ED Boring Starte 10-09-2024 Boring Comp 10-09-2024	

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		Location: See Exploration Plan			0				0	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5482° Longitude: -106.0012°	(Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ent es
del	aphi		Depth (Ft.)	ater L serva	mple	ield [.]	NELL	Wat	Dry L eight	LL-PL-PI	Percent Fines
Σ	ŋ	Depth (Ft.) Elevation.: 6482 (Ft.)	Ğ	Şģ	S	LL.	S	ပိ	- š		
		0.3 TOPSOIL, approximately 4" thick6481.67									
		CLAYEY SAND (SC), trace gravel, fine to coarse 2.0 grained, light brown 6480	-								
		SANDY LEAN CLAY (CL), fine grained, tan, moderate cementation	_								
		conclusion	_								
			5 –								
			-	-							
		7.0 6475	_	-							
		SILTY SAND (SM) , trace gravel, fine to coarse grained, brown, weak cementation	-	-							
			-								
		10.0 6472 Boring Terminated at 10 Feet	10-								
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P										Atterberg	
Š	Graphic Log	Location: See Exploration Plan)	Water Level Observations	Sample Type	est ts	(%)	Water Content (%)	Dry Unit Weight (pcf)	Limits	ظ
Model Layer	phic	Latitude: 35.5487° Longitude: -106.0087°	Depth (Ft.)	er Le ervati	ple -	Field Test Results	SWELL (%)	Vate tent	y Ui ght (Percent Fines
Mod	Gra		Depi	Wate Obse	Sam	Fie R	SWI	Cont <	V Dr Weig	LL-PL-PI	A A
		Depth (Ft.) Elevation.: 6453 (Ft.)									
		0.3 \TOPSOIL, approximately 3" thick /6452.75	_								
		CLAYEY SAND (SC), trace gravel, fine to coarse grained, light brown	_								
			_								
		4.0 6449	_								
		SANDY LEAN CLAY (CL), trace gravel, fine grained, 5.0_tan to white brown, moderate cementation6448	_								
		SILTY SAND (SM), trace gravel, fine grained, light	5 –								
		brown 7.0 6446	-								
		CLAYEY SAND (SC), trace gravel, fine grained,	-								
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See	Suppo vation F	rting Information for explanation of symbols and abbreviations.	25	Grou	ance					Komatsu PC17 Hammer Typ Automatic Driller	
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Model Layer	Location: See Exploration Plan Latitude: 35.5522° Longitude: -106.0075°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
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	Depth (Ft.) Elevation.: 6471 (Ft.) > 0.3 \TOPSOIL approximately 3" thick \6420.25									
	CLAYEY SAND (SC) trace gravel fine to coarse	-								
	2.0 grained, brown 6469	_								
	SANDY SILT (ML), trace gravel, fine grained, light brown to tan, moderate cementation	_								
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	ploration and Testing Procedures for a description of field and laboratory procedure nd additional data (If any).	65			evel Observations ater not encountered				Drill Rig Komatsu PC17	0
	pporting Information for explanation of symbols and abbreviations. on Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ	e
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			36" \	Wide	Bucket				ED	
									Boring Starte 10-08-2024	≥d
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Abandonment Method Backfilled with soil cuttings upon completion.

Boring Completed



										Atterberg	
Model Layer	Graphic Log	Location: See Exploration Plan	ť.)	Water Level Observations	Sample Type	sst	(%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	te "
el La	hic	Latitude: 35.5495° Longitude: -106.0174°	Depth (Ft.)	ir Le	ole T	Field Test Results	SWELL (%)	ate ent	/ Un ht (Percent Fines
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2		Depth (Ft.) Elevation.: 6422 (Ft.)		>0	0)		0)	0	5		
		0.3 TOPSOIL , approximately 4" thick6421.67									
		CLAYEY SAND (SC) , trace gravel, light brown	_								
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		4.0 6418 SANDY STIT (MI) trace day, tap to white brown	_	-							
		SANDY SILT (ML), trace clay, tan to white brown, weak to moderate cementation	5 –	-							
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		7.0 6415	_	-							
		CLAYEY SAND (SC), light brown	_								
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		rting Information for explanation of symbols and abbreviations.								Hammer Typ	
⊏le≀	auon F	Reference: Elevations were provided by Google Earth Pro (2023).								Automatic	-
										Driller Terracon	
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5	Ď	Location: See Exploration Plan			é		((•)	Ĵ	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5504° Longitude: -106.0114°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Linito	Percent Fines
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		Depth (Ft.) Elevation.: 6452 (Ft.)		-0	0,		•		>		
		0.3 \TOPSOIL, approximately 3" thick \6451.75									
		SANDY SILT (ML), tan, weak cementation	-								
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	ЩЦ	5.0 6447	5 —	.							
		SILTY SAND (SM), trace gravel, light brown	-								
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Elev	ation F	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Typ Automatic	e
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										Terracon	
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				36" \	Wide	Bucket				ED	
										Boring Starte 10-09-2024	ed
				Aba	ndor	nment Method					
				Back	filled	d with soil cuttings u	pon comple	tion.		Boring Comp 10-09-2024	leted



Model Layer Graphic Log	Depth (Ft.) Elevation.: 6461 (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	0.2 \TOPSOIL, approximately 2" thick /6460.83 1.5 SANDY SILT (ML), fine grained, brown 6459.5 SANDY LEAN CLAY (CL), fine grained, white brown to brown, moderate cementation	-								
		5 — - -								
	10.0 6451	-								
	Boring Terminated at 10 Feet	10–								
See Evolution	The product of the product of the product of the the product of the pr									
See Supp	oration and Testing Procedures for a description of field and laboratory procedure additional data (If any). porting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).				evel Observations ater not encountered				Drill Rig Komatsu PC17 Hammer Typ Automatic Driller Terracon	
Notes			Adva 36" V	ance Nide	ement Method Bucket				Logged by ED	
			Abai	ndor	nment Method d with soil cuttings u	pon comple	tion.		Boring Starte 10-09-2024 Boring Comp 10-09-2024	



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5523° Longitude: -106.0168° Depth (Ft.) Elevation.: 6431 (Ft.) 0.2 _ TOPSOIL , approximately 2" thick /6430.83	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		SILTY SAND (SM), fine to coarse grained, brown 5.0 6426 CLAYEY SAND (SC), fine grained, brown	- - - 5								
		10.0 6421 Boring Terminated at 10 Feet	- - 10-								
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Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5539° Longitude: -106.0050°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
Mode			Dept	Wate Obsei	Samp	Fiel	SWE	Conte	Veig	LL-PL-PI	Ъе Г
	<u></u>	Depth (Ft.) Elevation.: 6487 (Ft.) 0.3 TOPSOIL, approximately 3" thick 6486.75 1.0 SILTY SAND (SM), coarse grained, brown 6486 SANDY SILT (ML), fine grained, tan, weak cementation	-								
		5.0 6482 CLAYEY SAND (SC), fine to coarse grained, light brown	- 5 -								
		10.0 6477 Boring Terminated at 10 Feet	- - 10-								
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See	Suppor	ation and Testing Procedures for a description of field and laboratory procedure dditional data (If any). rting Information for explanation of symbols and abbreviations.				evel Observations ater not encountered				Drill Rig Komatsu PC17	
Ele	vation R	Reference: Elevations were provided by Google Earth Pro (2023).								Hammer Type Automatic Driller	e
Not	tes					ment Method				Terracon Logged by ED	
				36" \	wide	Bucket				ED Boring Starte 10-08-2024	d
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Boring Log No. TP-BESS

yer	bo-	Location: See Exploration Plan	t.)	/el ons	ype	s	(%)	(%)	it ocf)	Atterberg Limits	ц.
Model Layer	Graphic Log	Latitude: 35.5522° Longitude: -106.0018°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	LL-PL-PI	Percent Fines
Μo	Ü	Depth (Ft.) Elevation.: 6495 (Ft.)	De	SW Obs	Sa	ш. —	SV	Col	We		-
		0.3 \TOPSOIL, approximately 3" thick	_								
		2.0 6493 CLAYEY SAND (SC), trace gravel, fine to coarse grained, light brown, weak cementation	-								
		grunned, light brown, weak comentation	_								
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										Automatic Driller	
Not	es					ment Method Bucket				Terracon Logged by ED	
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						ment Method I with soil cuttings u	pon comple	tion.		Boring Comp 10-06-2024	



ē											
	b	Location: See Exploration Plan		<u> </u>	e	ц		(%	Ĵ	Atterberg Limits	
Model Layer	Graphic Log	Latitude: 35.5537° Longitude: -106.0013°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)		Percent Fines
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Μo	Gra		Dep	Wa	Sar	ц ц	SV	Con	Vei Nei	LL-PL-PI	_ ₽_
		Depth (Ft.) Elevation.: 6500 (Ft.)		Ū				_			
		0.3 TOPSOIL , approximately 4" thick <u>6499.67</u>	2								
		SANDY SILT (ML), brown	-								
		2.0 6498 SILTY SAND (SM), trace gravel, light brown to tan,	3 -	-							
		weak cementation	_								
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		ration and Testing Procedures for a description of field and laboratory procedu additional data (If any).	res			evel Observations ater not encountered	A STATISTICS AND			Drill Rig Komatsu PC17	70
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See Elev	Suppo vation I	rting Information for explanation of symbols and abbreviations.	res	Grou Adv 36"	ance Wide	ater not encountered				Hammer Typ Automatic Driller Terracon Logged by ED Boring Starte 10-06-2024	e ed
See Elev	Suppo vation I	rting Information for explanation of symbols and abbreviations.	res	Grou Adv 36"	ance Wide	ater not encountered e ment Method Bucket		tion.		Hammer Typ Automatic Driller Terracon Logged by ED	e ed



Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 35.5655° Longitude: -105.9624° Depth (Ft.) Elevation.: 6684 (Ft.) 0.3 \TOPSOIL , approximately 4" thick \chick	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	(%) SWELL (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		SANDY SILT (ML), fine grained, brown 2.0 SILTY SAND (SM), trace gravel, fine to coarse grained, light brown									
		6.0 6678 CLAYEY SAND (SC), fine to coarse grained, light brown	5 — - - -								
		10.0 6674 Boring Terminated at 10 Feet	10-								
	Evolo	ation and Tasting Procedures for a description of field and laboratory procedure									
See	Suppo	ation and Testing Procedures for a description of field and laboratory procedure additional data (If any). rting Information for explanation of symbols and abbreviations. Reference: Elevations were provided by Google Earth Pro (2023).	Water Level Observations Groundwater not encountered						Drill Rig Komatsu PC17 Hammer Type Automatic Driller Terracon		
Not	es			Adv a 36" \	ance Wide	ment Method Bucket				Logged by ED Boring Starte	ed
				Aba Back	ndor fillec	ment Method I with soil cuttings u	pon comple	tion.		10-08-2024 Boring Comp 10-08-2024	leted

Geotechnical Engineering Report

Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



APPENDIX B

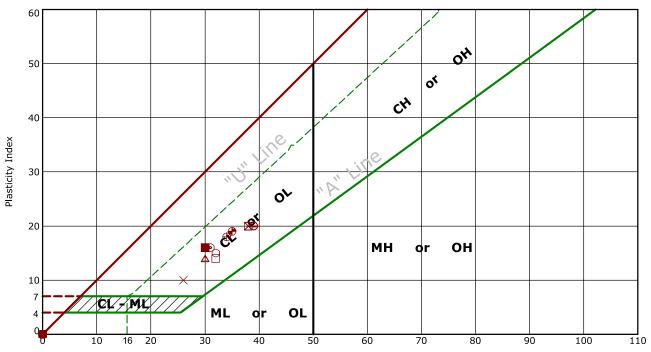
LABORATORY TESTING

Responsive Resourceful Reliable



Atterberg Limit Results

ASTM D4318



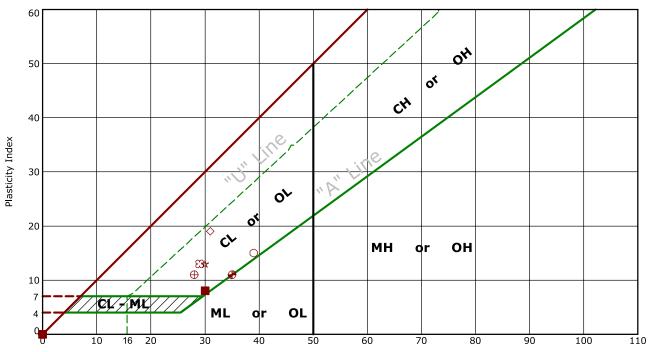
Liquid Limit

	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
θ	A-01	2.5 - 4	39	19	20	61.9	CL	SANDY LEAN CLAY
×	A-02	5 - 5.5	38	18	20	55.6	CL	SANDY LEAN CLAY
Δ	A-03	7.5 - 9	30	16	14	64.8	CL	SANDY LEAN CLAY
*	A-04	5 - 5.5	NP	NP	NP	39.3	SM	SILTY SAND
۲	A-05	7.5 - 9	31	15	16	55.6	CL	SANDY LEAN CLAY
۰	A-06	5 - 6.5	NP	NP	NP	70.7	ML	SILT with SAND
0	A-07	2.5 - 4	32	17	15	79.5	CL	LEAN CLAY with SAND
Δ	A-08	7.5 - 9	NP	NP	NP	56.7	ML	SANDY SILT
⊗	A-09	7.5 - 9	NP	NP	NP	45.3	SM	SILTY SAND
⊕	A-10	5 - 6.5	34	16	18	56.6	CL	SANDY LEAN CLAY
	A-11	5 - 5.5	32	18	14	66.2	CL	SANDY LEAN CLAY
8	A-12	7.5 - 9	NP	NP	NP	41.9	SM	SILTY SAND
•	A-13	5 - 6.5	35	16	19	59.3	CL	SANDY LEAN CLAY
☆	A-14	5 - 6.5	NP	NP	NP	59.8	ML	SANDY SILT
ន	A-15	2.5 - 4	NP	NP	NP	48.2	SM	SILTY SAND
	Bess-01	2.5 - 4	30	14	16	77.3	CL	LEAN CLAY with SAND
٥	Bess-01	10 - 11.5	NP	NP	NP	67.0	ML	SANDY SILT
\$	Bess-02	7.5 - 9	NP	NP	NP	46.2	SM	SILTY SAND
×	Bess-02	15 - 16.5	26	16	10	62.3	CL	SANDY LEAN CLAY
8	Bess-03	20 - 21.5	NP	NP	NP	7.7	SW-SM	WELL-GRADED SAND with SILT



Atterberg Limit Results

ASTM D4318



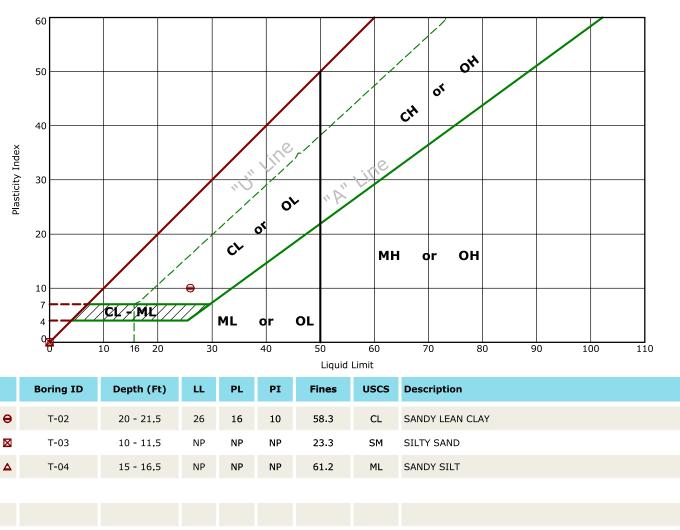
Liquid Limit

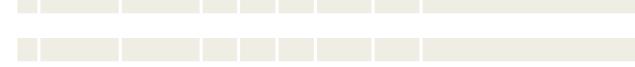
						•		
	Boring ID	Depth (Ft)	ш	PL	PI	Fines	USCS	Description
θ	BW-01	2.5 - 4	NP	NP	NP	50.0	SM	SILTY SAND
⊠	BW-01	20 - 21.5	NP	NP	NP	59.5	ML	SANDY SILT
4	BW-02	5 - 6.5	NP	NP	NP	35.2	SM	SILTY SAND
*	BW-02	25 - 26.5	NP	NP	NP	40.3	SM	SILTY SAND
۲	BW-03	5 - 6	NP	NP	NP	56.3	ML	SANDY SILT
•	BW-03	15 - 16.5	NP	NP	NP	20.3	SM	SILTY SAND
0	P-02	2.5 - 4	39	24	15	61.2	CL	SANDY LEAN CLAY
Δ	P-03	5 - 6.5	NP	NP	NP			
⊗	P-04	2.5 - 4	NP	NP	NP	64.9	ML	SANDY SILT
⊕	P-05	5 - 6.5	28	17	11	62.5	CL	SANDY LEAN CLAY
	P-06	5 - 6	NP	NP	NP	41.1	SM	SILTY SAND
8	P-07	2.5 - 3.5	NP	NP	NP	35.6	SM	SILTY SAND
۲	P-08	2.5 - 4	35	24	11	63.6	CL	SANDY LEAN CLAY
*	Sub-01	2.5 - 3.5	30	17	13	58.5	CL	SANDY LEAN CLAY
ន	Sub-01	20 - 21.5	29	16	13	69.1	CL	SANDY LEAN CLAY
	Sub-02	2.5 - 4	30	22	8	62.3	CL	SANDY LEAN CLAY
	Sub-02	20 - 21.5	NP	NP	NP	22.2	SM	SILTY SAND
\$	T-01	5 - 6	31	12	19	64.2	CL	SANDY LEAN CLAY
\times	T-01	25 - 26.5	NP	NP	NP	38.5	SM	SILTY SAND
8	T-02	7.5 - 9	NP	NP	NP	62.9	ML	SANDY SILT

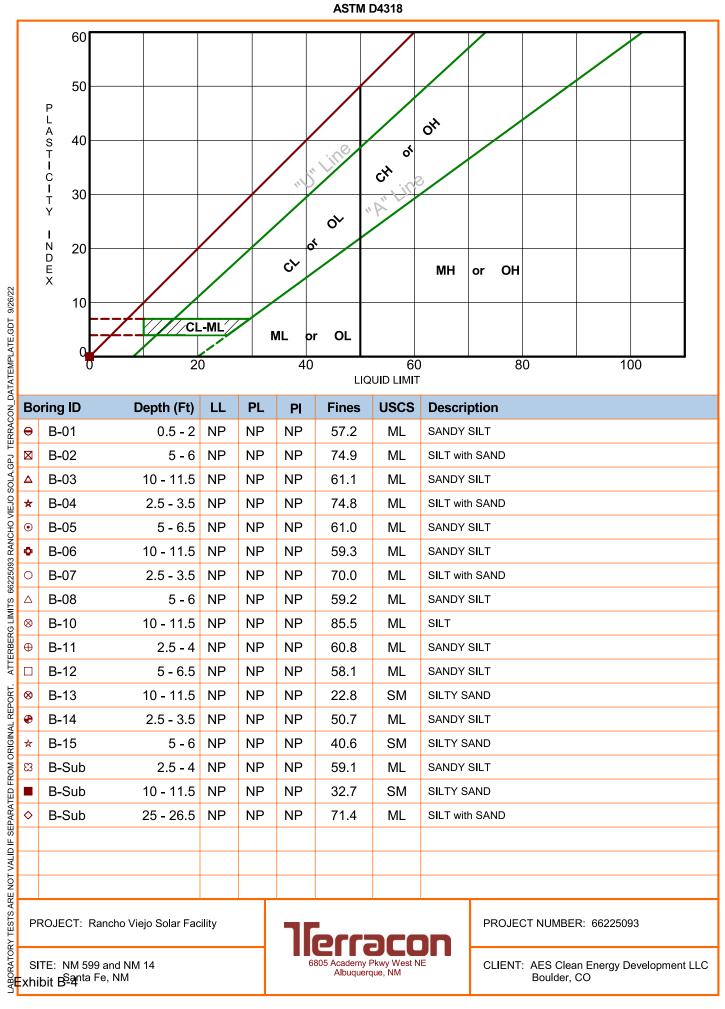


Atterberg Limit Results

ASTM D4318





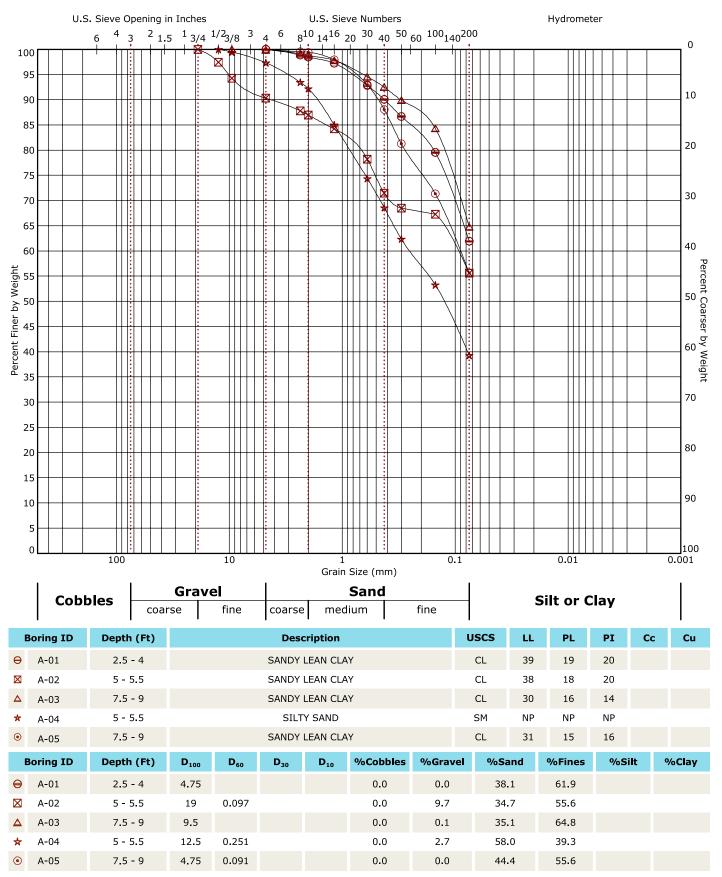


ATTERBERG LIMITS RESULTS

ATTERBERG LIMITS 66225093 RANCHO VIEJO SOLA GPJ TERRACON DATATEMPLATE GDT 9/26/22

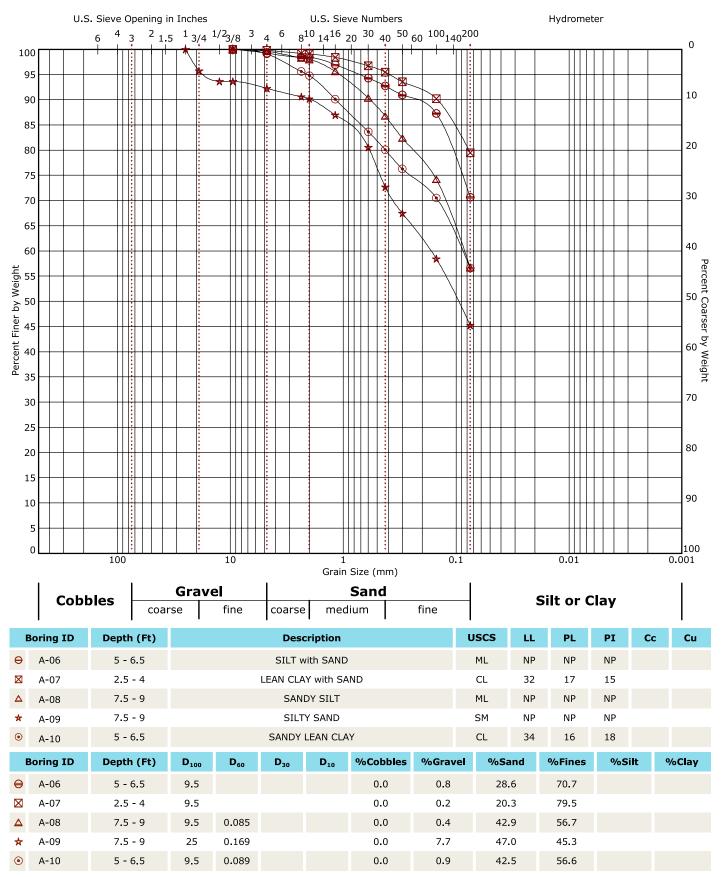


ASTM D422 / ASTM C136



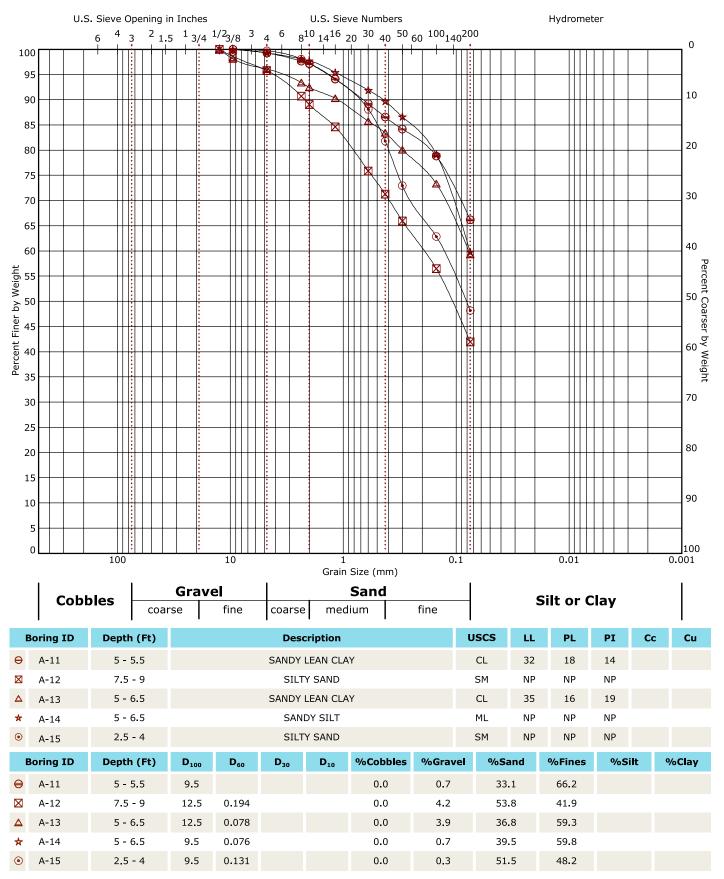


ASTM D422 / ASTM C136



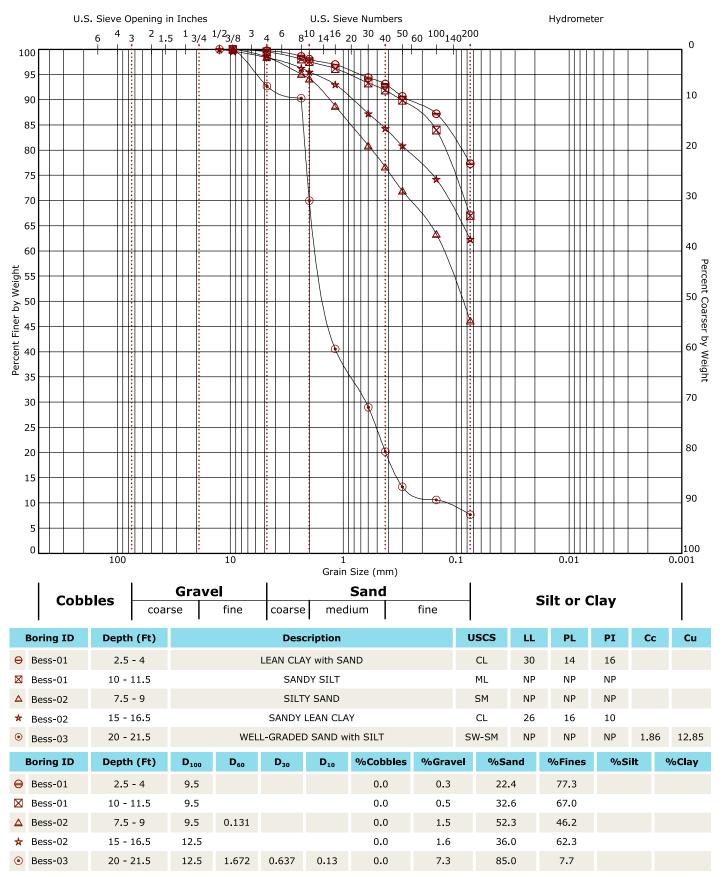


ASTM D422 / ASTM C136



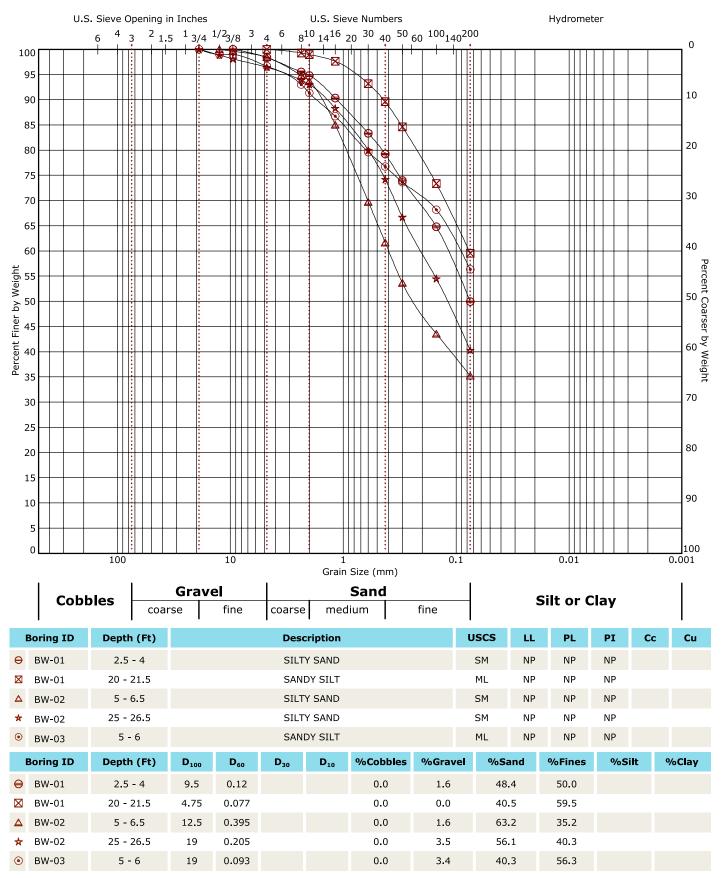


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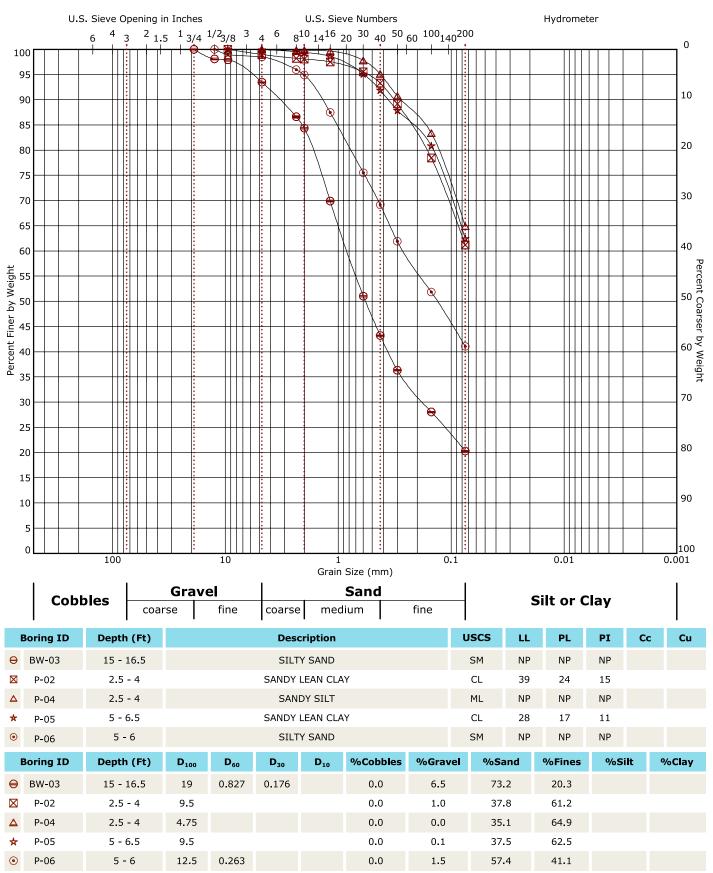


ASTM D422 / ASTM C136



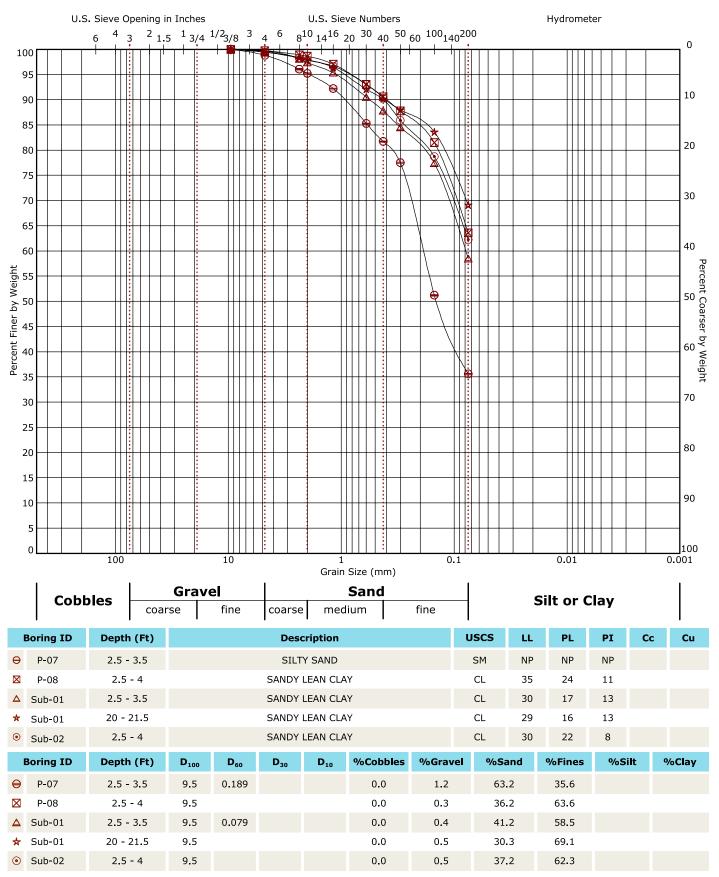


ASTM D422 / ASTM C136



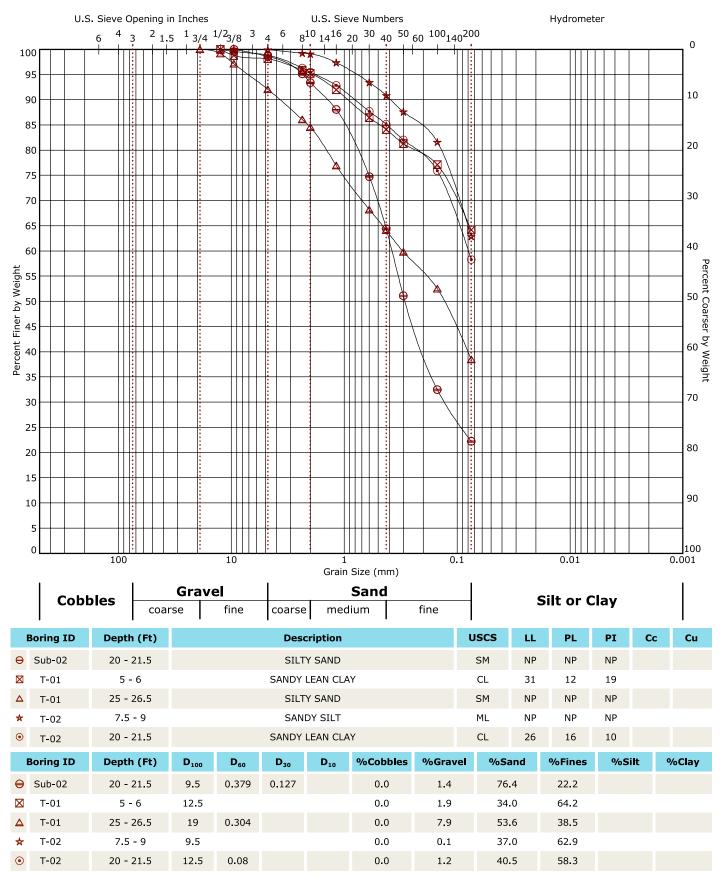


ASTM D422 / ASTM C136



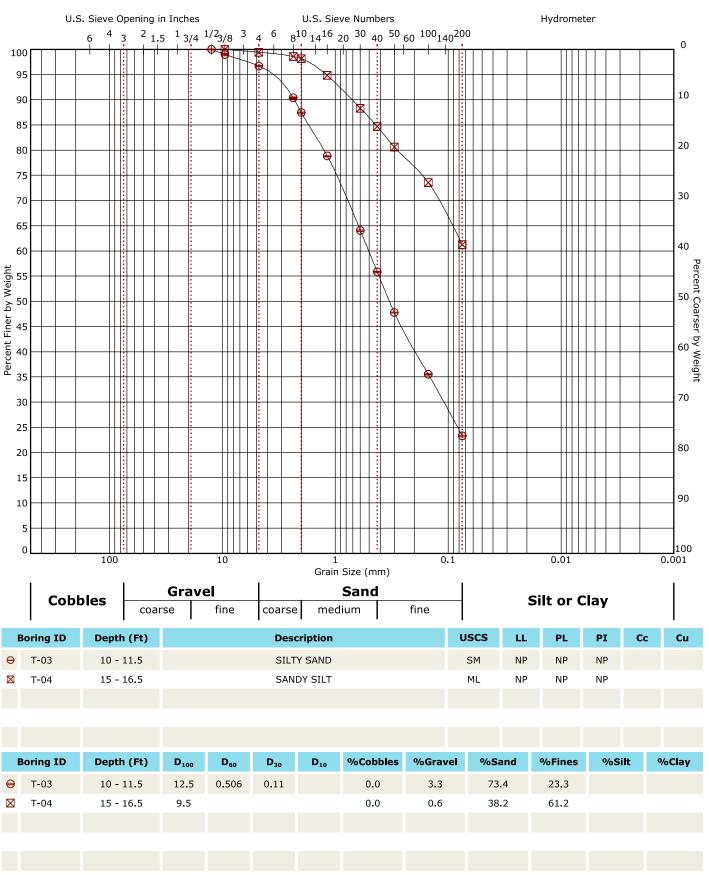


ASTM D422 / ASTM C136



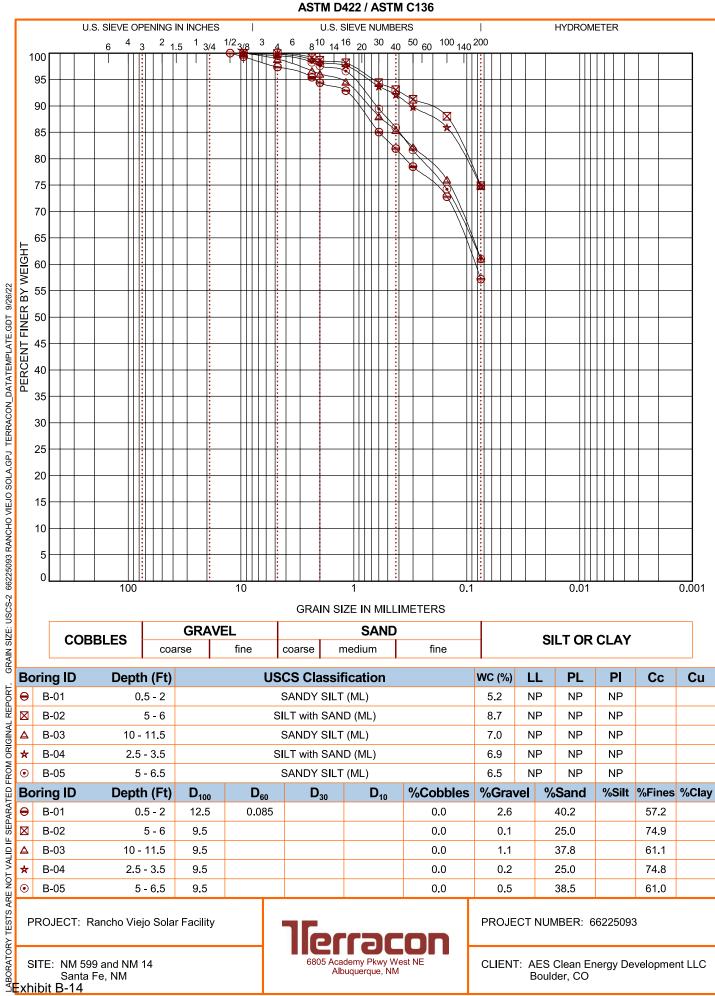


ASTM D422 / ASTM C136



Laboratory tests are not valid if separated from original report.

Exhibit B-13



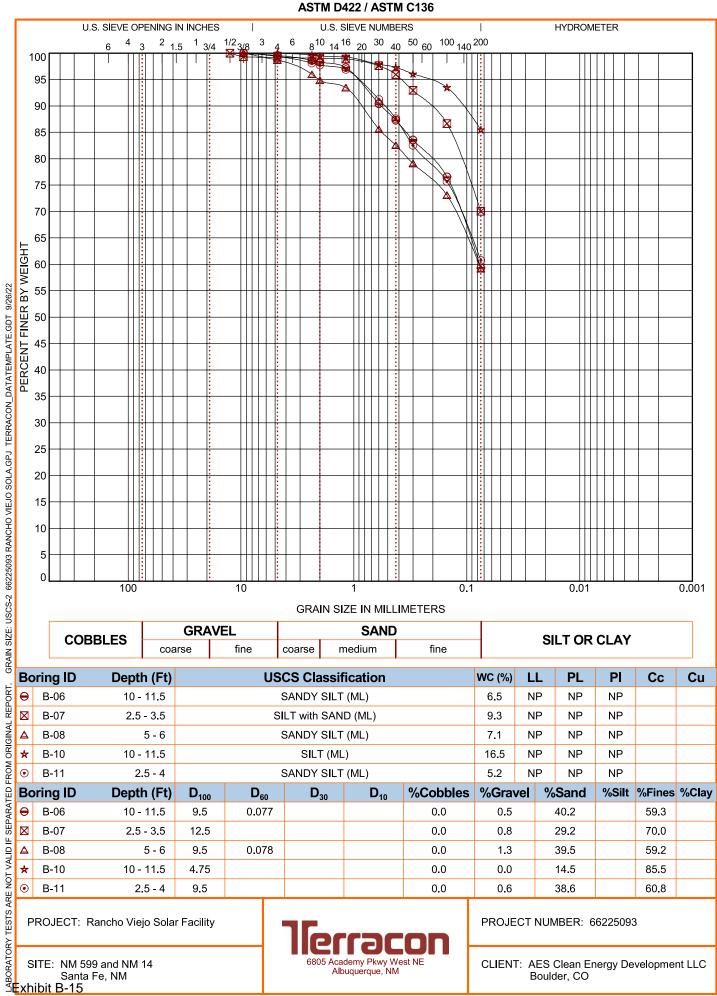
6805 Academy Pkwy West NE

Albuquerque, NM

GRAIN SIZE DISTRIBUTION

SITE: NM 599 and NM 14 Santa Fe, NM

CLIENT: AES Clean Energy Development LLC Boulder, CO



6805 Academy Pkwy West NE

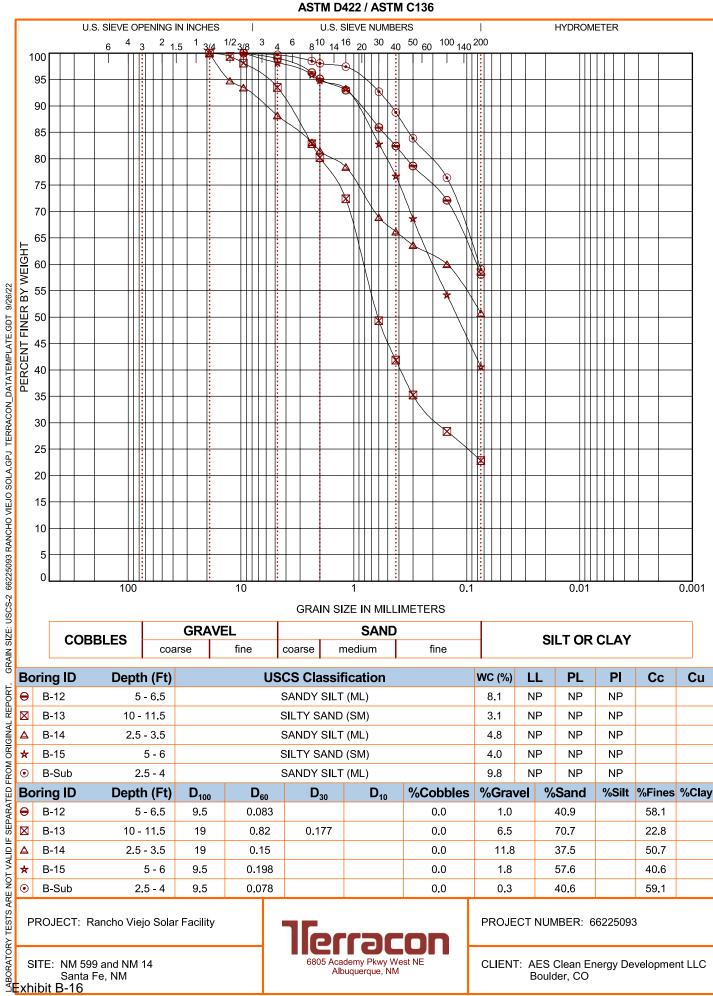
Albuquerque, NM

SITE: NM 599 and NM 14 Santa Fe, NM

GRAIN SIZE DISTRIBUTION

CLIENT: AES Clean Energy Development LLC Boulder, CO

GRAIN SIZE DISTRIBUTION



PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14 Santa Fe, NM

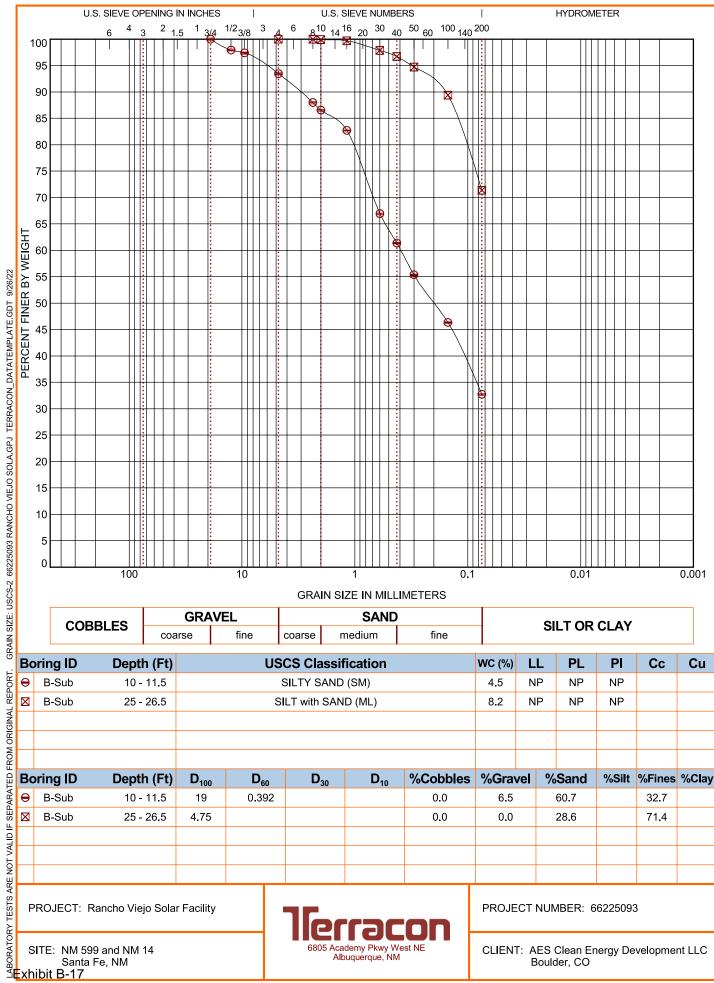
GRAIN SIZE: USCS-2 66225093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/26/22



PROJECT NUMBER: 66225093

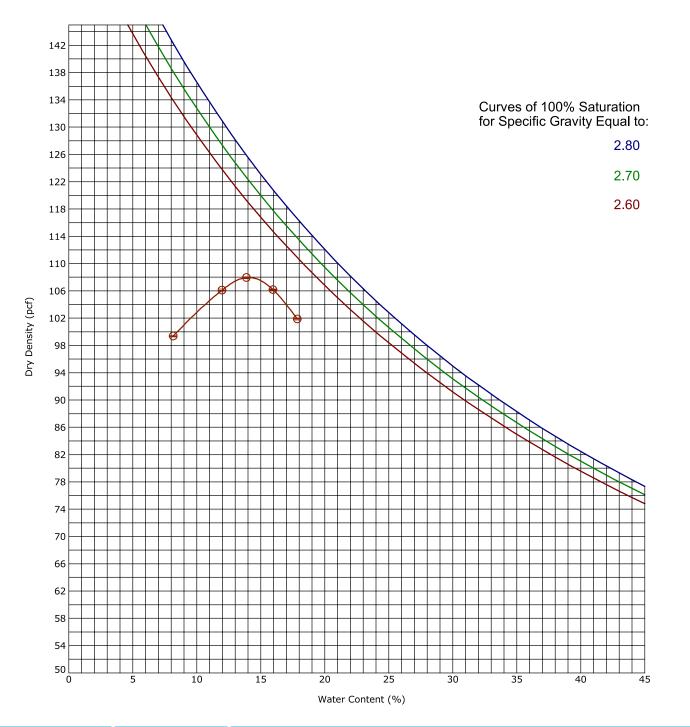
CLIENT: AES Clean Energy Development LLC Boulder, CO

GRAIN SIZE DISTRIBUTION ASTM D422 / ASTM C136

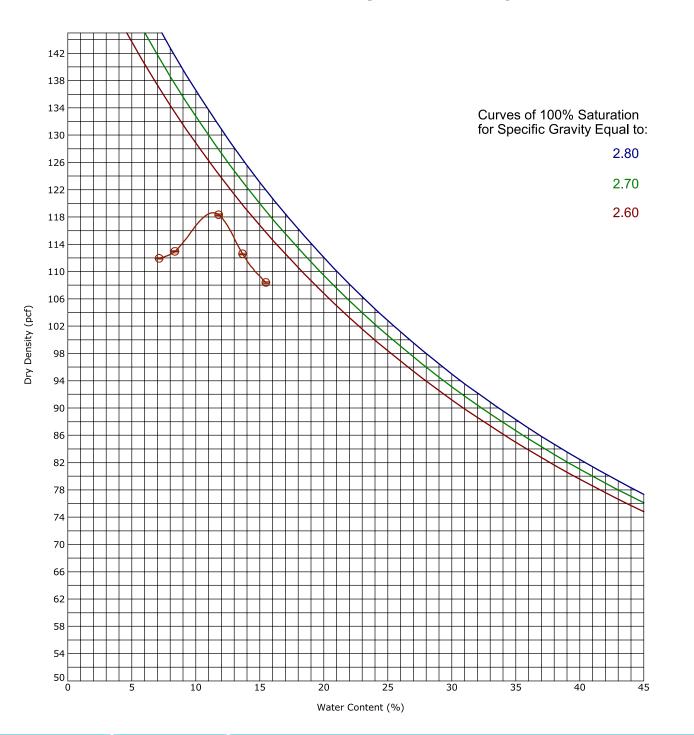


Boulder, CO



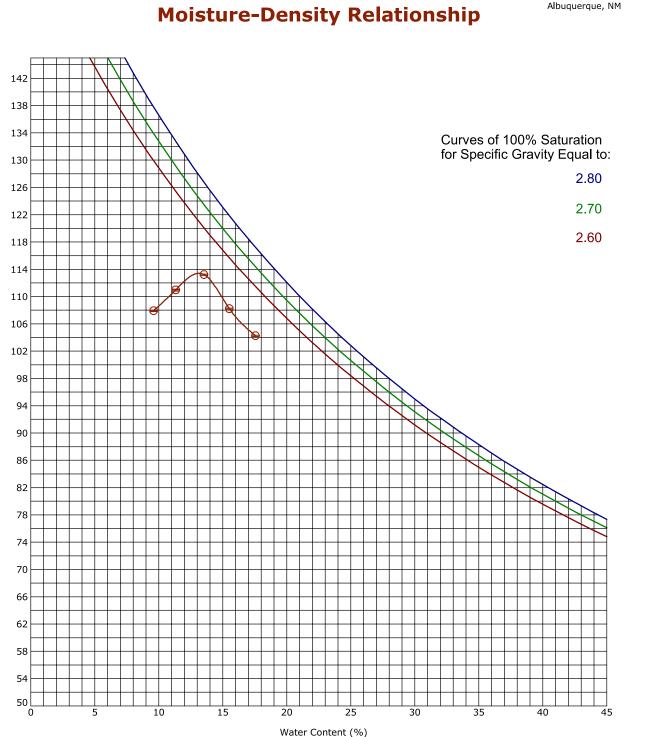


Вс	oring ID	Depth ((Ft)	Description of Materials				
	A-01	1.0 - 5	5.0	SANDY LEAN CLAY (CL)				
Fines (%)	Fraction > mm size	ц	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)	
61.9	0.0	39	19	20	ASTM D4318-Method B	108.0	14.0	



Вс	oring ID	Depth ((Ft)	Description of Materials			
	A-06	1.0 -	5.0	SILTY SAND (SM)			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	118.6	11.4





Вс	oring ID	Depth (Ft)		Description of Materials			
	A-08	1.0 - 5.0)	LEAN CLAY (CL)			
Fines (%)	Fraction > mm size	ц	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	113.4	13.2

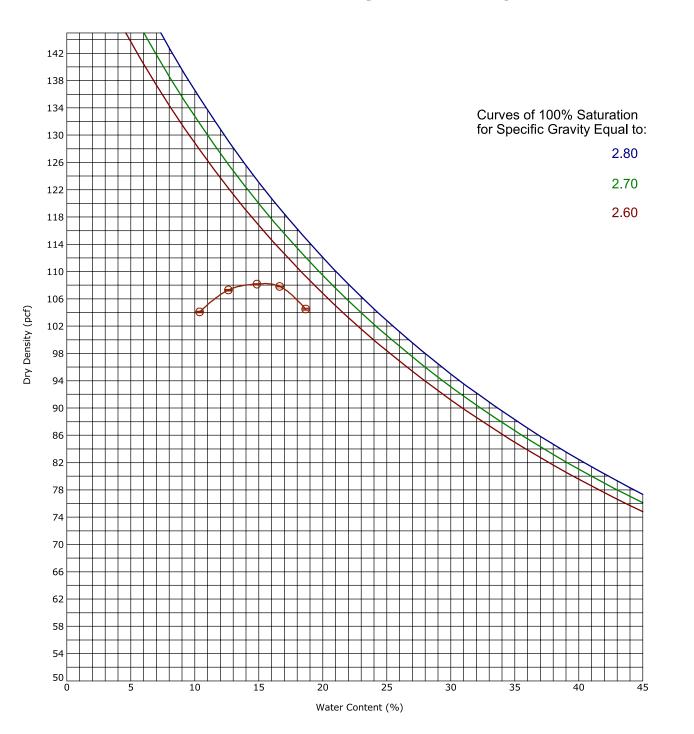
Laboratory tests are not valid if separated from original report.

Exhibit B-20

Dry Density (pcf)

on

6805 Academy Pkwy West NE

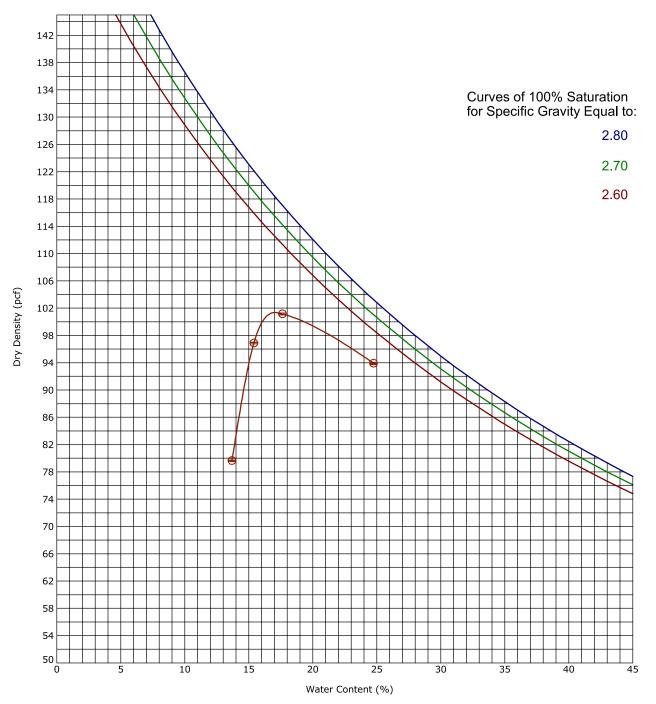


Во	oring ID	Depth ((Ft)	Description of Materials			
	A-11	1.0 - 5.0)	LEAN CLAY (CL)			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	108.2	15.5





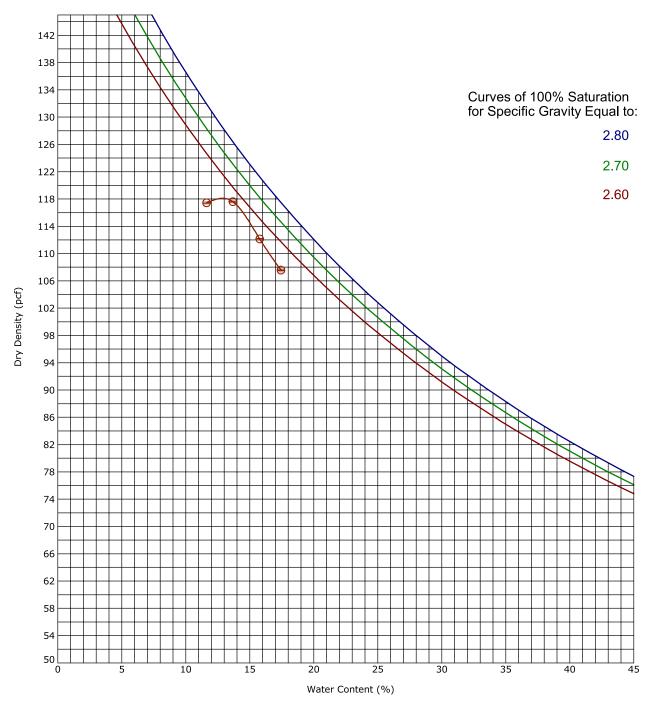
ASTM D698-Method B



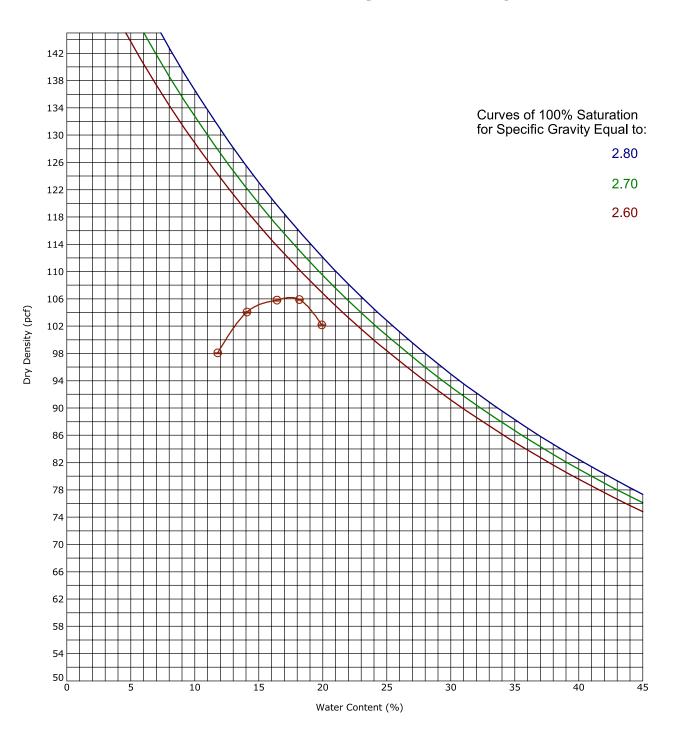
Во	ring ID	Depth ((Ft)	Description of Materials			
	A-14	1.0 - 5.	0	SILTY SAND			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	101.4	17.0



ASTM D698-Method B



Во	ring ID	Depth ((Ft)	Description of Materials			
E	3W-01	1.0 -	5.0	LEAN CLAY W/SAND			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	118.1	12.9

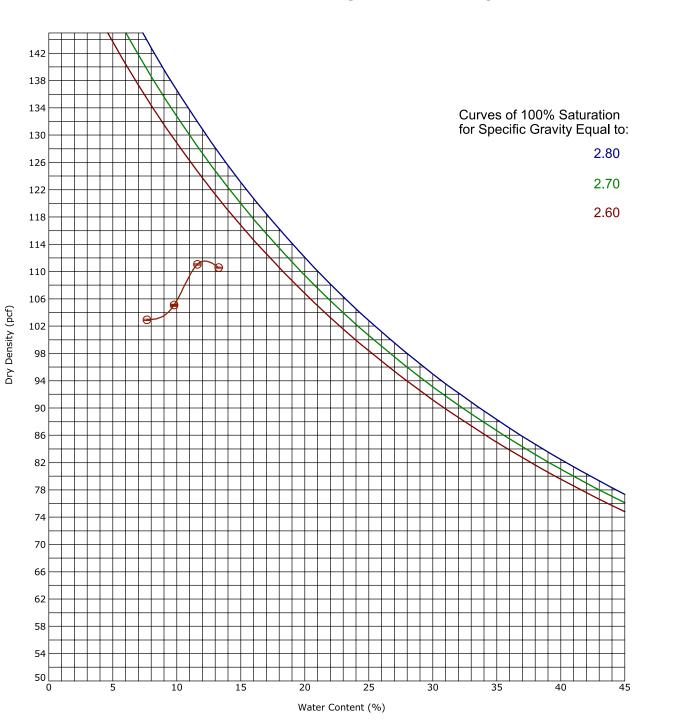


Вс	oring ID	Depth ((Ft)	Description of Materials			
	T-01	1.0 -	5.0	CLAYEY SAND (SC)			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	106.2	17.5

Laboratory tests are not valid if separated from original report.

Exhibit B-24





Во	oring ID	Depth ((Ft)		Description of Materials		
	T-02	1.0 - 5.	0	CLAYEY SAND (SC)			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	111.5	12.2

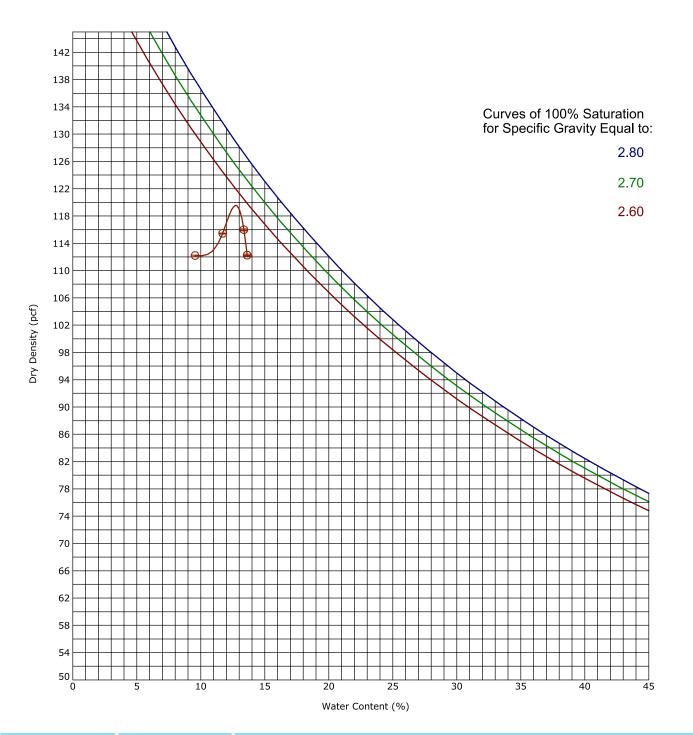
Laboratory tests are not valid if separated from original report.

Exhibit B-25

on

6805 Academy Pkwy West NE

Albuquerque, NM



Вс	oring ID	Depth	(Ft)	Description of Materials				
	T-03	1.0 -	5.0	LEAN CLAY (CL)				
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)	
	0.0				ASTM D698-Method B	119.5	12.7	

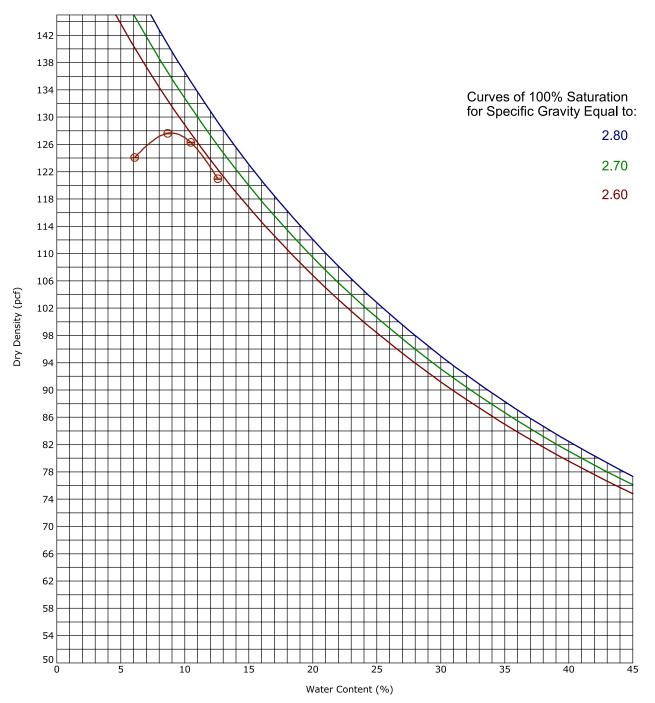
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Exhibit B-26

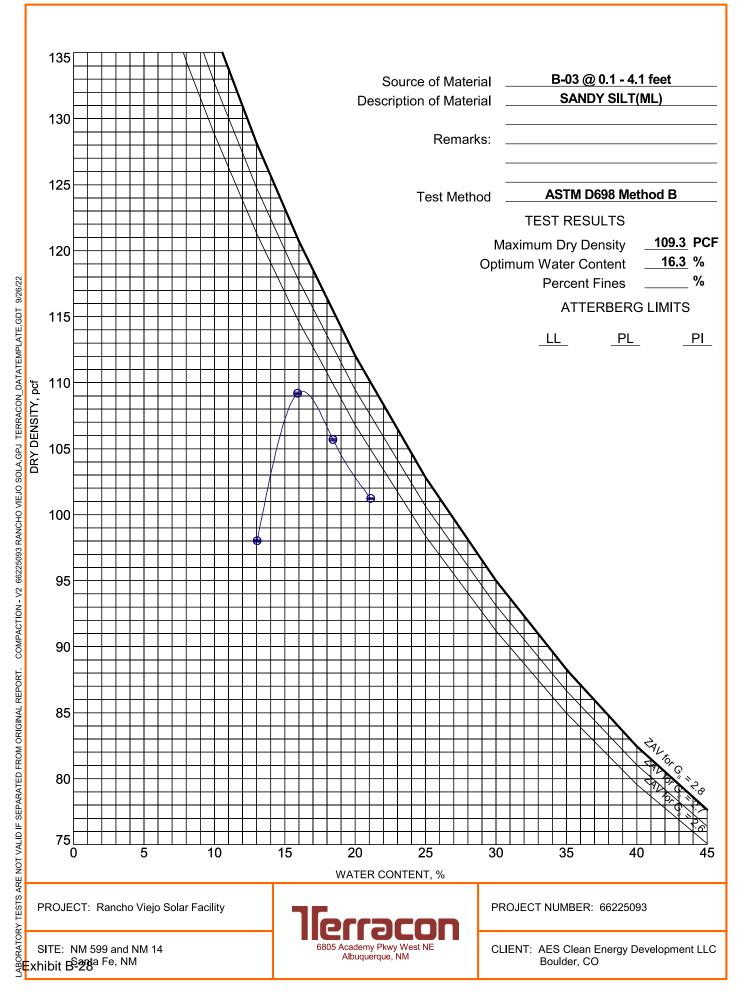


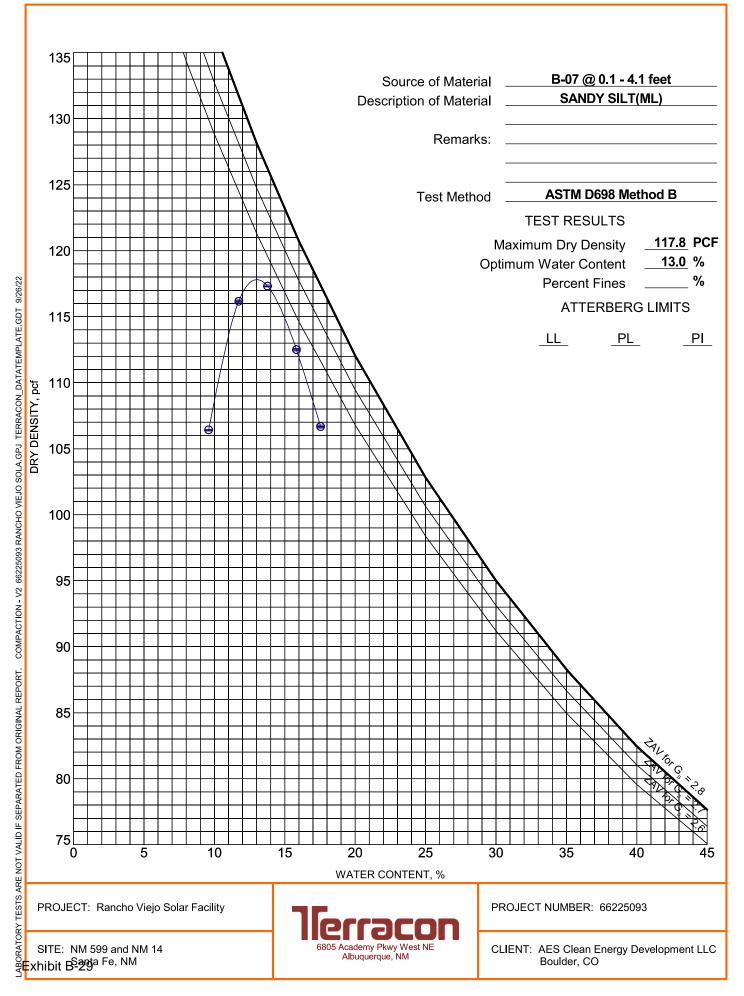


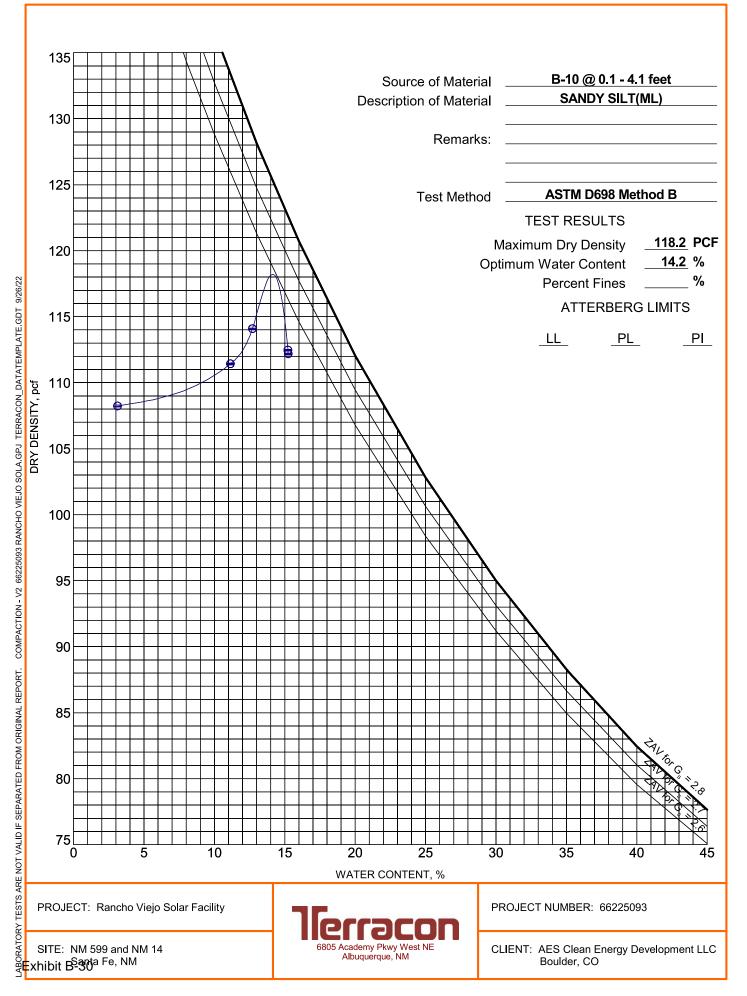
ASTM D698-Method B

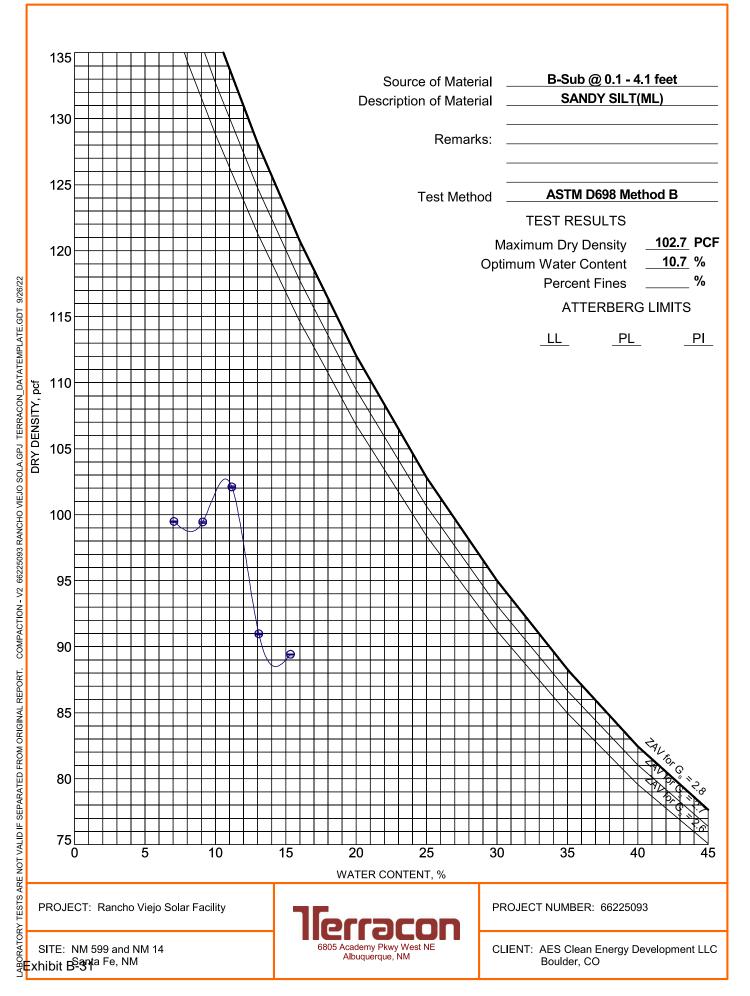


Во	ring ID	Depth (Ft)		Description of Materials			
	T-04	1.0 - 5	.0	LEAN CLAY			
Fines (%)	Fraction > mm size	ш	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
	0.0				ASTM D698-Method B	127.7	8.9







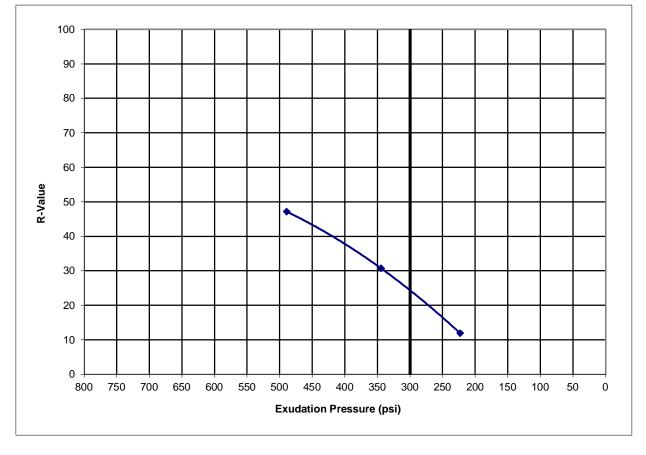




PROJECT:Rancho Viejo Solar FacilityJOB NO:66225093LOCATION:Santa Fe County, NMMATERIAL:Silty ClaySAMPLE SOURCE:P-03@0'-4'

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	Α	В	С	
Moisture Content	21.1%	18.5%	17.2%	
Compaction Pressure (psi)	*	150	225	
Specimen Height (inches)	2.54	2.50	2.49	
Dry Density (pcf)	104.5	110.4	113.3	
Horiz. Pres. @ 1000lbs (psi)	54.0	37.0	28.0	
Horiz. Pres. @ 2000lbs (psi)	131.0	94.0	67.0	
Displacement	4.10	3.96	3.89	
Expansion Pressure (psi)	0.1	0.2	0.6	
Exudation Pressure (psi)	223	344	489	
R Value	12	31	47	
* HAND TAMPED				

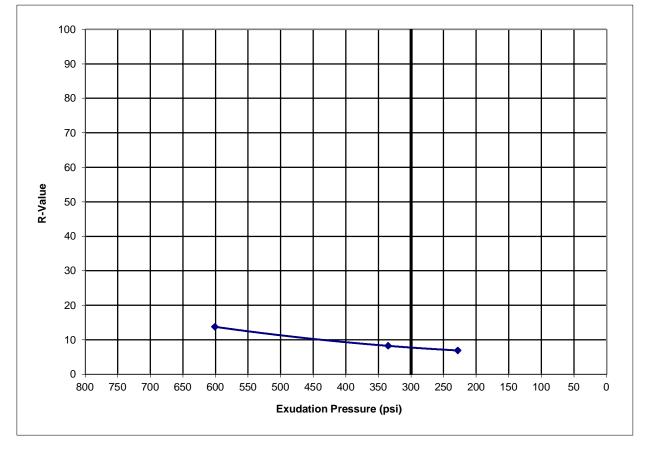




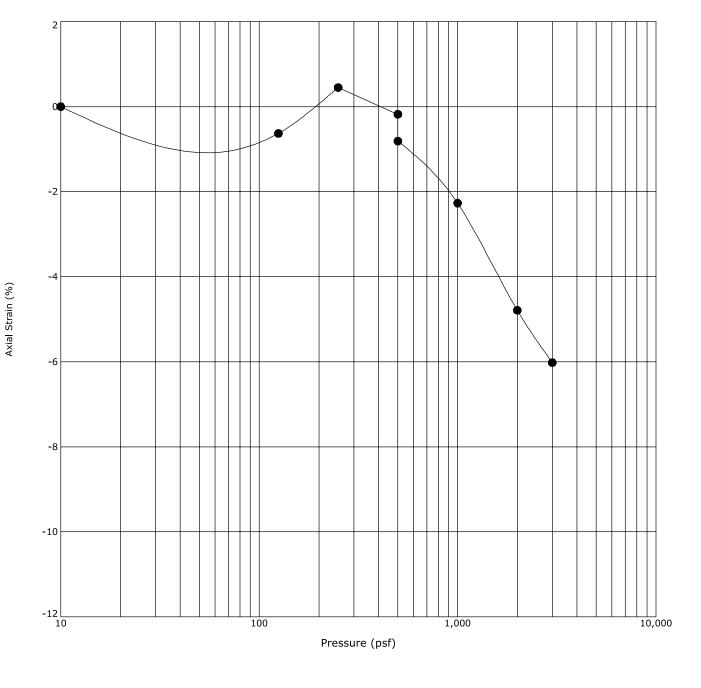
PROJECT:Rancho Viejo Solar FacilityJOB NO:66225093LOCATION:Santa Fe County, NMMATERIAL:Silty ClaySAMPLE SOURCE:P-07@0'-4'

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	Α	В	С	
Moisture Content	27.8%	25.2%	22.6%	
Compaction Pressure (psi)	*	*	75	
Specimen Height (inches)	2.56	2.49	2.52	
Dry Density (pcf)	93.7	98.6	102.5	
Horiz. Pres. @ 1000lbs (psi)	68.0	58.0	54.0	
Horiz. Pres. @ 2000lbs (psi)	140.0	138.0	131.0	
Displacement	5.12	4.45	3.47	
Expansion Pressure (psi)	0.0	0.0	0.1	
Exudation Pressure (psi)	228	335	601	
R Value	7	8	14	
* HAND TAMPED				



R Value at 300 PSI = 7.7



	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	A-03	2.5 - 3.5	SANDY LEAN CLAY	CL	88	10.2
	tes: Sample inund mple Disturbed.	ated with water at 500 po	unds per square foot (psf).			



0

Axial Strain (%)

Swell Consolidation Test

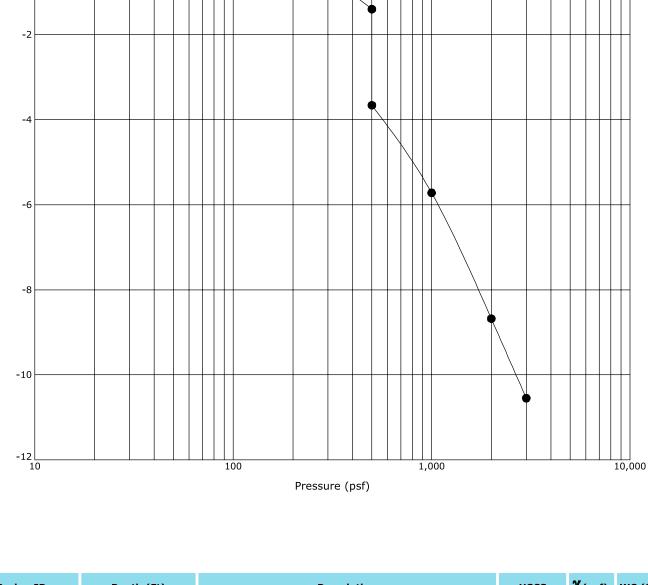
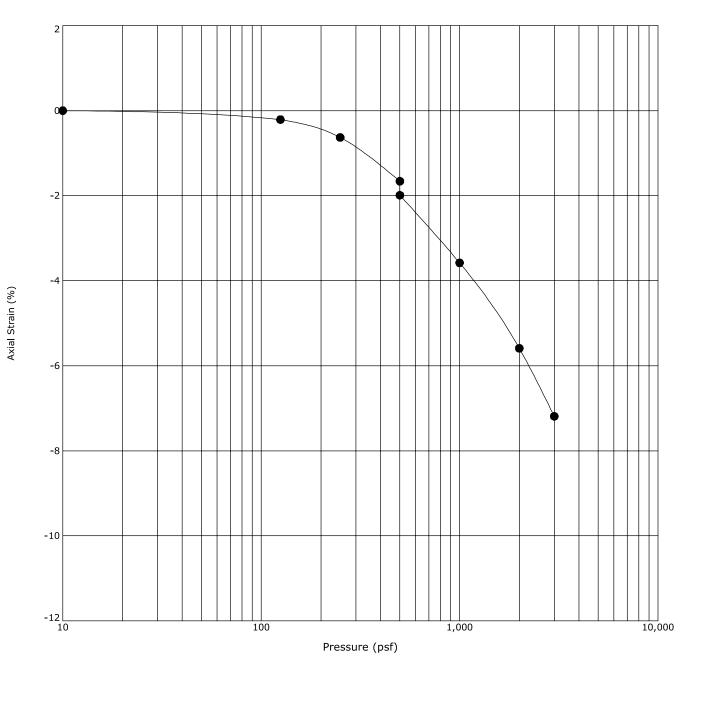


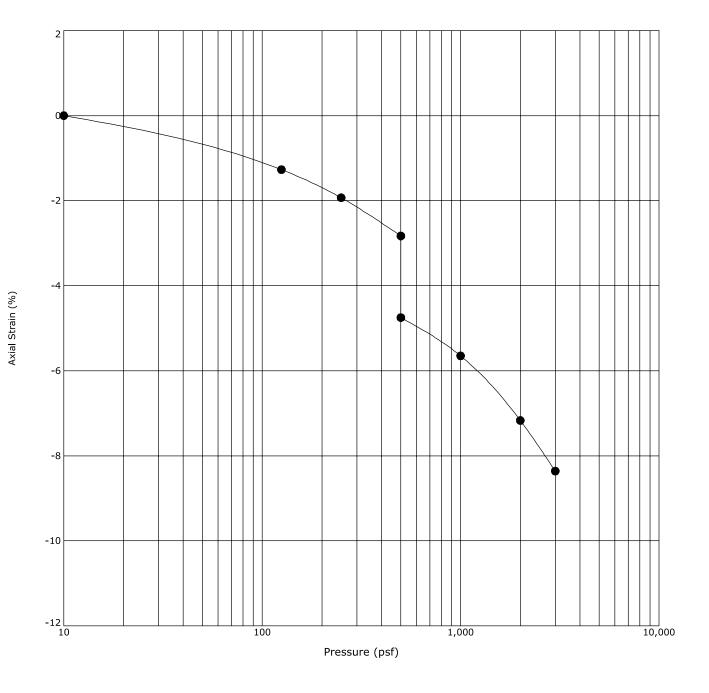
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 Depth (Ft)
 Depth (Ft)
 Description
 USCS
 Vg (pc)
 Vg (pc)<





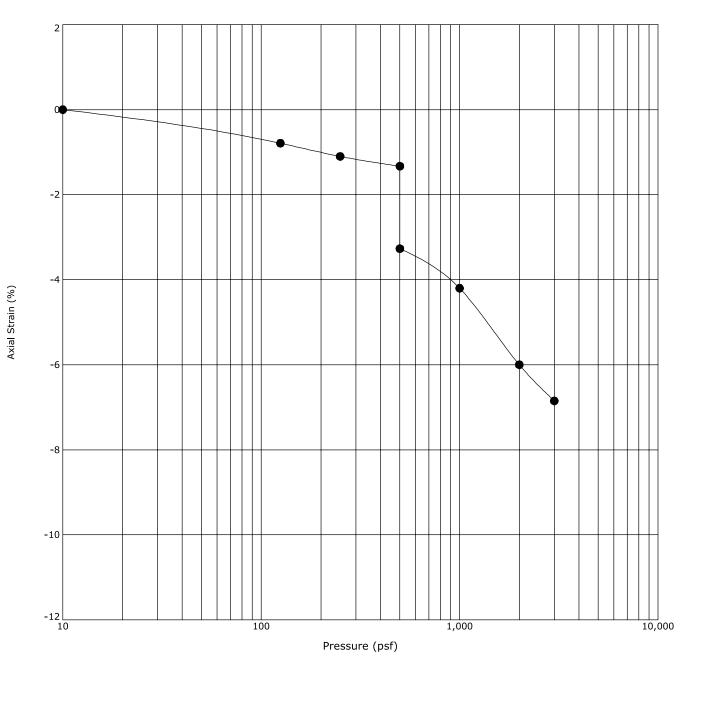
	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	A-08	5 - 6	SILTY CLAY	CL-ML	95	6.4
Not	tes: Sample inund	ated with water at 500 pc	unds per square foot (psf).			





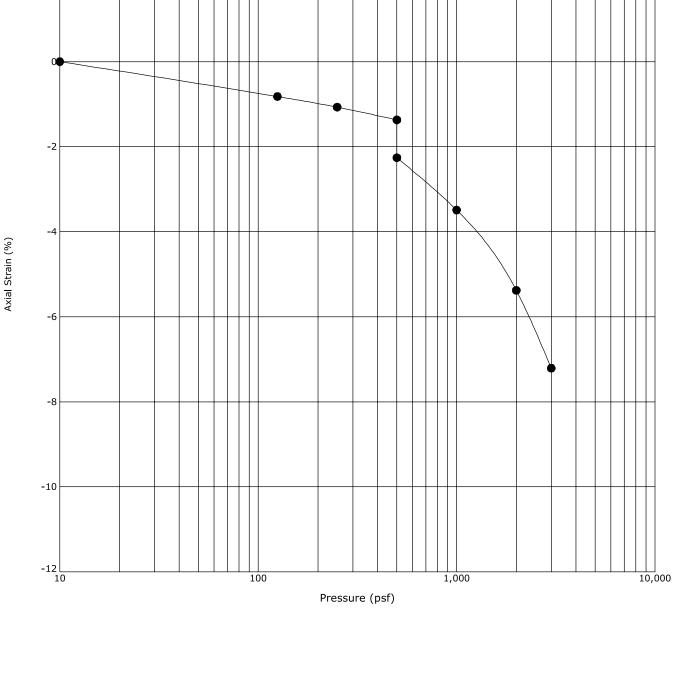
	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	A-10	7.5 - 8.5	SANDY LEAN CLAY	CL	92	6.8
No	tes: Sample inund	ated with water at 500 po	unds per square foot (psf).			





	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	Bess-02	2.5 - 3.5	SILTY SAND	SM	76	12.7
Not	tes: Sample inund	ated with water at 500 pc	unds per square foot (psf).			

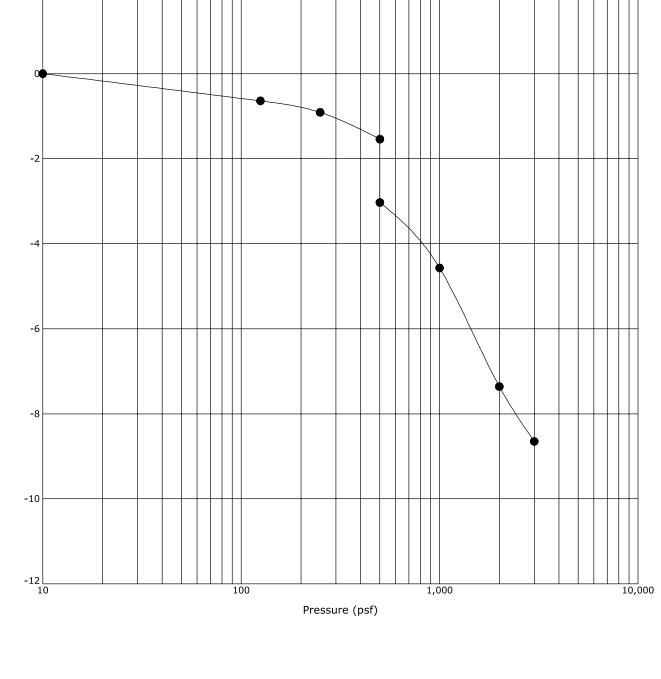




	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	Bess-03	2.5 - 3.5	CLAYEY SAND	SC	102	5.4
Not	es: Sample inund	ated with water at 500 po	unds per square foot (psf).			

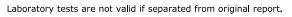


Swell Consolidation Test



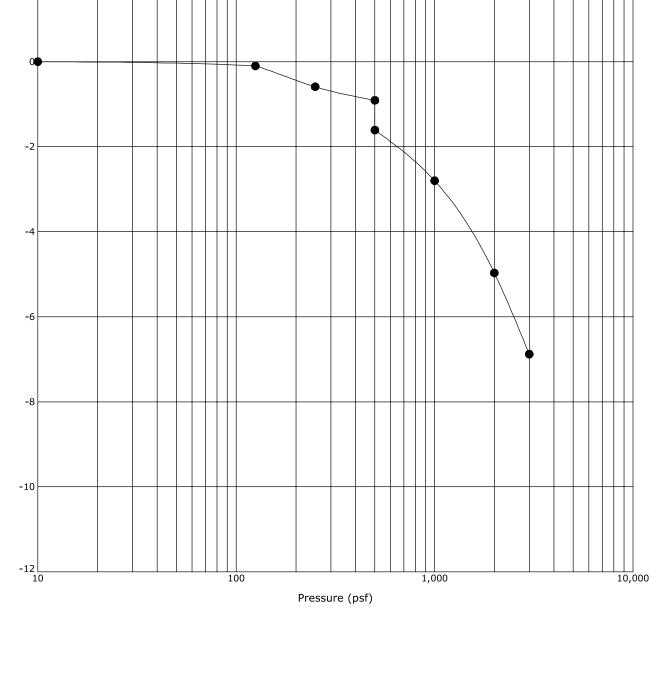
	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
•	Sub-01	2.5 - 3.5	SANDY LEAN CLAY (CL)	CL	93	9.1
Not	tes: Sample inudat	ted with water at 500 pou	nds per square foot (psf).			

Axial Strain (%)



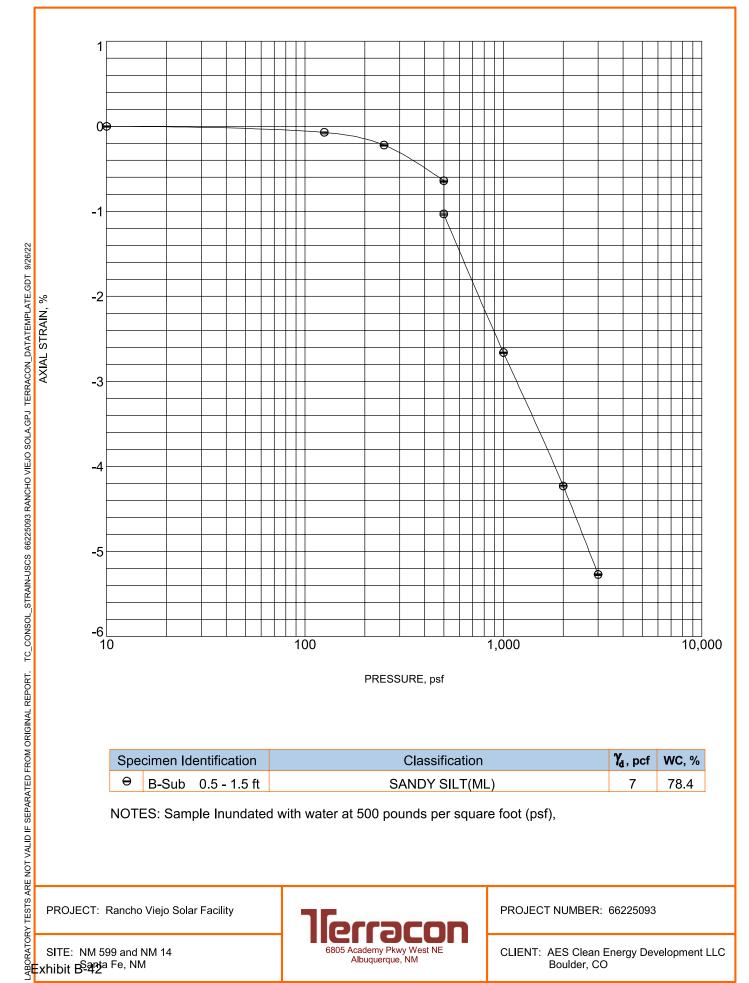


Axial Strain (%)



	Boring ID	Depth (Ft)	Description	USCS	$\gamma_{d}(pcf)$	WC (%)
٠	Sub-02	5 - 6	SANDY LEAN CLAY	CL	90	9.6
Not	es: Sample inudat	ed with water at 500 pour	nds per square foot (psf).			





SWELL CONSOLIDATION TEST **ASTM D4546**

750 Pilot Road, Suite F Las Vegas, Nevada 89119 (702) 597-9393



Client AES Clean Energy Development LLC Project

Rancho Viejo Solar Facility

Santa Fe County, NM

Sample Submitted By: Terracon (66)

Date Received: 10/16/2023

Lab No.: 23-0567

Results	of Corrosio	n Analysis		
Sample Number				
Sample Location	A-7	BW-2	BW-3	Sub-1
Sample Depth (ft.)	0.0-1.5	5.0-6.5	2.5-4.0	0.0-1.5
pH Analysis, ASTM G 51	6.35	8.29	8.26	7.10
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	85	74	68	24
Sulfides, AWWA 4500-S D, (mg/Kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D512, (mg/kg)	87	62	125	75
Red-Ox, AWWA 2580 B, (mV)	+733	+725	+720	+733
Total Salts, AWWA 2520 B, (mg/Kg)	280	780	1304	269
Saturated Minimum Resistivity, ASTM G-187, (ohm-cm)	3417	2144	1273	5896

M. Carp

Analyzed By

Nathan Campo Engineering Technician III

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

750 Pilot Road, Suite F Las Vegas, Nevada 89119 (702) 597-9393

Client



Project Rancho Viejo Solar Facility

Santa Fe County, NM

Sample Submitted By: Terracon (66)

AES Clean Energy Development LLC

Date Received: 10/16/2023

Lab No.: 23-0567

Results	Results of Corrosion Analysis			
Sample Number				
Sample Location	BESS-1	BESS-2		
Sample Depth (ft.)	0.0-1.5	0.0-1.5		
pH Analysis, ASTM G 51	6.38	7.19		
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	27	52		
Sulfides, AWWA 4500-S D, (mg/Kg)	Nil	Nil		
Chlorides, ASTM D512, (mg/kg)	87	100		
Red-Ox, AWWA 2580 B, (mV)	+732	+733		
Total Salts, AWWA 2520 B, (mg/Kg)	341	264		
Saturated Minimum Resistivity, ASTM G-187, (ohm-cm)	3350	4087		

M. Carp

Analyzed By

Nathan Campo Engineering Technician III

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.



Client

AES Clean Energy Development LLC

Project

Rancho Viejo Solar Facility Santa Fe County, NM

Sample Submitted By: Terracon (66)

Date Received: 8/5/2022

Lab No.: 22-0541

Resul	ts of Corrosi	ion Analysis		
Sample Number				
Sample Location	B-01	B-02	B-03	B-04
Sample Depth (ft.)	Grab	Grab	Grab	Grab
pH Analysis, AASHTO T 289	7.55	8.16	8.35	7.55
Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg)	94	113	129	76
Chlorides, AASHTO T 291 (mg/kg)	97	120	155	37
Red-Ox, AWWA 2580 B (mV)	+734	+733	+726	+735
Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm)	6700	2345	1340	3350

N. Carp

Analyzed By:

Nathan Campo Engineering Technician II



Client

AES Clean Energy Development LLC

Project

Rancho Viejo Solar Facility Santa Fe County, NM

Sample Submitted By: Terracon (66)

Date Received: 8/5/2022

Lab No.: 22-0541

Resul	ts of Corrosi	on Analysis		
Sample Number				
Sample Location	B-05	B-06	B-07	B-08
Sample Depth (ft.)	Grab	Grab	Grab	Grab
pH Analysis, AASHTO T 289	7.52	7.17	6.84	7.08
Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg)	107	94	120	94
Chlorides, AASHTO T 291 (mg/kg)	65	75	80	70
Red-Ox, AWWA 2580 B (mV)	+735	+735	+734	+735
Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm)	3484	4556	3551	5427

N. Carp

Analyzed By:

Nathan Campo Engineering Technician II



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Project

Rancho Viejo Solar Facility Santa Fe County, NM

Sample Submitted By: Terracon (66)

Date Received: 8/5/2022

Lab No.: 22-0541

Resul	ts of Corrosi	ion Analysis		
Sample Number				
Sample Location	B-09	B-10	B-11	B-12
Sample Depth (ft.)	Grab	Grab	Grab	Grab
pH Analysis, AASHTO T 289	6.80	7.22	6.66	6.60
Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg)	92	127	72	75
Chlorides, AASHTO T 291 (mg/kg)	90	65	47	50
Red-Ox, AWWA 2580 B (mV)	+732	+734	+728	+735
Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm)	3350	4221	1474	5762

N. Carp

Analyzed By:

Nathan Campo Engineering Technician II



Client

AES Clean Energy Development LLC

Project

Rancho Viejo Solar Facility Santa Fe County, NM

Sample Submitted By: Terracon (66)

Date Received: 8/5/2022

Lab No.: 22-0541

Result	s of Corrosi	on Analysis		
Sample Number				
Sample Location	B-13	B-14	B-15	B-16/B-Sub
Sample Depth (ft.)	Grab	Grab	Grab	Grab
pH Analysis, AASHTO T 289	6.58	6.84	7.38	7.69
Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg)	95	133	88	103
Chlorides, AASHTO T 291 (mg/kg)	47	102	57	50
Red-Ox, AWWA 2580 B (mV)	+734	+732	+723	+731
Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm)	6633	4891	1943	2278

M. Carp

Analyzed By:

Nathan Campo **Engineering Technician II**

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Borehole			In-Situ Properties	Clé	Classificat	ication		Ext	Expansion Testing	Testing			Cor	Corrosivity		
	Soil	Dry Density	Water	Passing #200	Atterb	erberg Limits	S Dry Densitv	Water Content	Surcharge	Expansion	Expansion	На	Resistivity	Sulfates	Chlorides	Remarks
	0000	(pcf)		Sieve (%)	LL	PL PI	(pcf)		(psf)	(%)	EI50		(ohm-cm)	(mdd)	(mdd)	
A-01 0.0 - 1.5	5 SM		7													2
A-01 2.5 - 4.0	CL CL		6	62	39	19 20										
A-01 5.0 - 5.5		104	7													1, 2
A-01 7.5 - 9.0			8													2
A-01 10.0 - 11.5	.5		7													2
A-01 12.5 - 14.0	0.		Ļ													2
A-01 15.0 - 16.5	.5		-													2
A-02 0.0 - 1.5	5 SC		7													2
A-02 2.5 - 4.0			6													2
A-02 5.0 - 5.5	2 CL	100	8	56	38	18 20										1
A-02 7.5 - 9.0			7													2
A-02 10.0 - 11.5	.5		5													2
A-02 12.5 - 14.0	0		2													2
A-02 15.0 - 16.5	.5		2													2
A-02 20.0 - 21.5	.5		2													2
A-03 0.0 - 1.5	SM SM		7													2
A-03 2.5 - 3.0		88	10													1, 2
A-03	10		7													7
A-03 7.5 - 9.0	C		7	65	30	16 14										
A-03 10.0 - 11.5	5		8													2
A-03 12.5 - 14.0	0.		9													2
A-03 15.0 - 16.5	.5		4													2
A-03 20.0 - 21.5	5		6													2
A-04 0.0 - 1.5	2 SM		9													2
			6													2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	noisture deter ximate satura tccordance wi	mined from c ttion. th ASTM D48	ne or more r 329-95.	ings of a mu	llti-ring s:	ig sample.										
PROJECT: Rancho Viejo Solar	ijo Solar									ā	ROJECT	NUMBE	PROJECT NUMBER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	14					6805 Acade Albuc	6805 Academy Pkwy West NE Albuquerque, NM	L R		Ū	CLIENT: A	ES Clei Joulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
					PH. 505-797-4287	97-4287	FAX. 50	FAX. 505-797-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN GPJ TERRACON DATATEMPLATE GDT 11/30/23

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SIMMARY	

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Rorahola	Jenth	nscs	In-Situ P	In-Situ Properties	Clé	Classifica	ication			Expé	Expansion Testing	Testing			Cor	Corrosivity		
No.	(ft.)	Soil	Dry Density	Water	Passing #200	Attert	erberg Limits		Dry Density Cc	Water St Content St	Surcharge E	Expansion	Expansion	На	Resistivity	Sulfates	Chlorides	Remarks
		0000	(pct)	Content (%)	Sieve (%)	H	Ч	Ē	_		(pst)	(%)	EI 50		(ohm-cm)	(mdd)	(mqq)	
A-04	5.0 - 5.5	SM	101	9	39	ЧN	ЧN	ЧN										~
A-04	7.5 - 9.0			2														2
A-04	10.0 - 10.5		113	2														1, 2
A-04	12.5 - 14.0			~														2
A-04	15.0 - 16.5			~														2
A-04	20.0 - 21.5			5														2
A-05	0.0 - 1.5	SM		5														2
A-05	2.5 - 3.0		94	12														1, 2
A-05	5.0-6.5			9														2
A-05	7.5-9.0	CL		5	56	31	15	16										
A-05 10.0	0 - 11.5			3														2
A-05 12.5	5 - 14.0			2														2
A-05 15.0	0 - 16.5			٢														2
A-05 20.0	0 - 21 5			3														2
A-06	0.0 - 1.5	SM		5														2
A-06	2.5 - 4.0			5														2
A-06	5.0 - 6.5	ML		9	71	ЧN	ЧN	ЧN										
A-06	7.5 - 8.0		92	7														1, 2
A-06 10.0	0 - 11 5	SC		9														2
	0 - 16.5			7														2
	.0 - 21.5			6														2
A-07	2.5 - 4.0	CL		7	80	32	17	15										
A-07	5.0 - 6.5			7														2
A-07	7.5 - 8.0		90	8														1, 2
A-07	10.0 - 11.5			6														2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	and/or mois ification. to approxim idex in accc nple	sture determ iate saturatii ordance with	ined from o on. ASTM D46	ne or more r 329-95.	ings of a mu	Ilti-ring :	ıg sample.											
PR(cho Viejo S	Solar										ā	ROJECT	NUMBE	PROJECT NUMBER: 66225093	93		
SITE:	NM 599 and NM 14 Santa Fe, NM						6805 A	Cademy Pk	6805 Academy Pkwy West NE Albuquerque, NM			Ū	CLIENT: A B	ES Cle. Joulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
						PH 505	PH. 505-797-4287		FAX 505-797-4288	7-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225003 RANCHO VIEJO SOLAR FINAL DESIGN. GPJ TERRACON DATATEMPLATE.GDT 11/30/23

Exhibit B-50

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Borahola	hth	nscs	In-Situ P	In-Situ Properties	Ğ	Classifica	ication			Exp	ansion	Expansion Testing			Cor	Corrosivity		
No.	(ft.)	Soil	Dry Density		Passing #200	Atterc	Atterberg Limits		Dry Densitv	Water Content	Surcharge	Expansion	Expansion	H	Resistivity	Sulfates	Chlorides	Remarks
		0000	(pcf)	Content (%)	Sieve (%)	Н	ΡĽ	<u>н</u>			(psf)	(%)	EI50		(ohm-cm)	(mdd)	(mdd)	
A-07	12.5 - 14.0			6														2
A-07	15.0 - 16.5			ω														2
A-07	20.0 - 21.5			6														2
A-08	0.0 - 1.5	С		∞														2
A-08	2.5 - 4.0			9														2
A-08	5.0 - 5.5		95	9														1, 2
A-08	7.5 - 9.0	ML		5	57	ЧN	ЧN	ЧN										
A-08	10.0 - 11.5			7														2
A-08	15.0 - 16.5			10														2
A-08	20.0 - 21.5			8														2
A-09 0.0	- 1.5	CL		9														2
A-09 2.5	- 4.0			7														2
A-09 7.5	- 9.0	SM		5	45	NΡ	NP	NР										
A-09 10.0	- 11.5			7														2
A-09 12.5	- 14.0			6														2
A-09 15.0	- 16.5			5														2
A-09 20.0	- 21.5			9														2
A-10 0.0	- 1.5	С		5														2
A-10 2.5	- 4.0			10														2
A-10 5.0	- 6.5	CL		8	57	34	16	18										
A-10 7.5	- 8.5		92	7														1, 2
A-10 10.0	- 11.5			5														2
A-10 12.5	- 14.0			6														2
A-10 15.0	- 16.5			10														2
A-10	20.0 - 21.5			10														2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 	d/or moist ation.	ture determ	nined from o	ne or more r	ings of a mu	Ilti-ring s	g sample.											
ი. 4 ი.	approxim; ex in acco le	ate saturati rdance witł	ion. Դ ASTM D48	329-95.														
PROJECT: Rancho Viejo Solar	io Viejo S	tolar							ļ			<u>م</u>	PROJECT NUMBER:	NUMBE	:R: 66225093) 93		
SITE: NM 599 and NM 14 Santa Fe, NM	d NM 14 JM						6805 AL	cademy Pk	6805 Academy Pkwy West NE Albuquerque, NM			U U	CLIENT: A B	ES Cle oulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
						PH. 505-797-4287	797-4287		FAX. 505-797-4288	797-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225003 RANCHO VIEJO SOLAR FINAL DESIGN. GPJ TERRACON_DATATEMPLATE.GDT 11/30/23

Exhibit B-51

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Borahola	nscs	In-Situ P	In-Situ Properties	ŭ	Classifica	ication		EX	pansion	Expansion Testing			Cor	Corrosivity		
		Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterb	Atterberg Limits	nits Dry Density PI (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	Expansion Index El ⁵⁰	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
A-11 0.0 - 1.5	CL		7					-								2
A-11 2.5 - 4.0			7													2
A-11 5.0 - 5.5	с с	81	7	99	32	18	14									-
A-11 7.5-9.0			ω													2
A-11 10.0 - 11.5	.5		9													2
A-11 12.5 - 14.0	0.		7													2
A-11 15.0 - 16.5	.5		5													2
A-11 20.0 - 21.5	.5		5													2
A-12 0.0 - 1.5	С		e													2
A-12 2.5 - 4.0	(5													2
A-12 5.0 - 6.0	6	100	ო													1, 2
A-12 7.5 - 9.0) SM		4	42	ЧN	NP	NP									
A-12 10.0 - 11.5	.5		7													2
A-12 12.5 - 14.0	0		8													2
A-12 15.0 - 16.5	5		10													2
A-12 20.0 - 21.5	.5		6													2
A-13 0.0 - 1.5	s sc		6													2
A-13 2.5 - 3.5		84	9													1, 2
A-13 5.0 - 6.5	CL		8	59	35	16	19									
A-13 7.5-9.0			7													2
A-13 10.0 - 11.5	.5		7													2
A-13 12.5 - 14.0	0		7													2
A-13 15.0 - 16.5	5		7													2
A-13 20.0 - 21.5	.5		7													2
A-14 0.0 - 1.5	s sc		8													2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	noisture detern ximate saturat iccordance with	nined from o ion. h ASTM D46	ane or more r 329-95.	ings of a mu	ulti-ring s	g sample.										
PR(jo Solar										PROJECT NUMBER:	NUMBE	ER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	14					6805 Acat Albi	6805 Academy Pkwy West NE Albuquerque, NM	st NE			CLIENT: A	ES Clei Joulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
					PH. 505-797-4287	'97-4287	FAX. 5	FAX. 505-797-4288								
Exhibit B-52																

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225003 RANCHO VIEJO SOLAR FINAL DESIGN. GPJ TERRACON_DATATEMPLATE.GDT 11/30/23

RESULTS	
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SUMMARY	

Borahola			In-Situ Properties	Clé	Classifica	ication			Exp	Expansion Testing	Testing			Cor	Corrosivity		
	. Soil Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterb	erberg Limits		Dry Density (pcf)	Water Content S (%)	Surcharge E	Expansion (%)	Expansion Index EI ⁵⁰	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
A-14 2.5 - 3.5	5	83	1					-									1, 2
A-14 5.0-6.5	2 ML		6	60	ЧN	ЧN	ЧN										
A-14 7.5-9.0	0		10							I							2
A-14 10.0 - 11.5	1.5		39		L												2
A-14 12.5 - 14.0	4.0		6														2
A-14 15.0 - 16.5	6.5		ω														2
A-14 20.0 - 21.5	1.5		4														2
A-15 2.5 - 4.0	0 SM		7	48	ЧN	ЧN	ЧN										
A-15 7.5-9.0	0		9														2
A-15 10.0 -	11.5		7							·							2
A-15 12.5 - 14.0	4.0		10														2
A-15 15.0 -	16.5 SM		8														2
A-15 20.0 - 21.5	1.5		5														2
Bess-01 2.5 - 4.0	0 CL		7	77	30	14	16										
Bess-01 5.0 - 6.0	0	105	8														1, 2
Bess-01 7.5 -	9.0		8														2
Bess-01 10.0 -	11.5 ML		7	67	ЧN	ЧN	NР										
Bess-01 12.5 - 14.0	4.0		5														2
Bess-01 15.0 - 16.5	6.5		5														2
Bess-01 20.0 -	21.5		4														2
Bess-01 25.0 - 26.5	6.5 SP-SM		-														2
Bess-01 30.0 -	31.5		3														2
Bess-01 35.0 - 36.5	6.5		8														2
Bess-01 40.0 - 41.5	1.5		8														2
	5	76	13														1, 2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	moisture deter n. oximate satura accordance wi	mined from c ttion. ith ASTM D48	one or more r 329-95.	ings of a mu	llti-ring s	ıg sample.											
PR(ejo Solar					Č		ļ			Ē	ROJECT	NUMBE	PROJECT NUMBER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	M 14					6805 Ac	cademy Pk	6805 Academy Pkwy West NE Albuquerque, NM			U U	CLIENT: A	AES Clean E Boulder, CO	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
					PH. 505-797-4287	797-4287		FAX 505-797-4288	797-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN. GPJ TATARACON_DATATEMPLATE, GDT 1/30/23

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Borahola	NSCS	In-Situ P	In-Situ Properties	Ŭ,	Classification	tion			Exp	Expansion Testing	Testing			Col	Corrosivity		
	Soil	Dry Density	Water	Passing #200	Atterb	erberg Lir	Limits	Dry Density	Water	Surcharge	Expansion	Expansion	Η	Resistivity	Sulfates	Chlorides	Remarks
	0000	(pcf)		Sieve (%)	Ц	Ы	_ Г			(bsf)	(%)	Elso		(ohm-cm)	(mdd)	(mqq)	
Bess-02 5.0 - 6.5			10														2
Bess-02 7.5 - 9.0	SM		7	46	ď	ЧN	ЧN										
Bess-02 10.0 - 11.5	2		8														2
Bess-02 12.5 - 14.0			9						<u> </u>								2
Bess-02 15.0 - 16.5	CL		∞	62	26	16	10										
Bess-02 20.0 - 21.5	10		6														2
Bess-02 25.0 - 26.5	10		6														2
Bess-02 35.0 - 36.5	2		3														2
Bess-03 0.0 - 1.5	SC		9														2
Bess-03 2.5 - 3.5		102	5														1, 2
Bess-03 5.0 - 6.5			5														2
Bess-03 7.5 - 9.0			11														2
Bess-03 10.0 - 11.5	2		12														2
Bess-03 12.5 - 14.0	(7						<u> </u>								2
Bess-03 15.0 - 16.5	2		7														2
Bess-03 20.0 - 21.5	5 SW-SM		2	8	NP	NP	NP										
Bess-03 25.0 - 26.5	10		2														2
Bess-03 30.0 - 31.5			6														2
Bess-03 35.0 - 36.5	2		6														2
Bess-03 40.0 - 41.5	2		6														2
BW-01 2.5 - 4.0	SM		5	50	ЧN	ЧN	ЧN										
BW-01 5.0 - 6.0		100	7														1, 2
BW-01 7.5 - 9.0			7														2
BW-01 10.0 - 11.5			7														2
BW-01 15.0 - 16.5	2		7														2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	oisture detern imate saturati cordance witt	rined from c ion. רASTM D4	ne or more r 329-95.	ings of a mu	llti-ring s	ıg sample.											
PR	o Solar					Č					۵.	PROJECT NUMBER:	NUMBE	ER: 66225093) 93		
SITE: NM 599 and NM 14 Santa Fe, NM	14					6805 Ac	cademy Pl	6805 Academy Pkwy West NE Albuquerque, NM	_		0	CLIENT: A	VES Cle. 3oulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ient LLC	
					PH. 505-797-4287	97-4287		FAX. 505-797-4288	797-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN. GPJ TERRACON_DATATEMPLATE.GDT 11/30/23

Exhibit B-54

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Borehole	nscs	In-Situ P	In-Situ Properties	Clé	Classifica	ication		Ex	Expansion Testing	Testing			Cori	Corrosivity		
	Soil Class.	Dry Density (pcf)	Water Content (%)		Atterb	Lin	Its Dry Density	Water Content	Surcharge (psf)	Expansion (%)	Expansion Index	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
		(1221)		ا ھ	3	-	_		(1224)				(((
BW-01 20.0 - 21.5	ML		9	60	ď	NP	<u>م</u>									
BW-01 25.0 - 26.5			9													2
BW-01 30.0 - 31.5			ო													0
BW-02 2.5 - 3.5		06	ς													1, 2
BW-02 5.0 - 6.5	SM		4	35	ЧN	NP	<u>م</u>									
BW-02 7.5-9.0			7													2
BW-02 10.0 - 11.5			2													2
BW-02 15.0 - 16.5			4													2
BW-02 20.0 - 21.5			2													2
BW-02 25.0 - 26.5	SM		5	40	ЧN	NP	<u>م</u>									
BW-02 30.0 - 31.5			<u>о</u>													2
BW-03 5.0 - 6.0	ML	97	4	56	ď	NP	<u>م</u>									~
BW-03 7.5 - 9.0			7													2
BW-03 10.0 - 11.5			5													2
BW-03 15.0 - 16.5	SM		2	20	ЧN	NP NP	Ь									
BW-03 20.0 - 21.5			e													2
BW-03 25.0 - 26.5			3													2
BW-03 30.0 - 31.5			8													2
P-01 0.0 - 1.5	sc		7													2
P-01 2.5 - 3.5		06	7													1, 2
P-01 5.0 - 6.5			7													2
P-02 0.0 - 1.5	SC		9													2
P-02 2.5 - 4.0	С		10	61	39	24 1	5									
P-02		95	ω													1, 2
P-03 0.0 - 1.5	SC		7													2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rir 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Samole 	ture determ ate saturati ordance with	iined from o on. 1 ASTM D46	ne or more r 329-95.	ings of a mu		g sample.										
PR(Solar										PROJECT NUMBER:	NUMBE	R: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM						6805 Acac Albu	6805 Academy Pkwy West NE Albuquerque, NM	T R		0	CLIENT: A B	ES Cle	AES Clean Energy Development LLC Boulder, CO)evelopm	ent LLC	
					PH 505-797-4287	97-4287	FAX 50	FAX. 505-797-4288								
Exhibit B-55]

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN. GPT. TRRRACON_DATATEMPLATE.GDT 11/30/23

RESULTS	
ORATORY	
Y OF LAB	
SUMMARY	

Borehole	Denth	nscs	In-Situ P	In-Situ Properties	Clê	Classifica	fication			Expê	Expansion Testing	esting			Cor	Corrosivity		
	(ft.)	Soil Class.	Dry Density	Water	Passing #200	Atterb	erberg Limits		Dry Density (Water Content St	Surcharge E	Expansion	Expansion Index	Hq	Resistivity	Sulfates	Chlorides (nnm)	Remarks
			(Ind)		Sieve (%)	-	님	<u>a</u>	_		(ied)	(0/)	EI 50			(111040)	(iiiidd)	
P-03	2.5 - 3.5		95	7														1, 2
P-03	5.0 - 6.5			7		ЧN	ЧN	ЧN										
P-04	0.0 - 1.5	SC		7														2
P-04	2.5 - 4.0	ML		7	65	ЧN	NΡ	NP										
P-04	5.0 - 6.0		92	8														1, 2
P-05	0.0 - 1.5	SC		2														2
P-05	2.5 - 3.5		81	ω														1, 2
P-05	5.0 - 6.5	С		21	62	28	17	11										
P-06	0.0 - 1.5	sc		7														2
P-06	2.5 - 4.0			9														2
P-06	5.0-6.0	SM	91	9	41	ЧN	ЧN	NP										-
P-07	0.0 - 1.5	SC		7														2
P-07	2.5 - 3.5	SM	76	9	36	NΡ	NΡ	NP										-
P-07	5.0 - 6.5			6														2
P-08	0.0 - 1.5	SC		6														2
P-08	2.5 - 4.0	CL		7	64	35	24	11										
P-08	5.0-6.0		83	8														1, 2
Sub-01	2.5 - 3.5	сГ	93	6	58	30	17	13										-
Sub-01	5.0-6.5			8														2
Sub-01	7.5 - 9.0			8														2
Sub-01	10.0 - 11.5			8														2
Sub-01	12.5 - 14.0			6														2
Sub-01	15.0 - 16.5			7														2
Sub-01	20.0 - 21.5	CL		8	69	29	16	13										
Sub-01	25.0 - 26.5			8														2
REMARKS 1. Dry Dens 2. Visual Cla 3. Submerg 5. Air-Dried	MARKS Dry Density and/or moisture determined from one or more rings of a multi-rir Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample	ture detern ate saturati rdance with	ined from o on. \ ASTM D46	ane or more r 329-95.	ings of a mu		ıg sample.											
	PROJECT: Rancho Viejo Solar	Solar					Ĺ					Ţ	PROJECT NUMBER:	NUMBE	ER: 66225093) 93		
SITE:	NM 599 and NM 14 Santa Fe, NM						6805 A	6805 Academy Pkwy West NE Albuquerque, NM	wy West NE e, NM			G	CLIENT: A B	ES Cle. soulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
						PH. 505-797-4287	797-4287		FAX. 505-797-4288	97-4288								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN GPJ TERRACON DATATEMPLATE. GDT 11/30/23

Exhibit B-56

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Borahola	NSCS	In-Situ P	In-Situ Properties	Cla	Classificat	ication		Ш	Expansion Testing	Testing			Cor	Corrosivity		
	Soil Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterbe	Atterberg Limits	nits Dry Density PI (pcf)	ty Content (%)	Surcharge (psf)	Expansion (%)	Expansion Index EI 50	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
Sub-01 30.0 - 31.5			9													2
Sub-01 35.0 - 36.5			9													2
Sub-01 40.0 - 41.5			9													2
Sub-02 0.0 - 1.5	sc		7													2
Sub-02 2.5 - 4.0	С		6	62	30	22	∞									
Sub-02 5.0 - 6.0		06	10													1, 2
Sub-02 7.5 - 9.0			ი													2
Sub-02 10.0 - 11.5			ი													2
Sub-02 12.5 - 14.0			7													2
Sub-02 15.0 - 16.5			5													2
Sub-02 20.0 - 21.5	SM		ო	22	ЧN	NP NP	NP									
Sub-02 25.0 - 26.5			7													2
Sub-02 30.0 - 31.5			9													2
Sub-02 35.0 - 36.5			7													2
Sub-02 40.0 - 41.5			9													2
T-01 2.5 - 4.0			10													2
T-01 5.0 - 6.0	СГ	103	7	64	31	12	19									-
T-01 7.5 - 9.0			9													2
T-01 10.0 - 11.5			7													2
T-01 15.0 - 16.5			7													2
T-01 20.0 - 21.5			5													2
T-01 25.0 - 26.5	SM		4	38	NP	NP N	NP									
T-01 30.0 - 31.5			8													2
T-02		91	9													1, 2
T-02 7.5 - 9.0	ML		5	63	NP	NP N	NP									
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rin 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Samula 	ture detern ate saturati rrdance witt	iined from o on. 1 ASTM D46	ne or more r 329-95.	ings of a mu	lti-ring s	ig sample.										
PR(solar										PROJECT NUMBER:		R: 66225093	93		
						0				•						
SITE: NM 599 and NM 14 Santa Fe, NM						6805 Acc All	6805 Academy Pkwy West NE Albuquerque, NM	Vest NE M		0	CLIENT: A	ES Cle oulder,	AES Clean Energy Development LLC Boulder, CO	Developm	ent LLC	
					PH. 505-797-4287	97-4287	FAX	FAX 505-797-4288								
Exhibit B-57																

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN. GPT. TERRACON_DATATEMPLATE.GDT 11/30/23

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Borahola	nscs		In-Situ Properties	Ö	Classification	ion		Exp	Expansion Testing	Testing			Corr	Corrosivity		
		Dry Density (pcf)	Water Content (%)	Passing #200	Atterbe	- Li	Dry Density	Water Content	Surcharge [Expansion (%)	Expansion Index	Hď	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
				Sieve (%)	3	<u>-</u> 	(bct)				E 20			((
	1.5		ω													2
T-02 15.0 - 16.5	6.5		9													2
T-02 20.0 - 21.5	1.5 CL		8	58	26	16 10										
T-02 25.0 -	26.5		2													2
T-02 30.0 -	31.5		7													2
T-03 2.5 - 4.0	0		5													2
T-03 5.0 - 6.0	0	89	4													1, 2
T-03 7.5-9.0	0		ę													2
T-03 10.0 - 11.5	1.5 SM		7	23	- NP	NP										
T-03 15.0 - 16.5	6.5		5													2
T-03 20.0 - 21.5	1.5		4													2
T-03 25.0 - 26.5	6.5 SM		ę													2
T-03 30.0 -	31.5		2													2
T-04 2.5-3.5	5	101	4													1, 2
T-04 5.0 - 6.5	5		1													2
T-04 7.5-9.0	0		ę													2
T-04 10.0 -	11.5		4													2
T-04 15.0 - 16.5	6.5 ML		9	61	NP	NP NP										
T-04 20.0 - 21.5	1.5		4													2
T-04 25.0 - 26.5	6.5 SC-SM		11													2
T-04 30.0 - 31.5	1.5		4													2
 REMARKS 1. Dry Density and/or moisture determined from one or more rings of a multi-rir 2. Visual Classification. 3. Submerged to approximate saturation. 4. Expansion Index in accordance with ASTM D4829-95. 5. Air-Dried Sample 	moisture deter n. oximate satura accordance wi	mined from o ttion. th ASTM D46	ne or more r 329-95.	ings of a mu	llti-ring se	ıg sample.										
PROJECT: Rancho Viejo Solar	lejo Solar						ľ			ā	ROJECT	NUMBE	PROJECT NUMBER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	M 14					6805 Acader Albuq	6805 Academy Pkwy West NE Albuquerque, NM	L TR		Ö	client: AI B	ES Clea oulder, 1	AES Clean Energy Development LLC Boulder, CO)evelopm	ent LLC	
					PH. 505-797-4287	37-4287	FAX. 50	FAX. 505-797-4288								
Exhibit B-58]

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN GPJ TERRACON DATATEMPLATE GDT 11/30/23

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	(ft.)	Soil Class.	Dry Density	Water	Passing #200	Atterb	erberg Limits	imits	Swell (%)	Consolidation (%)	Ha	Resistivity	Sulfates	Chlorides	Remarks
						LL	ΡĹ	Ы		50	-	(onm-cm)	(mdd)	(mdd)	
B-01	- 0.0	ML									7.6	6700	94	67	2
B-01	0.5 - 2.0	ML		5	57	ЧN	ЧN	ЧN							
B-01	2.5 - 3.5	ML	86	8											1, 2
B-01	5.0 - 6.5	ML		5											2
B-01	7.5-9.0	ML		5											2
B-01	10.0 - 11.5	ML		∞											2
B-01	12.5 - 14.0	ML		5											2
B-01	15.0 - 16.5	ML		ω											2
B-02	- 0.0	ML									8.2	2345	113	120	2
B-02	0.5 - 2.0	ML		5											2
B-02	2.5 - 4.0	ML		9											2
B-02	5.0 - 6.0	ML	86	6	75	ЧN	ЧN	NP							-
B-02	7.5-9.0	ML		8											2
B-02	10.0 - 11.5	ML		2											2
B-02	12.5 - 14.0	ML		10											2
B-02	15.0 - 16.5	ML		7											2
B-03	0.0 - 0.0	ML									8.4	1340	129	155	2
B-03	0.5 - 2.0	ML		6											2
B-03	2.5 - 4.0	ML		6											2
B-03	5.0 - 6.0	ML	93	8											1, 2
B-03	7.5 - 9.0	SM		7											2
B-03	10.0 - 11.5	SM		7	61	NP	NP	NP							
B-03	12.5 - 14.0	ML		11											2
B-03	15.0 - 16.5	ML		7											2
B-04	0.0	ML									7.6	3350	76	37	2
In the separation of the separ	REMARKS Density and/or moisture determined from one or more rings of a multi-ring sample. Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample 	ure determink te saturation. dance with A	ed from one STM D4829	or more rings -95.	s of a multi-ri	ng samp	e.								
	PROJECT: Rancho Viejo Solar Facility	olar Facility		<u> </u>			Ĺ			PROJECT	NUMB	PROJECT NUMBER: 66225093	93		
SITE:	NM 599 and NM 14 Santa Fe, NM						6805 /	6805 Academy Pkwy West NE Albuquerque, NM	vy West NE	CLIENT: A	ES Cle Boulder	CLIENT: AES Clean Energy Development LLC Boulder, CO	evelopmer	nt LLC	
						PH 505	505-797-4287		FAX. 505-797-4288						

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLA GAT 9/26/22

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	4	USCS	In-Situ Properties	operties	Ö	Classifica	fication	-	Expansic	Expansion Testing		ပိ	Corrosivity		
No.	(ft.)	Soil Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterb	Atterberg Limits	mits PI	Swell (%)	Consolidation (%)	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
B-04 0.5	5 - 2.0	ML		4											2
B-04	2.5 - 3.5	ML	66	7	75	ЧN	ЧN	ЧN							-
B-04 5.0	0 - 6.5	ML		7											2
B-04 7.5	5 - 9.0	ML		9											2
B-04 10.0	0 - 11.5	ML		7											2
B-04 12.5	5 - 14.0	SM		9											2
B-04 15.0) - 16.5	ML		10											2
B-05	0.0 -	ML									7.5	3484	107	65	2
B-05 0.5	5 - 1.5	ML	82	11											1, 2
B-05 2.5	5 - 4.0	ML		7											2
B-05 5.0) - 6.5	ML		7	61	NP	NP	NP							
B-05 7.5	5 - 9.0	ML		7											2
B-05 10.0	0 - 11.5	ML		6											2
B-05 12.5	5 - 14.0	ML		4											2
B-05 15.0) - 16.5	ML		e											2
B-06	0.0 -	ML									7.2	4556	94	75	2
B-06	0.5 - 2.0	ML		7											2
B-06	2.5 - 4.0	ML		9											2
B-06 5.0	0-6.0	ML	98	7											1, 2
B-06 7.5	5 - 9.0	ML		10											2
B-06	10.0 - 11.5	ML		9	59	ЧN	ЧN	ЧN							
B-06	12.5 - 14.0	ML		8											2
B-06	15.0 - 16.5	ML		7											2
B-07	0.0 - 0.0	ML									6.8	3551	120	80	2
B-07	0.5 - 2.0	ML		7											2
 REMARKS Dry Density and/or moisture determined from one or more rings of a multi-ring sample. Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample 	d/or moistu ≿ation. approximatu x in accord	ire determink e saturation. lance with A:	ed from one (STM D4829-	or more rings .95.	s of a multi-ri	ng samp	<u>o</u>								
PR	ho Viejo S(olar Facility					Č			PROJECT NUMBER:	NUMBI	ER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	nd NM 14 NM						6805 /	6805 Academy Pkwy West NE Albuquerque, NM	wy West NE	CLIENT: A	ES Cle soulder	CLIENT: AES Clean Energy Development LLC Boulder, CO	Jevelopmei	nt LLC	
						PH 505-7	505-797-4287	-	FAX. 505-797-4288						

Exhibit B-60

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLA GPI JERREAD 9/26/22

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		USCS	In-Situ Properties	roperties	ö	Classifica	fication		Expans	Expansion Testing		ပိ	Corrosivity		
Borenole No.	(ft.)	Soil Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterb	Atterberg Limits	mits	Swell (%)	Consolidation (%)	풘	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
B-07	2.5 - 3.5	ML	84	6	70		ЧZ	ЧN							~
B-07	5.0 - 6.5	ML		ω											2
B-07	7.5-9.0	ML		∞											2
B-07	10.0 - 11.5	ML		1											2
B-07	12.5 - 14.0	ML		11											2
B-07	15.0 - 16.5	ML		ω											2
B-08	0.0 - 0.0	ML									7.1	5427	94	20	2
B-08	0.5 - 2.0	ML		6											2
B-08	2.5-4.0	ML		6											2
B-08	5.0 - 6.0	ML	96	7	59	NP	NP	NP							-
B-08	7.5-9.0	SM		9											2
B-08	10.0 - 11.5	SM		6											2
B-08	12.5 - 14.0	ML		11											2
B-08	15.0 - 16.5	ML		6											2
B-09	0.0 - 0.0	ML									<u>6.8</u>	3350	92	06	2
B-09	0.5 - 2.0	ML		6											2
B-09	2.5 - 3.5	ML	97	6											1, 2
B-09	5.0 - 6.5	ML		8											2
B-09	7.5 - 9.0	ML		6											2
В-09	10.0 - 11.5	ML		9											2
В-09	12.5 - 14.0	ML		7											2
B-09	15.0 - 16.5	ML		7											2
B-10	0.0 - 0.0	ML									7.2	4221	127	65	2
B-10	0.5 - 2.0	ML		6											2
B-10	2.5 - 3.5	SM	90	7											1, 2
 REMARKS Dry Density and/or moisture determined from one or more rings of a multi-ring sample. Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample 	MARKS Dry Density and/or moisture determined from one or n Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample	ure determin le saturation. tance with A	ed from one STM D4829-	or more rings -95.	s of a multi-ri	ng sampl	<u>a</u>								
ЪЯЧ	ncho Viejo S	olar Facility					Č			PROJECT	NUMB	PROJECT NUMBER: 66225093	<u>)</u> 93		
SITE:	NM 599 and NM 14 Santa Fe, NM						6805 4	Albuquerqu	6805 Academy Pkwy West NE Albuquerque, NM	CLIENT: A	VES Cle Boulder	AES Clean Energy Development LLC Boulder, CO)eve l opmei	nt LLC	
01.1.1						PH 505-7	505-797-4287		FAX. 505-797-4288						

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 662256093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Exhibit B-61

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			In-Situ Properties	ö	Classifica	ication	-	Expansion Testing	Testing		CO	Corrosivity		
No. (ft.)	Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterb	Atterberg Limits	imits PI	Swell (%) Cc	Consolidation (%)	Hd	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
B-10 5.0-6.0	.0 SM		7											2
B-10 7.5 - 9.0	0.0 ML		7											2
B-10 10.0 - 11.5	1.5 ML		17	98	ЧN	ЧN	ΝΡ							
B-10 12.5	- 14.0 ML		6											2
B-10 15.0 -	16.5 ML		7											2
B-11 0.0	- ML									6.7	1474	72	47	2
B-11 0.5 -	2.0 ML		5											2
B-11 2.5	- 4.0 ML		5	61	ЧN	ЧN	NP							
B-11 5.0-6.0	0.0 ML	06	7											1, 2
B-11 7.5 -	9.0 ML		8											2
B-11 10.0	- 11.5 ML		8											2
B-11 12.5	- 14.0 ML		7											2
B-11 15.0	- 16.5 ML		8											2
B-12 0.0	- ML									6.6	5762	75	50	2
B-12 0.5 - 2.0	O ML		7											2
B-12 2.5 - 3.5	3.5 ML	84	8											1, 2
B-12 5.0 - 6.5	3.5 ML		8	58	NP	NP	NP							
B-12 7.5 - 9.0	0.0 ML		7											2
B-12 10.0	- 11.5 ML		4											2
B-12 12.5	- 14.0 ML		5											2
B-12 15.0 - 16.5	6.5 ML		9											2
B-13 0.0 -	- ML									6.6	6633	95	47	2
B-13 0.5 - 2.0	5.0 ML		5											2
B-13 2.5 - 4.0	H ML		5											2
B-13 5.0-6.0	0.0 ML		6											2
 REMARKS Dry Density and/or moisture determined from one or more rings of a multi-ring sample. Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95. Air-Dried Sample 	moisture deterr ר oximate saturat accordance wit	nined from one ion. h ASTM D4825	or more rings)-95.	s of a multi-ri	ng samp	e.								
PROJECT: Rancho Viejo Solar Facility	iejo Solar Faci	llity				Ĺ			PROJECT NUMBER:	NUMBE	ER: 66225093	93		
SITE: NM 599 and NM 14 Santa Fe, NM	M 14					6805	6805 Academy Pkwy West NE Albuquerque, NM	wy West NE e, NM	CLIENT: A	ES Cle. oulder,	CLIENT: AES Clean Energy Development LLC Boulder, CO	evelopmer	nt LLC	
					PH 505	PH. 505-797-4287		FAX. 505-797-4288						

Exhibit B-62

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLA GP1 JERRARDA 2020.

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Borehole Denth	220		In-Situ Properties	ว	Classifice	fication		Expan	Expansion Testing		Co	Corrosivity		
(ft.)	Soil Class.	Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Attert	erberg Limits	imits PI	Swell (%)	Consolidation (%)	Ha	Resistivity (ohm-cm)	Sulfates (ppm)	Chlorides (ppm)	Remarks
75-90	ML		5											2
10.0 - 11.5	SM		e	23	ЧZ	ЧN	ЧN							
12.5 - 14.0	SM		2											2
15.0 - 16.5	SM		4											2
- 0:0	ML									6.8	4891	133	102	2
0.5 - 2.0	ML		e											2
2.5 - 3.5	ML	93	5	51	ЧN	ЧN	ЧN							-
5.0 - 6.5	ML		5											2
7.5-9.0	SM		4											2
10.0 - 11.5	SM		-											2
12.5 - 14.0	SM		-											2
15.0 - 16.5	SM		2											2
0.0 - 0.0	ML									7.4	1943	88	57	2
0.5 - 2.0	ML		5											2
2.5 - 4.0	ML		9											2
5.0 - 6.0	ML	94	4	41	ЧN	ЧN	ЧN							.
7.5-9.0	SM		3											2
10.0 - 11.5	SM		2											2
12.5 - 14.0	SM		1											2
15.0 - 16.5	SM		3											2
0.0 - 0.0	ML									7.7	6633	103	50	2
0.5 - 1.5	ML	78	12											1, 2
2.5 - 4.0	SM		10	59	NP	NP	NP							
5.0 - 6.5	ML		7											2
7.5-9.0	SM		9											2
MARKS Dry Density and/or moisture determined from one or more rings of a multi-ring sample. Visual Classification. Submerged to approximate saturation. Expansion Index in accordance with ASTM D4829-95.	ire determin e saturation. lance with A	ed from one c STM D4829-	or more ring: 95.	s of a multi-r	ing samp	ole.								
PROJECT: Rancho Viejo Solar Facility	olar Facility					L			PROJECT	NUMBI	PROJECT NUMBER: 66225093	63		
						0						3		
NM 599 and NM 14 Santa Fe, NM						6805 .	Academy Ph Albuquerqu	6805 Academy Pkwy West NE Albuquerque, NM	CLIENT: A	ES Cle Boulder	AES Clean Energy Development LLC Boulder, CO	evelopme	int LLC	
					PH, 505-	505-797-4287		FAX. 505-797-4288						

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 662256093 RANCHO VIEJO SOLA GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



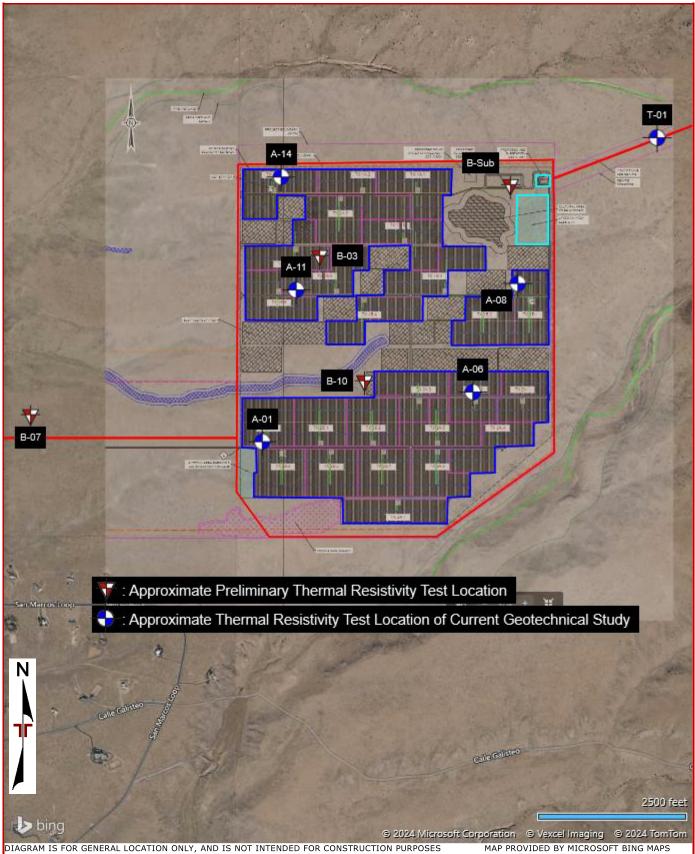
APPENDIX C

THERMAL RESISTIVITY TESTING

Responsive Resourceful Reliable



Exploration Plan – Thermal Resistivity Locations





Exploration Plan – Field Electrical Resistivity Locations





21239 FM529 Rd., Bldg. F Cypress, TX 77433 Tel: 281-985-9344 Fax: 832-427-1752 <u>info@geothermusa.com</u> <u>http://www.geothermusa.com</u>

December 21, 2023

Terracon 6805 Academy Parkway West NE Albuquerque, New Mexico 87109 <u>Attn: Stenson Lee</u>

Re: Thermal Analysis of Native Soil Samples Rancho Viejo Solar – Santa Fe, NM (Project No. 66225093)

The following is the report of thermal dryout characterization tests conducted on ten (10) bulk samples of native soil from the referenced project sent to our laboratory.

<u>Thermal Resistivity Tests:</u> The samples were tested at the 'optimum' moisture content and at 85% of the standard Proctor dry density *provided by Terracon*. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated below and the thermal dryout curves are presented in **Figures 1 to 10**.

Sample ID	Depth (ft)	Effort	Description		Resistivity m/W)	Moisture Content	Dry Density
••••••••••	- •p ()	(%)	(Terracon)	Wet	Dry	(%)	(lb/ft ³)
A-01	1.0 - 5.0	85	Silty Sand (SM)	97	236	14	92
A-06	1.0 - 5.0	85	Silty Sand (SM)	69	157	11	101
A-08	1.0 - 5.0	85	Lean Clay (CL)	89	205	13	96
A-11	1.0 - 5.0	85	Lean Clay (CL)	92	218	16	92
A-14	1.0 - 5.0	85	Silty Sand (SM)	95	306	17	86
BW-01	1.0 - 5.0	85	Lean Clay w/ Sand	78	186	13	100
T-01	1.0 - 5.0	85	Clayey Sand (SC)	94	239	18	90

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

COOL SOLUTIONS FOR UNDERGROUND POWER CABLES THERMAL SURVEYS, CORRECTIVE BACKFILLS & INSTRUMENTATION

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Sample ID	Depth (ft)	Effort (%)	Description (Terracon)	The Resis (°C-c		Moisture Content	Dry Density
		. ,	, , , , , , , , , , , , , , , , , , ,	Wet	Dry	(%)	(lb/ft ³)
T-02	1.0 - 5.0	85	Clayey Sand (SC)	90	239	12	95
T-03	1.0 - 5.0	85	Lean Clay (CL)	80	168	13	102
T-04	1.0 - 5.0	85	Lean Clay (CL)	67	137	9	109

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

Please contact us if you have any questions or if we can be of further assistance.

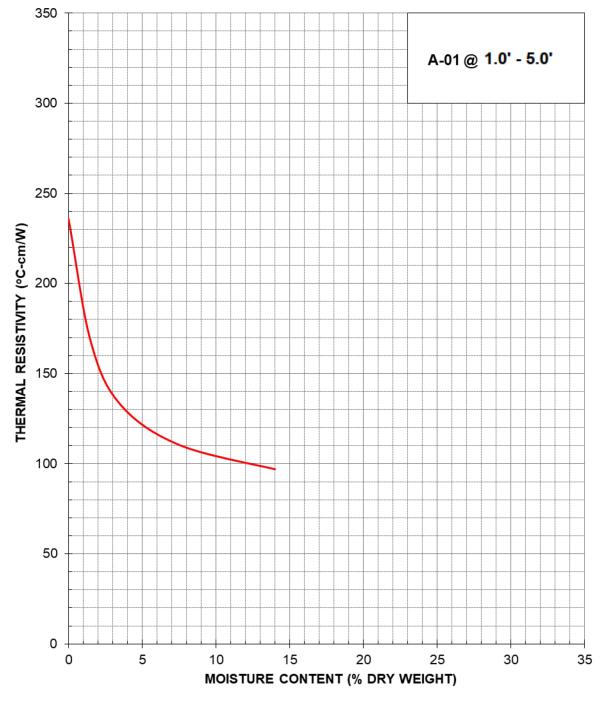
Geotherm USA

ner Deepak Parmar



1.0' - 5.0'

THERMAL DRYOUT CURVE



Terracon (Project No. 66225093)

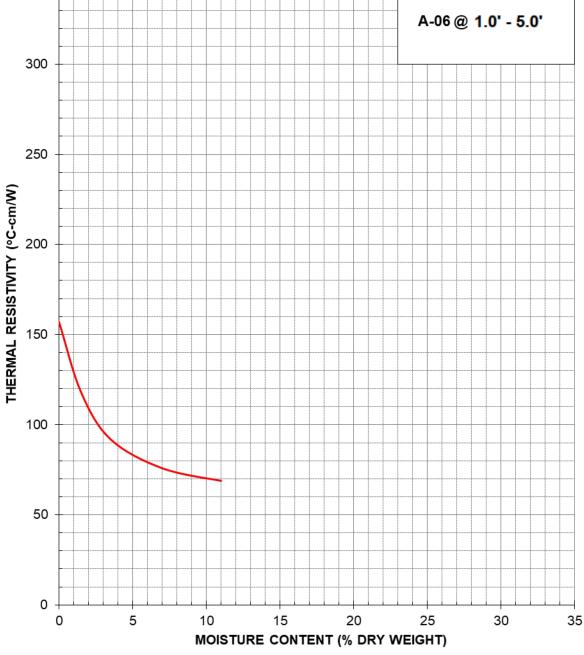
Rancho Viejo Solar – Santa Fe, NM



December 2023



350



Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM





A-08 @ 1.0' - 5.0' THERMAL RESISTIVITY (°C-cm/W) 0 -**MOISTURE CONTENT (% DRY WEIGHT)**

THERMAL DRYOUT CURVE

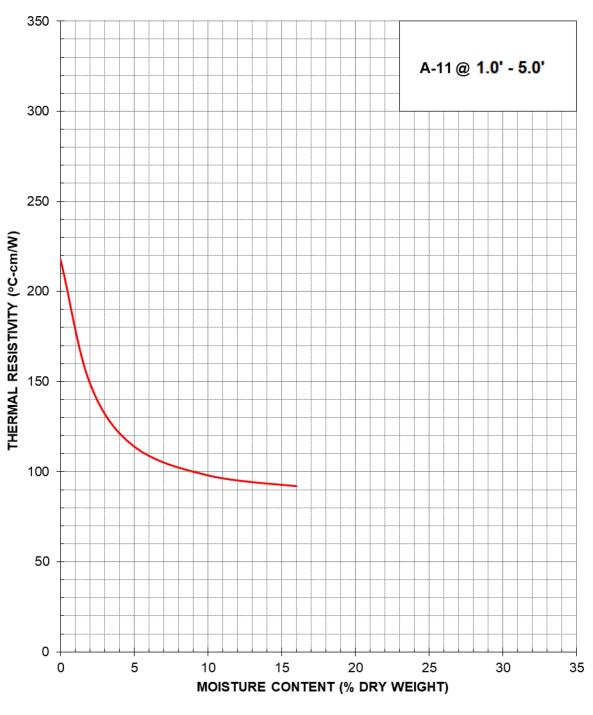
Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM



December 2023





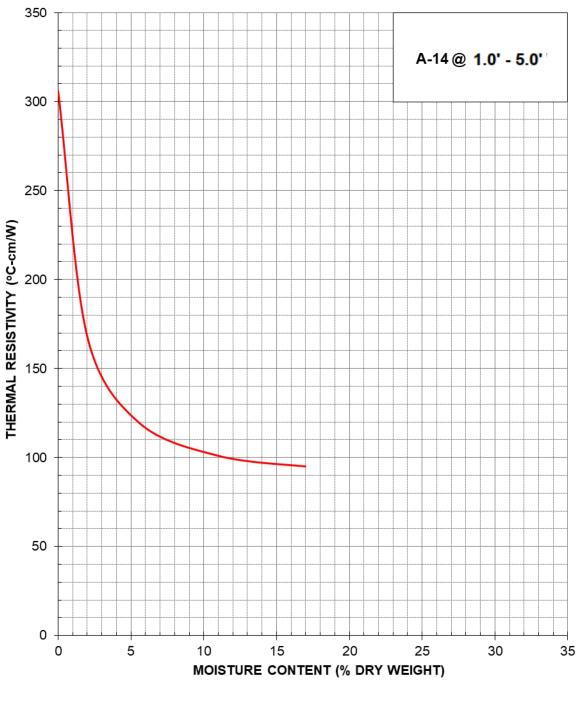
Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM



December 2023





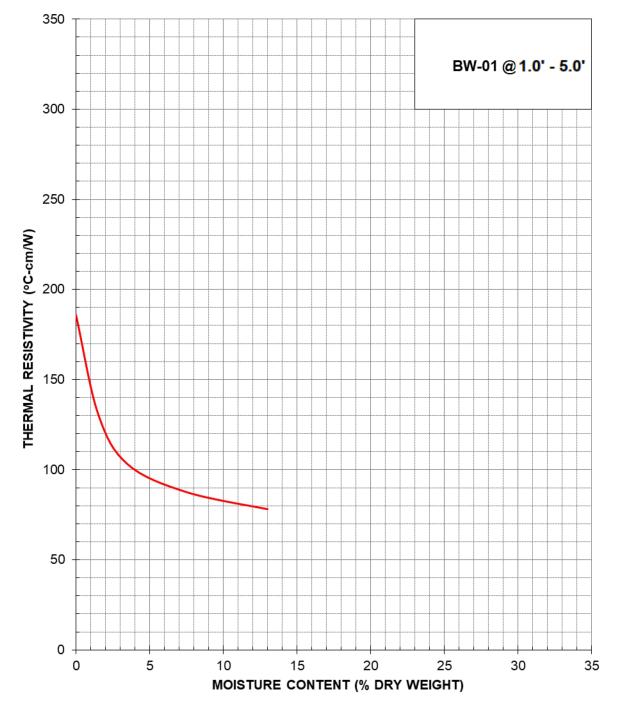
Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM

Thermal Analysis of Native Soil Samples

December 2023





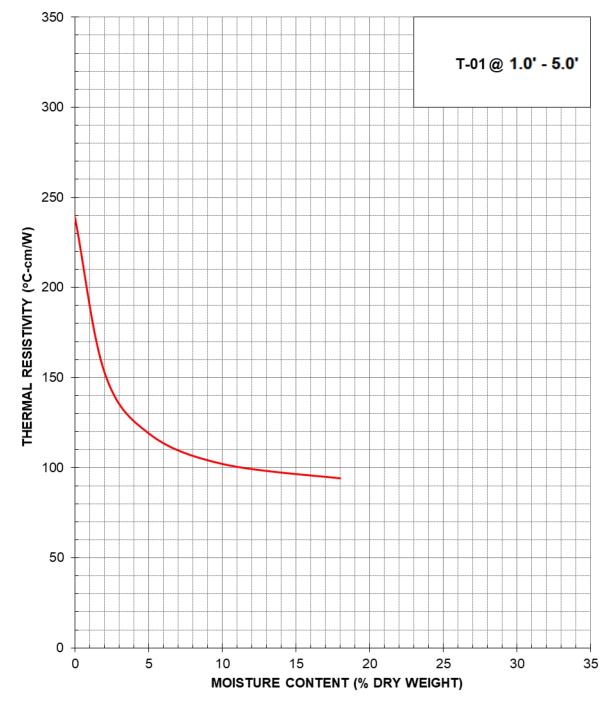
Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM



December 2023





Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM



December 2023



T-02@ 1.0' - 5.0' THERMAL RESISTIVITY (°C-cm/W) 0 -**MOISTURE CONTENT (% DRY WEIGHT)**

THERMAL DRYOUT CURVE

Terracon (Project No. 66225093)

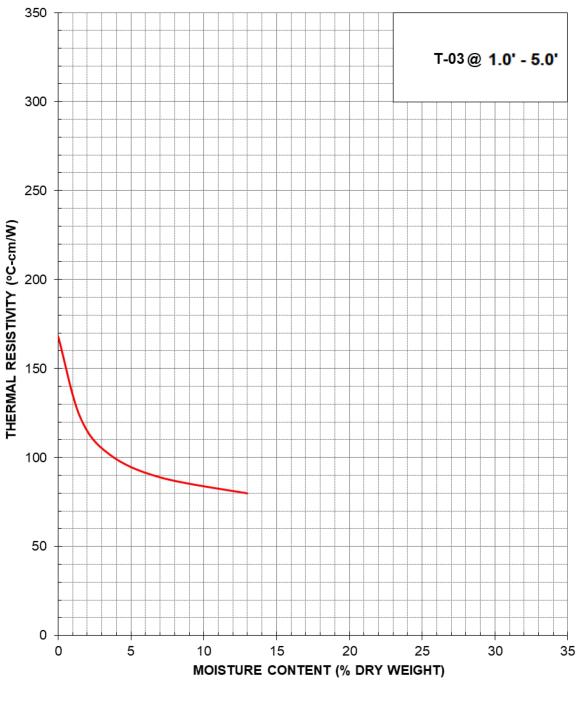
Rancho Viejo Solar – Santa Fe, NM



December 2023

Figure 8





Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM

Thermal Analysis of Native Soil Samples

December 2023



 350
 T-04 @ 1.0' - 5.0'

 300
 T-04 @ 1.0' - 5.0'

 250
 T-04 @ 1.0' - 5.0'

 150
 T-04 @ 1.0' - 5.0'

THERMAL DRYOUT CURVE

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Terracon (Project No. 66225093)

Rancho Viejo Solar – Santa Fe, NM

Thermal Analysis of Native Soil Samples

December 2023



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September 2, 2022

Terracon 6805 Academy Parkway West NE Albuquerque, New Mexico 87109 <u>Attn: Stenson Lee</u>

Re: Thermal Analysis of Native Soil Samples <u>Rancho Viejo Solar – Santa Fe County, NM (PO No. 66225093)</u>

The following is the report of thermal dryout characterization tests conducted on four (4) samples of native soil from the referenced project sent to our laboratory.

<u>Thermal Resistivity Tests:</u> The samples were tested at the 'optimum' moisture content and at 90% and 95% of the standard Proctor dry density *provided by Terracon*. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated below and the thermal dryout curves are presented in **Figures 1 to 4**.

Sample ID	, Description	Thermal	Resistivity	Moisture	Content a	nd Density
oample ib	, Description	, incinai	Resistivity,	Moisture	Content a	nu Density

Sample ID	Effor t (%)	Description	Thermal Resistivity (°C-cm/W)		Moisture Content	Dry Density
		(Terracon)	Wet	Dry	(%)	(lb/ft ³)
B-03	90	Sandy silt (ML)	89	239	16	98
	95	Sandy Sift (ML)	83	202		104
B-07	90	Silt with cond (ML)	82	207	13	106
	95	Silt with sand (ML)	76	173		112
B-10	90	Sandy ailt (ML)	74	194	14	106
	95	Sandy silt (ML)	69	163		112
B-Sub	90	Sandy ailt (ML)	103	303	11	92
	95	Sandy silt (ML)	92	262		98

COOL SOLUTIONS FOR UNDERGROUND POWER CABLES THERMAL SURVEYS, CORRECTIVE BACKFILLS & INSTRUMENTATION

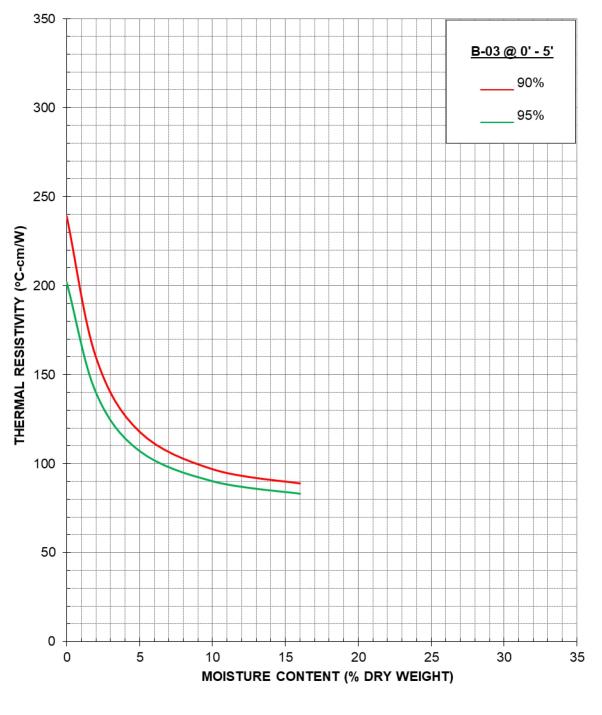
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Please contact us if you have any questions or if we can be of further assistance.







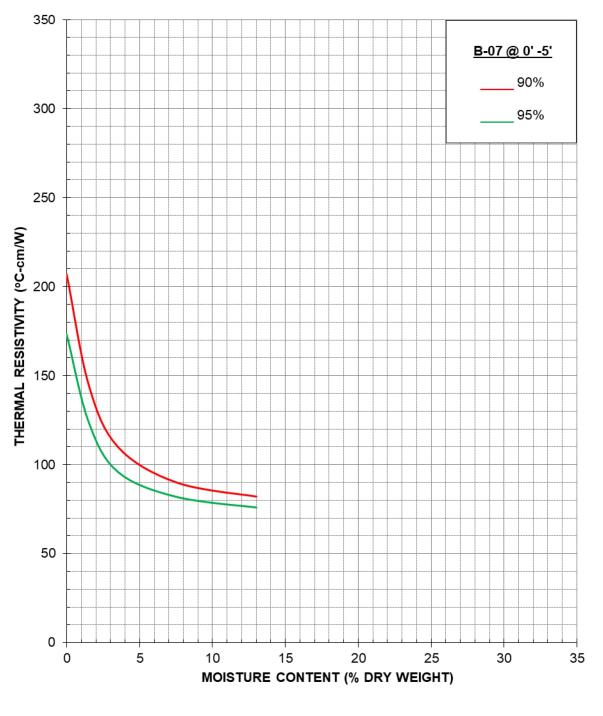
Terracon (PO No. 66225093)

Rancho Viejo Solar - Santa Fe County, NM

Thermal Analysis of Native Soil Samples

September 2022





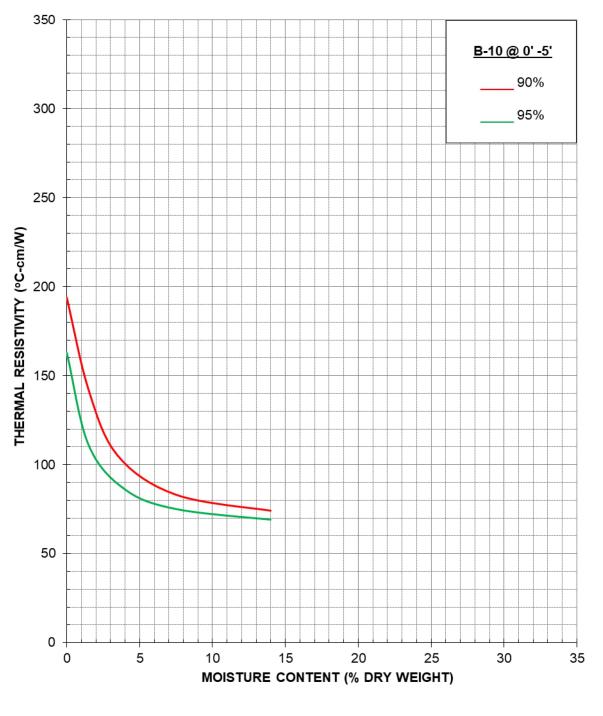
Terracon (PO No. 66225093)

Rancho Viejo Solar – Santa Fe County, NM

Thermal Analysis of Native Soil Samples

September 2022





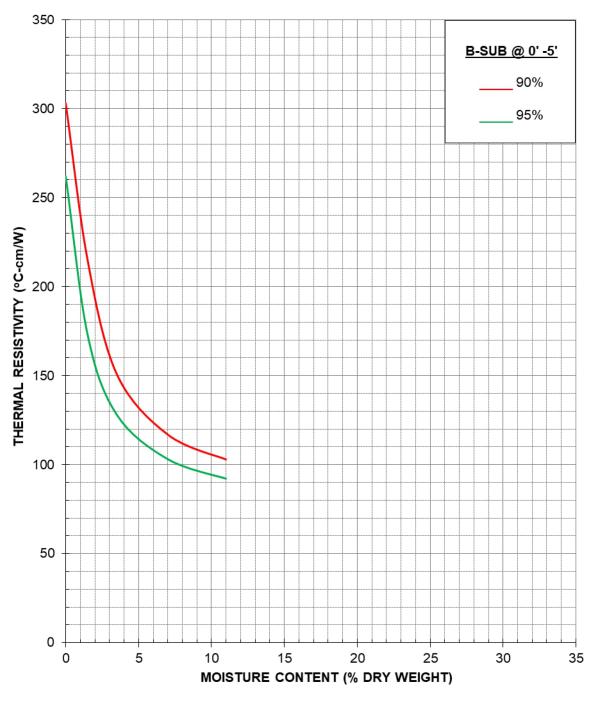
Terracon (PO No. 66225093)

Rancho Viejo Solar – Santa Fe County, NM

Thermal Analysis of Native Soil Samples

September 2022





Terracon (PO No. 66225093)

Rancho Viejo Solar – Santa Fe County, NM

Thermal Analysis of Native Soil Samples

September 2022



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March 19, 2024

Terracon 6805 Academy Parkway West NE Albuquerque, New Mexico 87109 <u>Attn: Stenson Lee</u>

Re: Thermal Analysis of Native Soil Samples <u>Rancho Viejo Solar Part 2– Santa Fe, NM (Project No. 66225093)</u>

The following is the report of thermal dryout characterization tests conducted on eight (8) bulk samples of native soil from the referenced project sent to our laboratory.

<u>Thermal Resistivity Tests:</u> The samples were tested at the 'optimum' moisture content and at 85% and 90% of the standard Proctor dry density *provided by Terracon*. The tests were conducted in accordance with the **IEEE standard 442-2017**. The results are tabulated below and the thermal dryout curves are presented in **Figures 1 to 8**.

Sample ID	Sample ID Depth	Effort	Description		Resistivity m/W)	Moisture Content	Dry Density
oumpio in	(ft)	(%)	(Terracon)	Wet	Dry	(%)	(lb/ft ³)
A-01A	1 - 5	85	Lean Clay	99	209	14	93
A-01A	1 - 5	90	Lean Clay	94	182	14	98
A-06A	1 - 5	85	Lean Clay	92	178	11	100
A-06A	1 - 5	90	Lean Clay	87	155	11	106
A-08A	1 - 5	85	Lean Clay	108	266	17	87
A-08A	1 - 5	90	Lean Clay	103	231	17	93
A-11A	1 - 5	85	Lean Clay	89	200	14	96
A-11A	1 - 5	90	Lean Clay	85	174	14	101

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

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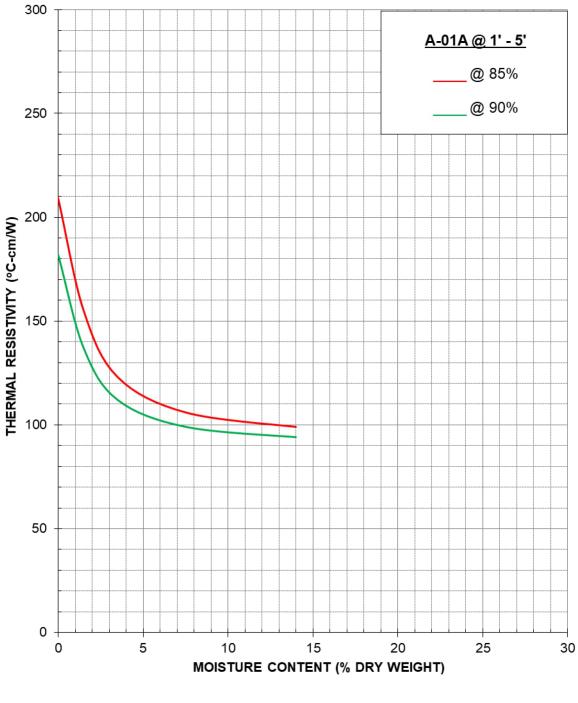
Sample ID Depth (ft)		Effort (%)	Description (Terracon)	Thermal Resistivity (°C-cm/W)		Moisture Content	Dry Density (lb/ft ³)
	(,	(73)	(10112001)	Wet		(%)	(lb/ft ³)
A-14A	1 - 5	85	Lean Clay	109	269	20	86
A-14A	1 - 5	90	Lean Clay	104	234	20	91
Sub-02A	1 - 5	85	Lean Clay	96	260	18	88
Sub-02A	1 - 5	90	Lean Clay	91	226	18	93
T-01A	1 - 5	85	Lean Clay	110	289	22	82
T-01A	1 - 5	90	Lean Clay	105	251	22	86
T-03A	1 - 5	85	Silty Sand	69	139	10	105
T-03A	1 - 5	90	Silty Sand	66	121	10	111

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

Please contact us if you have any questions or if we can be of further assistance.

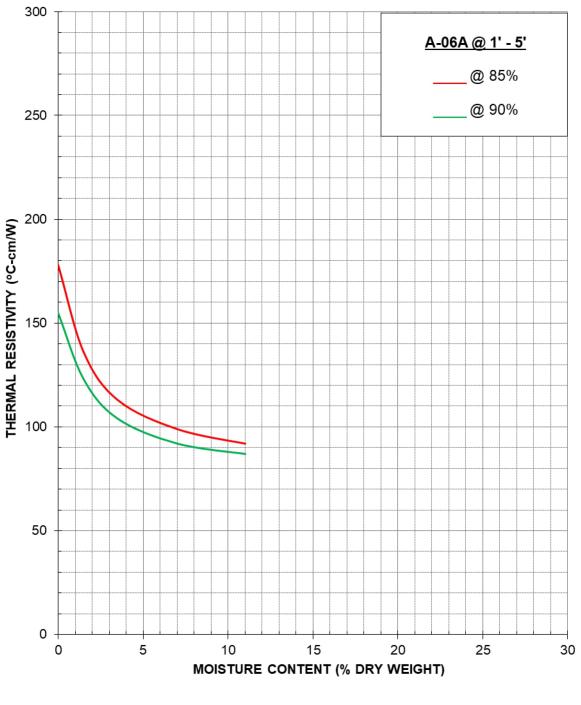
Geotherm USA Deepak Parmar





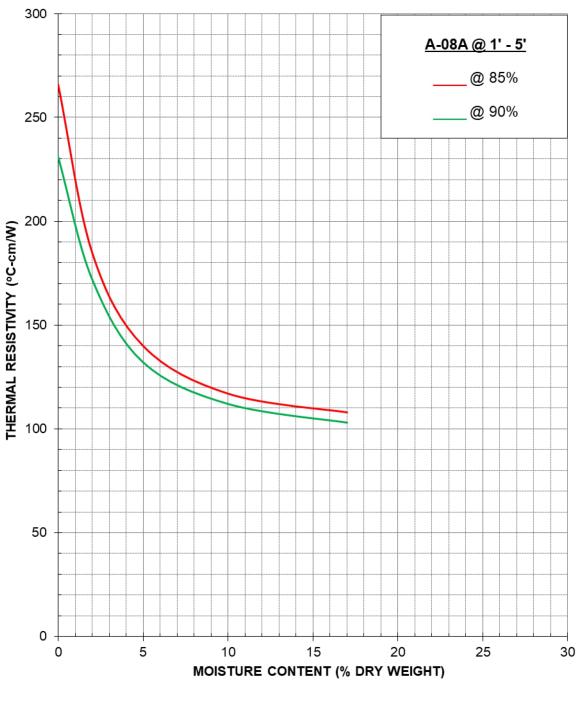
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





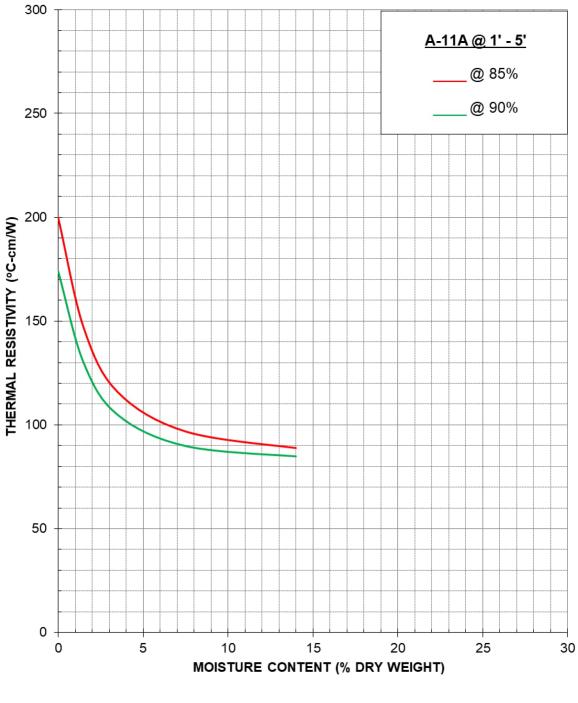
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





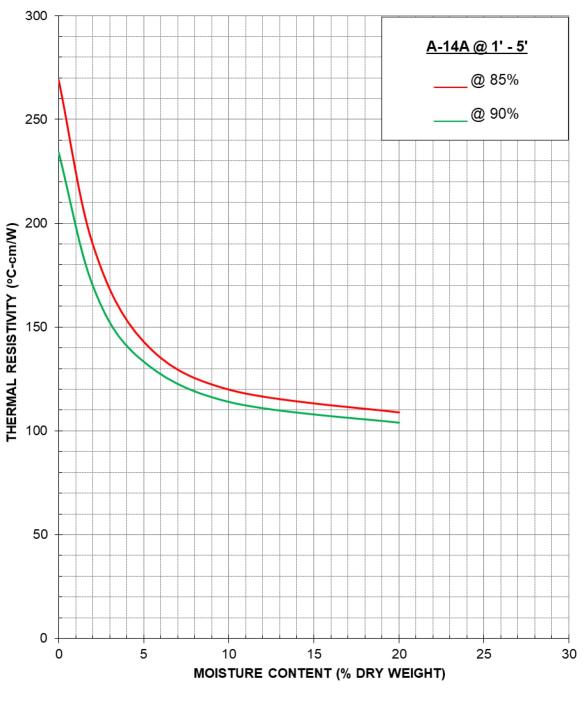
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





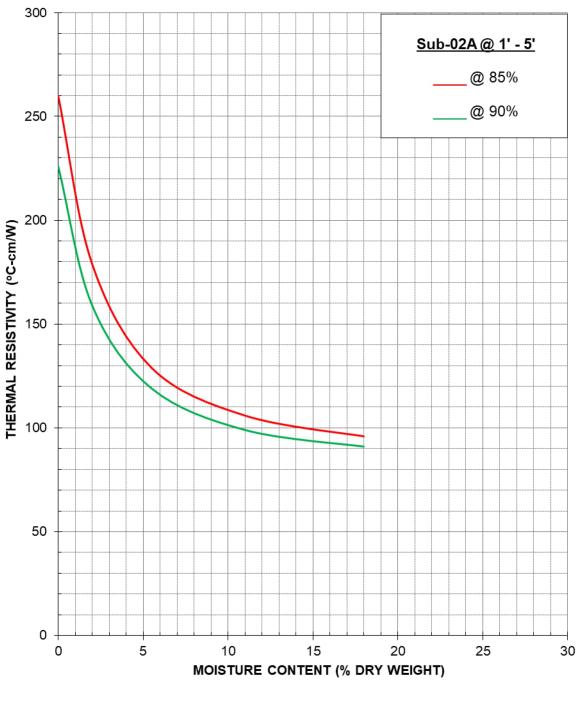
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





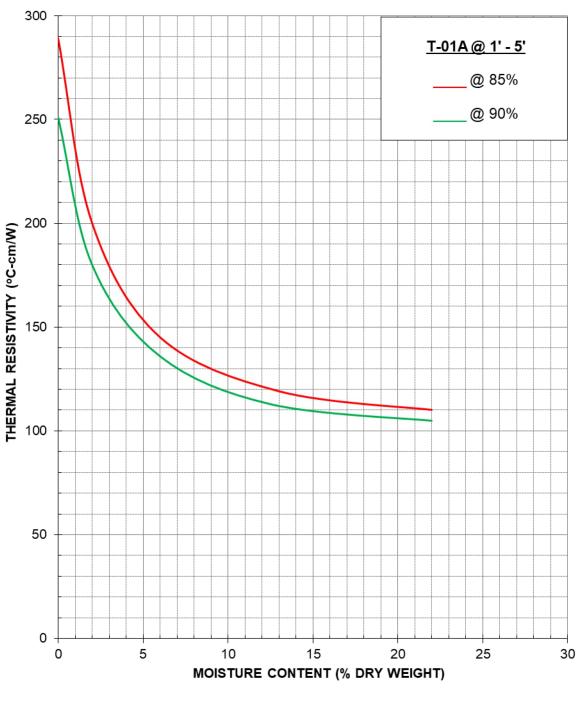
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





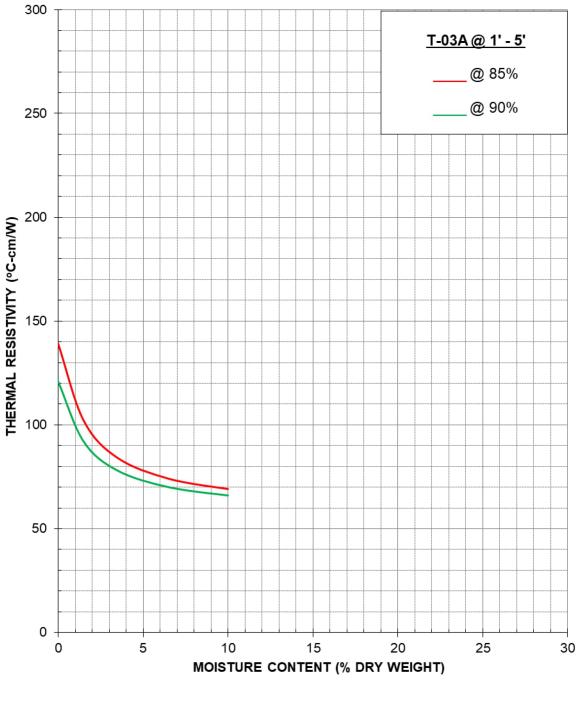
Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples





Terracon (Project No. 66225093) Rancho Viejo Solar Part 2 – Santa Fe, NM Thermal Analysis of Native Soil Samples

Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



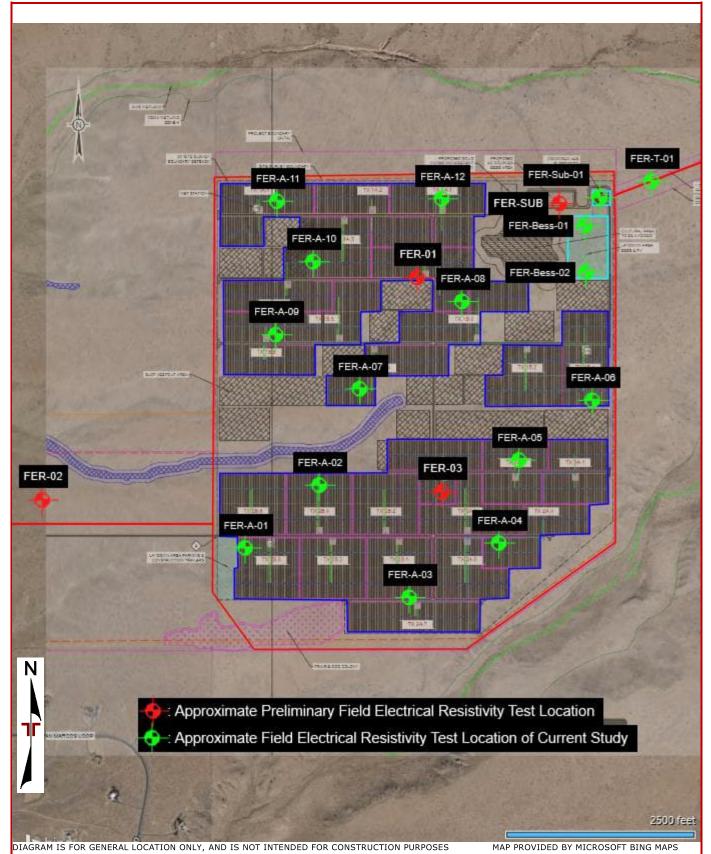
APPENDIX D

FIELD ELECTRICAL RESISTIVITY TESTING

Responsive Resourceful Reliable

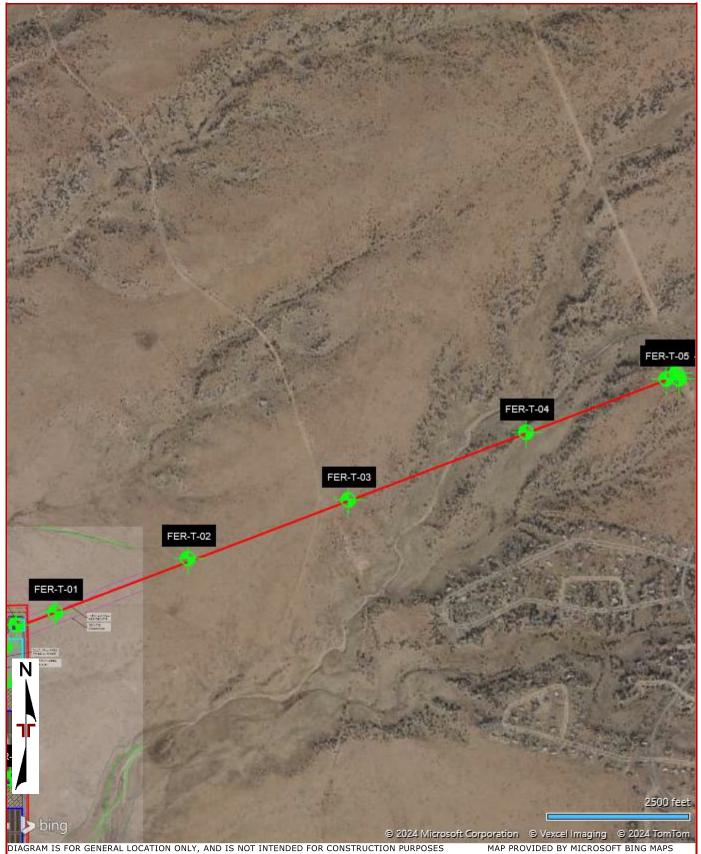


Exploration Plan – Field Electrical Resistivity Locations





Exploration Plan – Field Electrical Resistivity Locations





Exploration Plan – Field Electrical Resistivity Locations

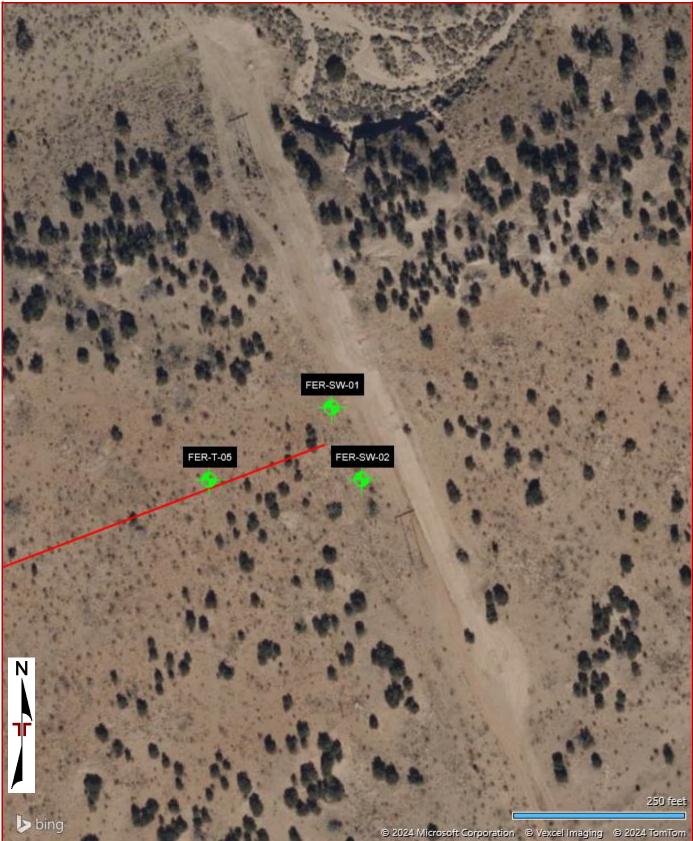


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

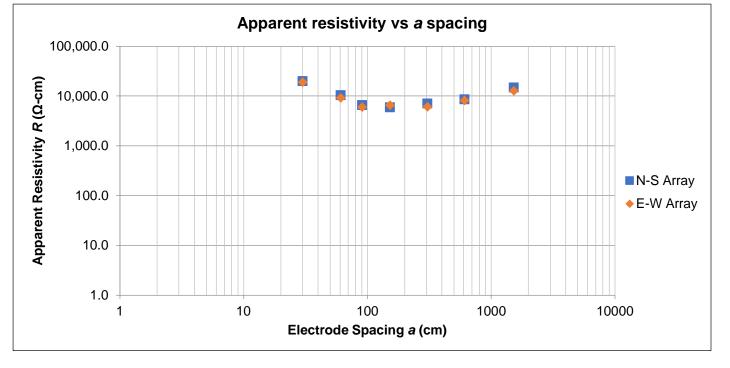
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-A-01: 35.540916, -106.017053					
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		$4\pi a R$					

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet) (centimeters)	eters) (inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	81.15	20130	77.16	19140
2	61	6	15	25.15	10570	22.18	9320
3	91	6	15	11.16	6670	10.20	6100
5	152	6	15	6.16	5980	6.83	6630
10	305	13	33	3.65	7140	3.15	6160
20	610	13	33	2.26	8710	2.15	8280
50	1524	13	33	1.55	14890	1.35	12940



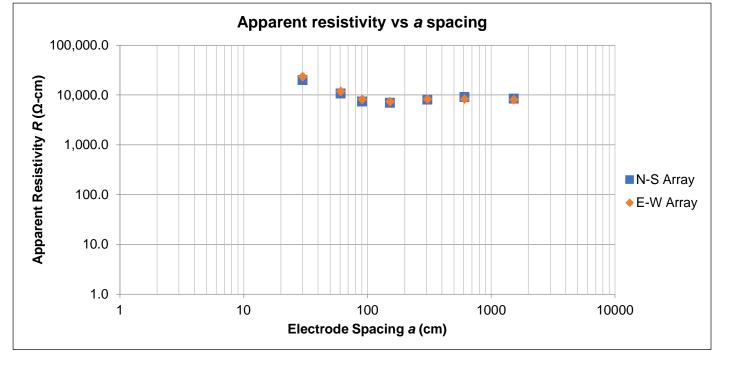
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-A-02: 35.543195, -1	06.01375
Instrument	LRI MiniRes Ultra	Weather	Sunny
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation
Cal. Check	1-Apr	Tested By	LA
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			
		$4\pi a R$	

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(feet) (centimeters) (ir	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	81.80	20290	96.00	23810
2	61	6	15	25.70	10800	28.70	12060
3	91	6	15	12.50	7470	13.90	8310
5	152	6	15	7.24	7030	7.69	7470
10	305	13	33	4.17	8160	4.33	8460
20	610	13	33	2.39	9210	2.19	8420
50	1524	13	33	0.89	8540	0.85	8120



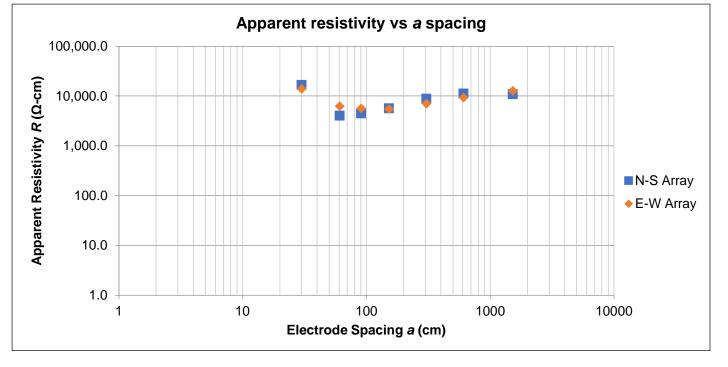
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-A-03: 35.539119, -106.009735					
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 12, 2023	Method Venne	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes &							
Conflicts							
		$4\pi aR$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet) (centimeters)	s) (inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	68.10	16890	56.80	14090
2	61	6	15	9.70	4080	15.10	6350
3	91	6	15	7.54	4510	9.53	5700
5	152	6	15	5.88	5710	5.73	5570
10	305	13	33	4.58	8950	3.67	7180
20	610	13	33	2.94	11310	2.44	9410
50	1524	13	33	1.15	10990	1.34	12830



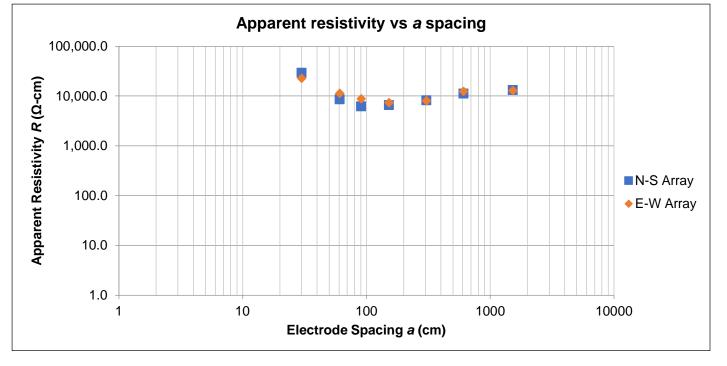
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-A-04: 35.541095, -106.00573						
Instrument	LRI MiniRes Ultra	Weather	Sunny					
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation					
Cal. Check	1-Apr	Tested By	LA					
Test Date	August 12, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012					
Notes & Conflicts								
		$4\pi a R$						

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(feet) (centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	120.20	29820	93.30	23140
2	61	6	15	20.70	8700	27.50	11560
3	91	6	15	10.50	6280	14.90	8910
5	152	6	15	6.85	6650	7.68	7460
10	305	13	33	4.26	8320	4.15	8110
20	610	13	33	2.95	11370	3.24	12500
50	1524	13	33	1.39	13290	1.36	13050



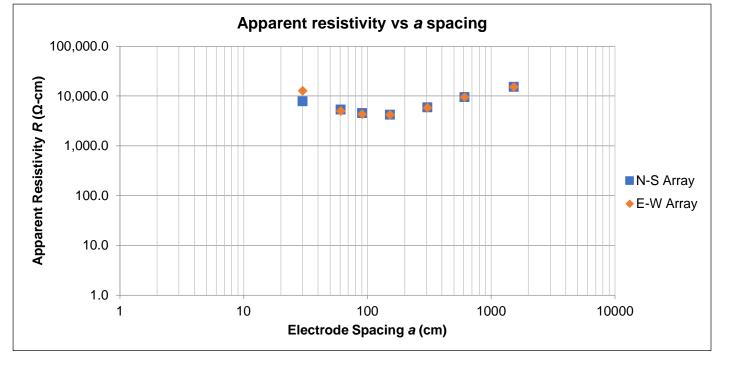
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-A-05: 35.544106, -106.004845						
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 12, 2023	Method Venne	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes &							
Conflicts							
		$4\pi aR$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet) (centimeters)	rs) (inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	32.00	7940	52.20	12950
2	61	6	15	12.90	5420	12.10	5090
3	91	6	15	7.68	4590	7.31	4370
5	152	6	15	4.37	4250	4.37	4240
10	305	13	33	3.08	6010	3.02	5900
20	610	13	33	2.49	9600	2.51	9670
50	1524	13	33	1.62	15530	1.62	15480



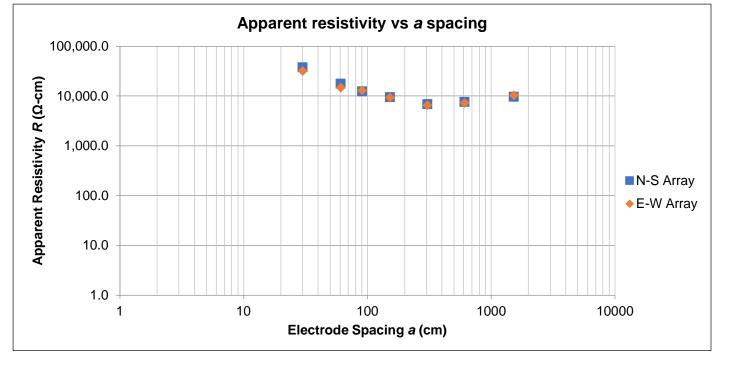
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-A-06: 35.546276, -106.00157						
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 12, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		$4\pi a R$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	153.00	37950	129.90	32220
2	61	6	15	42.50	17860	35.80	15050
3	91	6	15	20.90	12500	21.90	13090
5	152	6	15	9.82	9540	9.68	9400
10	305	13	33	3.57	6980	3.38	6600
20	610	13	33	1.99	7660	1.90	7310
50	1524	13	33	1.02	9730	1.10	10510



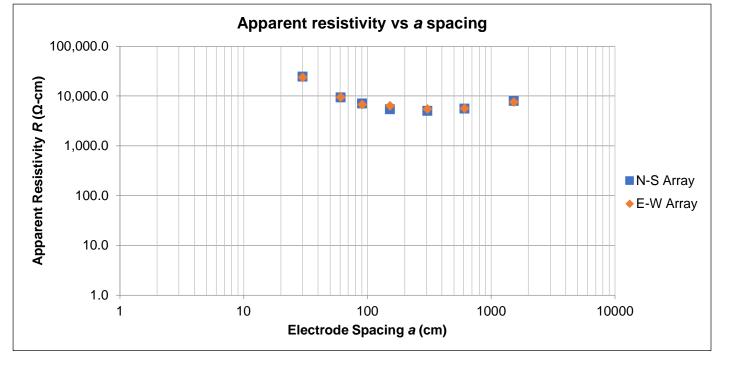
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



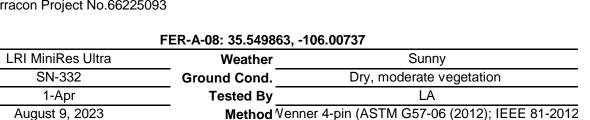
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Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		$4\pi a R$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	99.70	24730	96.80	24010
2	61	6	15	22.60	9500	22.70	9540
3	91	6	15	11.90	7110	11.50	6880
5	152	6	15	5.65	5490	6.60	6400
10	305	13	33	2.58	5050	2.85	5580
20	610	13	33	1.47	5660	1.49	5720
50	1524	13	33	0.85	8100	0.80	7700



Rancho Viejo Solar
Albuquerque, NM
December 2023
Terracon Project No.66225093



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Apparent resistivity ρ is calculated as : $\rho = -$

Array Loc.

Instrument

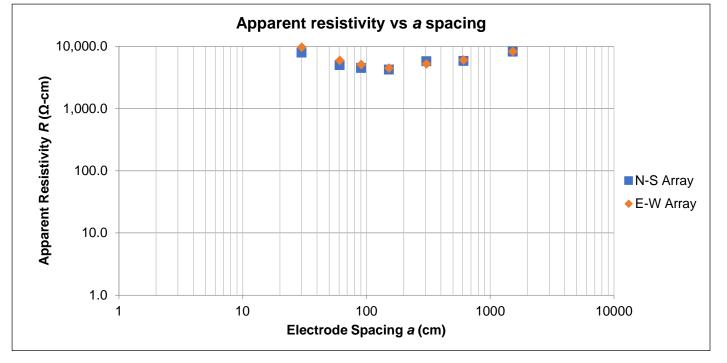
Cal. Check

Test Date Notes & Conflicts

Serial #

$$\frac{4\pi aR}{1+\frac{2a}{\sqrt{a^2+4b^2}}-\frac{a}{\sqrt{a^2+b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	32.00	7940	39.10	9700
2	61	6	15	11.90	5000	14.30	6010
3	91	6	15	7.54	4510	8.63	5160
5	152	6	15	4.37	4250	4.63	4490
10	305	13	33	2.97	5810	2.68	5240
20	610	13	33	1.52	5870	1.58	6100
50	1524	13	33	0.86	8210	0.87	8330



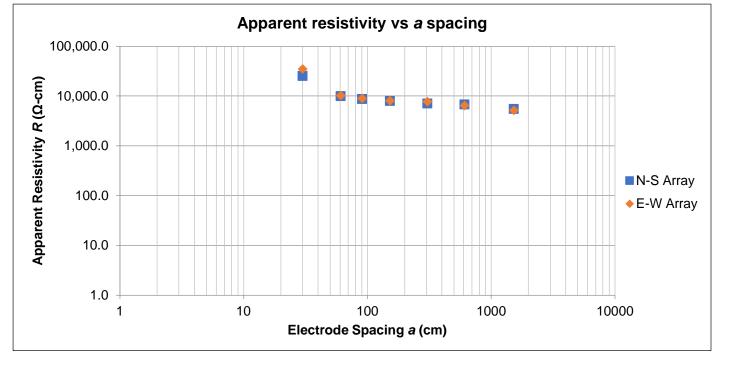
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		06.015689	
Instrument	LRI MiniRes Ultra	Weather	Sunny
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation
Cal. Check	1-Apr	Tested By	LA
Test Date	August 9, 2023	Method Venne	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes &			
Conflicts			
		$4\pi a R$	

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	103.40	25650	141.90	35200
2	61	6	15	23.90	10050	24.70	10380
3	91	6	15	14.70	8790	15.10	9030
5	152	6	15	8.28	8040	8.35	8110
10	305	13	33	3.64	7110	3.97	7760
20	610	13	33	1.78	6840	1.70	6530
50	1524	13	33	0.58	5550	0.55	5240



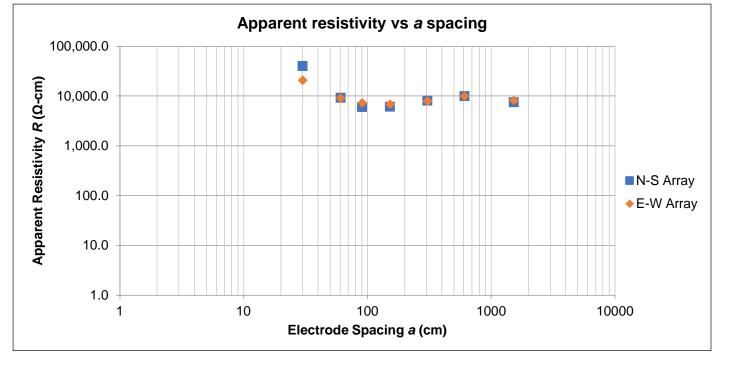
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-A-10: 35.551307, -106.014021						
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes &							
Conflicts							
		$4\pi a R$					

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	163.80	40630	85.10	21110
2	61	6	15	22.30	9370	22.00	9250
3	91	6	15	10.20	6100	12.40	7410
5	152	6	15	6.39	6200	7.13	6930
10	305	13	33	4.20	8200	4.13	8070
20	610	13	33	2.59	9990	2.60	10010
50	1524	13	33	0.79	7570	0.86	8250



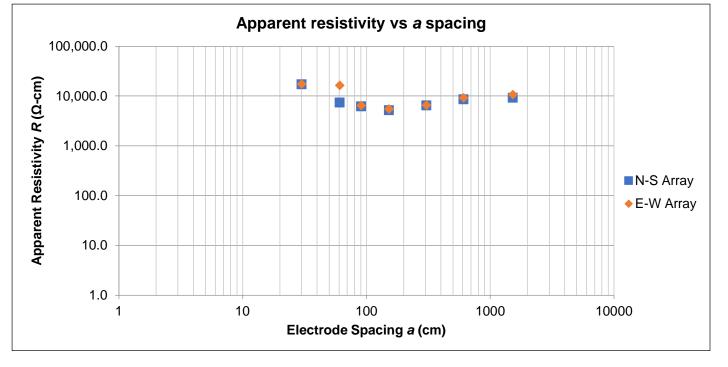
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-A-11: 35.553501, -106.015633						
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		4πaR					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	69.60	17260	70.90	17590
2	61	6	15	17.70	7440	39.30	16520
3	91	6	15	10.40	6220	10.90	6520
5	152	6	15	5.42	5260	5.74	5570
10	305	13	33	3.35	6540	3.39	6630
20	610	13	33	2.25	8670	2.42	9320
50	1524	13	33	0.97	9310	1.13	10870



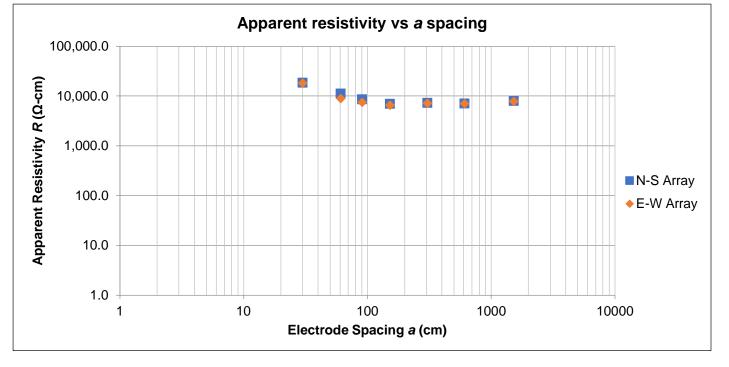
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-A-12: 35.553592, -106.00828						
Instrument	LRI MiniRes Ultra	Weather	Sunny				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	1-Apr	Tested By	LA				
Test Date	August 9, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		$4\pi a R$					

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	75.10	18630	73.90	18330
2	61	6	15	26.90	11310	21.40	9000
3	91	6	15	14.50	8670	12.60	7530
5	152	6	15	7.20	6990	6.84	6640
10	305	13	33	3.77	7370	3.73	7300
20	610	13	33	1.86	7150	1.85	7130
50	1524	13	33	0.85	8100	0.83	7950



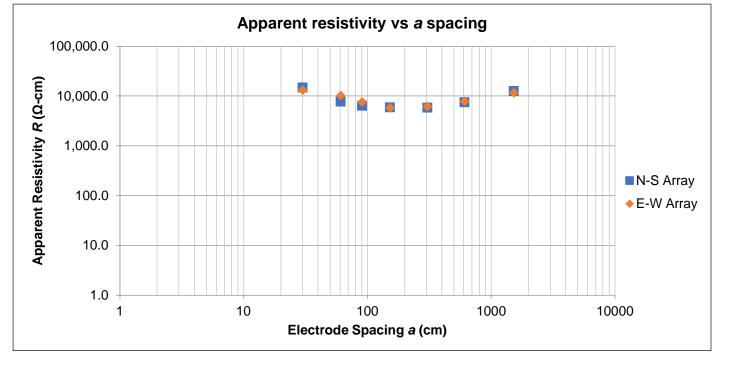
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-T-01: 35.553920, -106.000314					
Instrument	LRI MiniRes Ultra	Weather	Sunny			
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation			
Cal. Check	1-Apr	Tested By	LA			
Test Date	September 19, 2023	Method Venr	ner 4-pin (ASTM G57-06 (2012); IEEE 81-2012			
Notes & Conflicts						
		$4\pi a R$				

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	60.20	14930	53.60	13300
2	61	6	15	18.50	7780	24.50	10300
3	91	6	15	10.81	6460	12.90	7710
5	152	6	15	6.17	5990	6.08	5900
10	305	13	33	3.02	5910	3.19	6240
20	610	13	33	1.97	7570	2.06	7940
50	1524	13	33	1.32	12660	1.24	11880



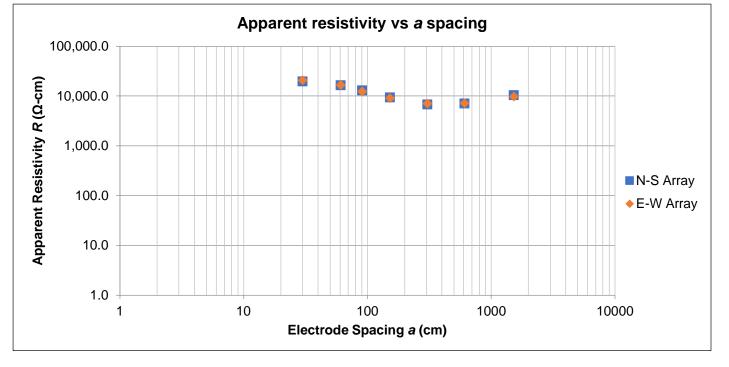
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	. FER-T-02: 35.556813, -105.991131					
Instrument	LRI MiniRes Ultra	Weather	Sunny			
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation			
Cal. Check	1-Apr	Tested By	LA			
Test Date	September 19, 2023	Method Venr	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012			
Notes & Conflicts						
		$4\pi a R$				

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	79.80	19790	85.00	21080
2	61	6	15	39.80	16730	40.20	16900
3	91	6	15	22.10	13210	20.90	12500
5	152	6	15	9.69	9410	9.51	9230
10	305	13	33	3.52	6870	3.64	7110
20	610	13	33	1.86	7170	1.87	7200
50	1524	13	33	1.10	10560	1.04	9960



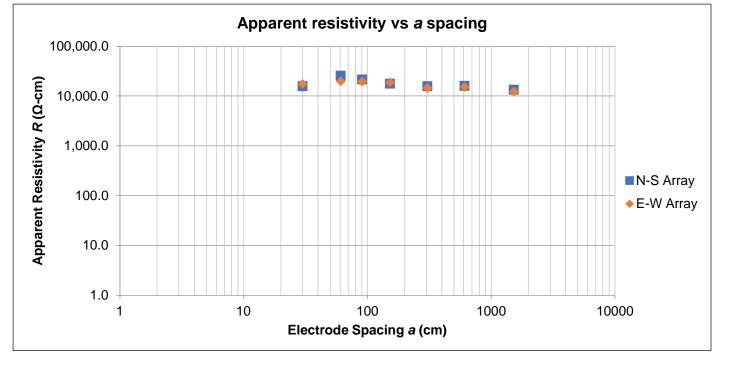
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		105.98170	
Instrument	LRI MiniRes Ultra	Weather	Sunny
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation
Cal. Check	1-Apr	Tested By	ED, MG
Test Date	September 19, 2023	Method Venr	ner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			
		$4\pi a R$	

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	64.50	16000	70.80	17560
2	61	6	15	61.70	25940	47.60	20010
3	91	6	15	36.20	21640	33.00	19730
5	152	6	15	18.50	17960	19.60	19030
10	305	13	33	8.10	15830	7.60	14860
20	610	13	33	4.20	16180	4.00	15410
50	1524	13	33	1.40	13420	1.30	12460



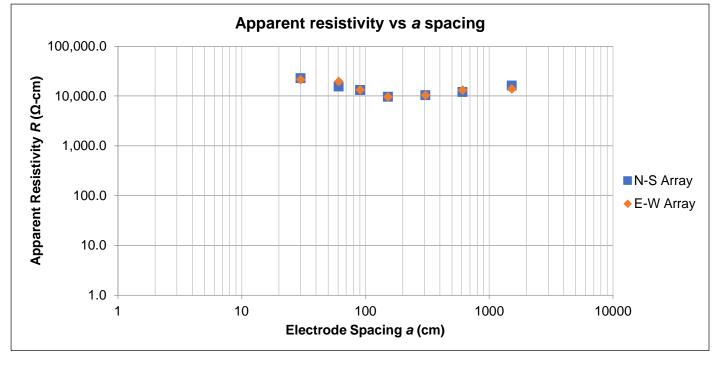
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-T-04: 35.562850, -105.971233						
Instrument	LRI MiniRes Ultra	Weather	Sunny					
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation					
Cal. Check	1-Apr	Tested By	LA					
Test Date	September 19, 2023	Method Venr	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012					
Notes & Conflicts								
		$4\pi a R$						

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	92.30	22900	87.00	21580
2	61	6	15	37.20	15640	47.00	19760
3	91	6	15	22.20	13270	22.50	13450
5	152	6	15	10.10	9810	10.00	9710
10	305	13	33	5.40	10560	5.38	10520
20	610	13	33	3.17	12210	3.47	13370
50	1524	13	33	1.70	16290	1.47	14090



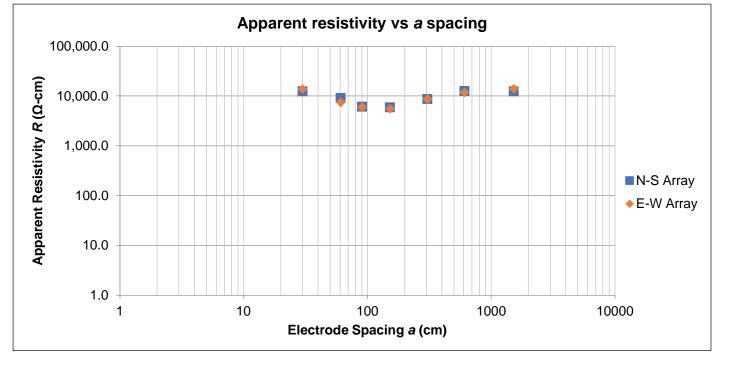
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.		FER-T-05: 35.565560, -105.963141						
Instrument	LRI MiniRes Ultra	Weather	Sunny					
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation					
Cal. Check	1-Apr	Tested By	MG, SS					
Test Date	September 19, 2023	Method Venne	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012					
Notes &								
Conflicts								
		$4\pi a R$						

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>ρ</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	50.50	12530	55.70	13820
2	61	6	15	21.80	9160	18.10	7610
3	91	6	15	10.30	6160	10.10	6040
5	152	6	15	6.20	6020	5.80	5630
10	305	13	33	4.50	8800	4.50	8800
20	610	13	33	3.30	12710	3.10	11940
50	1524	13	33	1.30	12460	1.48	14180



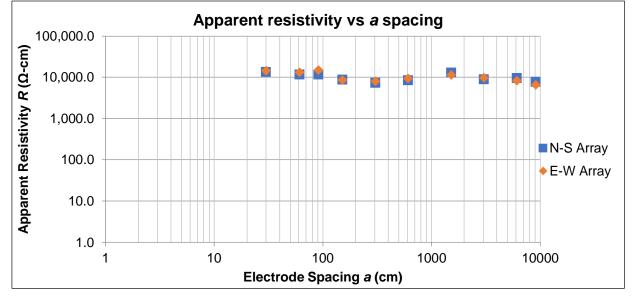
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-BESS-01: 35.552320, -106.001746						
Instrument	LRI MiniRes Ultra	Weather	Cloudy				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	10-Jul	Tested By	SL				
Test Date	September 20, 2023	Method Venr	ner 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		4πaR					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing a		Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	55.10	13670	59.10	14660
2	61	6	15	28.10	11810	31.50	13240
3	91	6	15	19.80	11840	25.10	15010
5	152	6	15	9.18	8920	8.87	8620
10	305	13	33	3.81	7450	4.12	8060
20	610	13	33	2.22	8540	2.46	9460
50	1524	13	33	1.358	13010	1.215	11640
100	3048	14	36	0.468	8960	0.518	9920
200	6096	15	38	0.251	9610	0.218	8350
300	9144	16	41	0.135	7760	0.115	6610



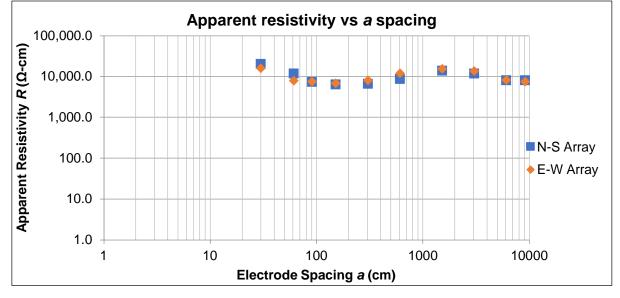
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-BESS-02: 35.553828, -106.002677						
Instrument	LRI MiniRes Ultra	Weather	Cloudy				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	10-Jul	Tested By	SL				
Test Date	September 20, 2023	Method Venr	ner 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
		$4\pi a R$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	e Spacing a	Electrode Depth b		N-S 1	Fest	E-W Test	
(feet) (centimeters	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity ρ
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	81.80	20290	64.80	16070
2	61	6	15	28.10	11810	19.10	8030
3	91	6	15	12.50	7470	12.63	7550
5	152	6	15	6.62	6430	7.16	6950
10	305	13	33	3.42	6680	4.17	8140
20	610	13	33	2.27	8730	3.16	12170
50	1524	13	33	1.463	14020	1.618	15510
100	3048	14	36	0.618	11840	0.718	13750
200	6096	15	38	0.213	8160	0.216	8270
300	9144	16	41	0.143	8220	0.131	7530



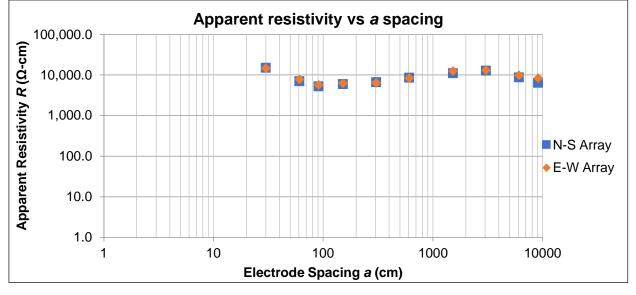
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-BW-01: 35.56568653, -105.9623908						
Instrument	LRI MiniRes Ultra	Weather	Cloudy				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	10-Jul	Tested By	MG, SS				
Test Date	September 20, 2023	Method Venr	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes &							
Conflicts							
		$4\pi a R$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	61.00	15130	59.70	14810
2	61	6	15	16.90	7100	18.80	7900
3	91	6	15	8.90	5320	9.70	5800
5	152	6	15	6.19	6010	6.61	6420
10	305	13	33	3.41	6670	3.33	6510
20	610	13	33	2.27	8740	2.19	8440
50	1524	13	33	1.170	11210	1.336	12800
100	3048	14	36	0.674	12910	0.697	13350
200	6096	15	38	0.230	8810	0.264	10110
300	9144	16	41	0.113	6490	0.149	8560



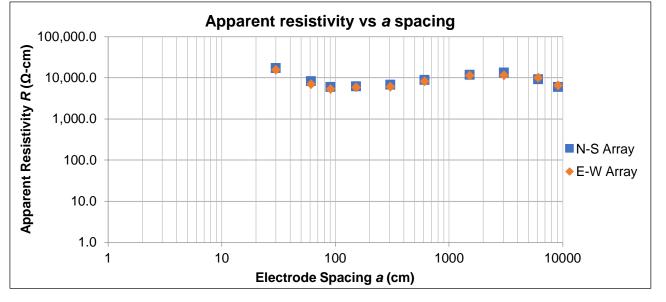
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-BW-02: 35.5654018, -105.9622446						
Instrument	LRI MiniRes Ultra	Weather	Cloudy				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	10-Jul	Tested By	SL				
Test Date	September 20, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes & Conflicts							
connets							
		$4\pi a R$					

$$\frac{1}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Electrode Spacing a		de Depth b	N-S 1	Fest	E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	70.15	17400	64.10	15900
2	61	6	15	20.15	8470	17.10	7190
3	91	6	15	10.21	6100	9.16	5470
5	152	6	15	6.51	6320	6.19	6010
10	305	13	33	3.51	6860	3.16	6170
20	610	13	33	2.35	9060	2.20	8480
50	1524	13	33	1.251	11990	1.215	11640
100	3048	14	36	0.713	13660	0.615	11780
200	6096	15	38	0.243	9310	0.268	10270
300	9144	16	41	0.106	6090	0.115	6610



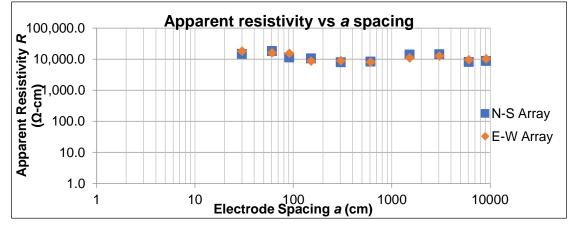
Rancho Viejo Solar
Albuquerque, NM
December 2023 Terracon Project No.66225093



Array Loc.	FER-SUB-01: 35.552903, -105.003589						
Instrument	LRI MiniRes Ultra	Weather	Cloudy				
Serial #	SN-332	Ground Cond.	Dry, moderate vegetation				
Cal. Check	10-Jul	Tested By	SL				
Test Date	September 20, 2023	Method Venn	er 4-pin (ASTM G57-06 (2012); IEEE 81-2012				
Notes &							
Conflicts							
		$4\pi a R$					

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode Spacing a		Electrode Depth b		N-S 1	lest 🛛	E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	60.81	15080	75.50	18730
2	61	6	15	44.50	18710	39.15	16460
3	91	6	15	19.16	11450	26.12	15620
5	152	6	15	11.16	10840	9.16	8900
10	305	13	33	4.16	8120	4.62	9030
20	610	13	33	2.20	8470	2.16	8310
50	1524	13	33	1.486	14240	1.168	11190
100	3048	14	36	0.765	14650	0.684	13100
200	6096	15	38	0.215	8240	0.254	9730
300	9144	16	41	0.156	8960	0.185	10630



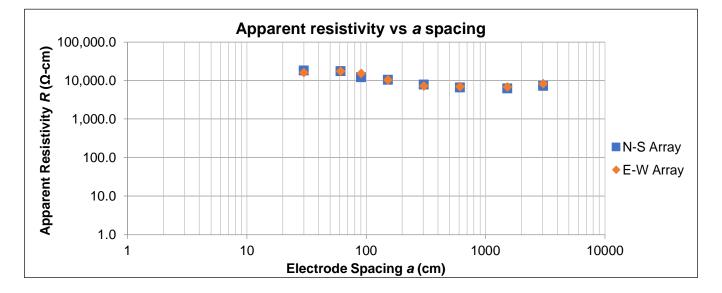
Rancho Viejo Solar Santa Fe, New Mexico September 23, 2022 Terracon Project No.66225093



Array Loc.	. FER-01 : 35.55098, -106.00957					
Instrument	MiniRes Ultra	Weather	Sunny 92°F			
Serial #		Ground Cond.	dry, low vegetation			
Cal. Check	1-Sep	Tested By	KD			
Test Date	August 25, 2022	Method Venne	r 4-pin (ASTM G57-06 (2012); IEEE 81-2012			
Notes &						
Conflicts						
		$4\pi a R$				

$$1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}$$

Electrode	Electrode Spacing a		de Depth b	N-S Test		E-W Test	
(feet)	(centimeters)	(inches)) (centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	73.70	18280	65.60	16270
2	61	6	15	41.80	17570	41.90	17610
3	91	6	15	20.40	12200	25.70	15360
5	152	6	15	10.80	10490	10.70	10390
10	305	12	30	4.000	7790	3.700	7210
20	610	12	30	1.700	6540	1.800	6930
50	1524	12	30	0.653	6260	0.711	6810
100	3048	12	30	0.380	7280	0.434	8310



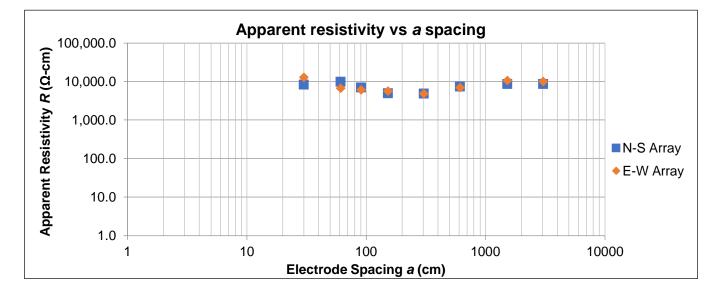
Rancho Viejo Solar Santa Fe, New Mexico September 23, 2022 Terracon Project No.66225093



Array Loc.		FER-02 : 35.54262, -106	5.02614
Instrument	MiniRes Ultra	Weather	Sunny 88°F
Serial #		Ground Cond.	dry, low vegetation
Cal. Check	1-Sep	Tested By	KD
Test Date	August 25, 2022	Method Venne	r 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes &			
Conflicts			
		$A\pi a R$	

$$\frac{-4\pi a^2}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	e Spacing <i>a</i>	Electrode Depth b		N-S Test		E-W Test	
(feet) ((centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity ρ	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>
				Ω	(Ω-cm)	Ω	(Ω-cm)
1	30	6	15	33.40	8290	52.10	12920
2	61	6	15	23.60	9920	16.00	6730
3	91	6	15	11.70	6990	10.20	6100
5	152	6	15	5.10	4950	5.80	5630
10	305	12	30	2.500	4870	2.500	4870
20	610	12	30	1.900	7310	1.800	6930
50	1524	12	30	0.900	8620	1.100	10540
100	3048	12	30	0.445	8520	0.528	10110



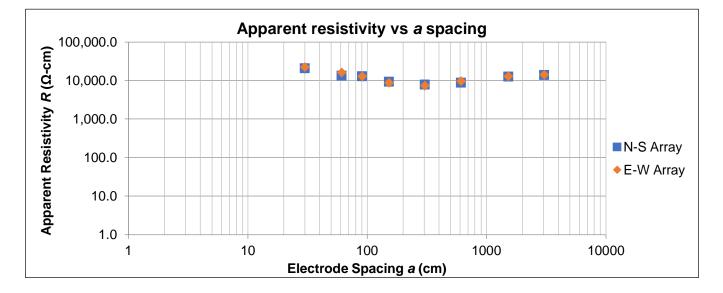
Rancho Viejo Solar Santa Fe, New Mexico September 23, 2022 Terracon Project No.66225093



Array Loc.		FER-03 : 35.54299, -106.	00820
Instrument	MiniRes Ultra	Weather	Sunny 89°F
Serial #		Ground Cond.	dry, low vegetation
Cal. Check	1-Sep	Tested By	KD
Test Date	August 25, 2022	Method Venner	4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes &			
Conflicts			
		ΔπαΒ	

$$\frac{-4\pi a^2}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	e Spacing a	Electrode Depth b		N-S 1	ſest	E-W Test		
(feet) (centimeters)		(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	
				Ω	(Ω-cm)	Ω	(Ω-cm)	
1	30	6	15	82.90	20560	90.90	22550	
2	61	6	15	31.70	13320	38.20	16060	
3	91	6	15	21.50	12850	21.40	12790	
5	152	6	15	9.60	9320	9.10	8840	
10	305	12	30	4.000	7790	3.800	7400	
20	610	12	30	2.300	8850	2.500	9620	
50	1524	12	30	1.326	12710	1.338	12820	
100	3048	12	30	0.723	13850	0.736	14100	



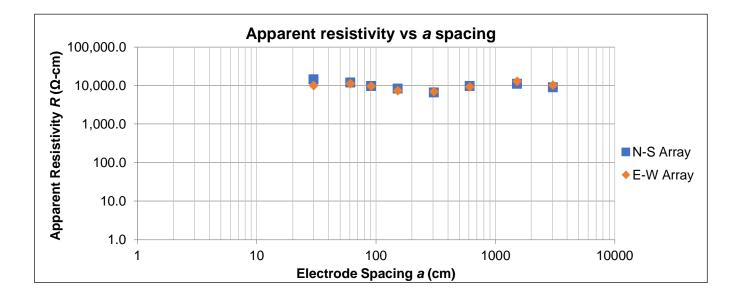
Rancho Viejo Solar Santa Fe, New Mexico September 23, 2022 Terracon Project No.66225093



Array Loc.	FER-SUB: 35.55342, -106.00314								
Instrument	MiniRes Ultra	Weather	Sunny 92°F						
Serial #		Ground Cond.	dry, low vegetation						
Cal. Check	1-Sep	Tested By	KD						
Test Date	August 25, 2022	Method Ve	nner 4-pin (ASTM G57-06 (2012); IEEE 81-2012						
Notes &									
Conflicts	Barbed	wire fence on north side,	array went under fence						
		$4 - \alpha D$							

$$\frac{4\pi aR}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode	Spacing a	Electro	de Depth b	N-S 1	ſest	E-W Test		
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	Measured Resistance <i>R</i>	Apparent Resistivity <i>p</i>	
				Ω	(Ω-cm)	Ω	(Ω-cm)	
1	30	6	15	57.90	14360	40.30	10000	
2	61	6	15	28.50	11980	26.70	11220	
3	91	6	15	16.20	9690	16.00	9570	
5	152	6	15	8.50	8250	7.60	7380	
10	305	12	30	3.400	6620	3.600	7010	
20	610	12	30	2.500	9620	2.400	9240	
50	1524	12	30	1.160	11120	1.336	12800	
100	3048	12	30	0.468	8960	0.536	10270	
200	6096	13	33	0.225	8620	0.218	8350	
300	9144	14	36	0.121	6950	0.122	7010	



Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



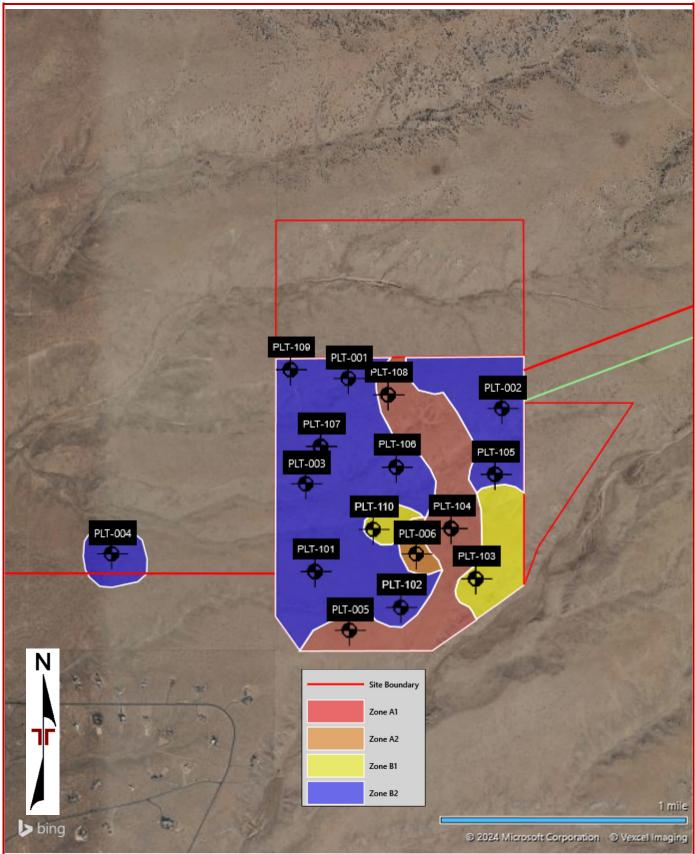
APPENDIX E

TEST PILE DRIVING DATA

Responsive Resourceful Reliable



Pile Load Test Location – Zone Map





Rancho Viejo Solar Facility Terracon Project No. 66225093



Depth Range, feet			Cumu	lative Drivin	g Time, seco	nds (See N	ote 1)		
Deptil Kange, leet	PLT-101A	PLT-101B	PLT-102A	PLT-102B	PLT-102C	PLT-103A	PLT-103B	PLT-104A	PLT-104B
0'	0	0	0	0	0	0	0	0	0
0' to 1'	0.5	0.4	5.0	4.0	4.0	2.1	1.4	0.8	1.4
1' to 2'	2.0	2.6	26.0	14.0	30.0	2.9	3.2	1.2	3.7
2' to 3'	5.8	5.3	38.0	21.0	54.0	3.8	4.2	2.3	4.5
3' to 4'	13.9	15.7	78.0	36.0	148.0	4.7	5.7	4.9	5.2
4' to 5'	26.1	29.6	189.0	63.0	258.0	5.9	7.3	5.3	6.2
5' to 6'		49.1		101.0			9.2		9.8
6' to 7'		67.3		167.0			10.4		11.9
7' to 8'		90.3		212.0			11.3		15.9
Install Date	8/23/23	8/24/23	2/29/24	3/1/24	3/2/24	8/28/23	8/29/23	8/30/23	8/30/23
Refusal	No	No	No	No	Yes	No	No	No	No
Embedment Depth, ft.	5	8	5	8	4.42	5	8	5	8
Total Drive Time, sec.	26.1	90.3	189.0	212.0	258.0	5.9	11.3	5.3	15.9
Average, sec./ft.	5.2	11.3	37.8	26.5	58.4	1.2	1.4	1.1	2.0

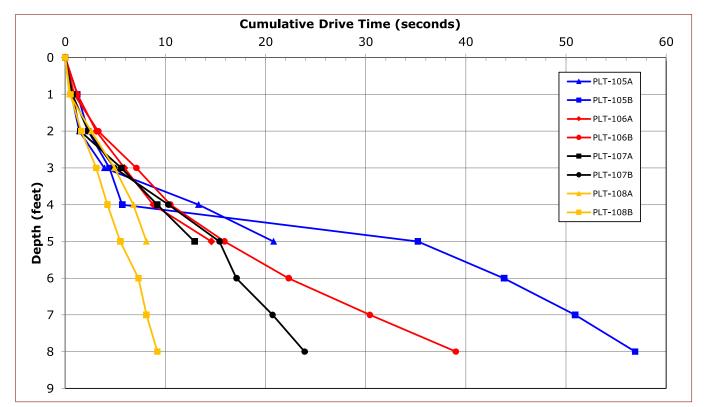
NOTES:

1. Piles advanced with a Gayk HRE4000 hydraulic hammer.

2. PLT-102 installed with a Vermeer PD10 hydraulic hammer.



Rancho Viejo Solar Facility Terracon Project No. 66225093



Donth Dongo, foot			Cumu	lative Drivin	g Time, seco	nds (See N	ote 1)		
Depth Range, feet	PLT-105A	PLT-105B	PLT-106A	PLT-106B	PLT-107A	PLT-107B	PLT-108A	PLT-108B	
0'	0	0	0	0	0	0	0	0	
0' to 1'	0.6	1.2	1.2	0.9	0.7	0.7	0.4	0.5	
1' to 2'	1.4	2.3	3.1	3.3	1.5	2.3	2.6	1.6	
2' to 3'	3.9	4.4	5.9	7.1	5.6	4.9	4.9	3.1	
3' to 4'	13.3	5.7	8.8	10.5	9.2	10.3	6.8	4.2	
4' to 5'	20.8	35.2	14.6	15.9	12.9	15.4	8.1	5.5	
5' to 6'		43.8		22.3		17.1		7.3	
6' to 7'		50.9		30.4		20.7		8.1	
7' to 8'		56.9		39.0		23.9		9.2	
Install Date	8/23/23	8/24/23	8/25/23	8/26/23	8/27/23	8/28/23	8/29/23	8/30/23	
Refusal	No	No	No	No	No	No	No	No	
Embedment Depth, ft.	5	8	5	8	5	8	5	8	
Total Drive Time, sec.	20.8	56.9	14.6	39.0	12.9	23.9	8.1	9.2	
Average, sec./ft.	4.2	7.1	2.9	4.9	2.6	3.0	1.6	1.2	

NOTES:

1. Piles advanced with a Gayk HRE4000 hydraulic hammer.



Rancho Viejo Solar Facility Terracon Project No. 66225093



Donth Dongo foot			Cumu	lative Drivin	g Time, seco	nds (See N	ote 1)	
Depth Range, feet	PLT-109A	PLT-109B	PLT-110A	PLT-110B	PLT-110C			
0'	0	0	0	0	0			
0' to 1'	0.5	0.4	5.0	4.0	4.0			
1' to 2'	2.0	2.6	26.0	14.0	30.0			
2' to 3'	5.8	5.3	38.0	21.0	54.0			
3' to 4'	13.9	15.7	78.0	36.0	148.0			
4' to 5'	26.1	29.6	189.0	63.0	258.0			
5' to 6'		49.1		101.0				
6' to 7'		67.3		167.0				
7' to 8'		90.3		212.0				
Install Date	8/23/23	8/24/23	3/3/24	3/4/24	3/5/24			
Refusal	No	No	No	No	Yes			
Embedment Depth, ft.	5	8	5	8	3.83			
Total Drive Time, sec.	26.1	90.3	189.0	212.0	258.0			
Average, sec./ft.	5.2	11.3	37.8	26.5	67.4			

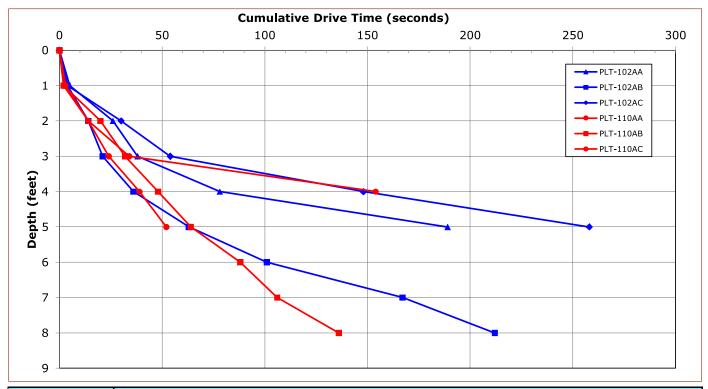
NOTES:

1. Piles advanced with a Gayk HRE4000 hydraulic hammer.

2. PLT-110 advanced with a Vermeer PD10 hydraulic hammer.



Rancho Viejo Solar Facility Terracon Project No. 66225093

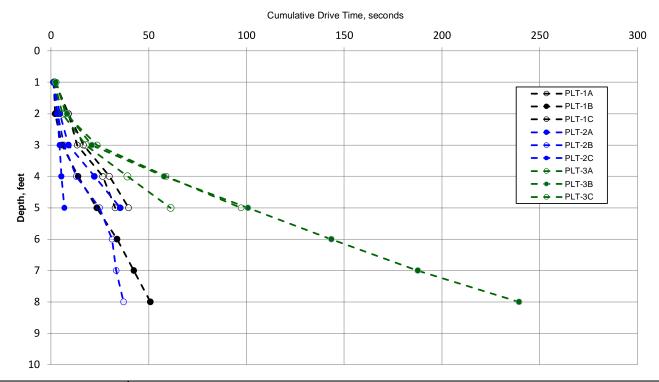


Depth Range, feet			Cumulativ	e Driving Time	, seconds (See	Note 1)		
Depth Kange, leet	PLT-102AA	PLT-102AB	PLT-102AC	PLT-110AA	PLT-110AB	PLT-110AC		
0'	0	0	0	0	0	0		
0' to 1'	5.0	4.0	4.0	2.0	2.0	3.0		
1' to 2'	26.0	14.0	30.0	14.0	20.0	14.0		
2' to 3'	38.0	21.0	54.0	24.0	32.0	34.0		
3' to 4'	78.0	36.0	148.0	39.0	48.0	154.0		
4' to 5'	189.0	63.0	258.0	52.0	64.0			
5' to 6'		101.0			88.0			
6' to 7'		167.0			106.0			
7' to 8'		212.0			136.0			
Install Date	2/29/24	3/1/24	3/2/24	3/3/24	3/4/24	3/5/24		
Refusal	No	No	Yes	No	No	Yes		
Embedment Depth, ft.	5	8	4.42	5	8	3.83		
Total Drive Time, sec.	189.0	212.0	258.0	52.0	136.0	154.0		
Average, sec./ft.	37.8	26.5	58.4	10.4	17.0	40.2		

NOTES:

1. Piles advanced with a Vermeer PD10 hydraulic hammer.

Rancho Viejo Solar Facility - 66225093



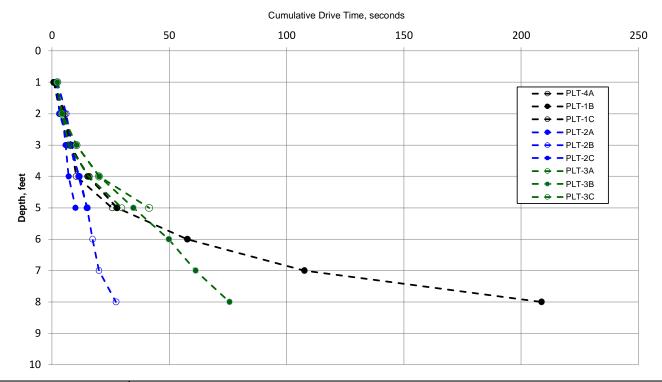
Depth,	Cumulative Driving Time, seconds								
feet	PLT-1A	PLT-1B	PLT-1C	PLT-2A	PLT-2B	PLT-2C	PLT-3A	PLT-3B	PLT-3C
1	2.1	1.4	1.8	1.3	1.2	1.1	2.7	2.4	1.7
2	8.9	2.1	8.9	4.5	3.4	3.2	7.4	8.2	5.9
3	16.6	5.7	13.4	8.9	6.7	4.4	23.6	20.9	17.8
4	29.8	13.9	26.4	22.2	12.9	5.3	58.9	57.8	39.1
5	39.7	23.4	32.8	35.4	24.8	6.8	97.2	100.7	61.2
6		33.8			31.2			143.4	
7		42.4			33.3			187.6	
8		50.8			37.1			239.4	
Note:									
Embedment Depth, ft	5	8	5	5	8	5	5	8	5
Total Drive Time, sec	39.7	50.8	32.8	35.4	37.1	6.8	97.2	239.4	61.2
Average, sec/ft	7.9	6.4	6.6	7.1	4.6	1.4	19.4	29.9	12.2

NOTES:

Piles advanced with a track mounted GAYK-HRE 4000 on July 26, 2022.



Rancho Viejo Solar Facility - 66225093



Depth,	Cumulative Driving Time, seconds								
feet	PLT-4A	PLT-1B	PLT-1C	PLT-2A	PLT-2B	PLT-2C	PLT-3A	PLT-3B	PLT-3C
1	0.8	0.9	0.7	1.9	2.3	2.1	2.1	2.3	2.2
2	3.5	4.9	5.5	3.2	6.1	4.3	4.3	4.3	4.1
3	6.8	7.9	8.1	7.4	8.4	5.8	7.2	10.5	10.4
4	15.9	15.2	10.3	11.6	11.3	7.1	15.5	20.1	20.0
5	27.6	27.8	25.6	15.0	14.9	10.0	29.8	34.7	41.4
6		57.7			17.3			49.8	
7		107.6			20.0			61.2	
8		208.7			27.3			75.7	
Note:									
Embedment Depth, ft	5	8	5	5	8	5	5	8	5
Total Drive Time, sec	27.6	208.7	25.6	15.0	27.3	10.0	29.8	75.7	41.4
Average, sec/ft	5.5	26.1	5.1	3.0	3.4	2.0	6.0	9.5	8.3

NOTES:

Piles advanced with a track mounted GAYK-HRE 4000 on July 26, 2022.



Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



APPENDIX F

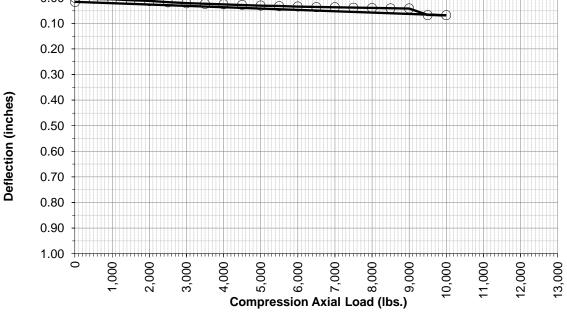
PILE LOAD TESTING RESULTS – AXIAL COMPRESSIVE LOAD

Responsive Resourceful Reliable



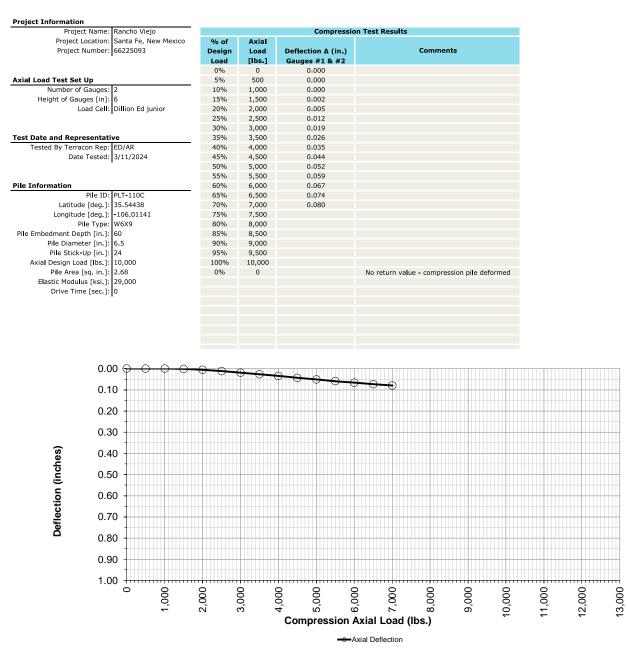
Compression Load Test Result for PLT-102C

Project Name	: Rancho Viejo		Comp	ression Test Results	
Project Location	: Santa Fe, New Mexico	% of	Axial		
Project Number	: 66225093	Design	Load	Deflection Δ (in.)	Comments
		Load	[lbs.]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		5%	500	0.004	
Number of Gauges	: 2	10%	1,000	0.006	
Height of Gauges [in]	: 6	15%	1,500	0.009	
Load Cell	: Dillion Ed junior	20%	2,000	0.013	
	•	25%	2,500	0.017	
		30%	3,000	0.021	
Test Date and Representat	ive	35%	3,500	0.024	
Tested By Terracon Rep	: ED/AR	40%	4,000	0.026	
Date Tested	: 3/11/2024	45%	4,500	0.028	
	•	50%	5,000	0.030	
		55%	5,500	0.032	
Pile Information		60%	6,000	0.034	
Pile ID	: PLT-102C	65%	6,500	0.036	
Latitude [deg.]	: 35.53980	70%	7,000	0.037	
Longitude [deg.]	: -106.00941	75%	7,500	0.038	
Pile Type	: W6X9	80%	8,000	0.040	
Pile Embedment Depth [in.]	: 60	85%	8,500	0.041	
Pile Diameter [in.]	: 6.5	90%	9,000	0.042	
Pile Stick-Up [in.]	: 24	95%	9,500	0.067	
Axial Design Load [lbs.]	: 10,000	100%	10,000	0.068	
Pile Area [sq. in.]		0%	0	0.016	
Elastic Modulus [ksi.]	: 29,000				
Drive Time [sec.]	: 0				
0.00 (9 - 0 - 0 - 0				
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0.10	+				





Compression Load Test Result for PLT-110C



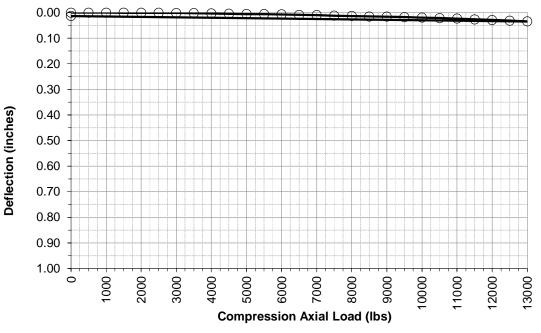
Compression Load Test Result for PLT-001C

Terracon

Project Information					
Project Name:	Rancho Viejo Solar Facility		Comp	ression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Comments
		Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.000	
Number of Gauges:	2	8%	1000	0.000	
Height of Gauges [in]:	6	12%	1500	0.001	
Load Cell:	Custom Scale 25lb	15%	2000	0.001	
		19%	2500	0.001	
		23%	3000	0.002	
Test Date and Representati	ve	27%	3500	0.003	
Tested By Terracon Rep:	CS & SC	31%	4000	0.004	
Date Tested:	8/25/2022	35%	4500	0.005	
		38%	5000	0.006	
		42%	5500	0.006	
Pile Information		46%	6000	0.007	
Pile ID:	PLT-001C	50%	6500	0.009	
Latitude:	35.55334	54%	7000	0.010	
Longitude:	-106.01315	58%	7500	0.012	
Pile Type:	W6X9	62%	8000	0.014	
Pile Embedment Depth [in]:	60	65%	8500	0.015	
Pile Diameter [in]:	5.9	69%	9000	0.016	
Pile Stick-Up [in]:	48	73%	9500	0.018	
Axial Design Load [lbs]:	13000	77%	10000	0.020	
Pile Area [sq. in]:	2.68	81%	10500	0.022	
Elastic Modulus [ksi]:		85%	11000	0.024	
Drive Time [sec]:	32.8	88%	11500	0.027	
		92%	12000	0.029	
		96%	12500	0.032	
		100%	13000	0.035	1

0%

0

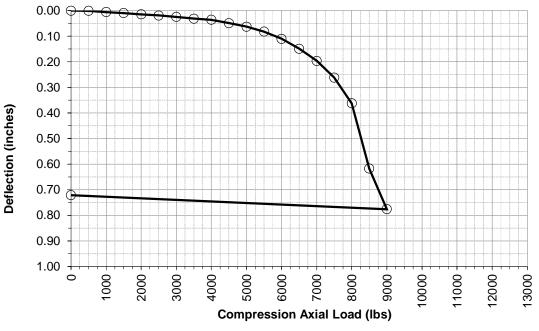


0.014

Compression Load Test Result for PLT-002C

Terracon

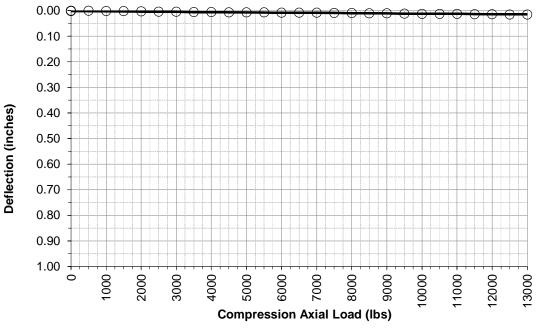
Project Name:	Rancho Viejo Solar Facility		Comp	ression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Comments
		Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.001	
Number of Gauges:	2	8%	1000	0.006	
Height of Gauges [in]:	6	12%	1500	0.010	
Load Cell:	Custom Scale 25lb	15%	2000	0.015	
		19%	2500	0.019	
		23%	3000	0.025	
Test Date and Representative		27%	3500	0.032	
Tested By Terracon Rep:	CS & SC	31%	4000	0.036	
Date Tested:	8/25/2022	35%	4500	0.049	
		38%	5000	0.063	
		42%	5500	0.083	
Pile Information		46%	6000	0.110	
Pile ID:	PLT-002C	50%	6500	0.149	
Latitude:	35.55151	54%	7000	0.197	
Longitude:	-106.00214	58%	7500	0.262	
Pile Type:	W6X9	62%	8000	0.362	
Pile Embedment Depth [in]:	60	65%	8500	0.618	
Pile Diameter [in]:	5.9	69%	9000	0.776	
Pile Stick-Up [in]:	48	73%	9500		
Axial Design Load [lbs]:	13000	77%	10000		
Pile Area [sq. in]:	2.68	81%	10500		
Elastic Modulus [ksi]:	29,000	85%	11000		
Drive Time [sec]:	37.1	88%	11500		
		92%	12000		
		96%	12500		
		100%	13000		
		0%	0	0.721	



Compression Load Test Result for PLT-003C

Terracon

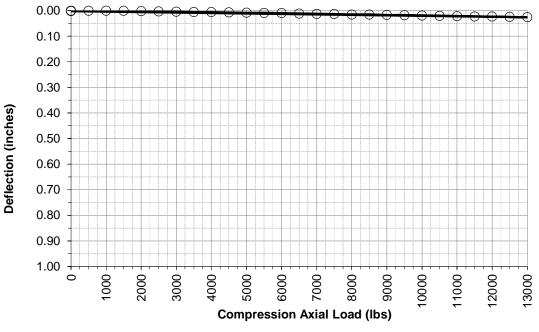
Project Information					
Project Name:	Rancho Viejo Solar Facility		Comp	pression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection Δ (in.)	Comments
	-	Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.001	
Number of Gauges:	2	8%	1000	0.002	
Height of Gauges [in]:	6	12%	1500	0.002	
Load Cell:	Custom Scale 25lb	15%	2000	0.003	
	-	19%	2500	0.004	
		23%	3000	0.005	
Test Date and Representati	ve	27%	3500	0.006	
Tested By Terracon Rep:	CS & SC	31%	4000	0.006	
Date Tested:	8/25/2022	35%	4500	0.007	
		38%	5000	0.008	
		42%	5500	0.008	
Pile Information		46%	6000	0.008	
Pile ID:	PLT-003C	50%	6500	0.008	
Latitude:	35.54711	54%	7000	0.009	
Longitude:	-106.01618	58%	7500	0.009	
Pile Type:	W6X9	62%	8000	0.010	
Pile Embedment Depth [in]:	60	65%	8500	0.011	
Pile Diameter [in]:	5.9	69%	9000	0.011	
Pile Stick-Up [in]:	48	73%	9500	0.012	
Axial Design Load [lbs]:	13000	77%	10000	0.013	
Pile Area [sq. in]:	2.68	81%	10500	0.013	
Elastic Modulus [ksi]:	29,000	85%	11000	0.013	
Drive Time [sec]:	61.2	88%	11500	0.014	
		92%	12000	0.014	
		96%	12500	0.015	
		100%	13000	0.015	
		0%	0	0.002	



Compression Load Test Result for PLT-004C

Terracon

Project Information					
Project Name:	Rancho Viejo Solar Facility		Comp	pression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Comments
		Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.000	
Number of Gauges:	2	8%	1000	0.001	
Height of Gauges [in]:	6	12%	1500	0.001	
Load Cell:	Custom Scale 25lb	15%	2000	0.002	
	-	19%	2500	0.004	
		23%	3000	0.004	
Test Date and Representati	ve	27%	3500	0.006	
Tested By Terracon Rep:	CS & SC	31%	4000	0.006	
Date Tested:	8/25/2022	35%	4500	0.008	
		38%	5000	0.008	
		42%	5500	0.009	
Pile Information		46%	6000	0.010	
Pile ID:	PLT-004C	50%	6500	0.012	
Latitude:	35.54296	54%	7000	0.013	
Longitude:	-106.03023	58%	7500	0.014	
Pile Type:	W6X9	62%	8000	0.015	
Pile Embedment Depth [in]:	60	65%	8500	0.016	
Pile Diameter [in]:	5.9	69%	9000	0.017	
Pile Stick-Up [in]:	48	73%	9500	0.018	
Axial Design Load [lbs]:	13000	77%	10000	0.019	
Pile Area [sq. in]:	2.68	81%	10500	0.020	
Elastic Modulus [ksi]:	29,000	85%	11000	0.022	
Drive Time [sec]:	25.64	88%	11500	0.023	
		92%	12000	0.024	
		96%	12500	0.025	
		100%	13000	0.026	
		0%	0	0.002	

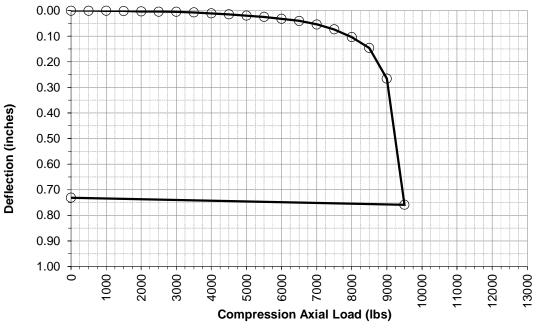


Compression Load Test Result for PLT-005C

Terracon

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Project Name:	Rancho Viejo Solar Facility		Comp	pression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection Δ (in.)	Comments
-		Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.000	
Number of Gauges:	2	8%	1000	0.001	
Height of Gauges [in]:	6	12%	1500	0.002	
Load Cell:	Custom Scale 25lb	15%	2000	0.003	
		19%	2500	0.004	
		23%	3000	0.005	
Test Date and Representati	ve	27%	3500	0.007	
Tested By Terracon Rep:	CS & SC	31%	4000	0.011	
Date Tested:	8/25/2022	35%	4500	0.015	
		38%	5000	0.020	
		42%	5500	0.025	
Pile Information		46%	6000	0.032	
Pile ID:	PLT-005C	50%	6500	0.041	
Latitude:	35.53853	54%	7000	0.054	
Longitude:	-106.01312	58%	7500	0.073	
Pile Type:	W6X9	62%	8000	0.104	
Pile Embedment Depth [in]:	60	65%	8500	0.146	
Pile Diameter [in]:	5.9	69%	9000	0.266	
Pile Stick-Up [in]:	48	73%	9500	0.759	
Axial Design Load [lbs]:	13000	77%	10000		
Pile Area [sq. in]:	2.68	81%	10500		
Elastic Modulus [ksi]:	29,000	85%	11000		
Drive Time [sec]:	10	88%	11500		
		92%	12000		
		96%	12500		
		100%	13000		
		0%	0	0.732	



Compression Load Test Result for PLT-006C

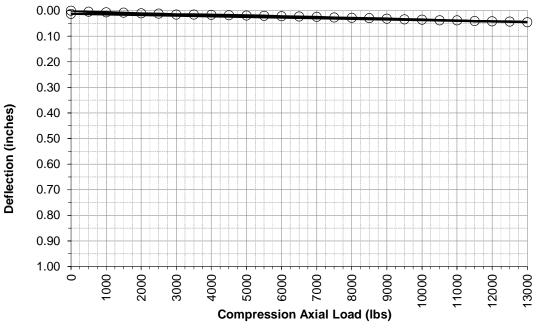
Terracon

Project Name:	Rancho Viejo Solar Facility		Comp	ression Test Results	
Project Location:	Santa Fe County, NM	% of	Axial		
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Comments
•	•	Load	[lbs]	Gauges #1 & #2	
		0%	0	0.000	
Axial Load Test Set Up		4%	500	0.005	
Number of Gauges:	2	8%	1000	0.007	
Height of Gauges [in]:	6	12%	1500	0.008	
Load Cell:	Custom Scale 25lb	15%	2000	0.011	
		19%	2500	0.012	
		23%	3000	0.015	
Test Date and Representati	ve	27%	3500	0.015	
Tested By Terracon Rep:	CS & SC	31%	4000	0.017	
Date Tested:	8/26/2022	35%	4500	0.018	
		38%	5000	0.019	
		42%	5500	0.021	
Pile Information		46%	6000	0.022	
Pile ID:	PLT-006C	50%	6500	0.023	
Latitude:	35.54313	54%	7000	0.025	
Longitude:	-106.00830	58%	7500	0.027	
Pile Type:	W6X9	62%	8000	0.029	
Pile Embedment Depth [in]:	60	65%	8500	0.030	
Pile Diameter [in]:	5.9	69%	9000	0.032	
Pile Stick-Up [in]:	48	73%	9500	0.034	
Axial Design Load [lbs]:	13000	77%	10000	0.036	
Pile Area [sq. in]:	2.68	81%	10500	0.038	
Elastic Modulus [ksi]:	29,000	85%	11000	0.039	
Drive Time [sec]:	41.4	88%	11500	0.041	
		92%	12000	0.042	
		96%	12500	0.043	
		100%	13000	0.046	

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Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093



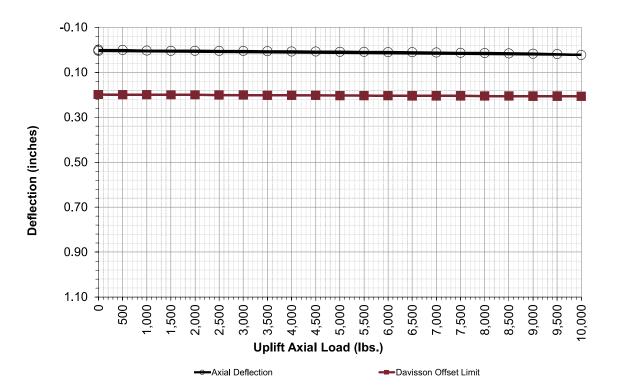
APPENDIX G PILE LOAD TESTING RESULTS – AXIAL TENSILE LOAD

Responsive Resourceful Reliable



Tension Load Test Result for PLT-101A

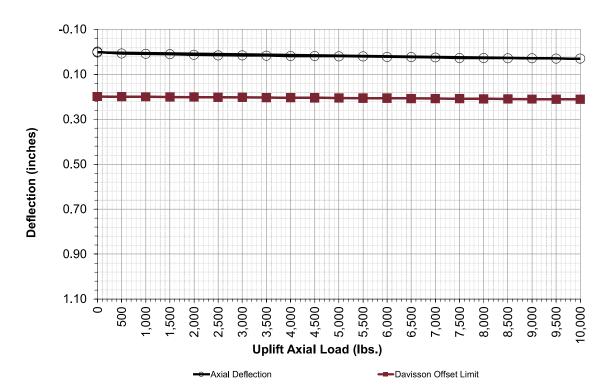
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.001	0.000	0.200	
Number of Gauges:	2	10%	1000	0.003	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.004	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.004	0.002	0.201	
		25%	2500	0.005	0.002	0.201	
		30%	3000	0.005	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.006	0.003	0.202	
Tested By Terracon Rep:	SL/MGB/ED	40%	4000	0.007	0.003	0.202	
Date Tested:	9/23/2023	45%	4500	0.008	0.003	0.203	
		50%	5000	0.008	0.004	0.203	
		55%	5500	0.009	0.004	0.203	
Pile Information		60%	6000	0.010	0.005	0.204	
Pile ID:	PLT-101A	65%	6500	0.011	0.005	0.204	
Latitude [deg.]:	35.54106	70%	7000	0.012	0.005	0.205	
Longitude[deg.]:	-106.01558	75%	7500	0.013	0.006	0.205	
Pile Type:	W6x9	80%	8000	0.014	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.015	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000	0.017	0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500	0.019	0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000	0.022	0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.005	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-101B

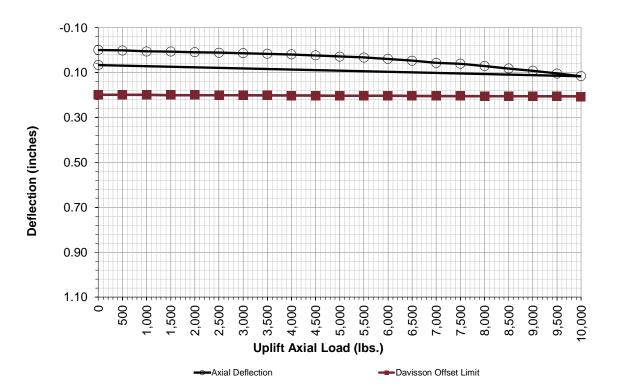
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.008	0.001	0.200	
Number of Gauges:	2	10%	1000	0.009	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.011	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.013	0.002	0.202	
		25%	2500	0.015	0.003	0.202	
		30%	3000	0.016	0.004	0.203	
est Date and Representati	ve	35%	3500	0.017	0.004	0.203	
Tested By Terracon Rep:	SL/MGB/ED	40%	4000	0.019	0.005	0.204	
Date Tested:	9/23/2023	45%	4500	0.019	0.006	0.205	
	•	50%	5000	0.020	0.006	0.205	
		55%	5500	0.021	0.007	0.206	
ile Information		60%	6000	0.023	0.007	0.207	
Pile ID:	PLT-101B	65%	6500	0.024	0.008	0.207	
Latitude [deg.]:	35.54106	70%	7000	0.026	0.009	0.208	
Longitude[deg.]:	-106.01558	75%	7500	0.027	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.028	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.028	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.029	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.030	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.030	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.002	0.000	0,199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-102A

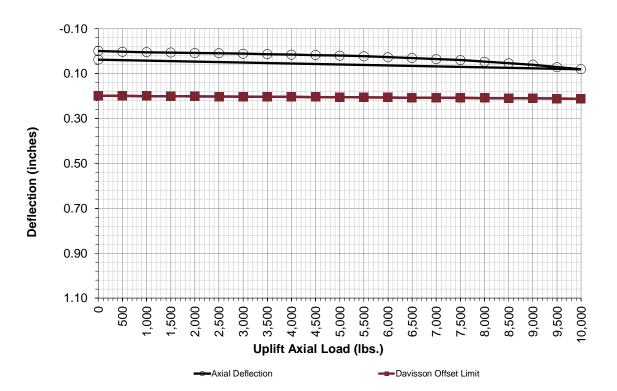
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.002	0.000	0.200	
Number of Gauges:	2	10%	1000	0.006	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.007	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.010	0.002	0.201	
	•	25%	2500	0.012	0.002	0.201	
		30%	3000	0.014	0.002	0.201	
est Date and Representati	ve	35%	3500	0.017	0.003	0,202	
Tested By Terracon Rep:	ED/TS	40%	4000	0.020	0.003	0.202	
Date Tested:	3/7/2024	45%	4500	0.024	0.003	0.203	
	•	50%	5000	0.029	0.004	0,203	
		55%	5500	0.033	0.004	0.203	
Pile Information		60%	6000	0.039	0.005	0.204	
Pile ID:	PLT-102A	65%	6500	0.047	0.005	0.204	
Latitude [deg.]:	35.53980	70%	7000	0.057	0.005	0.205	
Longitude[deg.]:	-106.00941	75%	7500	0.061	0.006	0.205	
Pile Type:	W6x9	80%	8000	0.071	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.083	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000	0.092	0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500	0.104	0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000	0.116	0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.067	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						
Drive Time [sec.]:	0						





Tension Load Test Result for PLT-102B

Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.003	0.001	0.200	
Number of Gauges:	2	10%	1000	0.005	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.007	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.009	0.002	0.202	
	•	25%	2500	0.010	0.003	0.202	
		30%	3000	0.012	0.004	0.203	
est Date and Representati	ve	35%	3500	0.014	0.004	0,203	
Tested By Terracon Rep:	ED/TS	40%	4000	0.016	0.005	0.204	
Date Tested:	3/7/2024	45%	4500	0.018	0.006	0.205	
	•	50%	5000	0.020	0.006	0,205	
		55%	5500	0.023	0.007	0.206	
Pile Information		60%	6000	0.027	0.007	0.207	
Pile ID:	PLT-102B	65%	6500	0.031	0.008	0.207	
Latitude [deg.]:	35.53980	70%	7000	0.036	0.009	0.208	
Longitude[deg.]:	-106.00941	75%	7500	0.041	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.047	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.055	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.061	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.072	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.081	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.038	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						
Drive Time [sec.]:	0						





Tension Load Test Result for PLT-103A

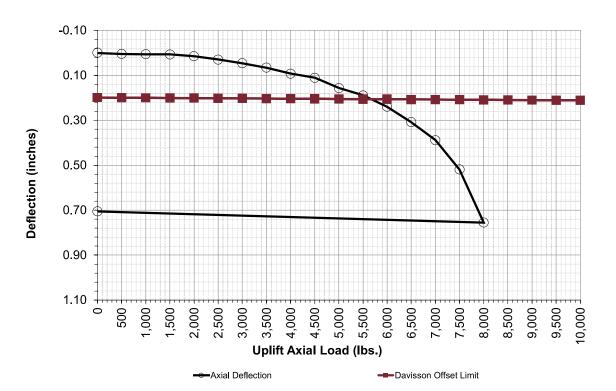
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
		Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.000	0.000	0.200	
Number of Gauges:	2	10%	1000	0.012	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.017	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.049	0.002	0.201	
		25%	2500	0.090	0.002	0.201	
		30%	3000	0.155	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.222	0.003	0.202	
Tested By Terracon Rep:	SL/SS	40%	4000	0.332	0.003	0.202	
Date Tested:	9/27/2023	45%	4500	0.490	0.003	0.203	
		50%	5000	0.729	0.004	0.203	
		55%	5500	0.852	0.004	0.203	
Pile Information		60%	6000		0.005	0,204	
Pile ID:	PLT-103A	65%	6500		0.005	0.204	
Latitude [deg.]:	35.54149	70%	7000		0.005	0.205	
Longitude[deg.]:	106.00401	75%	7500		0.006	0.205	
Pile Type:	W6x9	80%	8000		0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500		0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000		0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500		0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000		0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.735	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						

-0.10 0.10 0.30 Deflection (inches) 0.50 0.70 0.90 1.10 0 500 1,000 9,000 9,500 1,500 3,000 3,500 5,000 5,500 6,000 6,500 7,000 7,500 8,000 8,500 2,000 2,500 4,000 4,500 10,000 Uplift Axial Load (lbs.) -----Axial Deflection ----Davisson Offset Limit



Tension Load Test Result for PLT-103B

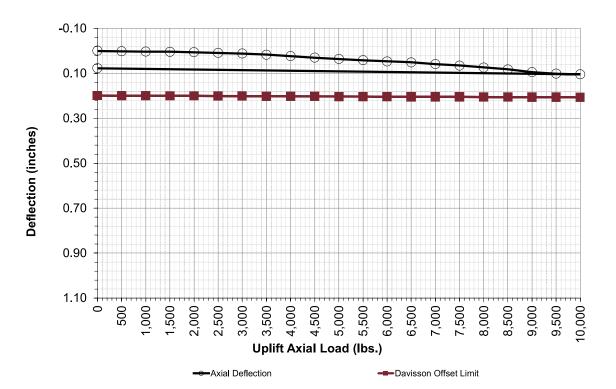
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.005	0.001	0.200	
Number of Gauges:	2	10%	1000	0.006	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.007	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.015	0.002	0.202	
	•	25%	2500	0.030	0.003	0.202	
		30%	3000	0.046	0.004	0.203	
est Date and Representati	ve	35%	3500	0.066	0.004	0.203	
Tested By Terracon Rep:	SL/SS	40%	4000	0.092	0.005	0.204	
Date Tested:	9/27/2023	45%	4500	0.111	0.006	0.205	
	•	50%	5000	0,156	0.006	0.205	
		55%	5500	0.189	0.007	0.206	
Pile Information		60%	6000	0.240	0.007	0.207	
Pile ID:	PLT-103B	65%	6500	0.308	0.008	0.207	
Latitude [deg.]:	35.54149	70%	7000	0.388	0.009	0.208	
Longitude[deg.]:	106.00401	75%	7500	0.519	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.755	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500		0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000		0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500		0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000		0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.706	0.000	0,199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-104A

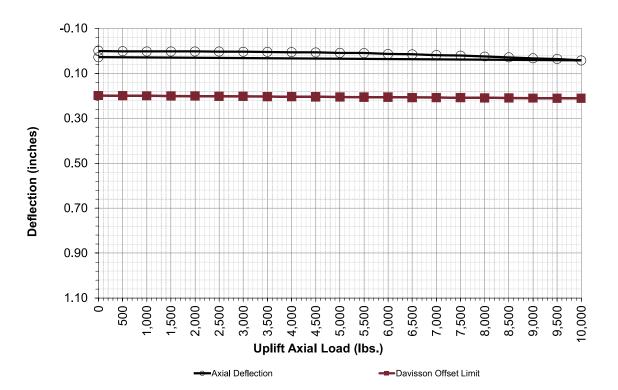
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.002	0.000	0.200	
Number of Gauges:	2	10%	1000	0.003	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.004	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.006	0.002	0.201	
		25%	2500	0.009	0.002	0.201	
		30%	3000	0.012	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.017	0.003	0.202	
Tested By Terracon Rep:	SL/SS	40%	4000	0.023	0.003	0.202	
Date Tested:	9/27/2023	45%	4500	0.031	0.003	0.203	
		50%	5000	0.036	0.004	0.203	
		55%	5500	0.042	0.004	0.203	
Pile Information		60%	6000	0.047	0.005	0,204	
Pile ID:	PLT-104A	65%	6500	0.051	0.005	0.204	
Latitude [deg.]:	35.54444	70%	7000	0.059	0.005	0.205	
Longitude[deg.]:	106.00578	75%	7500	0.065	0.006	0,205	
Pile Type:	W6x9	80%	8000	0.074	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.082	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000	0.095	0.007	0,206	
Pile Stick-Up [in.]:	48	95%	9500	0.102	0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000	0.105	0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.078	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-104B

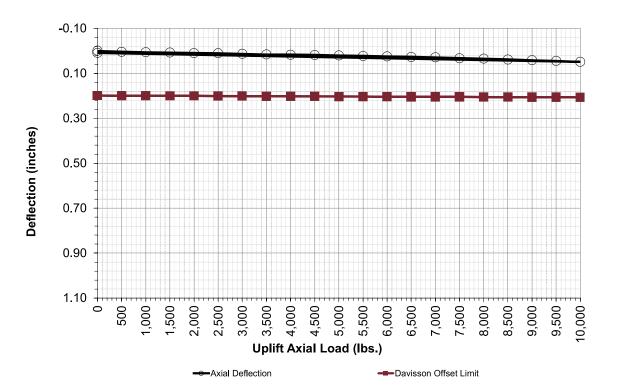
Project Name: Rancho Viejo		Tension Test Results					
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.002	0.001	0.200	
Number of Gauges:	2	10%	1000	0.003	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.003	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.003	0.002	0.202	
		25%	2500	0.003	0.003	0.202	
		30%	3000	0.004	0.004	0.203	
Test Date and Representative		35%	3500	0.005	0.004	0.203	
Tested By Terracon Rep:	SL/SS	40%	4000	0.006	0.005	0.204	
Date Tested:	9/27/2023	45%	4500	0.007	0.006	0.205	
		50%	5000	0.009	0.006	0.205	
		55%	5500	0.010	0.007	0.206	
Pile Information		60%	6000	0.014	0.007	0.207	
Pile ID:	PLT-104B	65%	6500	0.015	0.008	0.207	
Latitude [deg.]:	35.54444	70%	7000	0.019	0.009	0.208	
Longitude[deg.]:	106.00578	75%	7500	0.021	0.009	0,208	
Pile Type:	W6x9	80%	8000	0.026	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.029	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.034	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.036	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.042	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.028	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						



Ferracon

Tension Load Test Result for PLT-105A

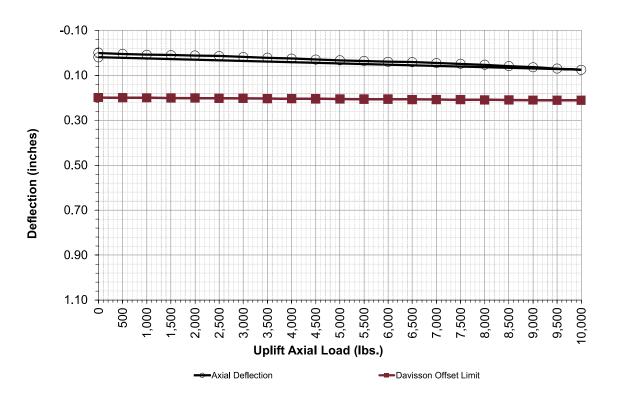
Project Name: Rancho Viejo		Tension Test Results					
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0,199	
Axial Load Test Set Up		5%	500	0.004	0.000	0.200	
Number of Gauges:	2	10%	1000	0.006	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.008	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.010	0.002	0.201	
		25%	2500	0.011	0.002	0.201	
		30%	3000	0.013	0.002	0.201	
Test Date and Representative		35%	3500	0.016	0.003	0.202	
Tested By Terracon Rep:	SL/ED	40%	4000	0.017	0.003	0.202	
Date Tested:	10/3/2023	45%	4500	0.018	0.003	0.203	
		50%	5000	0.020	0.004	0.203	
		55%	5500	0.022	0.004	0.203	
Pile Information		60%	6000	0.025	0.005	0.204	
Pile ID:	PLT-105A	65%	6500	0.027	0.005	0.204	
Latitude [deg.]:	35.54761	70%	7000	0.029	0.005	0.205	
Longitude[deg.]:	106.00262	75%	7500	0.032	0.006	0.205	
Pile Type:	W6x9	80%	8000	0.035	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.039	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000	0.042	0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500	0.045	0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000	0.049	0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.009	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-105B

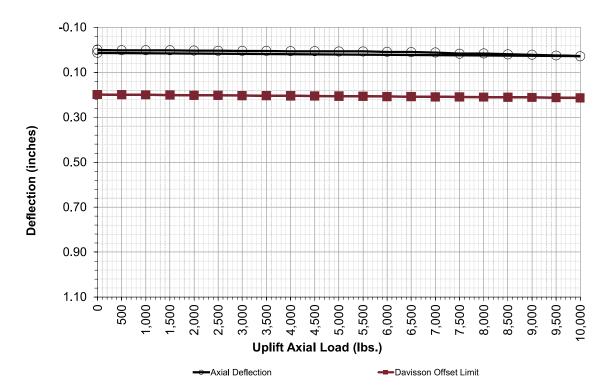
Project Name: Rancho Viejo		Tension Test Results					
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.005	0.001	0.200	
Number of Gauges:	2	10%	1000	0.008	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.010	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.012	0.002	0.202	
		25%	2500	0.014	0.003	0.202	
		30%	3000	0.018	0.004	0.203	
Fest Date and Representative		35%	3500	0.022	0.004	0.203	
Tested By Terracon Rep:	SL/ED	40%	4000	0.026	0.005	0.204	
Date Tested:	10/3/2023	45%	4500	0.030	0.006	0.205	
		50%	5000	0.033	0.006	0.205	
		55%	5500	0.036	0.007	0.206	
Pile Information		60%	6000	0.039	0.007	0.207	
Pile ID:	PLT-105B	65%	6500	0.041	0.008	0.207	
Latitude [deg.]:	35.54761	70%	7000	0.046	0.009	0.208	
Longitude[deg.]:	106.00262	75%	7500	0.049	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.053	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.059	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.064	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.070	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.075	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.020	0.000	0,199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-106A

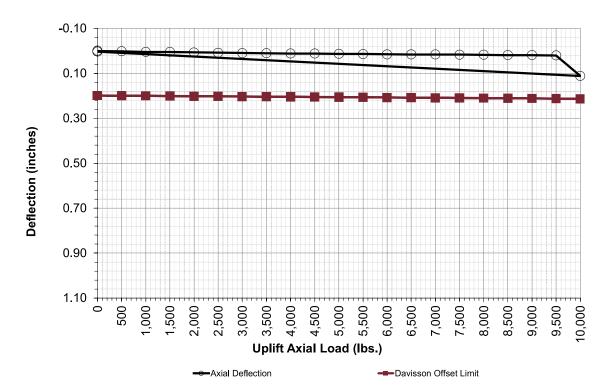
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.002	0.001	0.200	
Number of Gauges:	2	10%	1000	0.002	0.001	0.201	
Height of Gauges [in.]:	6	15%	1500	0.002	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.003	0.003	0.202	
	•	25%	2500	0.004	0.003	0.203	
		30%	3000	0.005	0.004	0.203	
Fest Date and Representati	ve	35%	3500	0.005	0.005	0.204	
Tested By Terracon Rep:	SL/JPS	40%	4000	0.006	0.006	0.205	
Date Tested:	10/3/2023	45%	4500	0.006	0.006	0.205	
		50%	5000	0.007	0.007	0.206	
		55%	5500	0.007	0.008	0.207	
Pile Information		60%	6000	0.009	0.008	0.208	
Pile ID:	PLT-106A	65%	6500	0.010	0.009	0.208	
Latitude [deg.]:	35.54803	70%	7000	0.012	0.010	0.209	
Longitude[deg.]:	106.00973	75%	7500	0.017	0.010	0,210	
Pile Type:	W6x9	80%	8000	0.016	0.011	0.210	
Pile Embedment Depth [in.]:	108	85%	8500	0.020	0.012	0.211	
Pile Diameter [in.]:	5.9	90%	9000	0.022	0.013	0,212	
Pile Stick-Up [in.]:	36	95%	9500	0.025	0.013	0.212	
Axial Design Load [lbs.]:	10,000	100%	10000	0.028	0.014	0.213	
Pile Area [sq. in.]:	2.68	0%	0	0.013	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-106B

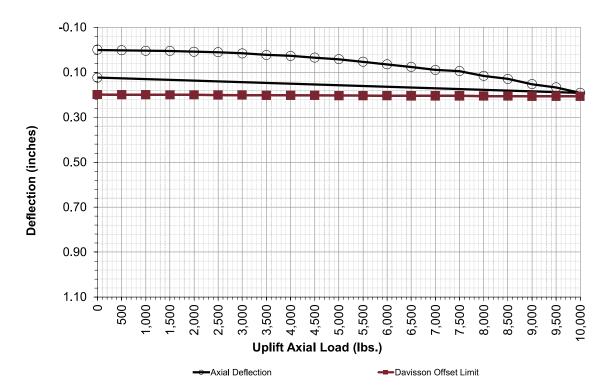
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.002	0.001	0.200	
Number of Gauges:	2	10%	1000	0.005	0.001	0.201	
Height of Gauges [in.]:	6	15%	1500	0.005	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.007	0.003	0.202	
		25%	2500	0.008	0.003	0.203	
		30%	3000	0.010	0.004	0.203	
est Date and Representati	ve	35%	3500	0.011	0.005	0.204	
Tested By Terracon Rep:	SL/JPS	40%	4000	0.012	0.006	0.205	
Date Tested:	10/3/2023	45%	4500	0.012	0.006	0.205	
		50%	5000	0.013	0.007	0.206	
		55%	5500	0.014	0.008	0.207	
ile Information		60%	6000	0.015	0.008	0,208	
Pile ID:	PLT-106B	65%	6500	0.016	0.009	0.208	
Latitude [deg.]:	35.54803	70%	7000	0.016	0.010	0.209	
Longitude[deg.]:	106.00973	75%	7500	0.017	0.010	0.210	
Pile Type:	W6x9	80%	8000	0.018	0.011	0.210	
Pile Embedment Depth [in.]:	108	85%	8500	0.019	0.012	0.211	
Pile Diameter [in.]:	5.9	90%	9000	0.019	0.013	0,212	
Pile Stick-Up [in.]:	36	95%	9500	0.020	0.013	0.212	
Axial Design Load [lbs.]:	10,000	100%	10000	0.112	0.014	0.213	
Pile Area [sq. in.]:	2.68	0%	0	0.003	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-107A

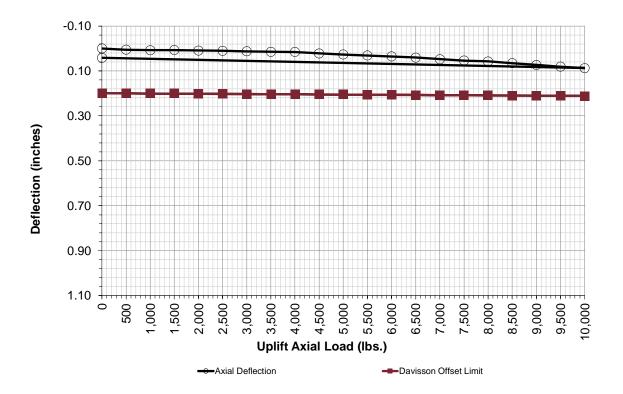
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.002	0.000	0.200	
Number of Gauges:	2	10%	1000	0.004	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.005	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.008	0.002	0.201	
		25%	2500	0.011	0.002	0.201	
		30%	3000	0.015	0.002	0.201	
Fest Date and Representati	ve	35%	3500	0.022	0.003	0.202	
Tested By Terracon Rep:	SL/ED	40%	4000	0.027	0.003	0.202	
Date Tested:	10/4/2023	45%	4500	0.035	0.003	0.203	
		50%	5000	0.042	0.004	0.203	
		55%	5500	0.053	0.004	0.203	
Pile Information		60%	6000	0.065	0.005	0.204	
Pile ID:	PLT-107A	65%	6500	0.076	0.005	0.204	
Latitude [deg.]:	35.54924	70%	7000	0.089	0.005	0.205	
Longitude[deg.]:	106.01518	75%	7500	0.095	0.006	0.205	
Pile Type:	W6x9	80%	8000	0,116	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.129	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000	0.153	0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500	0.167	0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000	0.191	0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.124	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-107B

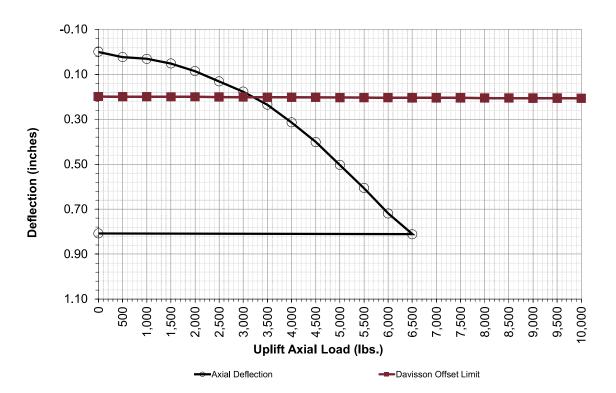
Project Location: Project Number: Santa Fe, New Mexico 66225093 % of besign Load Axial Load Deflection A (in.) Deflection A (in.) Elastic Data (in.) Davisson Offest Limit (in.) Axial Load Test Set Up 0% 0 0.000 0.000 0.0199 Axial Load Test Set Up 5% 500 0.006 0.001 0.200 Number of Gauges: 2 10% 1000 0.008 0.001 0.200 Number of Gauges: 2 10% 1000 0.008 0.002 0.201 Load Cell: Dillion 20% 2000 0.008 0.002 0.202 Test Date and Representative 030% 3000 0.011 0.003 0.202 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 5500 0.031 0.007 0.206 Plie Information Plie T107B 65% 6500 0.041 0.008 0.207 Longitude[deg.]: 106.01518 75		Davisson Offset Limit Lines		est Results	Tension Te		Rancho Viejo	Project Name:
Load [Ibs.] Gauges #1 & #2 (PL/AE) (0.15+D/120+(PL/AE)) Axial Load Test Set Up 0% 0 0.000 0.000 0.199 Axial Load Test Set Up 5% 500 0.006 0.001 0.200 Number of Gauges: 2 10% 1000 0.008 0.001 0.200 Height of Gauges [in.]: 6 15% 1500 0.008 0.002 0.201 Load Cell: Dillion 20% 2000 0.009 0.002 0.202 Test Date and Representative 25% 2500 0.011 0.003 0.202 Tested By Terracon Rep: SI/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 File Information 60% 6000 0.036 0.007 0.207 Pile Information PIC-107B 65% 6500 0.041 0.008 0.207 Longitude[deg.]: 106.01518		Davisson Offest	Elastic		Axial	% of	Santa Fe, New Mexico	Project Location:
Axial Load Test Set Up 0% 0 0.000 0.000 0.199 Number of Gauges: Height of Gauges [in,]: Load Cell: 2 5% 500 0.006 0.001 0.200 Load Cell: 6 15% 1500 0.008 0.002 0.201 Load Cell: billion 20% 2000 0.009 0.002 0.202 State and Representative 33% 3000 0.011 0.003 0.202 Test Date and Representative 35% 3500 0.015 0.004 0.203 Tested By Terracon Rep: Date Tested: 5/ED 40% 4000 0.016 0.007 0.204 V 10/4/2023 45% 4500 0.022 0.006 0.205 So% 5500 0.031 0.007 0.206 0.205 0.006 0.205 Pile Information 60% 6000 0.036 0.009 0.208 0.208 Longitude[deg.]: 35.54924 70% 7000 0.048 0.009 0.208	Comments	Limit (in.)	Data (in.)	Deflection Δ (in.)	Load	Design	66225093	Project Number:
Axial Load Test Set Up 5% 500 0.006 0.001 0.200 Number of Gauges: 2 10% 1000 0.008 0.001 0.200 Height of Gauges [in,]: 6 15% 1500 0.008 0.002 0.201 Load Cell: Dillion 20% 2000 0.009 0,002 0.202 25% 2500 0.011 0.004 0.203 Test Date and Representative 35% 3500 0.015 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 Pile Information 55% 5500 0.031 0.007 0.206 Pile Information 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 15.54924 70% 7000 0.048 0.009 0.208 Pile Inberdment Depth [in.]: 96 8500		(0.15+D/120+(PL/AE))	(PL/AE)	Gauges #1 & #2	[lbs.]	Load		
Number of Gauges: 2 10% 1000 0.008 0.001 0.200 Height of Gauges [in.]: 6 15% 1500 0.008 0.002 0.201 Load Cell: Dillion 20% 2000 0.009 0.002 0.202 Test Date and Representative 30% 3000 0.011 0.003 0.202 Test Date and Representative 35% 3500 0.015 0.004 0.203 Test Date and Representative 35% 3500 0.015 0.006 0.205 Test Date and Representative 10/4/2023 45% 4500 0.022 0.006 0.205 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.007 0.206 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 Sile Information 60% 6000 0.036 0.007 0.206 Latitude [deg.]: 106.01518 75% 7500 0.048 0.009 0.208		0.199	0.000	0.000	0	0%		
Height of Gauges [in.]: 6 15% 1500 0.008 0.002 0.201 Load Cell: Dillion 20% 2000 0.009 0.002 0.202 25% 2500 0.011 0.003 0.202 30% 3000 0.013 0.004 0.203 Cest Date and Representative 35% 3500 0.015 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 Sile Information 60% 6000 0.031 0.007 0.206 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Pile ID: PLT-107B 65% 6500 0.054 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500		0.200	0.001	0.006	500	5%		xial Load Test Set Up
Load Cell: Dillion 20% 2000 0.009 0.002 0.202 25% 2500 0.011 0.003 0.202 30% 3000 0.013 0.004 0.203 rest Date and Representative 35% 3500 0.015 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 SW 55% 5500 0.031 0.007 0.206 Pile Information 60% 6000 0.036 0.007 0.207 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in:] 96 85% 8500 0.066 0.010		0.200	0.001	0.008	1000	10%	2	Number of Gauges:
est Date and Representative 25% 2500 0.011 0.003 0.202 ast Date and Representative 30% 3000 0.013 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 Sig 5500 0.031 0.007 0.206 0.206 Sig 5500 0.031 0.007 0.206 Sig 65% 6500 0.041 0.008 0.207 Sig 106.01518 75% 7500 0.048 0.009 0.208 Latitude [deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000		0.201	0.002	0.008	1500	15%	6	Height of Gauges [in.]:
and Representative 30% 3000 0.013 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 Bile Information 55% 5500 0.031 0.007 0.206 Ile Information 60% 6000 0.036 0.007 0.207 Latitude [deg.]: 35.54924 75% 5500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 75% 7500 0.041 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Type: W6x9 80% 8000 0.058 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0,202	0.002	0.009	2000	20%	Dillion	Load Cell:
est Date and Representative 35% 3500 0.015 0.004 0.203 Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 ile Information 55% 5500 0.031 0.007 0.206 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210		0.202	0.003	0.011	2500	25%		
Tested By Terracon Rep: SL/ED 40% 4000 0.016 0.005 0.204 Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 50% 5000 0.027 0.006 0.205 50% 5500 0.031 0.007 0.206 ile Information 60% 6000 0.036 0.007 0.207 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.209 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.011 0.210 Pile Einmetr [in.]: 5.9 90% 9000 0.073 0.011 0.211		0.203	0.004	0.013	3000	30%		
Date Tested: 10/4/2023 45% 4500 0.022 0.006 0.205 50% 5000 0.027 0.006 0.205 55% 5500 0.031 0.007 0.206 ile Information 60% 6000 0.036 0.007 0.207 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.209 Pile Type: W6x9 80% 8000 0.058 0.010 0.210 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Exick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.203	0.004	0.015	3500	35%	/e	est Date and Representativ
50% 5000 0.027 0.006 0.205 ile Information 55% 5500 0.031 0.007 0.206 ile Information 60% 6000 0.036 0.007 0.207 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.209 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.204	0.005	0.016	4000	40%	SL/ED	Tested By Terracon Rep:
ile Information 55% 5500 0.031 0.007 0.206 Pile ID: PLT-107B 60% 6000 0.036 0.007 0.207 Latitude [deg.]: 35.54924 70% 7000 0.041 0.008 0.208 Longitude [deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.205	0.006	0.022	4500	45%	10/4/2023	Date Tested:
ile Information 60% 6000 0.036 0.007 0.207 Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.205	0.006	0.027	5000	50%		
Pile ID: PLT-107B 65% 6500 0.041 0.008 0.207 Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.206	0.007	0.031	5500	55%		
Latitude [deg.]: 35.54924 70% 7000 0.048 0.009 0.208 Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Type W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.082 0.012 0.211		0.207	0.007	0.036	6000	60%		ile Information
Longitude[deg.]: 106.01518 75% 7500 0.054 0.009 0.208 Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.207	0.008	0.041	6500	65%	PLT-107B	Pile ID:
Pile Type: W6x9 80% 8000 0.058 0.010 0.209 Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.208	0.009	0.048	7000	70%	35.54924	Latitude [deg.]:
Pile Embedment Depth [in.]: 96 85% 8500 0.066 0.010 0.210 Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.208	0.009	0.054	7500	75%	106.01518	Longitude[deg.]:
Pile Diameter [in.]: 5.9 90% 9000 0.073 0.011 0.210 Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.209	0.010	0.058	8000	80%	W6x9	Pile Type:
Pile Stick-Up [in.]: 48 95% 9500 0.082 0.012 0.211		0.210	0.010	0.066	8500	85%	96	Pile Embedment Depth [in.]:
		0.210	0.011	0.073	9000	90%	5.9	Pile Diameter [in.]:
		0.211	0.012	0.082	9500	95%	48	Pile Stick-Up [in.]:
Axial Design Load [IDs.]: 10,000 100% 10000 0.088 0.012 0.212		0.212	0.012	0.088	10000	100%	10,000	Axial Design Load [lbs.]:
Pile Area [sq. in.]: 2.68 0% 0 0.042 0.000 0.199		0.199	0.000	0.042	0	0%	2.68	Pile Area [sq. in.]:
Elastic Modulus [ksi.]: 29,000							29,000	Elastic Modulus [ksi.]:





Tension Load Test Result for PLT-108A

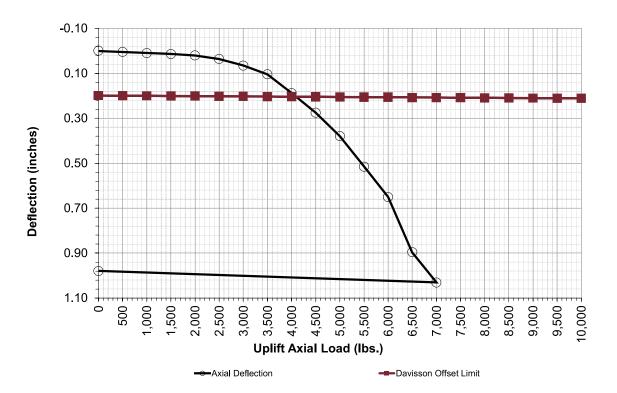
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.024	0.000	0.200	
Number of Gauges:	2	10%	1000	0.031	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.052	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.086	0.002	0.201	
		25%	2500	0.132	0.002	0.201	
		30%	3000	0.178	0.002	0.201	
Fest Date and Representati	ve	35%	3500	0.235	0.003	0.202	
Tested By Terracon Rep:	SL/ED	40%	4000	0.314	0.003	0.202	
Date Tested:	10/3/2023	45%	4500	0.401	0.003	0.203	
		50%	5000	0.503	0.004	0.203	
		55%	5500	0.607	0.004	0.203	
Pile Information		60%	6000	0.719	0.005	0.204	
Pile ID:	PLT-108A	65%	6500	0.812	0.005	0.204	
Latitude [deg.]:	35.55227	70%	7000		0.005	0.205	
Longitude[deg.]:	106.01033	75%	7500		0.006	0.205	
Pile Type:	W6x9	80%	8000		0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500		0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000		0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500		0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000		0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.808	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-108B

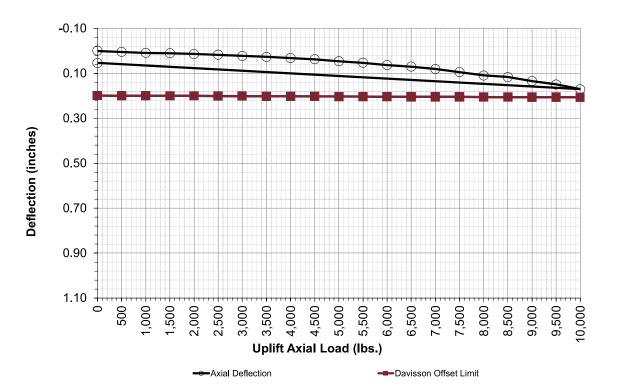
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
		Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.005	0.001	0.200	
Number of Gauges:	2	10%	1000	0.010	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.014	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.021	0.002	0.202	
		25%	2500	0.037	0.003	0.202	
		30%	3000	0.065	0.004	0.203	
Fest Date and Representati	ve	35%	3500	0.104	0.004	0.203	
Tested By Terracon Rep:	SL/ED	40%	4000	0.188	0.005	0.204	
Date Tested:	10/3/2023	45%	4500	0.275	0.006	0.205	
		50%	5000	0.380	0.006	0.205	
		55%	5500	0.515	0.007	0.206	
Pile Information		60%	6000	0.651	0.007	0.207	
Pile ID:	PLT-108B	65%	6500	0.896	0.008	0.207	
Latitude [deg.]:	35.55227	70%	7000	1.031	0.009	0.208	
Longitude[deg.]:	106.01033	75%	7500		0.009	0.208	
Pile Type:	W6x9	80%	8000		0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500		0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000		0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500		0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000		0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.980	0.000	0,199	
Elastic Modulus [ksi.]:	29,000						



Ferracon

Tension Load Test Result for PLT-109A

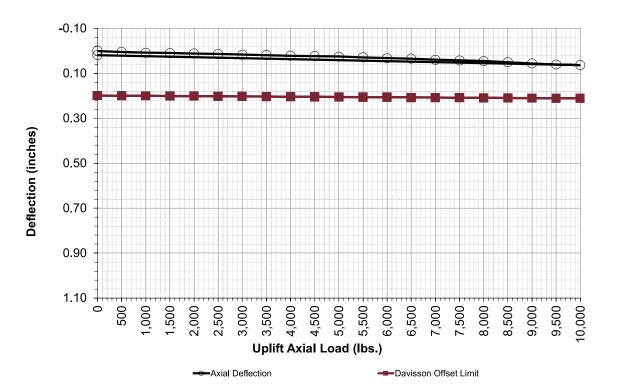
Axial Load Test Set Up Load [Ibs.] Gauges #1 & #2 (PL/AE) (0.15+D/120+(PL/AE)) Axial Load Test Set Up 0% 0 0.000 0.000 0.109 Number of Gauges: 2 15% 500 0.005 0.000 0.200 Number of Gauges: 2 15% 1500 0.011 0.001 0.200 Load Cell: Dillion 20% 2000 0.014 0.002 0.201 Test Date and Representativ 35% 3500 0.022 0.003 0.202 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 Pile Information Essort 10/4/2023 65% 6500 0.070 0.005 0.204 Pile Information Pile 10: PL-109A 65% 6500 0.070 0.005 0.204 Pile Information Pile 0.01736 75% 7500 0.004	Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Load [lbs.] Gauges #1 & #2 (PL/AE) (0.15+D/120+(PL/AE)) Axial Load Test Set Up 0% 0 0.000 0.000 0.000 0.199 Axial Load Test Set Up 5% 500 0.005 0.001 0.200 0.001 Mumber of Gauges: 2 10% 1000 0.001 0.001 0.200 Load Cell: Dillion 20% 2000 0.014 0.002 0.201 0.001 Load Cell: Dillion 25% 2500 0.018 0.002 0.201 0.001 Test Date and Representative 30% 3000 0.022 0.003 0.202 0.201 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 Pile Information Ple T-109A 65% 6500 0.070 0.005 0.204 0.005 Pile Information Ple 0.01736 75% <td< th=""><th>Project Location:</th><th>Santa Fe, New Mexico</th><th>% of</th><th>Axial</th><th></th><th>Elastic</th><th>Davisson Offest</th><th></th></td<>	Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Axial Load Test Set Up 0% 0 0.000 0.000 0.199 Number of Gauges: 2 5% 500 0.005 0.000 0.200 Height of Gauges [in.]: 6 10% 1000 0.001 0.200 Load Cell: Dillion 20% 2000 0.011 0.002 0.201 Test Date and Representative 35% 3500 0.022 0.002 0.201 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 File Information File 1D: PLT-109A 65% 6500 0.070 0.005 0.204 Longitude[deg.]: 35.55374 75% 7500 0.004 0.205 0.205 Pile ID: PLT-109A 65% 6500 0.070 0.005 0.204 Longitude[deg.]: 35.55374 75% 7500 0.094 0.006 0.205	Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
Axial Load Test Set Up 5% 500 0.005 0.000 0.200 Number of Gauges: 2 10% 1000 0.009 0.001 0.200 Height of Gauges [in.]: 6 15% 1500 0.011 0.001 0.200 Load Cell: Dillion 20% 2000 0.014 0.002 0.201 Test Date and Representative 35% 3500 0.027 0.003 0.202 0.201 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.203 0.203 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0.203 Pile Information 66% 6500 0.0663 0.004 0.203 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204 0.205 0.204		•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
Number of Gauges: 2 10% 1000 0.009 0.001 0.200 Height of Gauges [in.]: 6 15% 1500 0.011 0.001 0.200 Load Cell: billion 20% 2000 0.014 0.002 0.201 Z5% 2500 0.018 0.002 0.201 0.001 0.202 Test Date and Representative 35% 3500 0.027 0.003 0.202 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.203 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 File Information 60% 6000 0.063 0.004 0.203 0.004 Pile ID: PLT-109A 55% 6500 0.070 0.005 0.204 Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 Pile There W6x9 80% 8000 0.109 0.006 0.205			0%	0	0.000	0.000	0,199	
Height of Gauges [in.] 6 15% 1500 0.011 0.001 0.200 Load Cell: Dillion 20% 2000 0.014 0.002 0.201 0.001 25% 2500 0.018 0.002 0.201 0.001 0.001 0.200 Test Date and Representative 35% 3500 0.022 0.002 0.201 0.001 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 0.003 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0.203 File Information 60% 6000 0.063 0.004 0.203 0.004 0.203 0.004 0.203 0.004 0.203 0.005 0.204 0.005 0.204 0.005 0.204 0.005 0.204 0.005 0.205 0.004 0.205 0.005 0.205 0.014 0.005 0.205 0.014 0.005 0.205 0.015 0.005 0.205 </td <td>Axial Load Test Set Up</td> <td></td> <td>5%</td> <td>500</td> <td>0.005</td> <td>0.000</td> <td>0.200</td> <td></td>	Axial Load Test Set Up		5%	500	0.005	0.000	0.200	
Load Cell: Dillion 20% 2000 0.014 0.002 0.201 25% 2500 0.018 0.002 0.201 0.001 Test Date and Representative 35% 3500 0.022 0.003 0.202 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 Pile Tested: 10/4/2023 45% 5500 0.053 0.004 0.203 Pile Information 60% 6000 0.063 0.005 0.204 Pile Information 10.01736 75% 7500 0.005 0.204 Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8000 0.107 0.206 0.205 Pile Embedment Lin.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: <td< td=""><td>Number of Gauges:</td><td>2</td><td>10%</td><td>1000</td><td>0.009</td><td>0.001</td><td>0.200</td><td></td></td<>	Number of Gauges:	2	10%	1000	0.009	0.001	0.200	
Image: Problem 25% 2500 0.018 0.002 0.201 Test Date and Representative 30% 3000 0.022 0.002 0.201 0.001 Tested By Terracon Rep: SL/ED 35% 3500 0.027 0.003 0.202 0.003 0.202 Date Tested: 10/4/2023 40% 4000 0.032 0.003 0.203 0.003 0.204 0.003 0.204 0.003 0.204 0.005 0.204 0.005 0.204 0.005 0.205 0.003 0.205 0.003 0.005 0.205 <td>Height of Gauges [in.]:</td> <td>6</td> <td>15%</td> <td>1500</td> <td>0.011</td> <td>0.001</td> <td>0.200</td> <td></td>	Height of Gauges [in.]:	6	15%	1500	0.011	0.001	0.200	
Test Date and Representative 30% 3000 0.022 0.002 0.001 0.001 Tested By Terracon Rep: SL/ED 35% 3500 0.027 0.003 0.202 0.003 Date Tested: 10/4/2023 40% 4000 0.032 0.003 0.203 0.003 Pile Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0.003 Pile Information 55% 5500 0.053 0.004 0.203 0.004 Pile ID: PLT-109A 65% 6500 0.053 0.005 0.204 0.005 Latitude [deg.]: 35.55374 70% 7000 0.061 0.005 0.205 0.005 Longitude[deg.]: 106.01736 75% 7500 0.004 0.006 0.205 0.005 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 0.006 Pile Embedment Depth [in.]: 5.9 90% 9000 0.134 0.007 <td>Load Cell:</td> <td>Dillion</td> <td>20%</td> <td>2000</td> <td>0.014</td> <td>0.002</td> <td>0.201</td> <td></td>	Load Cell:	Dillion	20%	2000	0.014	0.002	0.201	
Test Date and Representative 35% 3500 0.027 0.003 0.202 Tested By Terracon Rep: SL/ED 40% 4000 0.032 0.003 0.202 10 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0.203 File Tested: 10/4/2023 45% 4500 0.037 0.004 0.203 0.004 File Information 55% 5500 0.053 0.004 0.203 0.004 Pile Information PLT-109A 65% 6500 0.063 0.005 0.204 0.004 Latitude [deg.]: 35.55374 70% 7000 0.0081 0.005 0.205 0.004 Longitude[deg.]: 106.01736 75% 7500 0.004 0.006 0.205 0.005 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 0.006 Pile Embedment Depth [in.]: 5.9 90% 9000 0.134 0.007 0.2			25%	2500	0.018	0.002	0.201	
Tested By Terracon Rep: Date Tested: SL/ED 40% 4000 0.032 0.003 0.202 Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0 S0% 5000 0.046 0.004 0.203 0			30%	3000	0.022	0.002	0.201	
Date Tested: 10/4/2023 45% 4500 0.037 0.003 0.203 0 50% 5000 0.046 0.004 0.203 0 0 File Information 55% 5500 0.053 0.004 0.203 0 Pile Information 60% 6000 0.063 0.005 0.204 0 Pile Information 917-109A 65% 6500 0.070 0.005 0.204 0 Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 0 Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 0 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 0 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 0 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 0 Axial Design Loa	Fest Date and Representativ	ve	35%	3500	0.027	0.003	0.202	
50% 5000 0.046 0.004 0.203 Pile Information 55% 5500 0.053 0.004 0.203 Pile Information 60% 6000 0.063 0.005 0.204 0.204 Pile Information 60% 60% 0.005 0.005 0.204 0.005 Pile Information 855% 6500 0.070 0.005 0.204 0.005 Pile Information 85574 70% 7000 0.0081 0.005 0.204 0.005 Latitude [deg.]: 10.601736 75% 7500 0.094 0.006 0.205 0.005 Pile Embedment Depth [in.]: 60 80% 8000 0.117 0.007 0.206 0.205 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 0.207 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 0.206 Axial Design Load [lbs.]: 10,000 100% 0.0	Tested By Terracon Rep:	SL/ED	40%	4000	0.032	0.003	0.202	
Pile Information 55% 5500 0.053 0.004 0.203 Pile ID: PLT-109A 60% 6000 0.063 0.005 0.204 Latitude [deg.]: 35.55374 60% 6500 0.070 0.005 0.204 Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 1000 0.171 0.008 0.207	Date Tested:	10/4/2023	45%	4500	0.037	0.003	0.203	
Pile Information 60% 6000 0.063 0.005 0.204 Pile ID: PLT-109A 65% 6500 0.070 0.005 0.204 Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 Pile Type: W6x9 80% 8000 0.107 0.006 0.205 Pile Demetr Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 0.0171 0.008 0.207			50%	5000	0.046	0.004	0.203	
Pile ID: PLT-109A 65% 6500 0.070 0.005 0.204 Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.207 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 1000 0.171 0.008 0.207			55%	5500	0.053	0.004	0.203	
Latitude [deg.]: 35.55374 70% 7000 0.081 0.005 0.205 Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 10000 0.171 0.008 0.207	Pile Information		60%	6000	0.063	0.005	0.204	
Longitude[deg.]: 106.01736 75% 7500 0.094 0.006 0.205 Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 10000 0.171 0.008 0.207	Pile ID:	PLT-109A	65%	6500	0.070	0.005	0.204	
Pile Type: W6x9 80% 8000 0.109 0.006 0.205 Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 1000 0.171 0.008 0.207	Latitude [deg.]:	35.55374	70%	7000	0.081	0.005	0.205	
Pile Embedment Depth [in.]: 60 85% 8500 0.117 0.007 0.206 Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 1000 0.171 0.008 0.207	Longitude[deg.]:	106.01736	75%	7500	0.094	0.006	0.205	
Pile Diameter [in.]: 5.9 90% 9000 0.134 0.007 0.206 Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 10000 0.171 0.008 0.207	Pile Type:	W6x9	80%	8000	0.109	0.006	0.205	
Pile Stick-Up [in.]: 48 95% 9500 0.150 0.007 0.207 Axial Design Load [lbs.]: 10,000 100% 10000 0.171 0.008 0.207	Pile Embedment Depth [in.]:	60	85%	8500	0.117	0.007	0.206	
Axial Design Load [lbs.]: 10,000 100% 10000 0.171 0.008 0.207	Pile Diameter [in.]:	5.9	90%	9000	0.134	0.007	0.206	
	Pile Stick-Up [in.]:	48	95%	9500	0.150	0.007	0.207	
Pile Area [sg, in.]; 2.68 0% 0 0.054 0.000 0.199	Axial Design Load [lbs.]:	10,000	100%	10000	0.171	0.008	0.207	
	Pile Area [sq. in.]:	2.68	0%	0	0.054	0.000	0.199	





Tension Load Test Result for PLT-109B

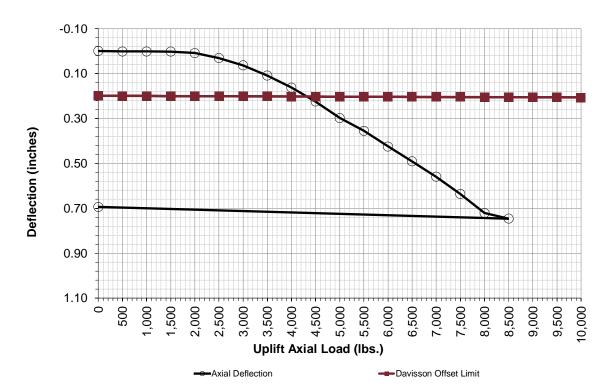
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.005	0.001	0.200	
Number of Gauges:	2	10%	1000	0.008	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.010	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.012	0.002	0.202	
	•	25%	2500	0.014	0.003	0.202	
		30%	3000	0.017	0.004	0.203	
est Date and Representativ	ve	35%	3500	0.019	0.004	0.203	
Tested By Terracon Rep:	SL/ED	40%	4000	0.022	0.005	0.204	
Date Tested:	10/4/2023	45%	4500	0.024	0.006	0.205	
		50%	5000	0.025	0.006	0.205	
		55%	5500	0.029	0.007	0.206	
ile Information		60%	6000	0.032	0.007	0.207	
Pile ID:	PLT-109B	65%	6500	0.036	0.008	0.207	
Latitude [deg.]:	35.55374	70%	7000	0.039	0.009	0.208	
Longitude[deg.]:	106.01736	75%	7500	0.042	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.046	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.050	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.056	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.061	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.063	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.019	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						





Tension Load Test Result for PLT-110A

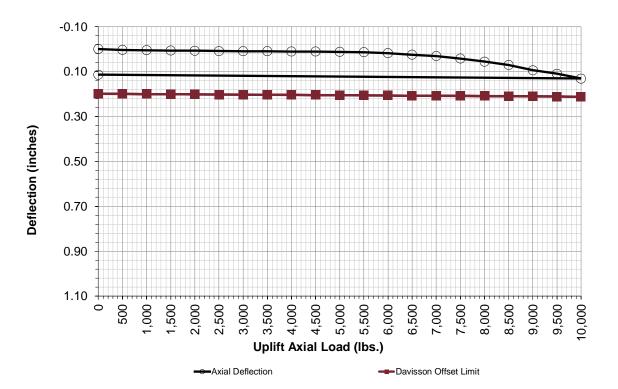
Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection Δ (in.)	Data (in.)	Limit (in.)	Comments
	•	Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
xial Load Test Set Up		5%	500	0.002	0.000	0.200	
Number of Gauges:	2	10%	1000	0.002	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.003	0.001	0.200	
Load Cell:	Dillion	20%	2000	0.009	0.002	0.201	
	•	25%	2500	0.031	0.002	0.201	
		30%	3000	0.064	0.002	0.201	
est Date and Representati	ve	35%	3500	0.109	0.003	0,202	
Tested By Terracon Rep:	ED/AR	40%	4000	0.163	0.003	0.202	
Date Tested:	3/11/2024	45%	4500	0.225	0.003	0.203	
	•	50%	5000	0.298	0.004	0,203	
		55%	5500	0.355	0.004	0.203	
ile Information		60%	6000	0.425	0.005	0.204	
Pile ID:	PLT-110A	65%	6500	0.491	0.005	0.204	
Latitude [deg.]:	35.54438	70%	7000	0.560	0.005	0.205	
Longitude[deg.]:	-106.01141	75%	7500	0.636	0.006	0.205	
Pile Type:	W6x9	80%	8000	0.721	0.006	0.205	
Pile Embedment Depth [in.]:	60	85%	8500	0.746	0.007	0.206	
Pile Diameter [in.]:	5.9	90%	9000		0.007	0.206	
Pile Stick-Up [in.]:	48	95%	9500		0.007	0.207	
Axial Design Load [lbs.]:	10,000	100%	10000		0.008	0.207	
Pile Area [sq. in.]:	2.68	0%	0	0.694	0.000	0.199	
Elastic Modulus [ksi.]:	29.000						





Tension Load Test Result for PLT-110B

Project Name:	Rancho Viejo		Tension Te	est Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe, New Mexico	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection Δ (in.)	Data (in.)	Limit (in.)	Comments
		Load	[lbs.]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.004	0.001	0.200	
Number of Gauges:	2	10%	1000	0.005	0.001	0.200	
Height of Gauges [in.]:	6	15%	1500	0.007	0.002	0.201	
Load Cell:	Dillion	20%	2000	0.008	0.002	0.202	
	•	25%	2500	0.009	0.003	0.202	
		30%	3000	0.010	0.004	0.203	
est Date and Representati	ve	35%	3500	0.010	0.004	0,203	
Tested By Terracon Rep:	ED/AR	40%	4000	0.011	0.005	0.204	
Date Tested:	3/11/2024	45%	4500	0.011	0.006	0.205	
	•	50%	5000	0.013	0.006	0,205	
		55%	5500	0.014	0.007	0.206	
Pile Information		60%	6000	0.018	0.007	0.207	
Pile ID:	PLT-110B	65%	6500	0.025	0.008	0.207	
Latitude [deg.]:	35.54438	70%	7000	0.031	0.009	0.208	
Longitude[deg.]:	-106.01141	75%	7500	0.043	0.009	0.208	
Pile Type:	W6x9	80%	8000	0.056	0.010	0.209	
Pile Embedment Depth [in.]:	96	85%	8500	0.071	0.010	0.210	
Pile Diameter [in.]:	5.9	90%	9000	0.094	0.011	0.210	
Pile Stick-Up [in.]:	48	95%	9500	0.110	0.012	0.211	
Axial Design Load [lbs.]:	10,000	100%	10000	0.132	0.012	0.212	
Pile Area [sq. in.]:	2.68	0%	0	0.115	0.000	0.199	
Elastic Modulus [ksi.]:	29,000						
Drive Time [sec.]:	0						

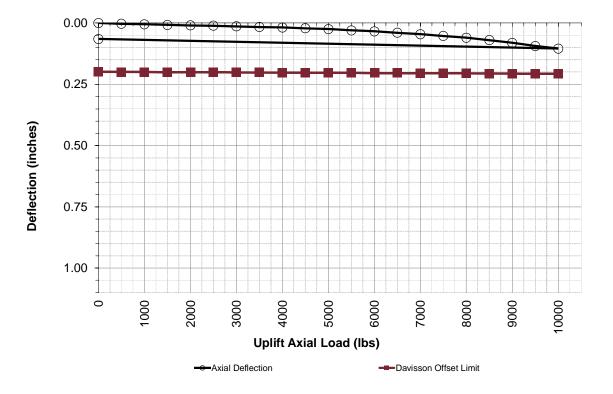


Tension Load Test Result for PLT-001A

Project Information

Project Name: Rancho Viejo Solar Facility	·	Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Project Number: 66225093	Design	Load	Deflection Δ (in.)	Data (in)	Limit (in)	Comments
·	Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
	0%	0	0.000	0.000	0.199	
Axial Load Test Set Up	5%	500	0.003	0.000	0.200	
Number of Gauges: 2	10%	1000	0.005	0.001	0.200	
Height of Gauges [in]: 6	15%	1500	0.008	0.001	0.200	
Load Cell: Dillon ED jr 10,000lb	20%	2000	0.010	0.002	0.201	
· ·	25%	2500	0.011	0.002	0.201	
	30%	3000	0.014	0.002	0.201	
Test Date and Representative	35%	3500	0.016	0.003	0.202	
Tested By Terracon Rep: CS & SC	40%	4000	0.018	0.003	0.202	
Date Tested: 8/25/2022	45%	4500	0.022	0.003	0.203	
	50%	5000	0.025	0.004	0.203	
	55%	5500	0.030	0.004	0.203	
Pile Information	60%	6000	0.034	0.005	0.204	
Pile ID: PLT-001A	65%	6500	0.040	0.005	0.204	
Latitude: 35.55334	70%	7000	0.046	0.005	0.205	
Longitude: -106.01315	75%	7500	0.053	0.006	0.205	
Pile Type: W6X9	80%	8000	0.060	0.006	0.205	
Pile Embedment Depth [in]: 60	85%	8500	0.070	0.007	0.206	
Pile Diameter [in]: 5.9	90%	9000	0.081	0.007	0.206	
Pile Stick-Up [in]: 48	95%	9500	0.094	0.007	0.207	
Axial Design Load [lbs]: 10000	100%	10000	0.104	0.008	0.207	
Pile Area [sq. in]: 2.68	0%	0	0.065	0.000	0.199	

Elastic Modulus [ksi]: 29,000 Drive Time [sec]: 39.7

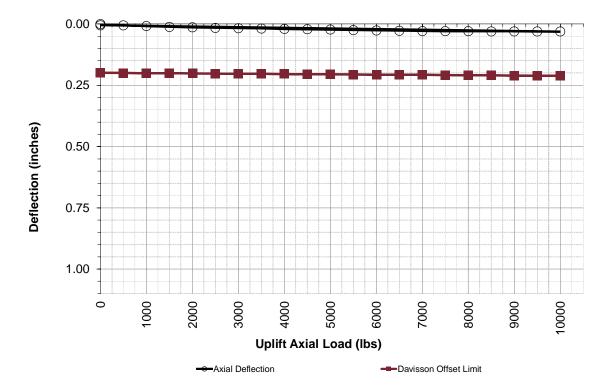


Terracon

Tension Load Test Result for PLT-001B

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Project Number:	Santa Fe County, NM 66225093	% of Design Load	Axial Load [Ibs]	Deflection ∆ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offest Limit (in) (0.15+D/120+(PL/AE))	Comments
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.005	0.001	0.200	
Number of Gauges:	2	10%	1000	0.009	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.012	0.002	0.201	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.014	0.002	0.202	
	·	25%	2500	0.016	0.003	0.202	
		30%	3000	0.017	0.004	0.203	
Test Date and Representativ	ve	35%	3500	0.019	0.004	0.203	
Tested By Terracon Rep:	CS & SC	40%	4000	0.020	0.005	0.204	
Date Tested:	8/25/2022	45%	4500	0.021	0.006	0.205	
		50%	5000	0.023	0.006	0.205	
		55%	5500	0.025	0.007	0.206	
Pile Information		60%	6000	0.026	0.007	0.207	
Pile ID:	PLT-001B	65%	6500	0.027	0.008	0.207	
Latitude:	35.55334	70%	7000	0.029	0.009	0.208	
Longitude:	-106.01315	75%	7500	0.030	0.009	0.208	
Pile Type:	W6X9	80%	8000	0.030	0.010	0.209	
Pile Embedment Depth [in]:	96	85%	8500	0.030	0.010	0.210	
Pile Diameter [in]:	5.9	90%	9000	0.030	0.011	0.210	
Pile Stick-Up [in]:	48	95%	9500	0.031	0.012	0.211	
Axial Design Load [lbs]:	10000	100%	10000	0.031	0.012	0.212	
Pile Area [sq. in]:	2.68	0%	0	0.005	0.000	0.199	
Elastic Modulus [ksi]:					-		
Drive Time [sec]:	50.8						



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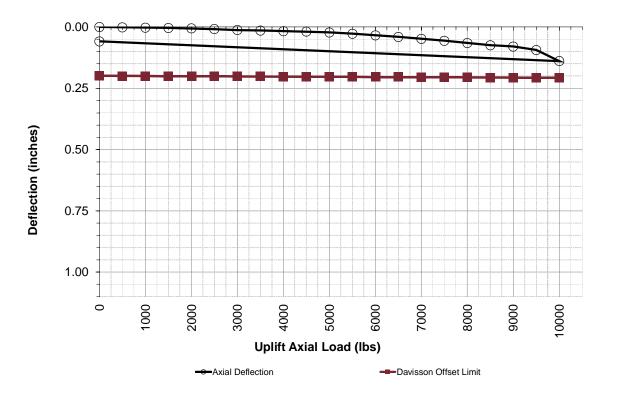
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Tension Load Test Result for PLT-002A

Project Information

Project Name: Ranch	no Viejo Solar Facility	Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Santa	Fe County, NM % of	Axial		Elastic	Davisson Offest	
Project Number: 66225	093 Desig	n Load	Deflection Δ (in.)	Data (in)	Limit (in)	Comments
	Load	l [lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
	0%	0	0.000	0.000	0.199	
Axial Load Test Set Up	5%	500	0.001	0.000	0.200	
Number of Gauges: 2	10%	1000	0.002	0.001	0.200	
Height of Gauges [in]: 6	15%	1500	0.004	0.001	0.200	
Load Cell: Dillon	ED jr 10,000lb 20%	2000	0.006	0.002	0.201	
	25%	2500	0.009	0.002	0.201	
	30%	3000	0.012	0.002	0.201	
Test Date and Representative	35%	3500	0.014	0.003	0.202	
Tested By Terracon Rep: CS &	SC 40%	4000	0.017	0.003	0.202	
Date Tested: 8/25/2	022 45%	4500	0.019	0.003	0.203	
	50%	5000	0.022	0.004	0.203	
	55%	5500	0.027	0.004	0.203	
Pile Information	60%	6000	0.034	0.005	0.204	
Pile ID: PLT-0	02A 65%	6500	0.041	0.005	0.204	
Latitude: 35.55	151 70%	7000	0.048	0.005	0.205	
Longitude: -106.0	0214 75%	7500	0.056	0.006	0.205	
Pile Type: W6X9	80%	8000	0.065	0.006	0.205	
Pile Embedment Depth [in]: 60	85%	8500	0.074	0.007	0.206	
Pile Diameter [in]: 5.9	90%	9000	0.080	0.007	0.206	
Pile Stick-Up [in]: 48	95%	9500	0.094	0.007	0.207	
Axial Design Load [lbs]: 10000	100%	6 10000	0.139	0.008	0.207	
Pile Area [sq. in]: 2.68	0%	0	0.059	0.000	0.199	1

Elastic Modulus [ksi]: 29,000 Drive Time [sec]: 35.4



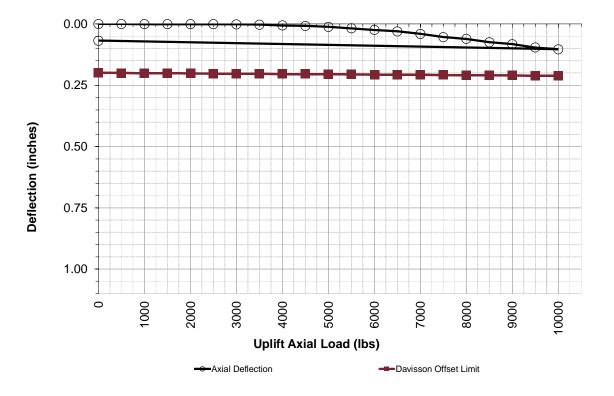
Terracon

Tension Load Test Result for PLT-002B

Project Information

Project Location: Project Number: Santa Fe County, NM (6225093) % of (6225093) Axial Design (Load Deflection A (in.) Gauges #1 & #2 Data (in) (PL/AE) Limit (in) (0.15+p1/204PL/AE) Comments (0.15+p1/204PL/AE) Axial Load Test Set Up Number of Gauges init Load Cell: 2 5% 500 0.000 0.001 0.200 - Mumber of Gauges init Load Cell: 2 10% 1000 0.001 0.002 0.201 - Test Date and Representative Tested By Terracon Rep: Date Tested: 26 & SC 40% 4000 0.008 0.0005 0.204 - - Pile Information Pile ID: Pile Information PIL-T002B Lattice: 35% 5500 0.018 0.007 0.206 - Pile Information Pile ID: Pile Embedment Depth [in]; 92 92% 85% 6500 0.030 0.008 0.207 - Pile Embedment Depth [in]; 92 93% 8000 0.061 0.009 0.208 - Pile Embedment Depth [in]; 92 95% 9500 0.054 0.009 0.208 - Pile	Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results	Davisson Offset Limit Lines		
Axial Load Test Set Up Load [lbs] Gauges #1 & #2 (PL/AE) (0.15+D/120+(PL/AE)) Mxial Load Test Set Up 0% 0 0.000 0.000 0.199 Number of Gauges: 2 10% 1000 0.001 0.200 Height of Gauges [in]: 6 15% 1500 0.001 0.002 0.201 Load Cell: Dillon ED jr 10,000lb 25% 2500 0.001 0.002 0.202 Test Date and Representative 35% 3500 0.003 0.004 0.203 Tested By Terracon Rep: CS & SC 30% 3000 0.002 0.004 0.203 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 File Information 55% 5500 0.018 0.007 0.206 10% Pile Information 916 Discret/Pini: 35.55151 70% 7000 0.044 0.007 0.206 Pile Information 92 85% 6500 0.033 0.008	Project Location:	Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Axial Load Test Set Up 0% 0 0.000 0.000 0.199 Number of Gauges: 2 Height of Gauges [in] 6 Load Cell: Dillon ED jr 10,000lb Test Date and Representative 15% 1500 0.001 0.002 0.201 Test Date and Representative 35% 3500 0.001 0.002 0.202 Tested By Terracon Rep: CS & SC 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 File Information 55% 5500 0.011 0.006 0.205 Pile Information 66% 6600 0.024 0.007 0.206 Pile Information 66% 6500 0.030 0.008 0.207 Pile Information 66% 6500 0.030 0.008 0.207 Pile Information 66% 6500 0.030 0.008 0.207 Pile Sinct-Up [in] 5.9 <td< th=""><th>Project Number:</th><th>66225093</th><th>Design</th><th>Load</th><th>Deflection ∆ (in.)</th><th>Data (in)</th><th>Limit (in)</th><th>Comments</th></td<>	Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in)	Limit (in)	Comments
Axial Load Test Set Up 5% 500 0.000 0.001 0.200 Number of Gauges: 2 10% 1000 0.001 0.001 0.200 Height of Gauges [in]: 6 15% 1500 0.001 0.002 0.201 Load Cell: Dillon ED jr 10,000lb 15% 1500 0.001 0.002 0.202 Test Date and Representative 35% 3500 0.003 0.202 0.004 0.203 Tested By Terracon Rep: CS & SC 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 File Information 60% 6000 0.024 0.007 0.206 0.001 Pile Information 65% 6500 0.030 0.008 0.207 0.006 0.207 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 0.001 Pile Information 65% 6500 0.030			Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
Number of Gauges: 2 Height of Gauges [in]: 6 Load Cell: Dillon ED jr 10,000lb Test Date and Representative 20% 2000 0.001 0.002 0.202 Test Date and Representative 35% 3500 0.001 0.003 0.202 Tested By Terracon Rep: CS & SC 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 916 ID: PLT-002B 55% 5500 0.018 0.007 0.206 Pile Information 35.55151 65% 6500 0.030 0.008 0.207 Pile Information 916 K-90 [in]: 92 85% 8500 0.011 0.208 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Dizameter [in]: 45% 950			0%	0	0.000	0.000	0.199	
Height of Gauges [in]: Load Cell: 6 Dillon ED jr 10,000lb 15% 1500 0.001 0.002 0.201 Test Date and Representative 20% 2000 0.001 0.002 0.202 Tested By Terracon Rep: Date Tested: 8/25/2022 30% 3000 0.002 0.004 0.203 Pile Information 40% 4000 0.006 0.005 0.204 Pile Information 55% 5500 0.018 0.007 0.206 Pile Information 66% 6500 0.030 0.008 0.207 Pile Information 75% 7500 0.040 0.008 0.207 Pile Thype: W6X9 80% 8000 0.061 0.009 0.208 Pile Dimeter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Dimeter [in]: 148 95% 9500 0.096 0.011 0.210	Axial Load Test Set Up		5%	500	0.000	0.001	0.200	
Load Cell: Dillon ED jr 10,000lb 20% 2000 0.001 0.002 0.202 Test Date and Representative 30% 3000 0.002 0.004 0.203 Tested By Terracon Rep: CS & SC 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 55% 5500 0.018 0.007 0.206 Pile Information 60% 6000 0.024 0.007 0.206 Pile Information 65% 6500 0.030 0.008 0.207 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Pile Type: W6X9 80% 8000 0.061 0.009 0.208 Pile Dimeter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Datatitude: <t< td=""><td>Number of Gauges:</td><td>2</td><td>10%</td><td>1000</td><td>0.001</td><td>0.001</td><td>0.200</td><td></td></t<>	Number of Gauges:	2	10%	1000	0.001	0.001	0.200	
Test Date and Representative 25% 2500 0.001 0.003 0.202 30% 3000 0.002 0.004 0.203 0.004 0.203 Tested By Terracon Rep: CS & SC 35% 3500 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 60% 6000 0.012 0.006 0.205 0.005 Pile ID: PLT-002B 65% 6500 0.018 0.007 0.206 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.209 0.208 Pile Dimeter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Extok-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 0.103 0.012 0.211 0.211 <td>Height of Gauges [in]:</td> <td>6</td> <td>15%</td> <td>1500</td> <td>0.001</td> <td>0.002</td> <td>0.201</td> <td></td>	Height of Gauges [in]:	6	15%	1500	0.001	0.002	0.201	
Test Date and Representative 30% 3000 0.002 0.004 0.203 Tested By Terracon Rep: CS & SC 35% 3500 0.003 0.004 0.203 Date Tested: 8/25/2022 40% 4000 0.006 0.005 0.204 Pile Information 50% 5000 0.012 0.006 0.205 Pile ID: PLT-002B 55% 5500 0.018 0.007 0.206 Latitude: 35.55151 65% 6500 0.030 0.008 0.207 Pile Inportation: 106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Extick-Up [in]: 48 95% 9500 0.096 0.011 0.210 <td>Load Cell:</td> <td>Dillon ED jr 10,000lb</td> <td>20%</td> <td>2000</td> <td>0.001</td> <td>0.002</td> <td>0.202</td> <td></td>	Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.001	0.002	0.202	
Test Date and Representative 35% 3500 0.003 0.004 0.203 Tested By Terracon Rep: CS & SC 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 50% 5000 0.012 0.006 0.205 Pile ID: PLT-002B 65% 6500 0.018 0.007 0.206 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Pile Imbedment Depth [in]: 92 85% 8500 0.054 0.009 0.208 Pile Dimeter [in]: 5.9 90% 9000 0.082 0.011 0.209 Pile Dimeter [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211			25%	2500	0.001	0.003	0.202	
Tested By Terracon Rep: CS & SC Date Tested: 40% 4000 0.006 0.005 0.204 Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 50% 5000 0.012 0.006 0.205 Pile Information 55% 5500 0.018 0.007 0.206 Pile ID: PLT-002B 65% 6500 0.030 0.008 0.207 Latitude: 35.55151 70% 7000 0.040 0.009 0.208 Pile Type: WKX9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Eink-Up [in]: 48 95% 9500 0.096 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Maia Design Load [lbs]: 10000 0.103 0.012 0.211 0.211			30%	3000	0.002	0.004	0.203	
Date Tested: 8/25/2022 45% 4500 0.008 0.005 0.204 Pile Information 50% 5000 0.012 0.006 0.205 Pile Information 60% 6000 0.024 0.007 0.206 Pile ID: PLT-002B 65% 6500 0.030 0.008 0.207 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Test Date and Representati	ve	35%	3500	0.003	0.004	0.203	
File Information 50% 5000 0.012 0.006 0.205 Pile Information 55% 5500 0.018 0.007 0.206 Pile ID: PLT-002B 66% 6600 0.024 0.007 0.206 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Tested By Terracon Rep:	CS & SC	40%	4000	0.006	0.005	0.204	
File Information 55% 5500 0.018 0.007 0.206 Pile ID: PLT-002B 60% 6000 0.024 0.007 0.206 Latitude: 35.55151 65% 6500 0.030 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Date Tested:	8/25/2022	45%	4500	0.008	0.005	0.204	
Bile Information 60% 6000 0.024 0.007 0.206 Pile ID: PLT-002B 65% 6500 0.030 0.008 0.207 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211			50%	5000	0.012	0.006	0.205	
Pile ID: PLT-002B 65% 6500 0.030 0.008 0.207 Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211			55%	5500	0.018	0.007	0.206	
Latitude: 35.55151 70% 7000 0.040 0.008 0.207 Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Pile Information		60%	6000	0.024	0.007	0.206	
Longitude: -106.00214 75% 7500 0.054 0.009 0.208 Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Pile ID:	PLT-002B	65%	6500	0.030	0.008	0.207	
Pile Type: W6X9 80% 8000 0.061 0.009 0.209 Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Latitude:	35.55151	70%	7000	0.040	0.008	0.207	
Pile Embedment Depth [in]: 92 85% 8500 0.074 0.010 0.209 Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Longitude:	-106.00214	75%	7500	0.054	0.009	0.208	
Pile Diameter [in]: 5.9 90% 9000 0.082 0.011 0.210 Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Pile Type:	W6X9	80%	8000	0.061	0.009	0.209	
Pile Stick-Up [in]: 48 95% 9500 0.096 0.011 0.210 Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Pile Embedment Depth [in]:	92	85%	8500	0.074	0.010	0.209	
Axial Design Load [lbs]: 10000 10000 0.103 0.012 0.211	Pile Diameter [in]:	5.9	90%	9000	0.082	0.011	0.210	
	Pile Stick-Up [in]:	48	95%	9500	0.096	0.011	0.210	
Pile Area [sq. in]: 2.68 0% 0 0.068 0.000 0.199	Axial Design Load [lbs]:	10000	100%	10000	0.103	0.012	0.211	
			0%	0	0.068	0.000	0.199	

Elastic Modulus [ksi]: 29,000 Drive Time [sec]: 37.1



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Tension Load Test Result for PLT-003A

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Project Number:	Santa Fe County, NM 66225093	% of Design Load	Axial Load [Ibs]	Deflection ∆ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offest Limit (in) (0.15+D/120+(PL/AE))	Comments
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.001	0.000	0.200	
Number of Gauges:	2	10%	1000	0.001	0.001	0.200	
Height of Gauges [in]:		15%	1500	0.002	0.001	0.200	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.002	0.002	0.201	
	·	25%	2500	0.003	0.002	0.201	
		30%	3000	0.003	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.004	0.003	0.202	
Tested By Terracon Rep:	CS & SC	40%	4000	0.005	0.003	0.202	
Date Tested:	8/18/2022	45%	4500	0.007	0.003	0.203	
		50%	5000	0.008	0.004	0.203	
		55%	5500	0.008	0.004	0.203	
Pile Information		60%	6000	0.009	0.005	0.204	
Pile ID:	PLT-003A	65%	6500	0.009	0.005	0.204	
Latitude:	35.54711	70%	7000	0.011	0.005	0.205	
Longitude:	-106.01618	75%	7500	0.012	0.006	0.205	
Pile Type:	W6X9	80%	8000	0.013	0.006	0.205	
Pile Embedment Depth [in]:	60	85%	8500	0.014	0.007	0.206	
Pile Diameter [in]:	5.9	90%	9000	0.016	0.007	0.206	
Pile Stick-Up [in]:	48	95%	9500	0.017	0.007	0.207	
Axial Design Load [lbs]:	10000	100%	10000	0.019	0.008	0.207	
Pile Area [sq. in]:	2.68	0%	0	0.005	0.000	0.199	
Elastic Modulus [ksi]:					•		-
Drive Time [sec]:	97.2						

0.00 🕞 0.25 Deflection (inches) 0.50 0.75 1.00 1000 5000 10000 0 2000 3000 4000 6000 7000 8000 0006 Uplift Axial Load (lbs) -----Axial Deflection -Davisson Offset Limit

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Tension Load Test Result for PLT-003B

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	i.
Project Location:	Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in)	Limit (in)	Comments
	•	Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.001	0.001	0.200	
Number of Gauges:	2	10%	1000	0.001	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.001	0.002	0.201	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.000	0.002	0.202	
		25%	2500	0.000	0.003	0.202	
		30%	3000	-0.002	0.004	0.203	
Test Date and Representati	ve	35%	3500	-0.002	0.004	0.203	
Tested By Terracon Rep:	CS & SC	40%	4000	-0.001	0.005	0.204	
Date Tested:	8/18/2022	45%	4500	0.000	0.005	0.204	
		50%	5000	0.001	0.006	0.205	
		55%	5500	0.002	0.007	0.206	
Pile Information		60%	6000	0.004	0.007	0.206	
Pile ID:	PLT-003B	65%	6500	0.005	0.008	0.207	
Latitude:	35.54711	70%	7000	0.006	0.008	0.207	
Longitude:	-106.01618	75%	7500	0.008	0.009	0.208	
Pile Type:	W6X9	80%	8000	0.009	0.009	0.209	
Pile Embedment Depth [in]:	92	85%	8500	0.011	0.010	0.209	
Pile Diameter [in]:	5.9	90%	9000	0.012	0.011	0.210	
Pile Stick-Up [in]:	48	95%	9500	0.013	0.011	0.210	
Axial Design Load [lbs]:	10000	100%	10000	0.015	0.012	0.211	
Pile Area [sq. in]:	2.68	0%	0	0.000	0.000	0.199	
Elastic Modulus [ksi]:	29,000						
Drive Time [sec]:	239.4						

0.00 🕀 0.25 Deflection (inches) 0.50 0.75 1.00 1000 2000 5000 10000 0 3000 4000 6000 7000 8000 0006 Uplift Axial Load (lbs) -----Axial Deflection -Davisson Offset Limit

Terracon

Tension Load Test Result for PLT-004A

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Project Number:	Santa Fe County, NM 66225093	% of Design Load	Axial Load [Ibs]	Deflection ∆ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offest Limit (in) (0.15+D/120+(PL/AE))	Comments
		0%	[IDS] 0	0.000	(PL/AE) 0.000	(0.13+D/120+(PE/RE)) 0.199	
Axial Load Test Set Up		5%	500	0.002	0.000	0.200	
Number of Gauges:	2	10%	1000	0.004	0.001	0.200	
Height of Gauges [in]:		15%	1500	0.005	0.001	0.200	
	Dillon ED jr 10,000lb	20%	2000	0.006	0.002	0.201	
		25%	2500	0.007	0.002	0.201	
		30%	3000	0.008	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.009	0.003	0.202	
Tested By Terracon Rep:	CS & SC	40%	4000	0.011	0.003	0.202	
Date Tested:	8/18/2022	45%	4500	0.012	0.003	0.203	
		50%	5000	0.013	0.004	0.203	
		55%	5500	0.014	0.004	0.203	
Pile Information		60%	6000	0.016	0.005	0.204	
Pile ID:	PLT-004A	65%	6500	0.018	0.005	0.204	
Latitude:	35.54296	70%	7000	0.020	0.005	0.205	
Longitude:	-106.03023	75%	7500	0.024	0.006	0.205	
Pile Type:	W6X9	80%	8000	0.026	0.006	0.205	
Pile Embedment Depth [in]:	60	85%	8500	0.029	0.007	0.206	
Pile Diameter [in]:	5.9	90%	9000	0.033	0.007	0.206	
Pile Stick-Up [in]:	48	95%	9500	0.038	0.007	0.207	
Axial Design Load [lbs]:	10000	100%	10000	0.041	0.008	0.207	
Pile Area [sq. in]:	2.68	0%	0	0.017	0.000	0.199	
Elastic Modulus [ksi]:	29,000						
Drive Time [sec]:	22.6						

Terracon

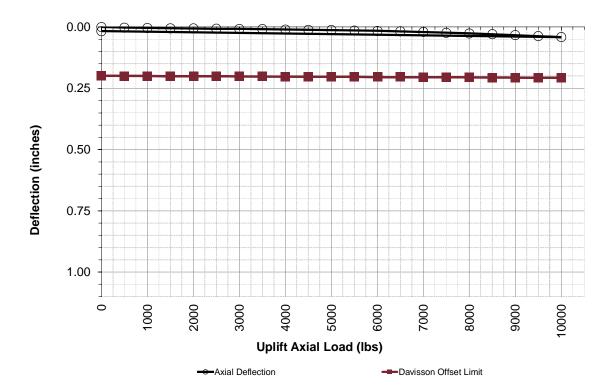


Exhibit G-27

Tension Load Test Result for PLT-004B

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	
Project Location:	Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in)	Limit (in)	Comments
	•	Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.004	0.001	0.200	
Number of Gauges:	2	10%	1000	0.004	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.006	0.002	0.201	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.007	0.002	0.202	
		25%	2500	0.008	0.003	0.202	
		30%	3000	0.009	0.004	0.203	
Test Date and Representati	ve	35%	3500	0.010	0.004	0.203	
Tested By Terracon Rep:	CS & SC	40%	4000	0.011	0.005	0.204	
Date Tested:	8/18/2022	45%	4500	0.011	0.006	0.205	
		50%	5000	0.012	0.006	0.205	
		55%	5500	0.013	0.007	0.206	
Pile Information		60%	6000	0.013	0.007	0.207	
Pile ID:	PLT-004B	65%	6500	0.014	0.008	0.207	
Latitude:	35.54296	70%	7000	0.014	0.009	0.208	
Longitude:	-106.03023	75%	7500	0.015	0.009	0.208	
Pile Type:	W6X9	80%	8000	0.015	0.010	0.209	
Pile Embedment Depth [in]:	96	85%	8500	0.015	0.010	0.210	
Pile Diameter [in]:	5.9	90%	9000	0.016	0.011	0.210	
Pile Stick-Up [in]:	48	95%	9500	0.017	0.012	0.211	
Axial Design Load [lbs]:	10000	100%	10000	0.017	0.012	0.212	
Pile Area [sq. in]:	2.68	0%	0	0.003	0.000	0.199	
Elastic Modulus [ksi]:	29,000				-		
Drive Time [sec]:	108.7						

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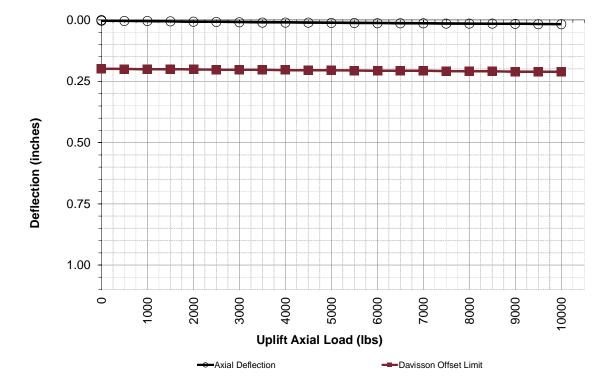


Exhibit G-28

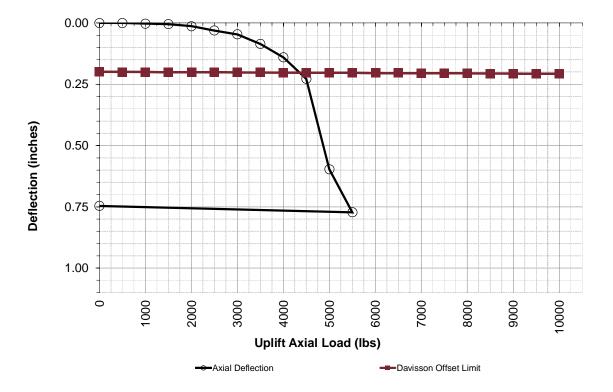
Tension Load Test Result for PLT-005A

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results	Davisson Offset Limit Lines		
Project Location:	Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Project Number:	66225093	Design	Load	Deflection ∆ (in.)	Data (in)	Limit (in)	Comments
		Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.000	0.000	0.200	
Number of Gauges:	2	10%	1000	0.002	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.005	0.001	0.200	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.013	0.002	0.201	
		25%	2500	0.031	0.002	0.201	
		30%	3000	0.047	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.086	0.003	0.202	
Tested By Terracon Rep:	CS & SC	40%	4000	0.141	0.003	0.202	
Date Tested:	8/18/2022	45%	4500	0.228	0.003	0.203	
		50%	5000	0.597	0.004	0.203	
		55%	5500	0.772	0.004	0.203	
Pile Information		60%	6000		0.005	0.204	
Pile ID:	PLT-005A	65%	6500		0.005	0.204	
Latitude:	35.53853	70%	7000		0.005	0.205	
Longitude:	-106.01312	75%	7500		0.006	0.205	
Pile Type:	W6X9	80%	8000		0.006	0.205	
Pile Embedment Depth [in]:	60	85%	8500		0.007	0.206	
Pile Diameter [in]:	5.9	90%	9000		0.007	0.206	
Pile Stick-Up [in]:	48	95%	9500		0.007	0.207	
Axial Design Load [lbs]:	10000	100%	10000		0.008	0.207	
Pile Area [sq. in]:	2.68	0%	0	0.746	0.000	0.199	
Electic Modulus [kei]:	20,000						

Terracon

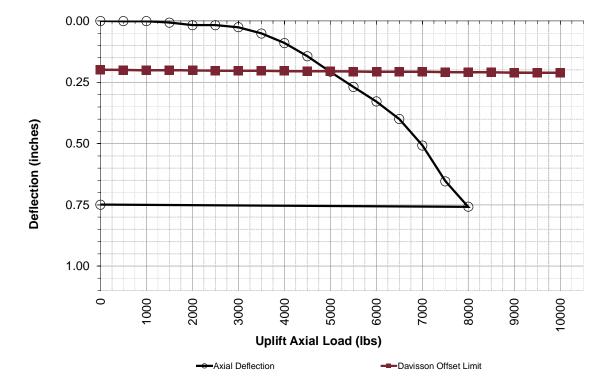
Elastic Modulus [ksi]: 29,000 Drive Time [sec]: 15



Tension Load Test Result for PLT-005B

Project Information

Project Name: Rancho Viejo Solar Facility		Tension Te	st Results	Davisson Offset Limit Lines		
Project Location: Santa Fe County, NM	% of	Axial		Elastic	Davisson Offest	
Project Number: 66225093	Design	Load	Deflection ∆ (in.)	Data (in)	Limit (in)	Comments
	Load	[lbs]	Gauges #1 & #2	(PL/AE)	(0.15+D/120+(PL/AE))	
	0%	0	0.000	0.000	0.199	
Axial Load Test Set Up	5%	500	0.001	0.001	0.200	
Number of Gauges: 2	10%	1000	0.001	0.001	0.200	
Height of Gauges [in]: 6	15%	1500	0.007	0.002	0.201	
Load Cell: Dillon ED jr 10,000lb	20%	2000	0.017	0.002	0.202	
	25%	2500	0.017	0.003	0.202	
	30%	3000	0.026	0.004	0.203	
Test Date and Representative	35%	3500	0.051	0.004	0.203	
Tested By Terracon Rep: CS & SC	40%	4000	0.090	0.005	0.204	
Date Tested: 8/18/2022	45%	4500	0.144	0.006	0.205	
	50%	5000	0.207	0.006	0.205	
	55%	5500	0.269	0.007	0.206	
Pile Information	60%	6000	0.329	0.007	0.207	
Pile ID: PLT-005B	65%	6500	0.400	0.008	0.207	
Latitude: 35.53853	70%	7000	0.508	0.009	0.208	
Longitude: -106.01312	75%	7500	0.654	0.009	0.208	
Pile Type: W6X9	80%	8000	0.758	0.010	0.209	
Pile Embedment Depth [in]: 96	85%	8500		0.010	0.210	
Pile Diameter [in]: 5.9	90%	9000		0.011	0.210	
Pile Stick-Up [in]: 48	95%	9500		0.012	0.211	
Axial Design Load [lbs]: 10000	100%	10000		0.012	0.212	
Pile Area [sq. in]: 2.68	0%	0	0.750	0.000	0.199	
Elastic Modulus [ksi]: 29,000		-				
Drive Time [sec]: 27.3						

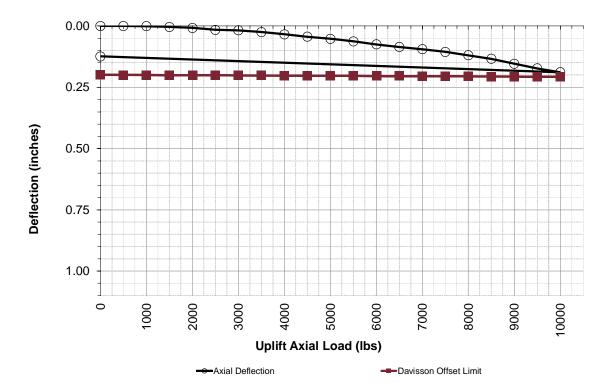


Terracon

Tension Load Test Result for PLT-006A

Project Information

Project Name:	Rancho Viejo Solar Facility		Tension Te	st Results		Davisson Offset Limit Lines	
Project Location: Project Number:	Santa Fe County, NM 66225093	% of Design Load	Axial Load [Ibs]	Deflection ∆ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offest Limit (in) (0.15+D/120+(PL/AE))	Comments
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.000	0.000	0.200	
Number of Gauges:	2	10%	1000	0.001	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.004	0.001	0.200	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.008	0.002	0.201	
	·	25%	2500	0.016	0.002	0.201	
		30%	3000	0.018	0.002	0.201	
Test Date and Representati	ve	35%	3500	0.025	0.003	0.202	
Tested By Terracon Rep:	CS & SC	40%	4000	0.034	0.003	0.202	
Date Tested:	8/22/2022	45%	4500	0.044	0.003	0.203	
		50%	5000	0.052	0.004	0.203	
		55%	5500	0.063	0.004	0.203	
Pile Information		60%	6000	0.075	0.005	0.204	
Pile ID:	PLT-006A	65%	6500	0.085	0.005	0.204	
Latitude:	35.54313	70%	7000	0.095	0.005	0.205	
Longitude:	-106.00830	75%	7500	0.106	0.006	0.205	
Pile Type:	W6X9	80%	8000	0.120	0.006	0.205	
Pile Embedment Depth [in]:	60	85%	8500	0.134	0.007	0.206	
Pile Diameter [in]:	5.9	90%	9000	0.154	0.007	0.206	
Pile Stick-Up [in]:	48	95%	9500	0.173	0.007	0.207	
Axial Design Load [lbs]:	10000	100%	10000	0.189	0.008	0.207	
Pile Area [sq. in]:	2.68	0%	0	0.124	0.000	0.199	
Elastic Modulus [ksi]:	29,000				•		
Drive Time [sec]:	29.8						



Terracon

Tension Load Test Result for PLT-006B

Terracon

Davisson Offset Limit Lines

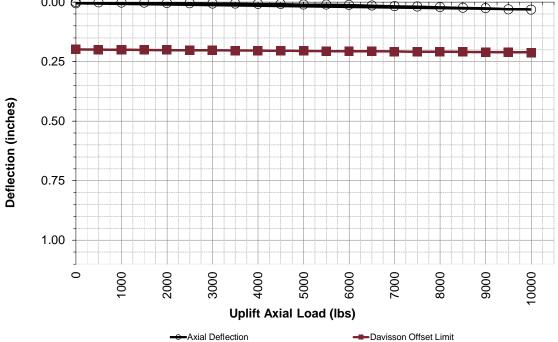
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Project Information

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM Project Number: (66225093

Project Location. Project Number:	66225093	% of Design Load	Load [lbs]	Deflection ∆ (in.) Gauges #1 & #2	Data (in) (PL/AE)	Limit (in) (0.15+D/120+(PL/AE))	Comments
		0%	0	0.000	0.000	0.199	
Axial Load Test Set Up		5%	500	0.002	0.001	0.200	
Number of Gauges:	2	10%	1000	0.002	0.001	0.200	
Height of Gauges [in]:	6	15%	1500	0.003	0.002	0.201	
Load Cell:	Dillon ED jr 10,000lb	20%	2000	0.004	0.002	0.202	
	-	25%	2500	0.005	0.003	0.202	
		30%	3000	0.006	0.004	0.203	
Test Date and Representati	ve	35%	3500	0.006	0.004	0.203	
Tested By Terracon Rep:	CS & SC	40%	4000	0.008	0.005	0.204	
Date Tested:	8/22/2022	45%	4500	0.008	0.006	0.205	
		50%	5000	0.010	0.006	0.205	
		55%	5500	0.011	0.007	0.206	
Pile Information		60%	6000	0.012	0.007	0.207	
Pile ID:	PLT-006B	65%	6500	0.015	0.008	0.207	
Latitude:	35.54313	70%	7000	0.017	0.009	0.208	
Longitude:	-106.00830	75%	7500	0.019	0.009	0.208	
Pile Type:	W6X9	80%	8000	0.021	0.010	0.209	
Pile Embedment Depth [in]:	96	85%	8500	0.024	0.010	0.210	
Pile Diameter [in]:	5.9	90%	9000	0.026	0.011	0.210	
Pile Stick-Up [in]:	48	95%	9500	0.030	0.012	0.211	
Axial Design Load [lbs]:	10000	100%	10000	0.032	0.012	0.212	
Pile Area [sq. in]:	2.68	0%	0	0.006	0.000	0.199	
Elastic Modulus [ksi]: Drive Time [sec]:							

Tension Test Results



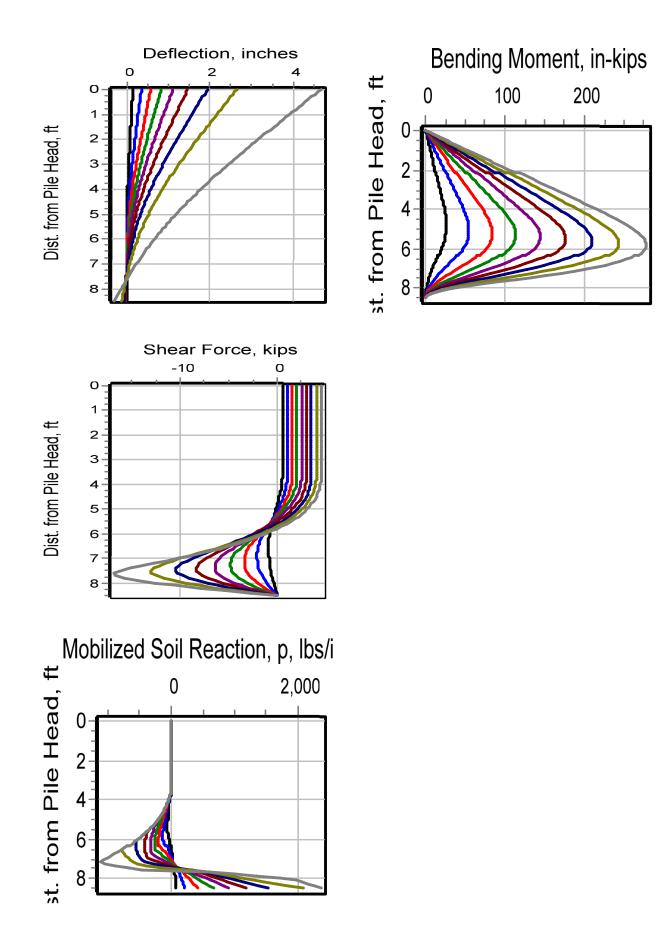
Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093

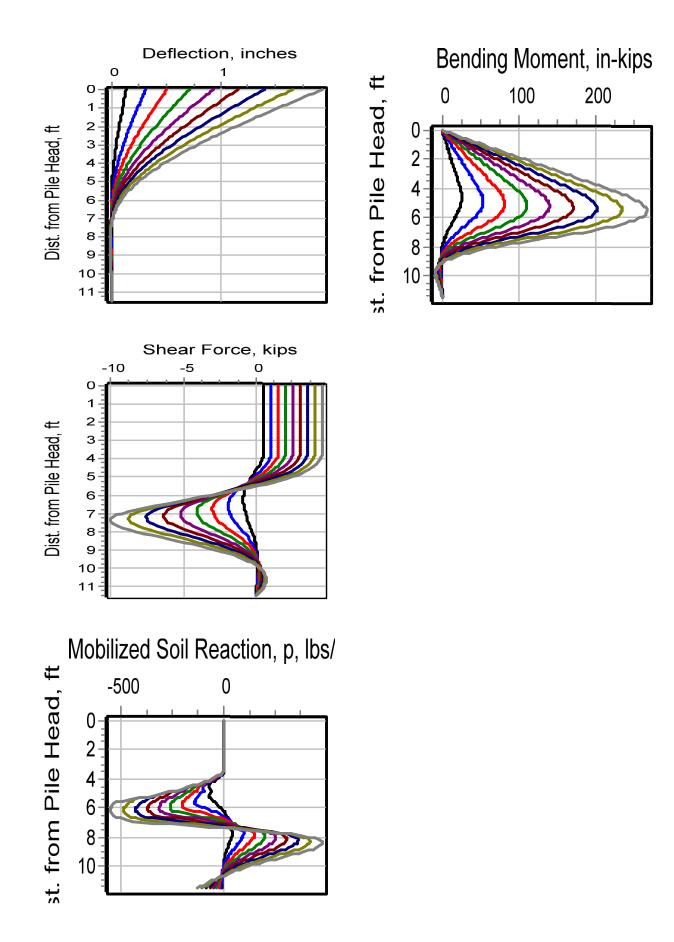


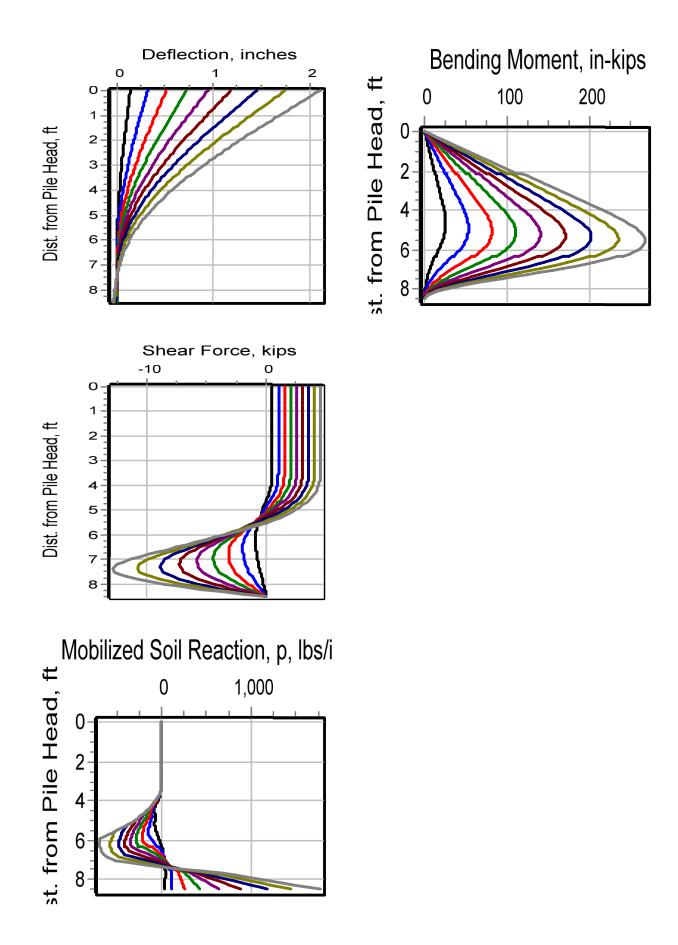
APPENDIX H

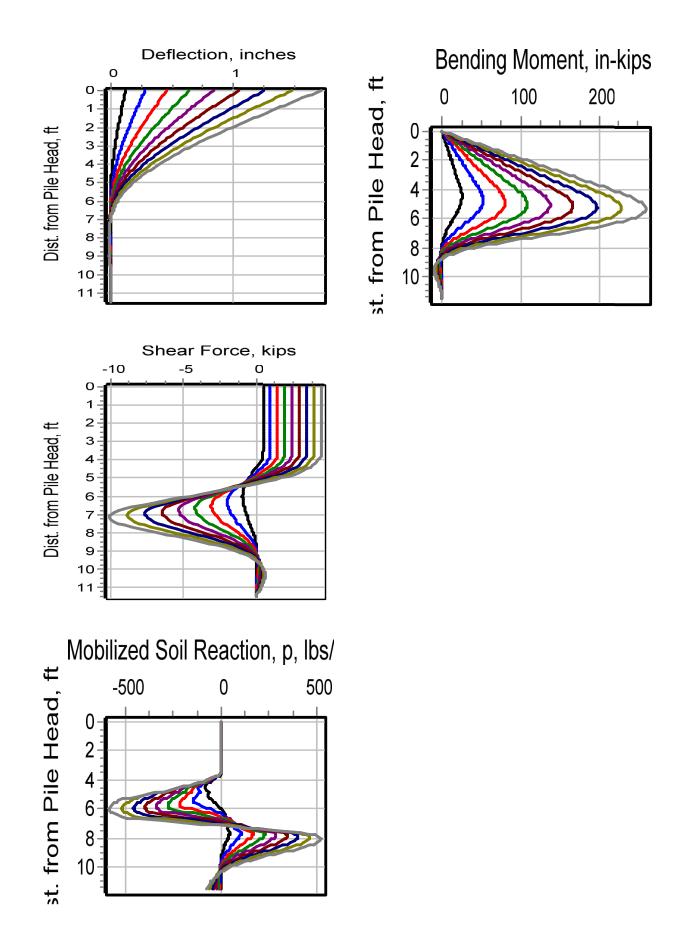
PILE LOAD TESTING RESULTS – LATERAL LOAD

Responsive Resourceful Reliable





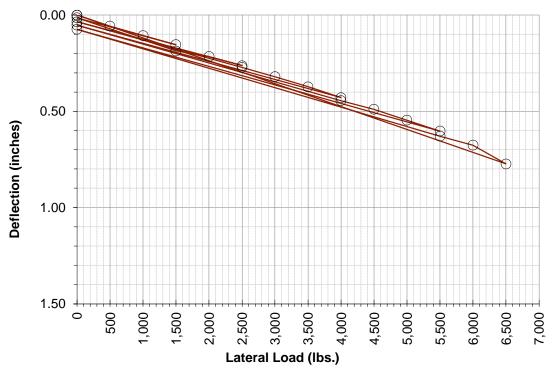






Lateral Load Test Results for PLT-101A

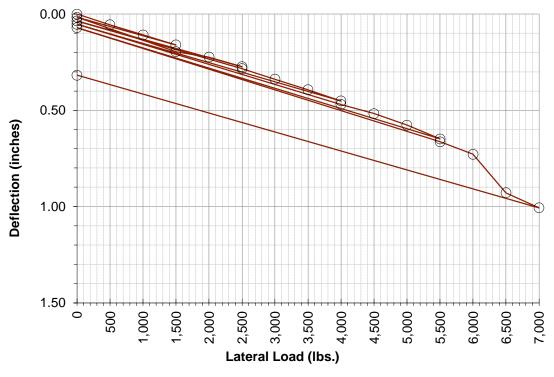
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.058	
		14%	1,000	0.107	
		21%	1,500	0.155	
Lateral Load Test Set Up		0%	0	0.014	
Number of Top Gauges:	N/A	21%	1,500	0.187	
Number of Bottom Gauges:	2	29%	2,000	0.216	
Height of Top Gauges [in.]:	NA	36%	2,500	0.263	
Height of Bottom Gauges [in.]:	6	0%	0	0.035	
Height of Applied Load [in]:	42	36%	2,500	0.273	
Load Cell:	Dillion	43%	3,000	0.320	
		50%	3,500	0.373	
		57%	4,000	0.429	
Test Date and Representati	ve	0%	0	0.052	
Tested By Terracon Rep:	SL/MGB/ED	57%	4,000	0.445	
Date Tested:	9/23/2023	64%	4,500	0.490	
		71%	5,000	0.547	
		79%	5,500	0.603	
Pile Information		0%	0	0.074	
Pile ID:	PLT-101A	79%	5,500	0.629	
Latitude [deg.]:	35.54106	86%	6,000	0.676	
Longitude [deg.]:	-106.01558	93%	6,500	0.773	
Pile Type:	W6x9	100%	7,000		
Pile Embedment Depth [in.]:		0%	0	0.000	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	90.3				





Lateral Load Test Results for PLT-101B

Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.056	
		14%	1,000	0.109	
		21%	1,500	0.161	
Lateral Load Test Set Up		0%	0	0.017	
Number of Top Gauges:	N/A	21%	1,500	0.196	
Number of Bottom Gauges:	2	29%	2,000	0.224	
Height of Top Gauges [in.]:	NA	36%	2,500	0,274	
Height of Bottom Gauges [in.]:	6	0%	0	0.036	
Height of Applied Load [in]:	42	36%	2,500	0.284	
Load Cell:	Dillion	43%	3,000	0.339	
		50%	3,500	0.394	
		57%	4,000	0.452	
Test Date and Representat	ive	0%	0	0.054	
Tested By Terracon Rep:	SL/MGB/ED	57%	4,000	0.470	
Date Tested:	9/23/2023	64%	4,500	0.517	
		71%	5,000	0.578	
		79%	5,500	0.649	
Pile Information		0%	0	0.072	
	PLT-101B	79%	5,500	0.664	
Latitude [deg.]:	35.54106	86%	6,000	0.728	
Longitude [deg.]:		93%	6,500	0.929	
Pile Type:		100%	7,000	1.007	
Pile Embedment Depth [in.]:		0%	0	0.318	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	26.1				

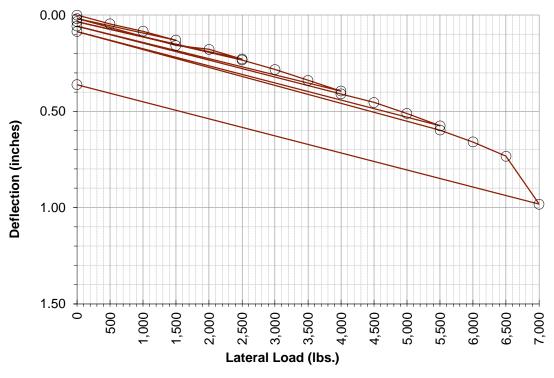


---- Lateral - Gauges at 6-inches aboce ground surface



Lateral Load Test Results for PLT-102A

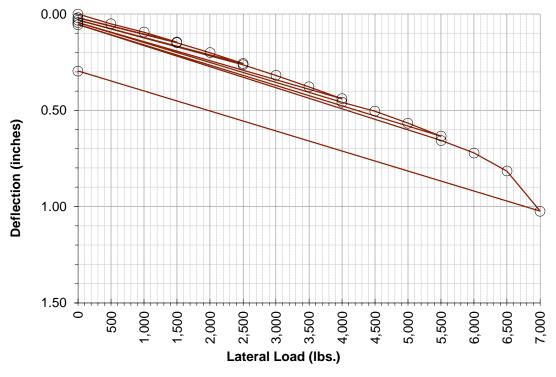
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.046	
		14%	1,000	0.085	
		21%	1,500	0.131	
Lateral Load Test Set Up		0%	0	0.019	
Number of Top Gauges:	N/A	21%	1,500	0.158	
Number of Bottom Gauges:	2	29%	2,000	0.178	
Height of Top Gauges [in.]:	NA	36%	2,500	0.229	
Height of Bottom Gauges [in.]:	6	0%	0	0.035	
Height of Applied Load [in]:	42	36%	2,500	0.234	
Load Cell:	Dillion	43%	3,000	0.283	
		50%	3,500	0.339	
		57%	4,000	0.395	
Test Date and Representati	ve	0%	0	0.058	
Tested By Terracon Rep:	ED/TS	57%	4,000	0.411	
Date Tested:	3/7/2024	64%	4,500	0.454	
		71%	5,000	0.512	
		79%	5,500	0.575	
Pile Information		0%	0	0.087	
Pile ID:	PLT-102A	79%	5,500	0.598	
Latitude [deg.]:	35.53980	86%	6,000	0.659	
Longitude [deg.]:	-106.00941	93%	6,500	0.734	
Pile Type:	W6x9	100%	7,000	0.982	
Pile Embedment Depth [in.]:		0%	0	0.362	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:	7,000				
Drive Time [sec.]:	0				





Lateral Load Test Results for PLT-102B

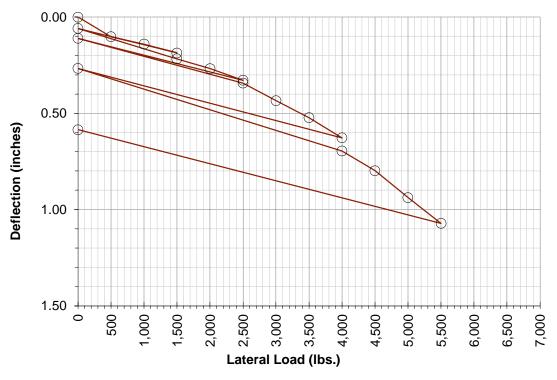
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.051	
		14%	1,000	0.095	
		21%	1,500	0.146	
Lateral Load Test Set Up		0%	0	0.020	
Number of Top Gauges:	N/A	21%	1,500	0.149	
Number of Bottom Gauges:	2	29%	2,000	0.200	
Height of Top Gauges [in.]:	NA	36%	2,500	0,257	
Height of Bottom Gauges [in.]:	6	0%	0	0.032	
Height of Applied Load [in.]:	42	36%	2,500	0.264	
Load Cell:	Dillion	43%	3,000	0.318	
		50%	3,500	0.379	
		57%	4,000	0.440	
Test Date and Representativ	ve	0%	0	0.045	
Tested By Terracon Rep:	,	57%	4,000	0.458	
Date Tested:	3/7/2024	64%	4,500	0.505	
		71%	5,000	0.567	
		79%	5,500	0.635	
Pile Information		0%	0	0.056	
	PLT-102B	79%	5,500	0.657	
Latitude [deg.]:	35.53980	86%	6,000	0.722	
Longitude [deg.]:	-106.00941	93%	6,500	0.816	
Pile Type:		100%	7,000	1.024	
Pile Embedment Depth [in.]:		0%	0	0.296	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	0				





Lateral Load Test Results for PLT-103A

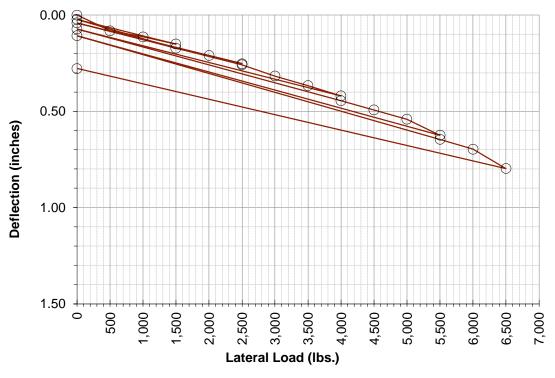
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: I	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number: (66225093	7%	500	0.103	
		14%	1,000	0.141	
		21%	1,500	0.187	
Lateral Load Test Set Up		0%	0	0.060	
Number of Top Gauges: I	N/A	21%	1,500	0.218	
Number of Bottom Gauges:	2	29%	2,000	0.268	
Height of Top Gauges [in.]: I	NA	36%	2,500	0.329	
Height of Bottom Gauges [in.]:	6	0%	0	0,111	
Height of Applied Load [in.]:	42	36%	2,500	0.344	
Load Cell: I	Dillion	43%	3,000	0.434	
		50%	3,500	0.523	
		57%	4,000	0.628	
Test Date and Representativ		0%	0	0.267	
Tested By Terracon Rep: S	SL/SS	57%	4,000	0.697	
Date Tested:	9/27/2023	64%	4,500	0.798	
		71%	5,000	0.938	
		79%	5,500	1.072	
Pile Information		0%	0		
	PLT-103A	79%	5,500		
Latitude [deg.]:	35.54149	86%	6,000		
Longitude [deg.]: -	-106.00401	93%	6,500		
Pile Type: Y		100%	7,000		
Pile Embedment Depth [in.]: (0%	0	0.586	
· Pile Stick-Up [in.]					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	5.8				





Lateral Load Test Results for PLT-103B

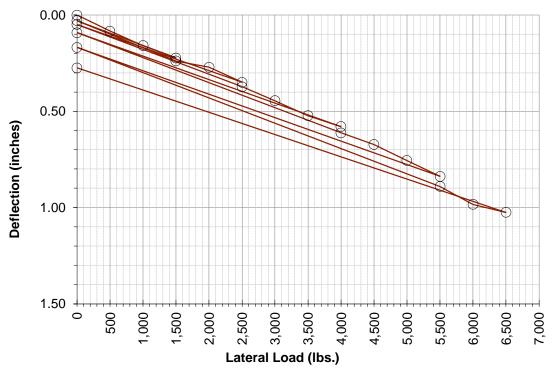
Project Information	% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location: Santa Fe, New Mexico	0%	0	0.000	
Project Number: 66225093	7%	500	0.082	
'	14%	1,000	0.114	
	21%	1,500	0.151	
Lateral Load Test Set Up	0%	0	0.023	
Number of Top Gauges: N/A	21%	1,500	0.173	
Number of Bottom Gauges: 2	29%	2,000	0.211	
Height of Top Gauges [in.]: NA	36%	2,500	0,253	
leight of Bottom Gauges [in.]: 6	0%	0	0.041	
Height of Applied Load [in]: 42	36%	2,500	0.259	
Load Cell: Dillion	43%	3,000	0.317	
	50%	3,500	0.367	
	57%	4,000	0.420	
Test Date and Representative	0%	0	0.073	
Tested By Terracon Rep: SL/SS	57%	4,000	0.446	
Date Tested: 9/27/2023	64%	4,500	0.494	
	71%	5,000	0.542	
	79%	5,500	0.624	
Pile Information	0%	0	0.108	
Pile ID: PLT-103B	79%	5,500	0.647	
Latitude [deg.]: 35.54149	86%	6,000	0.697	
Longitude [deg.]: -106.00400	93%	6,500	0.798	
Pile Type: W6x9	100%	7,000		
Pile Embedment Depth [in.]: 96	0%	0	0.278	
Pile Stick-Up [in.]: 48				
Lateral Design Load [lbs.]: 7,000				
Drive Time [sec.]: 11.3				





Lateral Load Test Results for PLT-104A

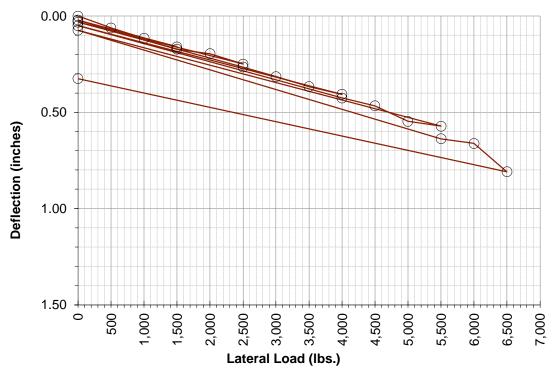
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.084	
		14%	1,000	0.160	
		21%	1,500	0.224	
Lateral Load Test Set Up		0%	0	0.030	
Number of Top Gauges:	N/A	21%	1,500	0.239	
Number of Bottom Gauges:	2	29%	2,000	0.271	
Height of Top Gauges [in.]:	NA	36%	2,500	0.350	
Height of Bottom Gauges [in.]:	6	0%	0	0.049	
Height of Applied Load [in.]:	42	36%	2,500	0.373	
Load Cell:	Dillion	43%	3,000	0.446	
		50%	3,500	0.523	
		57%	4,000	0.580	
Test Date and Representati	ve	0%	0	0.092	
Tested By Terracon Rep:		57%	4,000	0.612	
Date Tested:	9/27/2023	64%	4,500	0.673	
		71%	5,000	0.756	
		79%	5,500	0.838	
Pile Information		0%	0	0.168	
Pile ID:	PLT-104A	79%	5,500	0.891	
Latitude [deg.]:	35.54444	86%	6,000	0.984	
Longitude [deg.]:	-106.00580	93%	6,500	1.025	
Pile Type:	W6x9	100%	7,000		
Pile Embedment Depth [in.]:		0%	0	0.275	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	5.3				





Lateral Load Test Results for PLT-104B

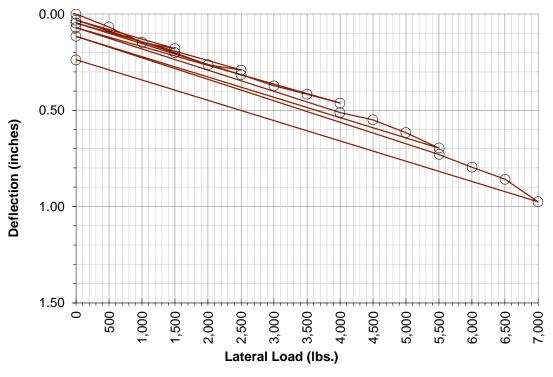
Project Information	% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location: Santa Fe, New Mexico	0%	0	0.000	
Project Number: 66225093	7%	500	0.062	
	14%	1,000	0.116	
	21%	1,500	0.160	
Lateral Load Test Set Up	0%	0	0.021	
Number of Top Gauges: N/A	21%	1,500	0.173	
Number of Bottom Gauges: 2	29%	2,000	0.196	
Height of Top Gauges [in.]: NA	36%	2,500	0.250	
Height of Bottom Gauges [in.]: 6	0%	0	0.032	
Height of Applied Load [in.]: 42	36%	2,500	0.265	
Load Cell: Dillion	43%	3,000	0.315	
	50%	3,500	0.367	
	57%	4,000	0.407	
Test Date and Representative	0%	0	0.050	
Tested By Terracon Rep: SL/SS	57%	4,000	0.426	
Date Tested: 9/27/2023	64%	4,500	0.467	
	71%	5,000	0.548	
	79%	5,500	0.572	
Pile Information	0%	0	0.074	
Pile ID: PLT-104B	79%	5,500	0.638	
Latitude [deg.]: 35.54444	86%	6,000	0.662	
Longitude [deg.]: -106.00580	93%	6,500	0.809	
Pile Type: W6x9	100%	7,000		
Pile Embedment Depth [in.]: 96	0%	0	0.325	
Pile Stick-Up [in.]: 48				
Lateral Design Load [lbs.]: 7,000				
Drive Time [sec.]: 16				





Lateral Load Test Results for PLT-105A

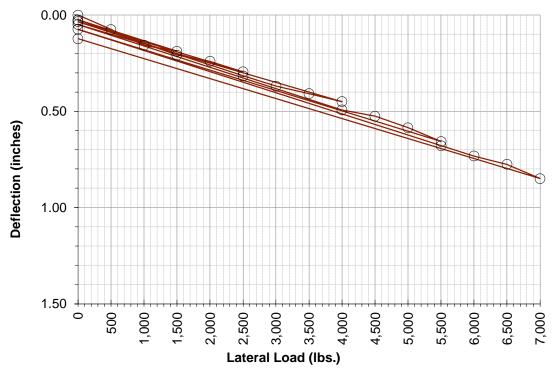
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.067	
		14%	1,000	0.147	
		21%	1,500	0.180	
Lateral Load Test Set Up		0%	0	0.032	
Number of Top Gauges:	N/A	21%	1,500	0.201	
Number of Bottom Gauges:	2	29%	2,000	0.264	
Height of Top Gauges [in.]:	NA	36%	2,500	0,292	
Height of Bottom Gauges [in.]:	6	0%	0	0.047	
Height of Applied Load [in]:	42	36%	2,500	0.316	
Load Cell:	Dillion	43%	3,000	0.373	
		50%	3,500	0.417	
		57%	4,000	0.463	
Test Date and Representativ	/e	0%	0	0.071	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.513	
Date Tested:	10/3/2023	64%	4,500	0.550	
		71%	5,000	0.616	
		79%	5,500	0.697	
Pile Information		0%	0	0.116	
Pile ID:	PLT-105A	79%	5,500	0.729	
Latitude [deg.]:		86%	6,000	0.795	
Longitude [deg.]:	-106.00260	93%	6,500	0.858	
Pile Type:	W6x9	100%	7,000	0.976	
Pile Embedment Depth [in.]:		0%	0	0.239	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:	· ·				
Drive Time [sec.]:	20.8				





Lateral Load Test Results for PLT-105B

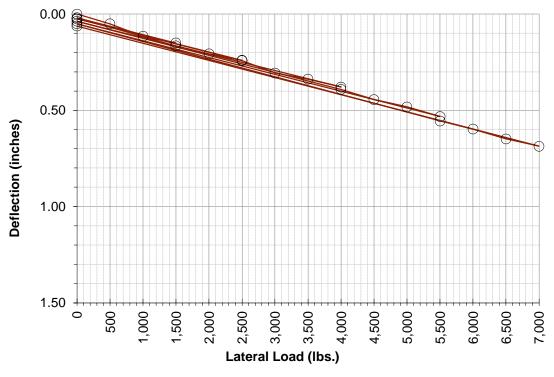
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.076	
		14%	1,000	0.158	
		21%	1,500	0.189	
Lateral Load Test Set Up		0%	0	0.026	
Number of Top Gauges:	N/A	21%	1,500	0.209	
Number of Bottom Gauges:	2	29%	2,000	0.241	
Height of Top Gauges [in.]:	NA	36%	2,500	0,295	
Height of Bottom Gauges [in.]:	6	0%	0	0.034	
Height of Applied Load [in.]:	42	36%	2,500	0.316	
Load Cell:	Dillion	43%	3,000	0.369	
		50%	3,500	0.409	
		57%	4,000	0.450	
Test Date and Representat	ve	0%	0	0.049	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.493	
Date Tested:	10/3/2023	64%	4,500	0.526	
		71%	5,000	0.586	
		79%	5,500	0.657	
Pile Information		0%	0	0.074	
	PLT-105B	79%	5,500	0.679	
Latitude [deg.]:	35.54761	86%	6,000	0.733	
Longitude [deg.]:		93%	6,500	0.776	
Pile Type:		100%	7,000	0.850	
Pile Embedment Depth [in.]:		0%	0	0.124	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	57				





Lateral Load Test Results for PLT-106A

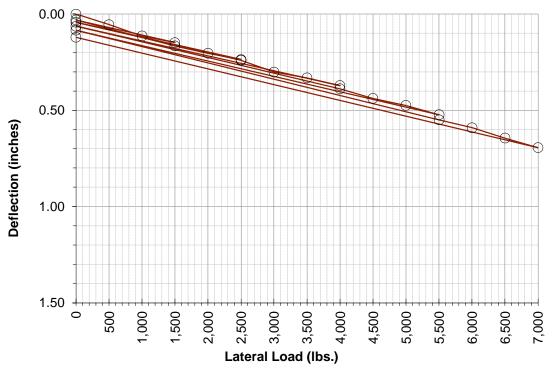
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: I	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.051	
		14%	1,000	0.116	
		21%	1,500	0.151	
Lateral Load Test Set Up		0%	0	0.020	
Number of Top Gauges: I	N/A	21%	1,500	0.166	
Number of Bottom Gauges:	2	29%	2,000	0.207	
Height of Top Gauges [in.]: I	NA	36%	2,500	0,241	
Height of Bottom Gauges [in.]:	5	0%	0	0.026	
Height of Applied Load [in.]:	42	36%	2,500	0.243	
Load Cell: I	Dillion	43%	3,000	0.306	
		50%	3,500	0.339	
		57%	4,000	0.380	
Test Date and Representativ	/e	0%	0	0.038	
Tested By Terracon Rep: 9	SL/JPS	57%	4,000	0.392	
Date Tested:	10/3/2023	64%	4,500	0.445	
		71%	5,000	0.483	
		79%	5,500	0.533	
Pile Information		0%	0	0.051	
	PLT-106A	79%	5,500	0.555	
Latitude [deg.]:	35.54803	86%	6,000	0.598	
Longitude [deg.]:	106.00970	93%	6,500	0.649	
Pile Type: Y		100%	7,000	0.687	
Pile Embedment Depth [in.]:		0%	0	0.063	
· Pile Stick-Up [in.]					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	21.5				





Lateral Load Test Results for PLT-106B

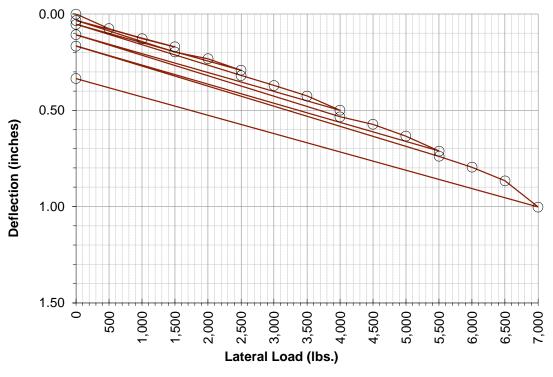
Project Information	% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location: Santa Fe, New Me	xico 0%	0	0.000	
Project Number: 66225093	7%	500	0.055	
•	14%	1,000	0.114	
	21%	1,500	0.148	
Lateral Load Test Set Up	0%	0	0.031	
Number of Top Gauges: N/A	21%	1,500	0.166	
Number of Bottom Gauges: 2	29%	2,000	0.204	
Height of Top Gauges [in.]: NA	36%	2,500	0.236	
leight of Bottom Gauges [in.]: 6	0%	0	0.043	
Height of Applied Load [in.]: 42	36%	2,500	0.241	
Load Cell: Dillion	43%	3,000	0.301	
	50%	3,500	0.332	
	57%	4,000	0.372	
Test Date and Representative	0%	0	0.064	
Tested By Terracon Rep: SL/JPS	57%	4,000	0.388	
Date Tested: 10/3/2023	64%	4,500	0.439	
	71%	5,000	0.476	
	79%	5,500	0.523	
Pile Information	0%	0	0.084	
Pile ID: PLT-106B	79%	5,500	0.550	
Latitude [deg.]: 35.54803	86%	6,000	0.591	
Longitude [deg.]: -106.00970	93%	6,500	0.645	
Pile Type: W6x9	100%	7,000	0.694	
Pile Embedment Depth [in.]: 108	0%	0	0.122	
Pile Stick-Up [in.]: 48				
Lateral Design Load [lbs.]: 7,000				
Drive Time [sec.]: 50.3				





Lateral Load Test Results for PTL-107A

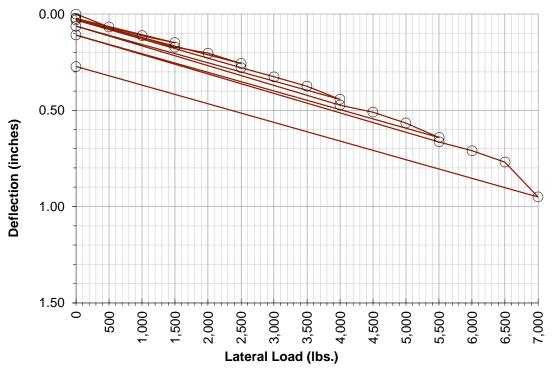
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.076	
	•	14%	1,000	0.128	
		21%	1,500	0.170	
Lateral Load Test Set Up		0%	0	0.034	
Number of Top Gauges:	N/A	21%	1,500	0.198	
Number of Bottom Gauges:	2	29%	2,000	0.233	
Height of Top Gauges [in.]:	NA	36%	2,500	0.293	
Height of Bottom Gauges [in.]:	6	0%	0	0.054	
Height of Applied Load [in]:	42	36%	2,500	0.320	
Load Cell:	Dillion	43%	3,000	0.371	
		50%	3,500	0.426	
		57%	4,000	0.500	
Test Date and Representati	ve	0%	0	0.108	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.534	
Date Tested:	10/4/2023	64%	4,500	0.573	
		71%	5,000	0.634	
		79%	5,500	0.712	
Pile Information		0%	0	0.167	
	PTL-107A	79%	5,500	0.739	
Latitude [deg.]:	35.54924	86%	6,000	0.796	
Longitude [deg.]:	-106.01520	93%	6,500	0.867	
Pile Type:	W6x9	100%	7,000	1.003	
Pile Embedment Depth [in.]:	60	0%	0	0.336	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:	· ·				
Drive Time [sec.]:	12.9				





Lateral Load Test Results for PLT-107B

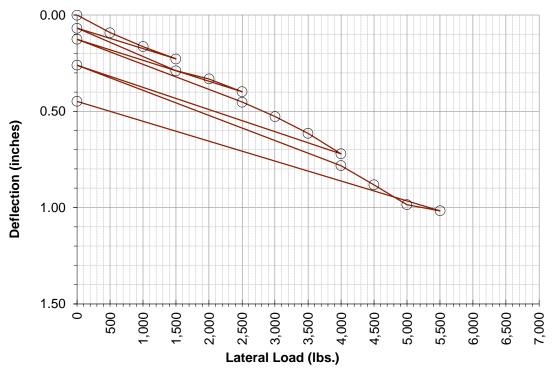
Project Information	% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location: Santa Fe, New Mexico	0%	0	0.000	
Project Number: 66225093	7%	500	0.068	
· ·	14%	1,000	0.113	
	21%	1,500	0.149	
Lateral Load Test Set Up	0%	0	0.023	
Number of Top Gauges: N/A	21%	1,500	0.173	
Number of Bottom Gauges: 2	29%	2,000	0.203	
Height of Top Gauges [in.]: NA	36%	2,500	0,257	
Height of Bottom Gauges [in.]: 6	0%	0	0.031	
Height of Applied Load [in.]: 42	36%	2,500	0.279	
Load Cell: Dillion	43%	3,000	0.326	
	50%	3,500	0.376	
	57%	4,000	0.443	
Test Date and Representative	0%	0	0.064	
Tested By Terracon Rep: SL/ED	57%	4,000	0.473	
Date Tested: 10/4/2023	64%	4,500	0.510	
	71%	5,000	0.567	
	79%	5,500	0.641	
Pile Information	0%	0	0.109	
Pile ID: PLT-107B	79%	5,500	0.664	
Latitude [deg.]: 35.54924	86%	6,000	0.710	
Longitude [deg.]: -106.01518	93%	6,500	0.770	
Pile Type: W6x9	100%	7,000	0.951	
Pile Embedment Depth [in.]: 96	0%	0	0.273	
Pile Stick-Up [in.]: 48				
Lateral Design Load [lbs.]: 7,000				
Drive Time [sec.]: 23.9				





Lateral Load Test Results for PLT-108A

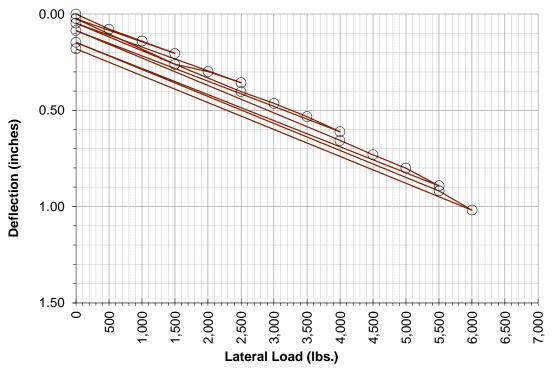
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.092	
		14%	1,000	0.164	
		21%	1,500	0.228	
Lateral Load Test Set Up		0%	0	0.069	
Number of Top Gauges:	N/A	21%	1,500	0.290	
Number of Bottom Gauges:	2	29%	2,000	0,332	
Height of Top Gauges [in.]:	NA	36%	2,500	0.399	
Height of Bottom Gauges [in.]:	6	0%	0	0,126	
Height of Applied Load [in.]:	42	36%	2,500	0.453	
Load Cell:	Dillion	43%	3,000	0.528	
		50%	3,500	0.615	
		57%	4,000	0.721	
Test Date and Representati	ve	0%	0	0.261	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.783	
Date Tested:	10/3/2023	64%	4,500	0.883	
		71%	5,000	0.986	
		79%	5,500	1.017	
Pile Information		0%	0		
	PLT-108A	79%	5,500		
Latitude [deg.]:	35.55227	86%	6,000		
Longitude [deg.]:	-106.01030	93%	6,500		
Pile Type:	W6x9	100%	7,000		
Pile Embedment Depth [in.]:	60	0%	0	0.449	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	8.1				





Lateral Load Test Results for PLT-108B

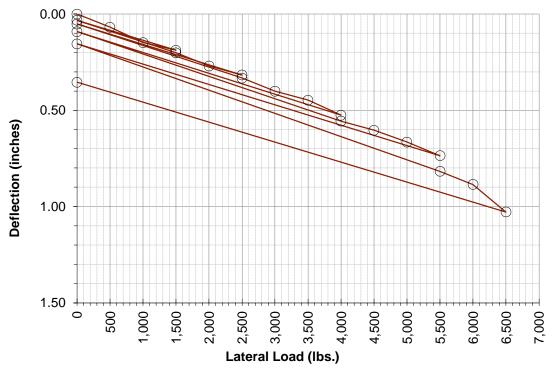
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.079	
		14%	1,000	0.141	
		21%	1,500	0.205	
Lateral Load Test Set Up		0%	0	0.025	
Number of Top Gauges:	N/A	21%	1,500	0,262	
Number of Bottom Gauges:	2	29%	2,000	0,299	
Height of Top Gauges [in.]:	NA	36%	2,500	0.357	
Height of Bottom Gauges [in.]:	6	0%	0	0.048	
Height of Applied Load [in.]:	42	36%	2,500	0.404	
Load Cell:	Dillion	43%	3,000	0.464	
		50%	3,500	0.533	
		57%	4,000	0.612	
Test Date and Representat		0%	0	0.086	
Tested By Terracon Rep:		57%	4,000	0.657	
Date Tested:	10/3/2023	64%	4,500	0.731	
		71%	5,000	0.801	
		79%	5,500	0.892	
Pile Information	<u>.</u>	0%	0	0.147	
	PLT-108B	79%	5,500	0.919	
Latitude [deg.]:		86%	6,000	1.018	
Longitude [deg.]:		93%	6,500		
Pile Type:		100%	7,000		
Pile Embedment Depth [in.]:		0%	0	0.181	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	9.2				





Lateral Load Test Results for PLT-109A

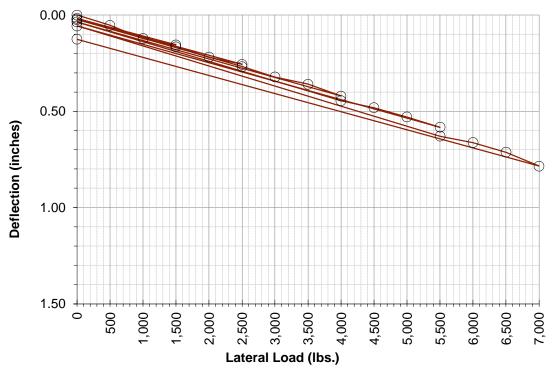
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.068	
		14%	1,000	0.148	
		21%	1,500	0.189	
Lateral Load Test Set Up		0%	0	0.033	
Number of Top Gauges:	N/A	21%	1,500	0.201	
Number of Bottom Gauges:	2	29%	2,000	0,270	
Height of Top Gauges [in.]:	NA	36%	2,500	0.317	
Height of Bottom Gauges [in.]:	6	0%	0	0.052	
Height of Applied Load [in.]:	42	36%	2,500	0.333	
Load Cell:	Dillion	43%	3,000	0.401	
		50%	3,500	0.448	
		57%	4,000	0.526	
Test Date and Representati	ve	0%	0	0.092	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.557	
Date Tested:	10/4/2023	64%	4,500	0.604	
		71%	5,000	0.666	
		79%	5,500	0.736	
Pile Information		0%	0	0.155	
Pile ID:	PLT-109A	79%	5,500	0.818	
Latitude [deg.]:	35.55374	86%	6,000	0.885	
Longitude [deg.]:	-106.01736	93%	6,500	1.028	
Pile Type:	W6x9	100%	7,000		
Pile Embedment Depth [in.]:		0%	0	0.354	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:	-				
Drive Time [sec.]:	16.7				





Lateral Load Test Results for PLT-109B

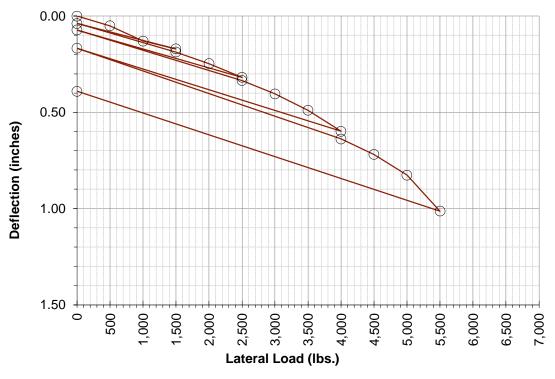
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.054	
		14%	1,000	0.123	
		21%	1,500	0.155	
Lateral Load Test Set Up		0%	0	0.018	
Number of Top Gauges:	N/A	21%	1,500	0.165	
Number of Bottom Gauges:	2	29%	2,000	0.219	
Height of Top Gauges [in.]:	NA	36%	2,500	0.257	
Height of Bottom Gauges [in.]:	6	0%	0	0.024	
Height of Applied Load [in]:	42	36%	2,500	0.268	
Load Cell:	Dillion	43%	3,000	0.322	
		50%	3,500	0.360	
		57%	4,000	0.421	
Test Date and Representati	ve	0%	0	0.036	
Tested By Terracon Rep:	SL/ED	57%	4,000	0.446	
Date Tested:	10/4/2023	64%	4,500	0.482	
		71%	5,000	0.530	
		79%	5,500	0.583	
Pile Information		0%	0	0.057	
Pile ID:	PLT-109B	79%	5,500	0.630	
Latitude [deg.]:	35.55374	86%	6,000	0.663	
Longitude [deg.]:	-106.01736	93%	6,500	0.713	
Pile Type:	W6x9	100%	7,000	0.785	
Pile Embedment Depth [in.]:		0%	0	0.126	
Pile Stick-Up [in.]:	48				
Lateral Design Load [lbs.]:	7,000				
Drive Time [sec.]:	37.6				





Lateral Load Test Results for PLT-110A

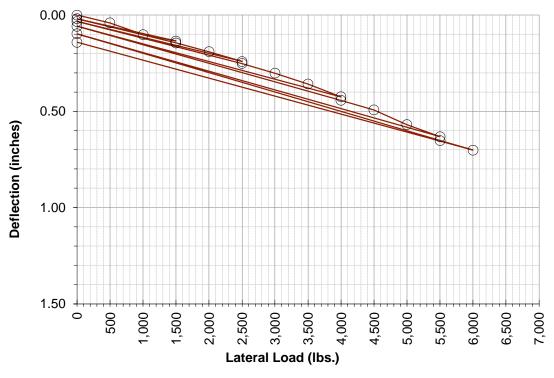
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name:	Rancho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location:	Santa Fe, New Mexico	0%	0	0.000	
Project Number:	66225093	7%	500	0.051	
		14%	1,000	0.130	
		21%	1,500	0.171	
Lateral Load Test Set Up		0%	0	0.039	
Number of Top Gauges:	N/A	21%	1,500	0.188	
Number of Bottom Gauges:	2	29%	2,000	0.248	
Height of Top Gauges [in.]:	NA	36%	2,500	0.319	
Height of Bottom Gauges [in.]:	6	0%	0	0.073	
Height of Applied Load [in.]:	42	36%	2,500	0.335	
Load Cell:	Dillion	43%	3,000	0.404	
		50%	3,500	0.490	
		57%	4,000	0.599	
Test Date and Representati	ve	0%	0	0.167	
Tested By Terracon Rep:	,	57%	4,000	0.639	
Date Tested:	3/11/2024	64%	4,500	0.719	
		71%	5,000	0.827	
		79%	5,500	1.014	
Pile Information		0%	0		
	PLT-110A	79%	5,500		
Latitude [deg.]:	35.54438	86%	6,000		
Longitude [deg.]:	-106.01141	93%	6,500		
Pile Type:		100%	7,000		
Pile Embedment Depth [in.]:		0%	0	0.391	
Pile Stick-Up [in.]:					
Lateral Design Load [lbs.]:					
Drive Time [sec.]:	0				





Lateral Load Test Results for PLT-110B

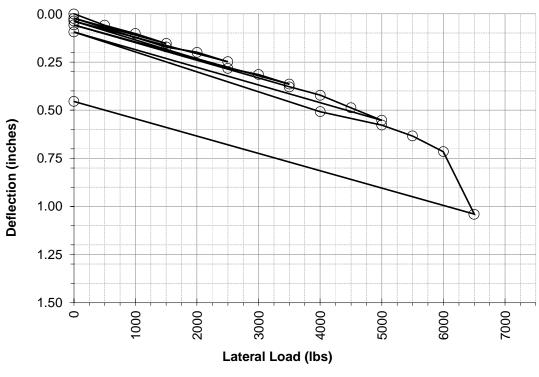
Project Information		% of Design	Lateral Load	Deflection Δ (in.)	Comments
Project Name: Ran	cho Viejo	Load	[lbs.]	Gauges #1 & #2	
Project Location: San	ta Fe, New Mexico	0%	0	0.000	
Project Number: 662	25093	7%	500	0.042	
		14%	1,000	0.102	
		21%	1,500	0.135	
Lateral Load Test Set Up		0%	0	0.020	
Number of Top Gauges: N/A		21%	1,500	0.145	
Number of Bottom Gauges: 2		29%	2,000	0.191	
Height of Top Gauges [in.]: NA		36%	2,500	0.242	
Height of Bottom Gauges [in.]: 6		0%	0	0.034	
Height of Applied Load [in.]: 42		36%	2,500	0.252	
Load Cell: Dilli	on	43%	3,000	0.302	
		50%	3,500	0.359	
		57%	4,000	0.425	
Test Date and Representative		0%	0	0.059	
Tested By Terracon Rep: ED/	TS	57%	4,000	0.444	
Date Tested: 3/1	1/2024	64%	4,500	0.494	
		71%	5,000	0.570	
		79%	5,500	0.632	
Pile Information		0%	0	0.098	
Pile ID: PLT	-110B	79%	5,500	0.652	
Latitude [deg.]: 35.	54438	86%	6,000	0.702	
Longitude [deg.]: -10	6.01141	93%	6,500		
Pile Type: W6	<9	100%	7,000		
Pile Embedment Depth [in.]: 96		0%	0	0.142	
Pile Stick-Up [in.]: 48					
Lateral Design Load [lbs.]: 7,00	00				
Drive Time [sec.]: 0					



Lateral Load Test Result for PLT-001A

		71
		00
Pile Information		57
Pile ID:	PLT-001A	71
Latitude:	35.55334	79
Longitude:	-106.01315	86
Pile Type:	W6X9	93
Pile Embedment Depth [in]:	60	100
Pile Stick-Up [in]:	48	04
Lateral Design Load [lbs]:	7000	
Drive Time [sec]:	39.7	

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.059	
14%	1000	0.102	
21%	1500	0.154	
0%	0	0.024	
21%	1500	0.172	
29%	2000	0.200	
36%	2500	0.249	
0%	0	0.037	
36%	2500	0.283	
43%	3000	0.316	
50%	3500	0.365	
0%	0	0.058	
50%	3500	0.380	
57%	4000	0.423	
64%	4500	0.488	
71%	5000	0.553	
0%	0	0.095	
57%	4000	0.508	
71%	5000	0.578	
79%	5500	0.634	
86%	6000	0.715	
93%	6500	1.040	
100%	7000		
0%	0	0.455	



----Lateral - Gauges at 6-inches

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

Project Number: 66225093

Height of Applied Load [in]: 42 Load Cell: Dillon ED jr 10,000lb

Date Tested: 8/25/2022

Tested By Terracon Rep: CS & SC

Project Information

Lateral Load Test Set Up

Number of Top Gauges: 0 Number of Bottom Gauges: 2 Height of Top Gauges [in]: 6 Height of Bottom Gauges [in]: 6

Test Date and Representative

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Lateral Load Test Result for PLT-001B

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM Project Number: 66225093

plied Load [iii].	42	30%	2500	
Load Cell:	Dillon ED jr 10,000lb	43%	3000	
		50%	3500	
		0%	0	
Representati	ve	50%	3500	
Terracon Rep:	CS & SC	57%	4000	
Date Tested:	8/25/2022	64%	4500	
		71%	5000	
		0%	0	
n		57%	4000	
Pile ID:	PLT-001B	71%	5000	
Latitude:	35.55334	79%	5500	
Longitude:	-106.01315	86%	6000	
Pile Type:	W6X9	93%	6500	
ent Depth [in]:	96	100%	7000	
e Stick-Up [in]:	48	0%	0	
ign Load [lbs]:	7000			
ive Time [sec]:	50.8			
0.00 🙈				
æ		 		

6	Height of Top Gauges [in]: Height of Bottom Gauges [in]: Height of Applied Load [in]:
6	Height of Bottom Gauges [in]:
42	Height of Applied Load [in]:
Dillon	Load Cell:

Test Date and F

Tested By 7

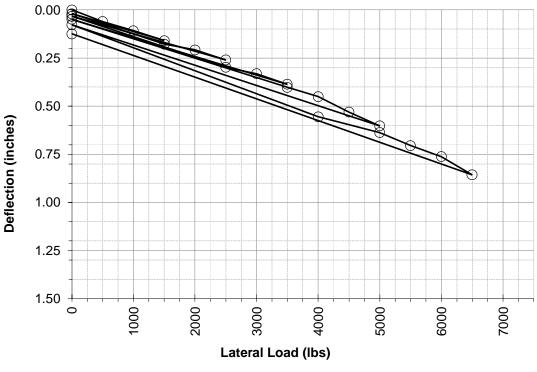
Pile Information

Project Information

Lateral Load Test Set Up Number of Top Gauges: 0 Number of Bottom Gauges: 2

PLT-001B
35.55334
-106.01315
W6X9
96
48
7000
50.8

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.061	
14%	1000	0.109	
21%	1500	0.160	
0%	0	0.021	
21%	1500	0.179	
29%	2000	0.209	
36%	2500	0.261	
0%	0	0.034	
36%	2500	0.299	
43%	3000	0.332	
50%	3500	0.387	
0%	0	0.049	
50%	3500	0.403	
57%	4000	0.451	
64%	4500	0.531	
71%	5000	0.603	
0%	0	0.078	
57%	4000	0.556	
71%	5000	0.638	
79%	5500	0.705	
86%	6000	0.762	
93%	6500	0.857	
100%	7000		
0%	0	0.125	



----Lateral - Gauges at 6-inches

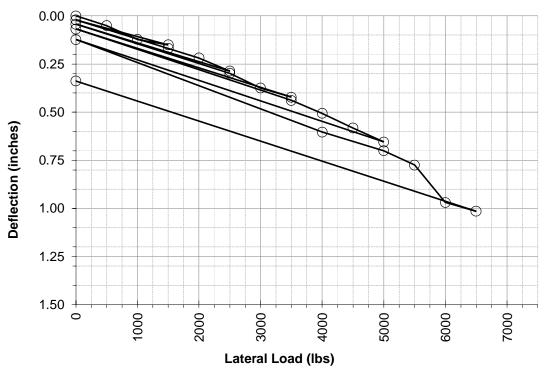
Lateral Load Test Result for PLT-002A

Project Information		Design	Load	Deflectio
	Rancho Viejo Solar Facility	Load	[lbs]	Gauges
Project Location:	Santa Fe County, NM	0%	0	0.0
Project Number:	66225093	7%	500	0.0
		14%	1000	0.1
		21%	1500	0.1
Lateral Load Test Set Up		0%	0	0.0
Number of Top Gauges:	0	21%	1500	0.1
Number of Bottom Gauges:	2	29%	2000	0.2
Height of Top Gauges [in]:	6	36%	2500	0.2
Height of Bottom Gauges [in]:	6	0%	0	0.0
Height of Applied Load [in]:	42	36%	2500	0.2
Load Cell:	Dillon ED jr 10,000lb	43%	3000	0.3
		50%	3500	0.4
		0%	0	0.0
Test Date and Representati	ve	50%	3500	0.4
Tested By Terracon Rep:	CS & SC	57%	4000	0.5
Date Tested:	8/25/2022	64%	4500	0.5
		71%	5000	0.6
		00/	0	0.1

Pile Information

	PLT-002A
Latitude:	35.55151
Longitude:	-106.00214 W6X9
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Embedment Depth [in]: Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Lateral Design Load [lbs]: Drive Time [sec]:	35.4

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load 0%	[lbs] 0	Gauges #1 & #2 0.000	
7%	500	0.051	
14%	1000	0.123	
21%	1500	0.151	
0%	0	0.021	
21%	1500	0.169	
29%	2000	0.219	
36%	2500	0.287	
0%	0	0.044	
36%	2500	0.299	
43%	3000	0.375	
50%	3500	0.423	
0%	0	0.069	
50%	3500	0.439	
57%	4000	0.507	
64%	4500	0.582	
71%	5000	0.655	
0%	0	0.124	
57%	4000	0.604	
71%	5000	0.700	
79%	5500	0.775	
86%	6000	0.969	
93%	6500	1.015	
100%	7000		
0%	0	0.338	



----Lateral - Gauges at 6-inches

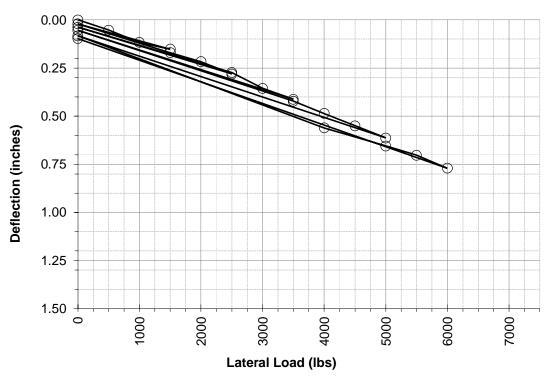


Lateral Load Test Result for PLT-002B

Project Information

roject information		Design	Load		
Project Name:	Rancho Viejo Solar Facility	Load	[lbs]	Gauges #1 & #2	
Project Location:	Santa Fe County, NM	0%	0	0.000	
Project Number:	66225093	7%	500	0.054	
		14%	1000	0.117	
		21%	1500	0.153	
Lateral Load Test Set Up		0%	0	0.022	
Number of Top Gauges:	0	21%	1500	0.170	
Number of Bottom Gauges:	2	29%	2000	0.218	
Height of Top Gauges [in]:	6	36%	2500	0.281	
Height of Bottom Gauges [in]:	6	0%	0	0.039	
Height of Applied Load [in]:	42	36%	2500	0.274	
Load Cell:	Dillon ED jr 10,000lb	43%	3000	0.356	
		50%	3500	0.412	
		0%	0	0.055	
Fest Date and Representati	ve	50%	3500	0.423	
Tested By Terracon Rep:	CS & SC	57%	4000	0.486	
Date Tested:	8/25/2022	64%	4500	0.551	
	•	71%	5000	0.614	
		0%	0	0.083	
Pile Information		57%	4000	0.561	
Pile ID:	PLT-002B	71%	5000	0.655	
Latitude:	35.55151	79%	5500	0.704	
Longitude:	-106.00214	86%	6000	0.770	
Pile Type:	W6X9	93%	6500		
Pile Embedment Depth [in]:	92	100%	7000		
Pile Stick-Up [in]:	48	0%	0	0.097	
Lateral Design Load [lbs]:	7000				
Drive Time [sec]:	074				

% of Design Load	Lateral Load [Ibs]	Deflection ∆ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.054	
14%	1000	0.117	
21%	1500	0.153	
0%	0	0.022	
21%	1500	0.170	
29%	2000	0.218	
36%	2500	0.281	
0%	0	0.039	
36%	2500	0.274	
43%	3000	0.356	
50%	3500	0.412	
0%	0	0.055	
50%	3500	0.423	
57%	4000	0.486	
64%	4500	0.551	
71%	5000	0.614	
0%	0	0.083	
57%	4000	0.561	
71%	5000	0.655	
79%	5500	0.704	
86%	6000	0.770	
93%	6500		
100%	7000		
0%	0	0.097	



----Lateral - Gauges at 6-inches

Lateral Load Test Result for PLT-003A

Project Name: Rancho Viejo Solar Facility

Project Location: Santa Fe County, NM

Project Number: 66225093

Project Information

		11/0	1000	
		21%	1500	
Lateral Load Test Set Up		0%	0	
Number of Top Gauges:	0	21%	1500	
Number of Bottom Gauges:	2	29%	2000	
Height of Top Gauges [in]:	6	36%	2500	
Height of Bottom Gauges [in]:	6	0%	0	
Height of Applied Load [in]:	42	36%	2500	
Load Cell:	Dillon ED jr 10,000lb	43%	3000	
		50%	3500	
		0%	0	
Test Date and Representative		50%	3500	
Tested By Terracon Rep:	CS & SC	57%	4000	
Date Tested:	8/18/2022	64%	4500	
		71%	5000	
		0%	0	
Pile Information		57%	4000	
Pile ID:	PLT-003A	71%	5000	
Latitude:	35.54711	79%	5500	
Longitude:	-106.01618	86%	6000	
Pile Type:	W6X9	93%	6500	
Pile Embedment Depth [in]:	60	100%	7000	
Pile Stick-Up [in]:	48	0%	0	
			-	

r roject number.	00220030	170	300	0.055
	-	14%	1000	0.107
		21%	1500	0.152
eral Load Test Set Up		0%	0	0.011
Number of Top Gauges:	0	21%	1500	0.163
Number of Bottom Gauges:	2	29%	2000	0.182
Height of Top Gauges [in]:	6	36%	2500	0.223
eight of Bottom Gauges [in]:	6	0%	0	0.013
Height of Applied Load [in]:	42	36%	2500	0.246
Load Cell:	Dillon ED jr 10,000lb	43%	3000	0.289
		50%	3500	0.321
		0%	0	0.020
st Date and Representati	ve	50%	3500	0.345
Tested By Terracon Rep:	CS & SC	57%	4000	0.377
Date Tested:	8/18/2022	64%	4500	0.417
		71%	5000	0.463
		0%	0	0.030
e Information		57%	4000	0.440
Pile ID:	PLT-003A	71%	5000	0.482
Latitude:	35.54711	79%	5500	0.531
Longitude:	-106.01618	86%	6000	0.628
Pile Type:	W6X9	93%	6500	1.040
Pile Embedment Depth [in]:	60	100%	7000	
Pile Stick-Up [in]:	48	0%	0	0.513
Lateral Design Load [lbs]:	7000			
Drive Time [sec]:	97.2			
	•			

% of

Design

Load

0%

7%

Lateral

Load

[lbs]

0

500

Deflection Δ (in.)

Gauges #1 & #2

0.000

0.055

Comments

0.00 0.25 0.50 **Deflection (inches)** 0.75 1.00 1.25 1.50 0 1000 2000 3000 4000 5000 6000 7000 Lateral Load (lbs)

----Lateral - Gauges at 6-inches

Exhibit H-25



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Lateral Load Test Result for PLT-003B

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

Project Number: 66225093

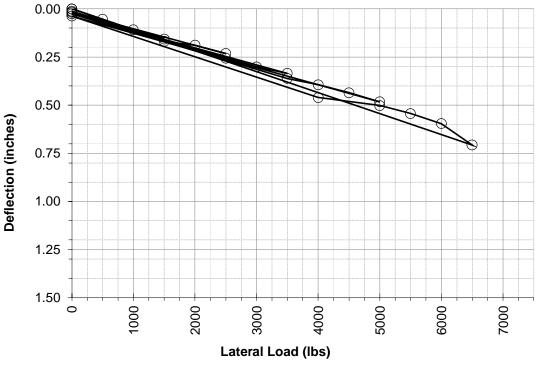
Project Information

Lateral Load Test Set Up

Number of Top Gauges: 0

Number of Top Gauges:	0	21%	1500	
Number of Bottom Gauges:	2	29%	2000	
Height of Top Gauges [in]:	6	36%	2500	
Height of Bottom Gauges [in]:	6	0%	0	
Height of Applied Load [in]:	42	36%	2500	
Load Cell:	Dillon ED jr 10,000lb	43%	3000	
		50%	3500	
		0%	0	
Test Date and Representati	ve	50%	3500	
Tested By Terracon Rep:	CS & SC	57%	4000	
Date Tested:	8/18/2022	64%	4500	
		71%	5000	
		0%	0	
Pile Information		57%	4000	
Pile ID:	PLT-003B	71%	5000	
Latitude:	35.54711	79%	5500	
Longitude:	-106.01618	86%	6000	
Pile Type:	W6X9	93%	6500	
Pile Embedment Depth [in]:	92	100%	7000	
Pile Stick-Up [in]:	48	0%	0	
Lateral Design Load [lbs]:	7000			
Drive Time [sec]:	239.4			
0.00				
0.00				

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.055	
14%	1000	0.109	
21%	1500	0.157	
0%	0	0.013	
21%	1500	0.169	
29%	2000	0.189	
36%	2500	0.232	
0%	0	0.018	
36%	2500	0.256	
43%	3000	0.301	
50%	3500	0.335	
0%	0	0.026	
50%	3500	0.362	
57%	4000	0.394	
64%	4500	0.436	
71%	5000	0.484	
0%	0	0.038	
57%	4000	0.461	
71%	5000	0.503	
79%	5500	0.544	
86%	6000	0.596	
93%	6500	0.707	
100%	7000		
0%	0	0.000	



----Lateral - Gauges at 6-inches

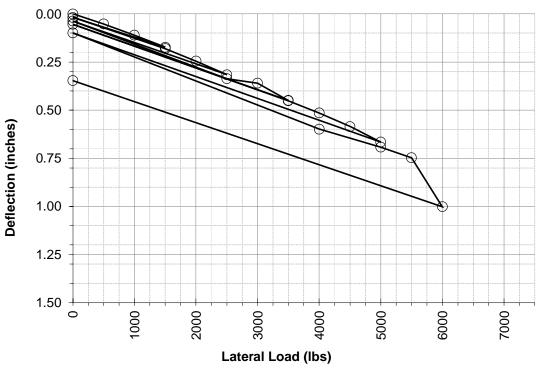
lerracon

Lateral Load Test Result for PLT-004A

Project Information		% of	Lateral Load	Deflection Δ (in.)
	Rancho Viejo Solar Facility	Design		Courses #4 9 #2
		Load	[lbs]	Gauges #1 & #2
•	Santa Fe County, NM	0%	0	0.000
Project Number:	66225093	7%	500	0.052
		14%	1000	0.111
		21%	1500	0.173
Lateral Load Test Set Up		0%	0	0.019
Number of Top Gauges:	0	21%	1500	0.181
Number of Bottom Gauges:	2	29%	2000	0.246
Height of Top Gauges [in]:	6	36%	2500	0.316
Height of Bottom Gauges [in]:	6	0%	0	0.038
Height of Applied Load [in]:	42	36%	2500	0.337
Load Cell:	Dillon ED jr 10,000lb	43%	3000	0.360
		50%	3500	0.450
		0%	0	0.055
Test Date and Representati	ve	50%	3500	0.452
Tested By Terracon Rep:	CS & SC	57%	4000	0.514
Date Tested:	8/18/2022	64%	4500	0.586
		71%	5000	0.666
		0%	0	0.099
Pile Information		57%	4000	0.599
Pile ID:	PI T-004A	71%	5000	0.692

	PLT-004A
	35.54296
Longitude:	-106.03023
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	22.6

14%	1000	0.111	
21%	1500	0.173	
0%	0	0.019	
21%	1500	0.181	
29%	2000	0.246	
36%	2500	0.316	
0%	0	0.038	
36%	2500	0.337	
43%	3000	0.360	
50%	3500	0.450	
0%	0	0.055	
50%	3500	0.452	
57%	4000	0.514	
64%	4500	0.586	
71%	5000	0.666	
0%	0	0.099	
57%	4000	0.599	
71%	5000	0.692	
79%	5500	0.748	
86%	6000	1.002	
93%	6500		
100%	7000		
0%	0	0.347	



----Lateral - Gauges at 6-inches



Comments

Lateral Load Test Result for PLT-004B

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

Project Number: 66225093

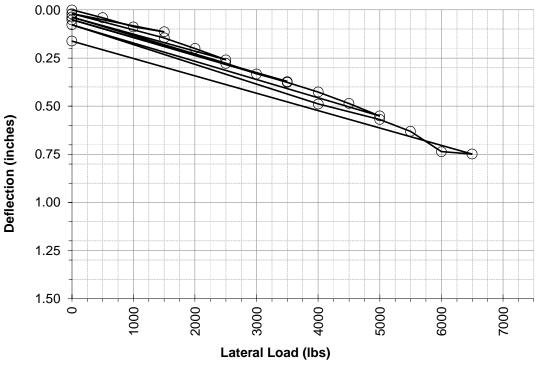
Height of Applied Load [in]: 42 Load Cell: Dillon ED jr 10,000lb

Project Information

Lateral Load Test Set Up Number of Top Gauges: 0 Number of Bottom Gauges: 2 Height of Top Gauges [in]: 6 Height of Bottom Gauges [in]: 6

		070	0	
Test Date and Representati	ve	50%	3500	Γ
Tested By Terracon Rep:	CS & SC	57%	4000	Γ
Date Tested:	8/18/2022	64%	4500	Γ
		71%	5000	Γ
		0%	0	Γ
Pile Information		57%	4000	Γ
Pile ID:	PLT-004B	71%	5000	Γ
Latitude:	35.54296	79%	5500	Γ
Longitude:	-106.03023	86%	6000	Γ
Pile Type:	W6X9	93%	6500	Γ
Pile Embedment Depth [in]:	96	100%	7000	Γ
Pile Stick-Up [in]:	48	0%	0	Γ
Lateral Design Load [lbs]:	7000			
Drive Time [sec]:	108.7			
	•			
0.00				
0.00				
\mathbf{A}				
0.05				

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.042	
14%	1000	0.088	
21%	1500	0.114	
0%	0	0.021	
21%	1500	0.146	
29%	2000	0.201	
36%	2500	0.260	
0%	0	0.038	
36%	2500	0.278	
43%	3000	0.333	
50%	3500	0.373	
0%	0	0.052	
50%	3500	0.377	
57%	4000	0.427	
64%	4500	0.486	
71%	5000	0.551	
0%	0	0.078	
57%	4000	0.489	
71%	5000	0.570	
79%	5500	0.631	
86%	6000	0.737	
93%	6500	0.749	
100%	7000		
0%	0	0.163	



----Lateral - Gauges at 6-inches

lerracon

Lateral Load Test Result for PLT-005A

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

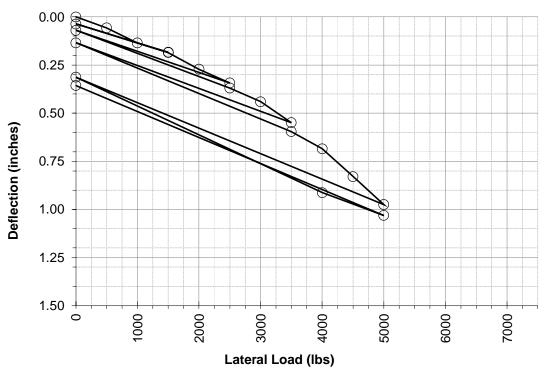
Project Number: 66225093

Project Information

Lateral Load Test Set Up Number of Top Gauges: 0 Number of Bottom Gauges: 2 Height of Top Gauges [in]: 6 Height of Bottom Gauges [in]: 6

neight of bottom Gauges [in].	0	070	
Height of Applied Load [in]:	42	36%	2
Load Cell:	Dillon ED jr 10,000lb	43%	3
		50%	3
		0%	
Test Date and Representati	ve	50%	3
Tested By Terracon Rep:	CS & SC	57%	4
Date Tested:	8/18/2022	64%	4
	•	71%	5
		0%	
Pile Information		57%	4
Pile ID:	PLT-005A	71%	5
Latitude:	35.53853	79%	5
Longitude:	-106.01312	86%	6
Pile Type:	W6X9	93%	6
Pile Embedment Depth [in]:	60	100%	7
Pile Stick-Up [in]:	48	0%	
Lateral Design Load [lbs]:	7000		
Drive Time [sec]:	15		

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.058	
14%	1000	0.136	
21%	1500	0.184	
0%	0	0.037	
21%	1500	0.185	
29%	2000	0.272	
36%	2500	0.343	
0%	0	0.070	
36%	2500	0.370	
43%	3000	0.441	
50%	3500	0.550	
0%	0	0.135	
50%	3500	0.596	
57%	4000	0.685	
64%	4500	0.830	
71%	5000	0.976	
0%	0	0.314	
57%	4000	0.913	
71%	5000	1.031	
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.357	



----Lateral - Gauges at 6-inches

Lateral Load Test Result for PLT-005B

Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

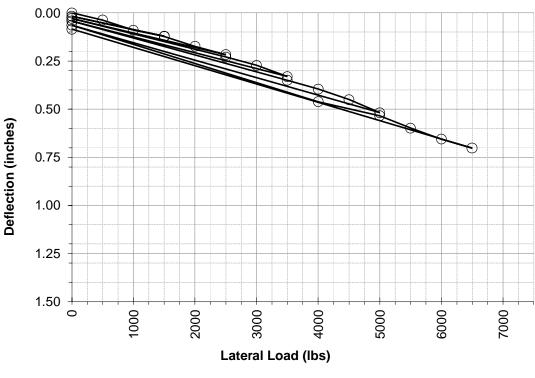
Project Number: 66225093

Project Information

Lateral Load Test Set Up Number of Top Gauges: 0

Number of Top Gauges:	0	21%	1500	
Number of Bottom Gauges:	2	29%	2000	
Height of Top Gauges [in]:	6	36%	2500	
Height of Bottom Gauges [in]:	6	0%	0	
Height of Applied Load [in]:	42	36%	2500	
Load Cell:	Dillon ED jr 10,000lb	43%	3000	
		50%	3500	
		0%	0	
Test Date and Representati	ve	50%	3500	
Tested By Terracon Rep:	CS & SC	57%	4000	
Date Tested:	8/18/2022	64%	4500	
		71%	5000	
		0%	0	
Pile Information		57%	4000	
Pile ID:	PLT-005B	71%	5000	
Latitude:	35.53853	79%	5500	
Longitude:	-106.01312	86%	6000	
Pile Type:	W6X9	93%	6500	
Pile Embedment Depth [in]:	96	100%	7000	
Pile Stick-Up [in]:	48	0%	0	
Lateral Design Load [lbs]:	7000			
Drive Time [sec]:	27.3			
	•			
0.00				
0.00				

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.038	
14%	1000	0.090	
21%	1500	0.121	
0%	0	0.018	
21%	1500	0.123	
29%	2000	0.175	
36%	2500	0.218	
0%	0	0.029	
36%	2500	0.230	
43%	3000	0.273	
50%	3500	0.331	
0%	0	0.043	
50%	3500	0.351	
57%	4000	0.396	
64%	4500	0.451	
71%	5000	0.519	
0%	0	0.064	
57%	4000	0.462	
71%	5000	0.535	
79%	5500	0.599	
86%	6000	0.656	
93%	6500	0.703	
100%	7000		
0%	0	0.085	



---Lateral - Gauges at 6-inches

Lateral Load Test Result for PLT-006A

% of

Design

Lateral

Load

Froject information		Design	Luau	
Project Name:	Rancho Viejo Solar Facility	Load	[lbs]	Gauge
Project Location:	Santa Fe County, NM	0%	0	(
Project Number:	66225093	7%	500	(
		14%	1000	(
		21%	1500	(
Lateral Load Test Set Up		0%	0	(
Number of Top Gauges:	0	21%	1500	(
Number of Bottom Gauges:	2	29%	2000	(
Height of Top Gauges [in]:	6	36%	2500	(
Height of Bottom Gauges [in]:	6	0%	0	(
Height of Applied Load [in]:	42	36%	2500	(
Load Cell:	Dillon ED jr 10,000lb	43%	3000	(
		50%	3500	(
		0%	0	(
Test Date and Representati	ve	50%	3500	(
Tested By Terracon Rep:	CS & SC	57%	4000	(
Date Tested:	8/22/2022	64%	4500	(
		71%	5000	(
		0%	0	(
Pile Information		57%	4000	(
Pile ID:	PLT-006A	71%	5000	(
Latitude:	35.54313	79%	5500	(
Longitude:	-106.00830	86%	6000	
Pile Type:	W6X9	93%	6500	
	1			

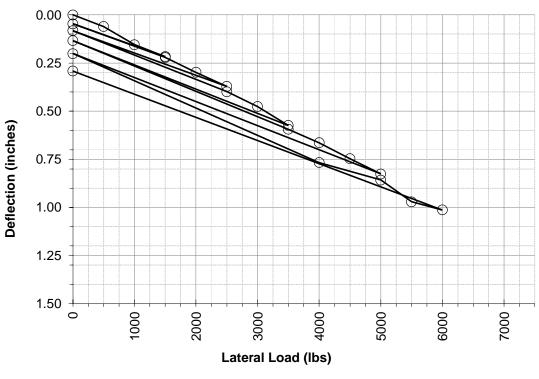
Pile Embedment Depth [in]: 60 Pile Stick-Up [in]: 48 Lateral Design Load [lbs]: 7000 Drive Time [sec]: 29.8

Project Information

Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.061	
14%	1000	0.155	
21%	1500	0.218	
0%	0	0.047	
21%	1500	0.221	
29%	2000	0.299	
36%	2500	0.372	
0%	0	0.082	
36%	2500	0.400	
43%	3000	0.476	
50%	3500	0.575	
0%	0	0.134	
50%	3500	0.594	
57%	4000	0.664	
64%	4500	0.747	
71%	5000	0.826	
0%	0	0.202	
57%	4000	0.767	
71%	5000	0.858	
79%	5500	0.971	
86%	6000	1.014	
93%	6500		
100%	7000		
0%	0	0.292	

Deflection Δ (in.)

Comments



----Lateral - Gauges at 6-inches

Lateral Load Test Result for PLT-006B

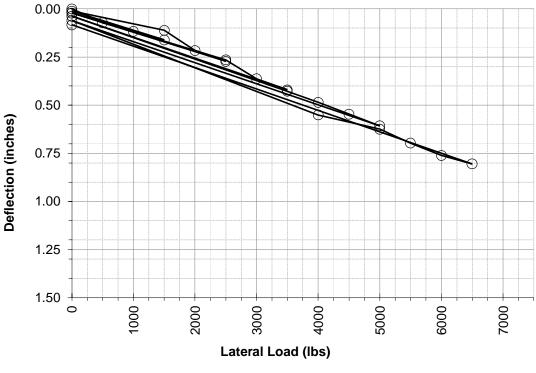
Project Name: Rancho Viejo Solar Facility Project Location: Santa Fe County, NM

Project Number: 66225093

Project Information

	21%	1500	0.162
Lateral Load Test Set Up	0%	0	0.012
Number of Top Gauges: 0	21%	1500	0.112
Number of Bottom Gauges: 2	29%	2000	0.217
Height of Top Gauges [in]: 6	36%	2500	0.273
Height of Bottom Gauges [in]: 6	0%	0	0.022
Height of Applied Load [in]: 42	36%	2500	0.265
Load Cell: Dillon ED jr 10,000lb	43%	3000	0.364
	50%	3500	0.421
	0%	0	0.039
Test Date and Representative	50%	3500	0.428
Tested By Terracon Rep: CS & SC	57%	4000	0.486
Date Tested: 8/22/2022	64%	4500	0.547
·	71%	5000	0.608
	0%	0	0.061
Pile Information	57%	4000	0.552
Pile ID: PLT-006B	71%	5000	0.625
Latitude: 35.54313	79%	5500	0.698
Longitude: -106.00830	86%	6000	0.761
Pile Type: W6X9	93%	6500	0.806
Pile Embedment Depth [in]: 96	100%	7000	
Pile Stick-Up [in]: 48	0%	0	0.084
Lateral Design Load [lbs]: 7000			
Drive Time [sec]: 75.7			

% of Design	Lateral Load	Deflection Δ (in.)	Comments
Load	[lbs]	Gauges #1 & #2	
0%	0	0.000	
7%	500	0.073	
14%	1000	0.117	
21%	1500	0.162	
0%	0	0.012	
21%	1500	0.112	
29%	2000	0.217	
36%	2500	0.273	
0%	0	0.022	
36%	2500	0.265	
43%	3000	0.364	
50%	3500	0.421	
0%	0	0.039	
50%	3500	0.428	
57%	4000	0.486	
64%	4500	0.547	
71%	5000	0.608	
0%	0	0.061	
57%	4000	0.552	
71%	5000	0.625	
79%	5500	0.698	
86%	6000	0.761	
93%	6500	0.806	
100%	7000		
0%	0	0.084	



----Lateral - Gauges at 6-inches

Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico February 19, 2024 | Terracon Project No. 66225093

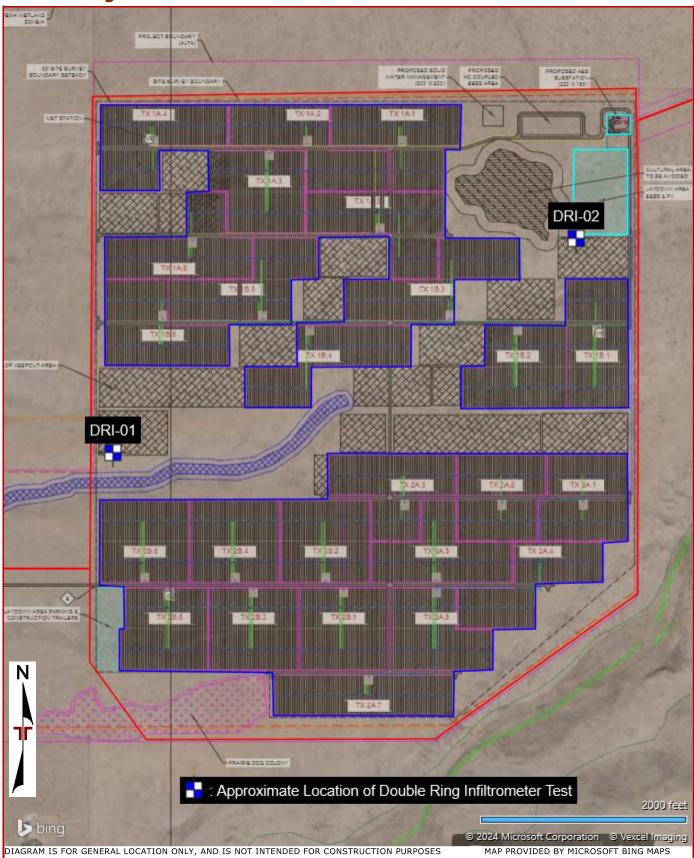


APPENDIX I Double Ring Infiltration Test Results

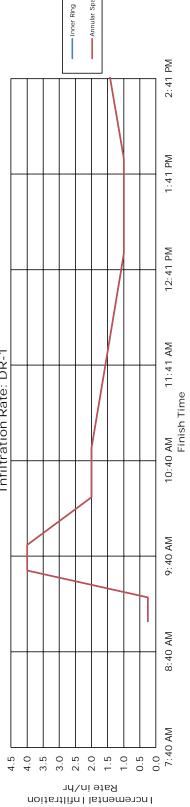
Responsive Resourceful Reliable



Double Ring Infiltrometer Tests



	C				nfiltration Rate, in/hr	Annular ng Space		0.25	4.00	4.00	2.00	2.00	1.50	1.00	1.00	1.50					Annular Space	
	S	<mark>_ ה ה </mark> ה ה ה			I nfiltrat	Inner Ring	0.25	0.25	4.00	4.00	2.00	2.00	1.50	1.00	1.00	1.50						_
	erracon	113.1 12.0 339 24.0 7.00 7.00		Finish		Volume, in ³	2354	2354	2195	2195	2195	2195	2110	2195	2195	2110						
ИARY		Inner Ring Area: Inner Ring Diameter: Annular space between Outer and Inner rings: Outer Ring Diameter: Depth of Liquid Annular Space:	Volume Measurements	Fir		Volume, in ³	785	785	732	732	732	732	703	732	732	703						
RATION TEST SUMMARY	Test Setup	Inr pace between Out Depth of Liq	Volume Me	art		Volume, in ³	2375	2375	2534	2534	2534	2534	2619	2534	2534	2619	te: DR-1					_
ON TES	F	Annular s		Start			792	792	845	845	845	845	873	845	845	873	Infiltration Rate: DR-1					/
LTRATI (Ē	Elapsed TIMe (hr:min:sec)	0: 15: 00	0: 15: 00	0: 15: 00	0: 15:00	0: 30: 00	0: 30: 00	1:00:00	1:00:00	1:00:00	1:00:00	Ξ					
DOUBLE RING INFI	ar , New Mexico	-106.017882 brown			ne	Finish	9:00:00 AM	9: 15: 00 AM	9:32:00 AM	9:48:00 AM	10:18:00 AM	10:49:00 AM	11:49:00 AM	12:51:00 PM	1:51:00 PM	2:51:00 PM						
LE RIN	Project Project Name: Rancho Viejo Solar oject Location: Santa Fe County, New Mexico oject Number: 66225093 Fest Details	1 /2023 ir 45011 sand, light t			Time	Start	8:45 AM	9:00:00 AM	9:17:00 AM	9: 33: 00 AM	9: 48: 00 AM	10:19:00 AM	10:49:00 AM	11:51:00 AM	12:51:00 PM	1:51:00 PM				 		
DOUB	Project Project Name: Rancho Vie Project Location: Santa Fe C Project Number: 66225093 Test Details	Test No.: DR -1 Depth (Elev.): 4 ft Technician: SL Date: 10/6/2023 Weather: Sunny Liquid Type: Water Coordinates: 35.545011 Soil Description Depth: 4 ft Description: silty sand,				Trial No.	1	2	3	4	5	6	7	8	6	10		4.5	noi D m		/ui	əì



DR -2 4 ft SL 10/9/2023 Water 10/9/2023 Water 35.550217 -106.00271 35.550217 -106.00271 35.550217 -106.00271 35.550217 -106.00271 35.550217 -106.00271 4 ft Start Finish (hr:min:sec) volume in ³ 2113 sand, light brown 1011 8 212 f5:00 AM 9:215:00 01018 9:32:00 AM 9:215:00 01018 9:32:00 AM 11:55:00 01018 9:32:00 AM 11:55:00 01008 11:55:00 PM 12:55:00 PM 12:00:00 1067 11:51:00 0108 11:55:00 PM 12:55:00 PM 12:00:00 1067 11:51:00 0108 11:55:00 PM 12:55:00 PM 12:00:00 1067 11:51:00 00 1067 11:51:00 PM 2:55:00 PM 12:05:00 1067 11:51:00 00 1067 11:51:00 00 1067 11:51:00 00 1067 11:51:00 1008 11:51:00 1008 11:51:51:008 11:51:51:51:008 11:51:51:51:51:51:51:51:51:51:51:51:5	Project Project Name: Rancho Vie Project Location: Santa Fe C Project Number: 66225093 Tract Defails	Project Project Project Location: Santa Fe County, New Mexico Project Number: 66225093 Trast Datails	Idar I, New Mexico	j				lerracon	con	
Time Volume Measurements Time Start Finish 8:50 AM 9:30:00 AM 10:64 3011 9:30:1 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:04 3011 10:05:00 10:05:00 10:05:00 10:05:00 10:06:7	Test No.: Test No.: Technician: Date: Weather: Liquid Type: Coordinates: II Description: Description:	DR -2 4 ft SL 10/9/2023 sunny Water 35.550217 tion 4 ft Silty sand, light	-106.00271 brown		Amular	Inr space between Outs Out Depth of Depth of Liqu	Inner Ring Area: ter Ring Diameter: ar and Inner rings: ter Ring Diameter: Liquid Inner Ring: uid Annular Space:		הכהכב	
Time Start Finish 5tart Finish Finish Finish 8:50 AM 9:05:00 AM 0:15:00 1018 3054 1004 3011 9:50 AM 9:05:00 AM 0:15:00 1018 3054 1004 3011 9:20:00 AM 9:05:00 AM 0:15:00 1018 3054 1004 3011 9:30:00 AM 9:37:00 AM 0:15:00 1018 3054 1004 3011 9:30:00 AM 9:37:00 AM 0:15:00 1018 3054 1004 3011 9:30:00 AM 10:50:00 AM 0:15:00 1018 3054 1004 3011 10:54:00 AM 11:50:00 AM 115:00 1067 3202 954 2863 10:54:00 AM 15:50 OM 1:00:00 1067 3202 954 2863 1 11:55:00 PM 15:50 OM 1:00:00 1067 3202 954 2863 1 11:55:00 PM 1:55:00 PM 1:00:00 1067						Volume Me	asurements			
Time Time <th< td=""><td></td><td></td><td></td><td></td><td>0)</td><td>start</td><td>Ē</td><td>nish</td><td></td><td></td></th<>					0)	start	Ē	nish		
8:50 AM 9:05:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:00:00 AM 9:21:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:20:00 AM 9:21:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:20:00 AM 9:31:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:32:00 AM 9:32:00 AM 0:15:00 1048 3145 973 2348 2.05 10:24:00 AM 10:23:00 AM 10:23:00 AM 10:30:00 1067 3202 954 2863 1.00 11:55:00 PM 11:55:00 PM 1:00:00 1067 3202 954 2863 1.00 11:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00 PM 1:50:00 1067 3202 954 2863 1.00				Elapsed Time	Inner Ring Volume in ³	Annular Space Volume in ³	Inner Ring Volume in ³	Annular Space Volume in ³	Infiltration	n Rate, in/hr Annular Space
9:06:00 AM 9:21:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:22:00 AM 9:37:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:22:00 AM 9:37:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:23:00 AM 9:33:00 AM 0:31:00 1018 3145 973 2919 1.33 9:33:00 AM 0:30:00 1048 3145 973 2919 1.33 10:24:00 AM 10:54:00 AM 10:00 1067 3202 954 2863 1.00 10:54:00 AM 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00 PM 1:00:00		8: 50 AM	9: 05: 00 AM	0: 15: 00	1018	3054	1004	3011	0.50	0.50
9:2:00 AM 9:37:00 AM 0:15:00 1018 3054 1004 3011 0.50 9:38:00 AM 9:53:00 AM 0:15:00 1039 3117 983 2948 2.00 9:38:00 AM 0:515:00 1048 3145 973 2919 1.33 10:24:00 AM 10:24:00 AM 0:30:00 1048 3145 973 2919 1.33 10:24:00 AM 10:24:00 AM 10:54:00 AM 1:00:00 1067 3202 954 2863 1.00 11:55:00 PM 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 11:55:00 PM 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 10:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00 PM 1:00:00 1067 3202 954 2863 1.00 1:55:00		9:06:00 AM	9:21:00 AM	0: 15: 00	1018	3054	1004	3011	0.50	0.50
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Geotechnical Engineering Report Rancho Viejo Solar Facility | Santa Fe County, New Mexico March 22, 2024 | Terracon Project No. 66225093



APPENDIX J

JDH Corrosion Analysis

Responsive Resourceful Reliable



March 21, 2024

Terracon 6805 Academy Parkway, West NE Albuquerque, New Mexico Stenson.Lee@terracon.com

Attention:	Stenson Lee
	Staff Engineer

Subject: Corrosion Engineering Services Soil Corrosivity for Steel Support Piles Rancho Viejo Solar Project Santa Fe, New Mexico

Dear Stenson,

Pursuant to your request, **JDH Corrosion Consultants**, **Inc**. has conducted a review of the soil data for the above referenced project site and we have provided herein our analysis and long-term corrosion control recommendations for the subject steel support piles for the photovoltaic solar project at this site.

PURPOSE

The purpose of this evaluation is to review the materials being proposed for use at the above referenced solar project for **Terracon** in order to determine their requirements for a 40-year expected life. This analysis will include below grade recommendations as follows:

Below Grade

- Determine the rate of corrosion for bare steel support piles (i.e. H-pile configuration)
- Determine the rate of corrosion for hot dipped galvanizing
- Provide recommendations for hot dipped galvanized piles as appropriate
- Provide recommendations for epoxy coated piles as appropriate

Above Grade

• Determine the rate of corrosion on hot dipped galvanized support structures

PROJECT BACKGROUND

The proposed Rancho Viejo Solar Project is located in Santa Fe, New Mexico.

Soil chemical data was extracted from the following report: Terracon Geotechnical Engineering Report, Rancho Viejo Solar Development, Project #66225093. This site has soils which have been reported in the geotechnical report as having the following electrical characteristics:

Chemical Analysis	Range of Results	Corrosion Classification
Electrical Resistivity (In-Situ)	4,240 – 40,630 ohm-cm	Moderately to Progressively Less Corrosive
Minimum Resistivity (Laboratory)	1,273 – 6,700 ohm-cm	Corrosive to Moderately Corrosive
рН	6.35 – 8.35	Mildly to non-corrosive
Chloride	37 - 155 mg/kg	Non-Corrosive to Moderately Corrosive
Sulfate	24 - 133 mg/kg	Non-Corrosive

TABLE 1: Soil Chemical Analysis

In-Situ Soil Resistivity Analysis

Corrosion of a metal is an electro-chemical process and is accompanied by the flow of electric current. Resistivity is a measure of the ability of a soil to conduct an electric current and is, therefore, an important parameter in consideration of corrosion data. Soil resistivity is primarily dependent upon the chemical content and moisture content of the soil mass.

The greater the amount of chemical constituents present in the soil, the lower the resistivity will be. As moisture content increases, resistivity decreases until maximum solubility of dissolved chemicals is attained. Beyond this point, an increase in moisture content results in dilution of the chemical concentration and resistivity increases. The corrosion rate of steel in soil normally increases as resistivity decreases. Therefore, in any particular group of soils, maximum corrosion will generally occur in the lowest resistivity areas. The following classification of soil corrosivity, developed by William J. Ellis¹, is used for the analysis of the soil data for the project site.

Resistivity (Ohm-cm)	Corrosivity Classification
0 – 500	Severely Corrosive
501 – 2,000	Corrosive
2,001 – 8,000	Moderately Corrosive
8,001 – 32,000	Mildly Corrosive
> 32,000	Progressively Less Corrosive

DISCUSSION

Corrosion is defined by the National Association of Corrosion Engineers (NACE) as the degradation of a material or its properties due to a reaction with its environment. Corrosion of a metal is an electro-chemical process which is accompanied by the flow of electric current. When steel is buried in soil, the soil is the electrolyte for this electro-chemical process. Resistivity of the soil is a measure of the ability of that soil to conduct an electric current and is, therefore, an important parameter in consideration of corrosion data. Soil resistivity is primarily dependent upon the chemical content and moisture content of the soil mass. The greater the amount of chemical constituents present in the soil, the lower the resistivity will be. Also, the moisture content in the soil is critical to the resistivity due to the fact that as moisture content increases, resistivity will decrease until maximum solubility of dissolved chemicals is attained.



Corrosion is usually not caused by a single factor, but is typically the result of numerous factors influencing the metal in question and oftentimes the factors affecting the rate of corrosion may not remain constant with time. It is, therefore, difficult to accurately predict the corrosion rate in soil.

The rates of corrosion for both the galvanizing and the bare carbon steel were determined based on the following:

- "Corrosion of Galvanized Steel in Soils" by Irving A Denison and Melvin Lauderdale Romanoff, Journal of Research of the National Bureau of Standards, Vo. 49, No. 5, November 1952.
- "Corrosion Resistance of Zinc & Zinc Alloys" by Frank C. Porter ISBN 0-8247-9213-0 1994
- "Corrosion Guidelines", Version 2.0, November 2012, by California Department of Transportation.
- "Hot-Dip Galvanizing, In Soil", by American Galvanizers Association, 2011

Service Life of Galvanized Steel

There are countless soil types in the world, which makes predicting the performance of galvanized steel in soil difficult. A number of soil characteristics affect the corrosion rate of galvanized steel, and soil content conditions can vary significantly. These variances can lead to vastly different corrosion rates for zinc, ranging from 0.2 microns per year in very favorable conditions to 20 microns annually in very aggressive soils. Therefore, the key to understanding how long galvanized steel will last in buried applications is through classification of the soil.

As a general rule of thumb, galvanizing tends to perform well in brown, sandy soils, and not very well in gray, clay-like soils. The reason for this difference is sandy soils with larger particles wick moisture more rapidly, limiting the galvanized piece's exposure to wet conditions, while clay-like soils hold moisture for longer periods. Similar to atmospheric exposure, galvanized steel performs best when it is relatively dry.

The four variables with the most profound impact on the corrosion rate of hot-dip galvanized steel in soil include chloride concentration, moisture content, pH, and resistivity. The presence of chloride ions causes resistivity to be lower, making the zinc coating more susceptible to corrosion. Along with high moisture levels in the soil, high chlorides will increase the rate of the corrosion of the zinc coating. For hot-dip galvanized steel, the soil moisture content primarily affects the activity of the chloride ions. If the moisture content of the soil is below 17.5%, the chloride ion concentration does not significantly affect the corrosion rate of the zinc. For soils with moisture content above 17.5%, the chloride ion concentration does not significant effect on the corrosion rate of zinc. Soils with pH values less than 7.0 have a higher corrosion rate on zinc coating. If the pH of the soil is above 7.0, then the corrosion rate of the soil yields a longer service life of the zinc coating. The resistivity parameter follows the chloride ion concentration in that higher resistivity often means lower chloride ion content and a lower corrosion rate of the zinc coating.



Corrosion Rate for Zinc (Galvanizing)

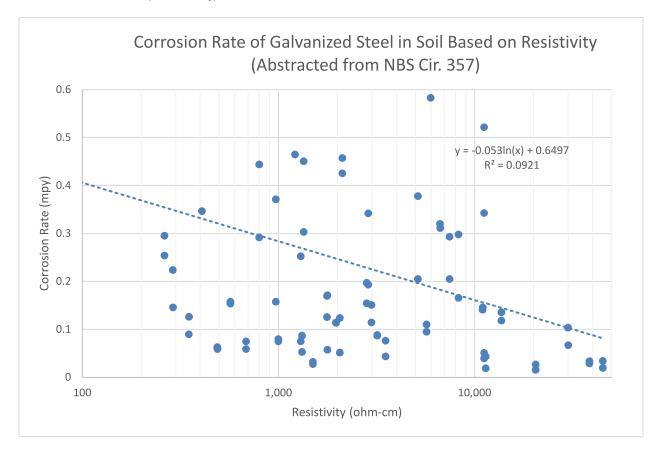


Figure 2 - Zinc loss vs. resistivity (abstracted from NBS Cir. 579, Romanoff)

The plot above indicates that for a soil of resistivity value of 4,240 ohm-cm (the lowest in-situ resistivity encountered) the corrosion rate will be roughly 0.21 mpy for the soil conditions. Accounting for any uncertainties in data, the addition of a 90% confidence interval applied brings the corrosion rate up to 0.25 mpy. This translates to a life of the hot dipped galvanized coating that meets ASTM A123 of approximately 3.5 mils, of approximately 13.9 years for the soil conditions. It is our professional opinion that this chart provides a relatively accurate representation of the annual average corrosion rate for HDG at the site, due to the resistivity levels found.



Corrosion Rate for Steel

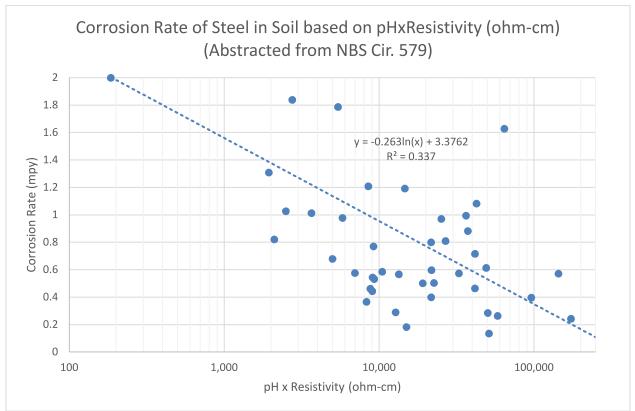


Figure 3 – Carbon Steel loss as a function of pH times resistivity (abstracted from NBS Cir. 579, Romanoff)

The plot above indicates that for a soil with a pH value of 6.35 (the lowest pH encountered), and a resistivity of 4,240 ohm-cm (the lowest in-situ resistivity), the corrosion rate will be approximately 0.69 mpy for the soil conditions based upon a pH*Resistivity = 26,924. Accounting for any uncertainties in data the addition of a 90% confidence interval applied bring the corrosion rate up to 0.84 mpy. It is our professional opinion that this is an accurate average annual corrosion rate for the 35-year design life of the site coupled with the fact that the site receives roughly 14 inches of rain per year along with the predominately moderate resistivity and neutral pH levels.

Summary of Corrosion Rates

Therefore, based on the afore-mentioned references, our review of the geotechnical reports for this site and our experience in studying piles in similar situations, the corrosion rates for these soils are determined to be as follows:

Summary of Corrosion Rates:

Steel: 0.84 mpy (mils per year) Zinc: 0.25 mpy



STRATEGIES FOR 25-YEAR DESIGN LIFE

Option 1: Hot Dipped Galvanized Piles with Corrosion Allowance.

3.0 mils of HDG

Utilize a hot-dipped galvanized steel pile with hot dipped galvanized coating, of 3.0 mils, that meets ASTM A123. The zinc coating will provide an approximate 11.9-year life based on a corrosion rate of 0.25 mpy. This means that for a 25-year design life, 13.1 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 13.1 years is needed for the piles: 13.1 yrs x 0.84 mpy = 11.00 mils per side. Thus, the piles will need a total of 22.0 mils of corrosion allowance, along with the 3.0 mils of HDG.

3.9 mils of HDG

Therefore, because a HDG coating of 3.9 mils will last 15.5 years, a corrosion allowance of 9.5 years would be needed. 9.5 yrs x 0.84 mpy = 7.98 mils per side. Thus, the piles would need a total of 16.0 mils of corrosion allowance, along with 3.9 mils of HDG.

5.0 mils of HDG

Therefore, because a HDG coating of 5.0 mils will last 19.8 years, a corrosion allowance of 5.2 years would be needed. 5.2 yrs x 0.84 mpy = 4.4 mils per side. Thus, the piles would need a total of 8.7 mils of corrosion allowance, along with 5.0 mils of HDG.

Option 2: Ungalvanized piles with Corrosion Allowance.

Utilize an ungalvanized steel pile, this means that for a 25-year design life, 25 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 25 years is needed for the piles: 25 yrs x 0.84 mpy = 21 mils per side. Thus, the piles will need a total of 42 mils of corrosion allowance.

Option 3: Epoxy Coating

Coat the entire piles with a tough, durable and scratch resistant epoxy system such as 3M Scotchkote Abrasion Resistant Epoxy Costing 328 or a similarly tough polyurethane system such as Polyclad 777 by Carboline or other similar type of system. The coating shall be applied in a thickness of approximately 25-mils and extended at least 6" above grade to the bottom of the pile.

STRATEGIES FOR 35-YEAR DESIGN LIFE

Option 1: Hot Dipped Galvanized Piles with Corrosion Allowance.

3.0 mils of HDG

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Utilize a hot-dipped galvanized steel pile with hot dipped galvanized coating, of 3.0 mils, that meets ASTM A123. The zinc coating will provide an approximate 11.9-year life based on a corrosion rate of 0.25 mpy. This means that for a 35-year design life, 23.1 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 23.1 years is needed for the piles: 23.1 yrs x 0.84 mpy = 19.40 mils per side. Thus, the piles will need a total of 38.8 mils of corrosion allowance, along with the 3.0 mils of HDG.



3.9 mils of HDG

Therefore, because a HDG coating of 3.9 mils will last 15.5 years, a corrosion allowance of 19.5 years would be needed. 19.5 yrs x 0.84 mpy = 16.38 mils per side. Thus, the piles would need a total of 32.8 mils of corrosion allowance, along with 3.9 mils of HDG.

5.0 mils of HDG

Therefore, because a HDG coating of 5.0 mils will last 19.8 years, a corrosion allowance of 15.2 years would be needed. 15.2 yrs x 0.84 mpy = 12.77 mils per side. Thus, the piles would need a total of 25.5 mils of corrosion allowance, along with 5.0 mils of HDG.

Option 2: Ungalvanized piles with Corrosion Allowance.

Utilize an ungalvanized steel pile, this means that for a 35-year design life, 35 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 35 years is needed for the piles: 35 yrs x 0.84 mpy = 29.4 mils per side. Thus, the piles will need a total of 58.8 mils of corrosion allowance.

Option 3: Epoxy Coating

Coat the entire piles with a tough, durable and scratch resistant epoxy system such as 3M Scotchkote Abrasion Resistant Epoxy Costing 328 or a similarly tough polyurethane system such as Polyclad 777 by Carboline or other similar type of system. The coating shall be applied in a thickness of approximately 35-mils and extended at least 6" above grade to the bottom of the pile.

Abrasion Resistance

The epoxy coating system is an abrasion resistant coating and as such will tend to minimize the amount of damage to the coating during the pile driving operations. The Hot Dip Galvanizing, however, is not an abrasion resistant coating and some degree of scraping was anticipated and will penetrate these coatings during the pile driving operations based on the geotechnical reports and this has been taken into account in our analysis and recommendations.

It should be understood that isolated scrapes and penetrations through both the, epoxy and HDG, coatings is anticipated and is not considered to be detrimental to the overall structural integrity of the piles during the desired design life. It is the overall section modulus of the piles that give them the strength to resist the design loads on the system and as such it is the overall loss of cross-sectional area that is of concern.



Concrete

Corrosion of the reinforcing steel and other embedded metals is the leading cause of deterioration in concrete. When steel corrodes, the resulting rust occupies a greater volume than the steel. This expansion creates tensile stresses in the concrete, which can eventually cause cracking, delamination, and spalling. Although steel's natural tendency is to undergo corrosion, the alkaline environment of concrete (pH of 12 to 13) provides the steel with a level of corrosion protection in the form of a thin oxide layer which passivates the steel. Carbonation occurs when carbon dioxide penetrates the concrete and reacts with hydroxides to form carbonates. This reaction reduces the pH of the concrete to as low as 8.5, which then the passive film on the steel is no longer stable, thus allowing the steel to begin corroding.

With regards to the corrosion potential to concrete at the site, ACI-318 categorizes the site as a S0 due to the noncorrosive Sulfate levels. However, due to the moderate resistivity we recommend 3" of cover for the reinforcing steel, and a good concrete mix design such as, a type II or MS cement, with a water to cement ratio of 0.50 or less with 4,000 psi.

ATMOSPHERIC CORROSION

The purpose of this evaluation is to analyze the atmospheric corrosion potential to the metallic system components resulting from the environmental factors outlined in this report and to determine the life expectancy of these components based on the corrosion potential.

Atmospheric corrosion of metals and alloys at any particular site depends on the environmental conditions, namely the moisture present (time of wetness) and the pollutants in the atmosphere (mainly sulfur dioxide in the marine-industrial sites and airborne salts along coastline regions).

Atmospheric data for this site was collected from the Santa Fe Municipal Airport Weather Station.

Atmospheres are classified according to ISO (International Standards Organization) in ISO 9223:



Corrosivity	Corrosivity	Typical environments – Examples from	ISO 9223
category		Indoor	Outdoor
C1	Very low	Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums	Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica
C2	Low	Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls	Temperate zone, atmospheric environment with low pollution (SO ₂ < 5 µg/m ³), e.g. rural areas, small towns Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas
C3	Medium	Spaces with moderate frequency of condensation and moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies	Temperate zone, atmospheric environment with medium pollution (SO_2 : 5 µg/m ³ to 30 µg/m ³) or some effect of chlorides, e.g. urban areas, coastal areas with low deposition of chlorides Subtropical and tropical zone, atmosphere with low pollution
C4	High	Spaces with high frequency of condensation and high pollution from production process, e.g. industrial processing plants, swimming pools	Temperate zone, atmospheric environment with high pollution (SO ₂ : 30 μ g/m ³ to 90 μ g/m ³) or substantial effect of chlorides, e.g. polluted urban areas, industrial areas, coastal areas without spray of salt water or, exposure to strong effect of de-icing salts Subtropical and tropical zone, atmosphere with medium pollution
C5	Very high	Spaces with very high frequency of condensation and/or with high pollution from production process, e.g. mines, caverns for industrial purposes, unventilated sheds in subtropical and tropical zones	Temperate and subtropical zone, atmospheric environment with very high pollution (SO ₂ : 90 μg/m ³ to 250 μg/m ³) and/or significant effect of chlorides, e.g. industrial areas, coastal areas, sheltered positions on coastline
сх	Extreme	Spaces with almost permanent condensation or extensive periods of exposure to extreme humidity effects and/or with high pollution from production process, e.g. unventilated sheds in humid tropical zones with penetration of outdoor pollution including airborne chlorides and corrosion-stimulating particulate matter	Subtropical and tropical zone (very high time of wetness), atmospheric environment with very high SO_2 pollution (higher than $250 \ \mu g/m^3$) including accompanying and production factors and/or strong effect of chlorides, e.g. extreme industrial areas, coastal and offshore areas, occasional contact with salt spray

Figure 1: Categories of Corrosivity of the Atmosphere

Corrosivity classifications are determined through two methods: measurement or estimation of time of wetness, sulfur dioxide and chloride deposition rates, or direct exposure testing of metal coupons.

Based on either of the two methods corrosivity categories of atmosphere and then corrosion rates of various metals of interest can be derived utilizing the ISO 9223 guidelines and thus assigned a corrosion category (Fig. 1).



Corrosivity	Comparativ	e corrosion rates for steel and zin	nc from ISO 9223
category	r _{corr}		
	Unit	Carbon steel	Zinc
C1	g/(m²⋅a)	$r_{corr} \le 10$	$r_{corr} \leq 0.7$
	µm/a	$r_{corr} \leq 1.3$	$r_{corr} \leq 0.1$
C2	g/(m²·a)	$10 < r_{corr} \le 200$	$0.7 < r_{corr} \le 5$
	μm/a	$1.3 < r_{corr} \le 25$	$0.1 < r_{corr} \le 0.7$
C3	g/(m²·a)	$200 < r_{corr} \le 400$	$5 < r_{corr} \le 15$
	μm/a	$25 < r_{corr} \le 50$	$0.7 < r_{corr} \le 2.1$
C4	g/(m²·a)	$400 < r_{corr} \le 650$	$15 < r_{corr} \le 30$
	µm/a	$50 < r_{corr} \le 80$	$2.1 < r_{corr} \le 4.2$
C5	g/(m²·a)	$650 < r_{corr} \le 1,500$	$30 < r_{corr} \le 60$
	μm/a	$80 < r_{corr} \le 200$	$4.2 < r_{corr} \le 8.4$
СХ	g/(m²∙a)	$1,500 < r_{corr} \le 5,500$	$60 < r_{corr} \le 180$
	µm/a	$200 < r_{corr} \le 700$	$8.4 < r_{corr} \le 25$

Figure 2: Comparative Corrosion Rates for Steel and Zinc

Time of Wetness

Atmospheric corrosion in normal temperatures is directly proportional to the amount of time that moisture is present on the subject metal. It is, therefore, important that all parts be designed so as not to retain any moisture as much as possible. The time of wetness may be estimated from the following guidelines based on the location of the subject metal and the environmental conditions such as temperature and relative humidity. Time of wetness is defined as the number of hours per year where the relative humidity is above 80% while the ambient temperature is above 0°C. The ISO 9223 ratings for time of wetness are as follows:

- o T1: <10 hours/year (Indoor climate with climate control)
- T₂: 10-250 hours/year (Indoor without climate control)
- T₃: 250-2500 hours/year (Outdoor dry or cold climate)
- T₄: 2500-5500 hours/year (Outdoor atmospheres in all climate)
- T₅: >5500 hours/year (Damp climates, humid conditions)

Based on the information available from the Rancho Viejo site, due to the average temperature of 11.62°C, and average annual humidity of 47.82%, time of wetness is considered to be as T_{3} .



Sulfur Dioxide in the Air

Sulfur dioxide is the most corrosive pollutant to zinc in the air. Sulfur dioxide is a pollutant product largely introduced through industrial manufacturing and fossil fuel combustion during large scale energy production, and thus is higher in concentration in regions where such processes occur. The following are typical deposition rates for rural, urban, and industrial atmospheres:

- \circ Rural Atmosphere: 2 15 µg/m³
- Urban atmosphere: 5 100 μg/m³
- o Industrial Atmosphere: 50 300 μg/m³

The ISO 9223 ratings for sulfur dioxide deposition are as follows:

- \circ P₀: <5 mg/ m² x day (Rural atmosphere)
- \circ P₁: 5 30 mg/ m² x day (Urban atmosphere)
- \circ P₂: 30 90 µg/m³ (Industrial atmosphere)
- \circ P₃: 90 250 µg/m³ (Highly polluted industrial atmosphere)

Based on the location of the Rancho Viejo site, sulfur dioxide deposition is considered to be as P₀ as the site can be considered a Rural atmosphere due to its proximity to Albuquerque, NM.

Chlorides in the Air

Deposited chlorides on zinc surfaces contribute to corrosion by easily penetrating the passive oxide film by reacting with the normally protective zinc corrosion products to form soluble zinc chlorides. When the chlorides are washed away, fresh zinc is exposed, and the normal process of passivation through oxidation is prevented. For this reason, in regions along the coastline where the major pollutants in the air are chlorides, corrosion rates can be high. Rates decrease with distance from the sea coast as salt content in the air drops significantly. In general, at a distance of 0.6 miles from the shoreline, the corrosion rate of zinc is comparable to that measured inland. The ISO 9223 ratings for chloride deposition are as follows:

- \circ S₀: <3 mg/ m² x day
- S₁: 3-60 mg/ m² x day
- S₂: 60-300 mg/ m² x day
- S₃: 300-1500 mg/ m² x day

Based on the information available from the Rancho Viejo site, chloride deposition is considered to be classified as S_0 due to its remote proximity to a source of chlorides, over 100 miles.

Atmospheric Corrosivity Characterization

Ratings for time of wetness, sulfur dioxide and chloride deposition are then used to determine the corrosivity classifications of C1 through C5 of a specific area, based on the Table 4.

Time of wetness = $T_{3.}$ Sulfur dioxide deposition = $P_{0.}$ Chloride deposition = $S_{0.}$



Table 4: Corrosivity Classifications - Based on Time of Wetness (Tx), Sulfur (Px) and Chloride (Sx) Deposition Rates

	Corrosic	on rate				Tir	ne of	wetne	ess ¹⁾ (expre	ssed i	n hou	irs wh	ere F	RH > 8	30 %,	$\theta > 0$	°C (ł	n/a)			
Corrosivity category	r_{corr} (1st year) ²⁾ g/(m ² ·a)	^r lin (steady state) ³⁾ µm/a	Ine	(clas doors,	< 10 ss τ ₁) , clima ntrol	atic		(clas Indoo	≤ 25 is τ_2) rs, no	5	0	(clas	$\langle \tau \leqslant 2 500$ $2 500 \langle \tau \leqslant 5 500$ $\tau > 5 500$ class τ_3) (class τ_4) (class τ_5) oors in dry, Outdoors in Outdoors in di dilimates, temperate climates; hum					amp				
C 1 C 2 C 3 C 4 C 5	$\begin{array}{l} r_{\rm corr} \leqslant 10 \\ 10 < r_{\rm corr} \leqslant 200 \\ 200 < r_{\rm corr} \leqslant 400 \\ 400 < r_{\rm corr} \leqslant 650 \\ 650 < r_{\rm corr} \leqslant 1 500 \end{array}$	$\begin{array}{c} r_{\rm lin} \leqslant 0,1 \\ 0,1 < r_{\rm lin} \leqslant 1,5 \\ 1,5 < r_{\rm lin} \leqslant 6 \\ 6 < r_{\rm lin} \leqslant 20 \\ 20 < r_{\rm lin} \leqslant 90 \end{array}$		001				cept	in dar ates			tilateo temp	d shed erate ates		i ven	clim entila n tem clim tilateo	ates, ted sh iperati ates, d shec climate	neds e ts in		unver	eds	
	L	L		Chie	ride d		me sa			2.d)	1								1			
Industrial	pollution ⁵⁾ by sulfur d	ioxide (SO ₂)	Sg	S ₁	S ₂	S ₃	So	S1	S2	S ₃	S ₀	S ₁	S ₂	S3	Sg	S ₁	S ₂	S3	S ₀	S ₁	S2	S
Concentration	Category	Deposition rate			0	500			0	500			0	500			0	500			0	500
µg/m ³		mg/(m ^{2.} d)	S ≰ 3	3 < 5 ≤ 60	$60 < S \leq 300$	300 < 5 ≤ 1	S ≰ 3	3 < 5 ≤ 60	$60 < S \leq 300$	300 < 5 ≤ 1	S ≰ 3	3 < 5 ≤ 60	$60 < S \leq 300$	$300 < S \le 1$	5 ≤ 3	$3 < S \le 60$	$60 < S \le 300$	300 < 5 ≤ 1	S ≰ 3	3 < S ≤ 60	$60 < S \leq 300$	300 < 5 ≤ 1
$P_{\rm c} \leqslant 12$	Po	$P_{\rm d} \leqslant 10$	1	1	1	1 or		1	2	3 or	20	or 3	3 or	4		3	4	5	30	or 4	5	
$12 < P_{\rm c} \leq 40$	P ₁	$10 < P_{\rm d} \leq 35$				2			-	4	C		4			-						
$40 < P_{c} \leq 90$	P ₂	$35 < P_{d} \leq 80$		1	1	1 or 2	1 c	or 2	2 or 3	3 or 4	3 0	or 4	3 or 4	4 or 5		4	4	5	4 0	or 5	5	5
90 < P _c ≤ 250	P ₃	50 < P _d ≤ 200	1 0	or 2	1 or 2	2		2	3	4		4	4 or 5	5		5	5	5		5	5	
	ivity is expressed as t				or 2								or 5					5		5	5	-
 See table 1. See table 5. 																						
4) See table 3.	24 (steady state corros	sion rate derived fri		ng-ter	n an	iosph	eric e	xpost	ne).													
5) See table 2.)							672												_		

Based on the corrosivity category rating of C2, ISO 9224 provides the following corrosion rates for various metals, in Table 5 below:

Table 5: Guiding Corrosion Values for Corrosivity Categories

		•		-	Values in mic	rometres per year
Matal	Average cor	rosion rate, r _{av} , d	uring the first 10	years for the fol	lowing corrosivit	y categories
Metal	C1	C2	C3	C4	C5	СХ
Carbon steel	$r_{\rm av} \le 0.4$	$0,4 < r_{av} \le 8,3$	$8,3 < r_{av} \le 17$	$17 < r_{av} \le 27$	$27 < r_{av} \le 67$	$67 < r_{av} \le 233$
Zinc	$r_{\rm av} \le 0.07$	$0,07 < r_{av} \le 0,5$	$0,5 < r_{av} \le 1,4$	$1,4 < r_{av} \le 2,7$	$2,7 < r_{av} \le 5,5$	$5,5 < r_{av} \le 16$
Copper	$r_{\rm av} \le 0.05$	$0,05 < r_{av} \le 0,3$	$0,3 < r_{\rm av} \le 0,6$	$0,6 < r_{av} \le 1,3$	$1,3 < r_{av} \le 2,6$	$2,6 < r_{av} \le 4,6$
Metal	St	eady-state corros during the first	sion rate, $\eta_{ m in}$, esti 30 years for the	mated as the ave following corros	rage corrosion r ivity categories	ate
	C1	C2	C3	C4	C5	CX
Carbon steel	$r_{\rm lin} \le 0.3$	$0,3 < r_{lin} \le 4,9$	$4,9 < r_{lin} \le 10$	$10 < r_{lin} \le 16$	$16 < r_{\text{lin}} \le 39$	$39 < r_{\rm lin} \le 138$
Carbon steel Zinc	$r_{\text{lin}} \le 0.3$ $r_{\text{lin}} \le 0.05$	$0.3 < r_{lin} \le 4.9$ $0.05 < r_{lin} \le 0.4$	$4,9 < r_{lin} \le 10$ $0,4 < r_{lin} \le 1,1$			20.00



As the ISO standard determines that the corrosion category is C2. This is further evidence by the ISO Corrosivity Category Estimation Tool (ICCET) developed as part of the Environmental Severity Classification Study, conducted by the Department of Defense. Using their online tool, the site is confirmed to be a C2 environment as seen below.

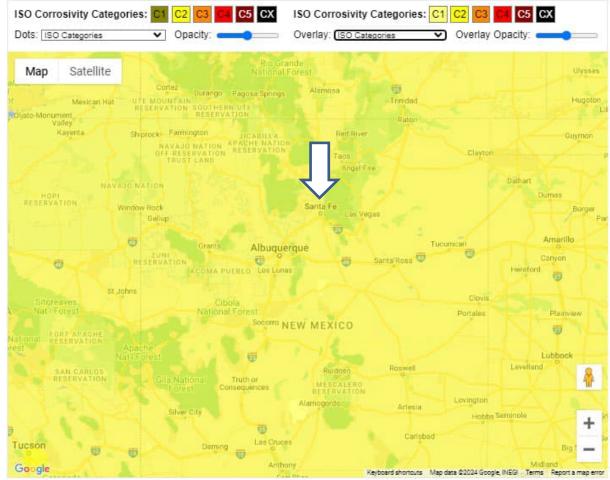


Figure 1 - ICCET Corrosion Categorization

Therefore, based on the above along with our professional experience, ISO 9223 and the ICCET, it is our opinion that the atmospheric corrosion rate for the Rancho Viejo Solar site is a C2.

Table 8: Atmospheric Corrosion Rates for a C2 Environments 30-year steady-state

Metal	Expected Steady State Corrosion Rates (micrometer per year)	Expected Steady State Corrosion Rates (mils per year)
Carbon Steel	4.9	0.19
Zinc	0.4	0.016
Copper	0.2	0.008



CONCLUSION

- 1. The corrosion rate for zinc in soil is determined to be 0.25 mils per year at this site.
- 2. The corrosion rate for steel in soil is determined to be 0.84 mil per year at this site.
- 3. For a 25- year design life
 - a. The utilization of hot dipped galvanized piles with a coating thickness of 3.0 mils, that meets ASTM A123, along with a total corrosion allowance of 22.0 mils is suitable to meet the desired 25-year design life for this site.
 - b. The utilization of hot dipped galvanized piles with a coating thickness of 3.9 mils, that meets ASTM A123, along with a total corrosion allowance of 16.0 mils is suitable to meet the desired 25-year design life for this site.
 - c. The utilization of hot dipped galvanized piles with a coating thickness of 5.0 mils, that meets ASTM A123, along with a total corrosion allowance of 8.7 mils is suitable to meet the desired 25-year design life for this site.
 - d. The utilization of an ungalvanized steel pile with a total corrosion allowance of 42 mils is suitable to meet the desired 25-year design life for this site.
- 4. For a 35- year design life
 - a. The utilization of hot dipped galvanized piles with a coating thickness of 3.0 mils, that meets ASTM A123, along with a total corrosion allowance of 38.8 mils is suitable to meet the desired 35-year design life for this site.
 - b. The utilization of hot dipped galvanized piles with a coating thickness of 3.9 mils, that meets ASTM A123, along with a total corrosion allowance of 32.8 mils is suitable to meet the desired 35-year design life for this site.
 - c. The utilization of hot dipped galvanized piles with a coating thickness of 5.0 mils, that meets ASTM A123, along with a total corrosion allowance of 25.5 mils is suitable to meet the desired 35-year design life for this site.
 - d. The utilization of an ungalvanized steel pile with a total corrosion allowance of 58.8 mils is suitable to meet the desired 35-year design life for this site.
- 5. With regards to the corrosion potential to concrete at the site, due to the moderate resistivity we recommend 3" of cover for the reinforcing steel, and a good concrete mix design such as, a type II or MS cement, with a water to cement ratio of 0.50 or less with 4,000 psi.
- 6. The atmospheric corrosion category for the Rancho Viejo Solar site is C2.



LIMITATIONS

The conclusions and recommendations contained in this report reflect the opinion of the author of this report and are based on the information and assumptions referenced herein, this report does not take grounding of the piles into consideration. All services provided herein were performed by persons who are experienced and skilled in providing these types of services and in accordance with the standards of workmanship in this profession. No other warrantees or guarantees either expressed or implied are provided.

We thank you for the opportunity to be of assistance on this important project. If you have any questions concerning this report or the analysis provided herein, please feel free to contact us at (925) 927-6630.

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