Wild Grains Solar Project

Exhibit C

Geotechnical Report

Part 1 of 3

Case No. 21-0823-EL-BGN

Design Level Geotechnical Engineering Report

Wild Grains Solar

Van Wert, Van Wert County, Ohio

October 12, 2021

Terracon Project No. N4215167

Prepared for:

Avangrid Renewables
Portland, Oregon

Prepared by:

Terracon Consultants, Inc.
Columbus, Ohio

October 12, 2021

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 97209

Attn: Mr. Mark Mullen
P: (503) 505 1206
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Re: Design Level Geotechnical Engineering Report
Wild Grains Solar
Van Wert, Van Wert County, Ohio
Terracon Project No. N4215167

Dear Mr. Mullen:

We have completed the Design Level Geotechnical Engineering services for the above-referenced project. This study was performed in general accordance with Terracon Proposal No. P82205099 December 18, 2020 and our Task Order dated May 19, 2021 as part of the master services agreement dated February 3, 2005. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning the design and construction of solar panel and substation equipment foundations as well as access roads for the proposed project.

We appreciate the opportunity 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 Consultants, Inc.

Rohit Singh
Senior Staff Geotechnical Engineer

Yogesh S. Rege, P.E.
Senior Principal, Department Manager

SME Review by Brice W. Plouse, PE (OR)

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

Design Level Geotechnical Engineering Report

Wild Grains Solar

Van Wert, Van Wert County, Ohio

Terracon Project No. N4215167

October 12, 2021

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed solar facility to be located in Van Wert, Van Wert County, Ohio. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil and rock conditions
- Groundwater conditions
- Site preparation and earthwork
- Electrical Earth Resistivity
- Excavation considerations
- Foundation design and construction
- Seismic site class per IBC
- Pile embedment analysis

The scope of services performed as part of this study are shown in the following table:

Type of Exploration / Test	Number
SPT Borings (B-21-1 and B-21-42, B-21-43 (SUB), and B-21-44 (SUB))	44
Field Electrical Resistivity Test Locations – Array field	21
Field Electrical Resistivity Test Locations – Substation field	1
Thermal Resistivity Test Locations	12
Corrosion Testing Locations	22
Axial Tension Pile Load Tests	21
Axial Compression Pile Load Tests	11
Lateral Pile Load Tests	21

Maps showing the site location, exploration and test locations, topography, geology, NRCS soil map units, depth to bedrock, depth to groundwater, concrete corrosion risk and steel corrosion risk, are included in the **Site Location and Exploration Plan** section 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 as individual graphs and tables in the **Exploration Results** section of this report.

The **General Comments** section provides an understanding of the report limitations.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located north of Van Wert, Van Wert County, Ohio. The property size is approximately 2,666 acres, with an approximate array area of about 1,050 acres. Approximate coordinates: 40.9309° N, 84.5626° W
Existing Improvements	Appears undeveloped, currently used for agricultural activities.
Current Ground Cover	The majority of the solar array locations and the substation location are covered with crops with sparse wooded areas.
Existing Topography	Based on topographic information obtained from Google Earth™, the ground surface along the project areas appear to be relatively flat with an overall relief to the northwest. The ground surface elevations across the sites range from about 745 to 760 feet.

PROJECT DESCRIPTION

Item	Description
Information Provided	Avangrid provided us access to multiple documents from their FTP site, included but not limited to: .SHP files of wetland areas, access points, property boundaries and pdf of Conceptual Site Plan.
Project Description	The subject development is a proposed 150 MWac photovoltaic electric power plant with planned substation according to provided information.
Proposed Structures	It is our understanding that Avangrid intends to develop the site as a photovoltaic (PV) electric power plant. Ultimately, the power plant will consist of solar panels installed on steel W-section pile foundations and various other equipment and appurtenances associated with the power plant (e.g. switchgear, transformers, inverters, and overhead and underground electrical conveyance) which will be supported on shallow spread footings, mat foundations/equipment slabs, and drilled shaft foundations.
Finished Grade Elevation	Not provided, however, we anticipate finished grades will be within about +/- 2 feet of the existing grades.

Item	Description
Maximum Loads (Estimated by Terracon)	Structural loads were not provided, but have been estimated based on our experience on projects using single axis tracking rack systems: ■ Downward: 1½ to 4 kips ■ Lateral 1 to 3½ kips ■ Uplift: 1½ kips exclusive of frost heave loads
Grading/Slopes	Up to 2 feet of cut and 2 feet of fill may be required to develop final grades in areas. Final slope angles no steeper than 3H:1V (Horizontal: Vertical) nor taller than 5 feet are anticipated.

GEOTECHNICAL CHARACTERIZATION

Geology

Based on the Ohio Department of Natural Resources (ODNR), Quaternary Geology of Ohio, the surficial geology at the project site consists of lake-planed moraine deposits. The lake-deposits can be characterized as clayey till which consists of small patches of sand, silt, or clay on the surface in many areas. Clayey till deposits are very flat and were planned by waves in glacial lakes.

Based on ODNR, Bedrock Geology of Ohio, the surficial geology at the project site consists of the Salina group formations. The Salina group formations include dolomite as the primary rocks and shale as secondary rock. The primary rock, dolomite is mostly laminated to thinly bedded and consists of laminae of dark gray shale and anhydrite or gypsum.

Based on ODNR, karst mapping, it was observed that the project site is located in a region in which the calcareous bedrock is susceptible to karst features. However, the nearest historic karst activity was observed to be about 50 miles southeast of the site. Additional investigation in form geophysical testing can be performed as a supplemental service to further assess the potential for karst activity at the site.

Subsurface Soil Conditions

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, geologic setting and our understanding of the project. The individual logs can be found in the **Exploration Results** section of this report.

Recently performed soil borings encountered topsoil at the surface extending to a depth range of about 4 to 6 inches below ground surface. The surficial topsoil layer was underlain by native cohesive soils which were in-turn underlain by dolomite bedrock in many of the borings. In boring B-21-6, underlying the topsoil, existing fill soils extending to about 2.5 feet below ground surface were encountered. Bedrock was not encountered in borings B-21-1, B-21-2, B-21-4, B-21-11, B-21-13 and B-21-14 and these borings were terminated within native cohesive soils. Intermittent native granular soil layers were encountered within the native cohesive soils in borings B-21-13, B-21-14, B-21-16, B-21-33, B-21-35 and B-21-36. Boring B-21-23 terminated within shale bedrock.

Native cohesive soils encountered in the borings included lean clay, silty clay and fat clay with varying proportions of sand and gravel sized constituents, and sandy lean clay, sandy silty clay and sandy fat clay with varying proportions of gravel sized constituents. The native cohesive soils encountered in the borings exhibited consistencies ranging from medium stiff to hard. The medium stiff soils encountered in the borings extended to depths ranging from about 2½ to 6½ feet below ground surface. Intermittently interbedded native granular soils consisted of clayey sand with varying proportions of gravel sized constituents. The native granular soils encountered in the borings exhibited loose to very dense relative densities. Boring B-21-35 encountered loose soils extending to about 4½ feet below ground surface.

Dolomite and shale bedrock were encountered in borings at depths ranging from 7 to 19½ feet below ground surface. The average depth of bedrock appeared to have been relatively deeper in borings B-21-1 through B-21-19 and B-21-43 and B-21-44 which were performed in the northwest portion of the site compared to borings B-21-20 through B-21-42 which were performed in the southeast portion of the site. Bedrock was encountered in the northwest portion of the site at depths ranging from about 14 to 19½ feet below ground surface. Whereas, bedrock in the southeast portion of the site was encountered at depths ranging from 7 to 17 feet below ground surface.

Conditions encountered at each of the explored boring locations are indicated on the individual boring logs. Details for each of the borings can be found in **Exploration Results**.

Groundwater

The boreholes were observed while drilling/sampling for the presence and level of groundwater. Groundwater levels observed in the borings are shown in **Exploration Results**. The depth to groundwater was encountered at depths ranging from about 6 to 18½ feet below existing ground surface. A summary of the groundwater depths is listed in the following table:

Boring - ID	Groundwater depth during exploration (feet)	Groundwater depth upon completion (feet)	Cave-in depth (feet)
B-21-1	No water encountered	No water encountered	4
B-21-2	No water encountered	No water encountered	--
B-21-3	No water encountered	No water encountered	7
B-21-4	No water encountered	No water encountered	6

Boring - ID	Groundwater depth during exploration (feet)	Groundwater depth upon completion (feet)	Cave-in depth (feet)
B-21-5	18.5	No water encountered	3
B-21-6	18.5	No water encountered	8
B-21-7	No water encountered	No water encountered	6
B-21-8	No water encountered	No water encountered	7
B-21-9	No water encountered	No water encountered	6
B-21-10	6.5	No water encountered	4
B-21-11	8.5	No water encountered	4
B-21-12	No water encountered	No water encountered	4
B-21-13	6.0	No water encountered	6
B-21-14	18.5	No water encountered	7
B-21-15	No water encountered	No water encountered	9
B-21-16	13.5	No water encountered	7
B-21-17	No water encountered	No water encountered	8
B-21-18	No water encountered	No water encountered	9
B-21-19	No water encountered	No water encountered	10
B-21-20	No water encountered	No water encountered	6
B-21-21	6.0	No water encountered	4
B-21-22	No water encountered	No water encountered	8
B-21-23	No water encountered	No water encountered	6
B-21-24	13.0	No water encountered	6
B-21-25	13.5	No water encountered	9
B-21-26	No water encountered	No water encountered	7
B-21-27	12.0	No water encountered	4
B-21-28	No water encountered	No water encountered	7
B-21-29	No water encountered	No water encountered	6
B-21-30	13.5	6.0	6
B-21-31	17.0	No water encountered	8
B-21-32	16.0	No water encountered	9
B-21-33	13.5	No water encountered	7
B-21-34	9.0	No water encountered	6
B-21-35	No water encountered	No water encountered	7
B-21-36	No water encountered	No water encountered	3
B-21-37	No water encountered	No water encountered	3
B-21-38	9.0	No water encountered	5
B-21-39	8.5	7.0	7
B-21-40	8.0	No water encountered	4
B-21-41	6.5	No water encountered	4
B-21-42	6.5	No water encountered	4

Boring - ID	Groundwater depth during exploration (feet)	Groundwater depth upon completion (feet)	Cave-in depth (feet)
B-21-43 (SUB)	18.5	16.0	16
B-21-44 (SUB)	18.5	12.0	16

As noted in the table above, groundwater was not encountered in a majority of the borings while drilling, or for the short duration that the borings were allowed to remain open. However, this does not necessarily mean these borings terminated above groundwater, or that the water levels summarized above are stable groundwater levels. Due to the low permeability of the soils encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole in these materials. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations, the amount of rainfall and runoff, and other factors not evident at the time the borings were performed. In addition, perched water can develop over or within cohesive materials. Therefore, groundwater levels during construction, and at other times in the life of the construction, may vary. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Seismic Considerations

The seismic design requirements for structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification 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 laboratory results, the site would be classified as a Seismic Site Class C. Subsurface explorations at this site were extended to a maximum depth of 30 feet. The site properties below the exploration 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.

Frost Heave Potential

Based on the provided information, the solar arrays for this project are anticipated to be supported by driven piles. The driven piles should be designed to resist design loads including compression, uplift, frost heave action and lateral forces. Due to the plastic, fine nature of the encountered soils at this site we consider them to be frost susceptible. The typical frost depth in this location for foundation design frost considerations is 36 inches. If frost action needs to be eliminated in critical areas, we recommend the use of non-frost susceptible (NFS) fill or structural slabs. Placement of NFS material in large areas may not be feasible; however, the following recommendations are provided to help reduce potential frost heave:

- Provide surface drainage away from the structures, and toward the site storm drainage system.
- Grade clayey subgrades so groundwater potentially perched in overlying more permeable subgrades, such as sand or aggregate base, slope toward a site drainage system.
- Place NFS fill as backfill beneath slabs and access roadways critical to the project.
- Place a 3 horizontal to 1 vertical (3H:1V) transition zone between NFS fill and other soils.

Thermal Resistivity Laboratory Testing

Thermal resistivity tests were performed on samples from 11 solar array locations and at the substation location. The thermal resistivity tests were performed on two recompacted bulk sample at 12 locations and one undisturbed sample at 11 locations. The bulk samples were collected just below the topsoil depth extending up to about 4 feet below ground surface. The undisturbed samples were collected using Shelby tubes extended at about 2½ to 4 feet below ground surface.

The thermal resistivity testing was conducted in general accordance with ASTM D5334 and IEEE 442 standards. The dry-out curves were developed from 12 bulk soil samples compacted to 85 percent and 95 percent of the maximum density determined in accordance with Standard Proctor criteria (ASTM D698) at the optimum moisture content and dried to 0 percent moisture while obtaining intermediate moisture contents to develop the dry-out curves. Eleven dry-out curves for undisturbed samples was also developed. The results of the thermal resistivity testing are presented in the **Exploration Results** appendix. The thermal resistivity obtained ranged from 67 to 119°C-cm/W for moist soils and from 146 to 267°C-cm/W for dry soils.

Corrosivity

Bulk samples for corrosion testing were obtained from 21 solar array locations and at the substation location. The bulk samples were collected just below the topsoil depth extending up to about 4 feet below ground surface. The samples were tested for pH, water soluble sulfate, sulfides, chlorides, total salts, Red-Ox potential, and electrical resistivity. The results of the corrosion analysis are presented in the **Exploration Results** appendix.

The degradation of concrete or cement grout can be caused by chemical agents in the soil that react with concrete to either dissolve the cement paste or precipitate larger compounds within the concrete, causing cracking and flaking. The concentration of water-soluble sulfates in the soils is a good indicator of the potential for chemical attack of concrete or cement grout. The American Concrete Institute (ACI) in their publication ACI Building Code Requirements for Structural Concrete (ACI 318-19) provides guidelines for this assessment. The results of the sulfate tests indicate “S0” and “S1” sulfate exposure class. Concrete in direct contact with soil should be designed in general accordance with Table 19.3.2.1 of ACI-318-19 for “S0” and “S1” sulfate exposure classes.

Concrete and the reinforcing steel within it are at risk of corrosion when exposed to water-soluble chloride in the soil. The project structural engineer should review this data to determine if remedial measures are necessary for the concrete reinforcing steel.

The corrosion susceptibility of ferrous metal from soil should be derived by a corrosion engineer. However, based on the generalized American Society for Testing and Materials (ASTM) and National Association of Corrosion Engineers (NACE) standards as compared to our laboratory corrosion series testing the corrosion susceptibility falls into the following brown highlighted ratings:

Soil Resistivity [1]	pH [2]	Redox Potential [3]
Very mildly corrosive	Low corrosion	Slight corrosion
Mildly corrosive	Moderate corrosion	Moderate corrosion
Moderately corrosive	High corrosion	Severe corrosion
Severely corrosive	Very High corrosion	
Extremely corrosive		

1. Based on the laboratory soil resistivity data the onsite soils have a range of moderately corrosive to severely corrosive.
2. Based on the laboratory pH results all of the onsite soils are considered moderately to highly corrosive.
3. Based on the laboratory redox potential results, the on-site soils are considered slightly corrosive.

Ferrous metal and concrete elements in contact with soil, whether part of a foundation or part of the supported structure, are subject to degradation due to corrosion or chemical attack. Therefore, buried ferrous metal and concrete elements should be designed to resist corrosion and degradation.

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 employed to determine the need for corrosion protection and to design appropriate protective measures, if required.

GEOTECHNICAL OVERVIEW

The site could be developed for the proposed construction of a solar photovoltaic (PV) facility based upon geotechnical conditions encountered at the site, provided that the findings and geotechnical engineering recommendations presented in this report are incorporated into project design and construction. It should be noted that the exploration locations and pile load tests were performed at large distances from each other, therefore actual conditions may vary from those encountered. The **General Comments** section provides an understanding of the report limitations.

CONTRIBUTORY RISK COMPONENTS

ITEM	DESCRIPTION
Soil Conditions	Topsoil thickness ranged from 4 to 6 inches in the borings, however due to prior usage of the site for agricultural purposes, it is possible that the previously tilled horizon would comprise of highly organic soils to deeper depths. This depth should be determined during the design level study by performing various test pits across the site. The subsurface profile based on the SPT borings consists of native cohesive soils with consistencies from medium stiff to hard, and low to high plasticity with some occasional granular soils underlain by bedrock (dolomite and shale) in many of the borings.
Access	Wet and loose/soft surface conditions due to rainwater will create access issues for vehicles. The site will generally be more accessible in the summer and early fall due to the improved drying conditions. Access paths across drainages should be reinforced with geotextile or a thicker ballast/gravel section.
Grading	We anticipate very little grading will be required. On-site materials that are used as fill or backfill will likely require screening and wetting prior to re-compaction as engineered fill. Alternatively, these materials could be replaced with imported soils containing an appropriate moisture content. We expect localized areas of unsuitable conditions will be encountered prior to placing fill and within the subgrade for roadways and shallow foundations that are planned. Stabilization measures, such as undercutting/replacement or aerating (during dry weather) should be expected.
Groundwater	Groundwater was encountered during and at completion of drilling at depths ranging between about 6 to 18½ feet and 6 to 16 feet below existing surface, respectively. Based on our experience in the project area, groundwater levels could approach the surface at certain times during the year. Excavations, such as trenches for electrical cable and conduit, will likely encounter groundwater and require dewatering. Excavations for shallow foundations could also encounter groundwater, especially if construction is performed during periods of seasonally high groundwater. While precipitation is relatively constant throughout the year, groundwater levels are expected to be deepest during the late summer due to increased evaporation rates.
Site Drainage	The site is generally flat and appears to be poorly drained. Drainage tiles were likely installed to facilitate farming activities and site access. Filling the drainage ditches/swales or destruction of other site drainage systems (e.g., drainage tiles) will result in increased groundwater levels, softer soils, and generally undesirable subsurface conditions.
Corrosion Hazard [1]	Based on field resistivity data and laboratory testing for chemical properties, the site soils have moderate to high corrosive potential to buried metal per corrosion guideline from NACE and ASTM standards. The soils have a "S0" and "S1" classification for sulfate exposure according to ACI Design Manual. The results of our laboratory testing of soil chemical properties (provided in

ITEM	DESCRIPTION
	the attachment) are expected to assist a qualified engineer to design corrosion protection for the production piles and other project elements.
Excavation Hazards	Bedrock was encountered at this site at depths as shallow as 7 feet below the existing ground surface. Where excavations are extended into bedrock, rock removal techniques will vary. The borings encountered slightly weathered hard dolomite beneath thin layer of severely weathered dolomite. These types of rock formations generally cannot be penetrated with conventional excavation equipment and will require the use of other techniques such as jackhammers, rock splitters, pneumatic breakers, or blasting. It should be noted that the rock removal method is dependent on the type and size of the equipment used, the extent and depth of rock removal, the bedrock fracturing, hardness or quality of the bedrock, and the amount of effort expended, among other factors.
Karst Potential	According to ODNR mapping, the site is mapped within carbonate karst that contains carbonate rocks at or near land surface. Therefore, karst anomalies such as surface depressions, voids, sinkholes, caves and subsurface drainage may develop due to dissolution and erosion of carbonate rocks, affecting the proposed development. Test borings do not suggest any obvious signs of anomalies at the subsurface for the explored depths at each test borings, however variable top of bedrock depth typical of karst topography was observed. It should be noted that construction activities may increase sinkhole development concerns due to removal of ground cover during grading, modifications to existing drainage paths for the surface / sub-surface water, and other factors. A combination of Karst Assessment Survey and site reconnaissance could be performed to further evaluate the possible concern of karst, upon request, at an additional fee.
Thermal Resistivity Properties	The thermal resistivity of the materials ranged from about 67 to 119 (^{o}C*cm/watt) at moist conditions to 146 to 267 (^{o}C*cm/watt) at dry conditions.
Anticipated Pile Drivability	The bedrock in the southeastern section of the site was observed to be relatively shallow compared to the northwestern section. Bedrock depth appeared to vary from 7 to 17 feet below ground surface in the southeastern section of the site. Therefore, in some areas where the piles are to be driven into bedrock, predrilling will be needed prior to pile installation.
General Construction Considerations	The near-surface soils are moderately to severely moisture sensitive and subject to degradation with exposure to moisture. To the extent practical, earthwork should be performed during warmer and drier periods of weather to reduce the amount of necessary subgrade remedial measures for soft and unsuitable conditions beneath access roadways, equipment pads, etc. It is also important to note that it will be very difficult to dry the soils to moisture contents conducive for compaction if construction occurs during the wet periods of the year. Moderate to high plasticity clay soils were encountered in some of the borings drilled at the site. These soils have the potential for volume change (shrink-swell potential) due to fluctuation in soil moisture conditions. This report provides recommendations to help mitigate the effects of shrinkage and swell. However, even if these procedures are followed, some movement and cracking in the structures and pavements should be

ITEM	DESCRIPTION
	anticipated. The severity of cracking and other damage, such as uneven solar panels may increase if any modification of the site results in excessive wetting or drying of the shrink/swell prone soils. Wet surface conditions and ponding should be anticipated during construction during wet season. Therefore, it will be very important to not cut off the surface drainage characteristics of the site by construction of recessed gravel access roads. Additionally, the existing clay drainage tiles should be preserved to maintain the subsurface drainage and additional subsurface drainage measures installed. The gravel access roads should not be constructed below the existing grade and that positive drainage away from the gravel roadway subgrade soils should be maintained.

1. The soil properties that can significantly affect the aggressiveness of corrosion to buried metal structures include: pH, oxidation-reduction potential, sulfates, sulfides, total dissolved salts, chlorides, resistivity, and moisture content. These properties were measured, and the results are reported in the attachment. These test results are provided to assist the designers of corrosion protection for the project.

PILE LOAD TESTING (PLT) PROGRAM

Pile load tests were performed at forty-one locations across the site. The test piles consisted of wide flange W6x9 steel piles.

The test piles for twenty-one locations were installed to embedment depths of 5½ to 10 feet. The piles are identified in this report as text "PLT" followed by test number followed by letter "A" (piles embedded to depths ranging 5½ feet to 8 feet below existing ground surface) and "B" (piles embedded to depths ranging 8½ feet to 10 feet below existing ground surface) and "C" (piles embedded to depths ranging 7 feet to 8 feet below existing ground surface). All pile locations were pre-drilled to the depth of 2 feet prior to pile installations. The piles were tested for axial tension first and lateral load next.

The following table summarizes the pile test location, penetration depth, total pile length and type of test performed on the piles.

Test Location	PILE (A) (W 6X9)		PILE (B) (W 6x9)		PILE (C) (W 6x9)	
	Tests: Axial Tension, Lateral, and Compression					
	Embedment Depth	Total Pile Length	Embedment Depth	Total Pile Length	Embedment Depth	Total Pile Length
	feet	feet	feet	feet	feet	feet
PLT-1	8	11	10	13	8	11
PLT-2	8	11	10	13	--	--
PLT-3	7	10	9	12	7	10
PLT-4	8	11	10	13	--	--

Test Location	PILE (A) (W 6X9)		PILE (B) (W 6x9)		PILE (C) (W 6x9)	
	Tests: Axial Tension, Lateral, and Compression					
	Embedment Depth	Total Pile Length	Embedment Depth	Total Pile Length	Embedment Depth	Total Pile Length
	feet	feet	feet	feet	feet	feet
PLT-5	7	10	9	12	--	--
PLT-6	8	11	10	13	--	--
PLT-7	8	11	10	13	8	11
PLT-8	7	10	9	12	7	10
PLT-9	8	11	10	13	8	11
PLT-10	8	11	10	13	--	--
PLT-11	7	10	9	12	7	10
PLT-12	8	11	8.5	11.5	--	--
PLT-13	7	10	8.5	11.5	7	10
PLT-14	5.5	8.5	9	12	--	--
PLT-15	7	10	9	12	--	--
PLT-16	8	11	9	12	8	11
PLT-17	7	10	8.5	11.5	7	10
PLT-18	7	10	9	12	--	--
PLT-19	7	10	9	12	--	--
PLT-20	8	11	10	13	--	--
PLT-21	7	10	9	12	7	10

PILE DRIVING

The pile driving operation was performed with a track-mounted Vermeer 10 pile driver. The pile driving hammer was set up to run at 100 percent of the full driving capacity. The piles were installed to the depths as shown in the previous table. A summary of the time required to advance each pile to its specified embedment depth is summarized in the following table.

Test Location	PILE (A)			PILE (B)			PILE (C)		
	Embedment Depth	Total Drive Time	Avg. Drive Time [1]	Embedment Depth	Total Drive Time	Avg. Drive Time	Embedment Depth	Total Drive Time	Avg. Drive Time
	ft	sec	sec/ft	ft	sec	sec/ft	ft	sec	sec/ft
PLT-1	8	87.1	14.5	10	221.1	27.6	8	112.4	18.7
PLT-2	8	103.2	17.2	10	266.1	33.3	--	--	--
PLT-3	7	86.2	17.2	9	182.3	26	7	72.45	14.49
PLT-4	8	89.4	14.9	10	150.4	18.8	--	--	--
PLT-5	7	63.6	12.7	9	187.6	26.8	--	--	--
PLT-6	8	72.4	12.1	10	255.7	32.0	--	--	--

Test Location	PILE (A)			PILE (B)			PILE (C)		
	Embedment Depth	Total Drive Time	Avg. Drive Time [1]	Embedment Depth	Total Drive Time	Avg. Drive Time	Embedment Depth	Total Drive Time	Avg. Drive Time
	ft	sec	sec/ft	ft	sec	sec/ft	ft	sec	sec/ft
PLT-7	8	89.1	14.9	10	306	38.2	8	115.7	19.3
PLT-8	7	67.4	13.5	9	213.3	30.5	7	77.2	15.4
PLT-9	8	128.9	21.5	10	327.8	41.0	8	90.26	15.04
PLT-10	8	91.7	15.3	10	310.1	38.8	--	--	--
PLT-11	7	67.6	13.5	9	147.1	21.0	7	59.3	11.9
PLT-12	8	207.5	34.6	8.5	303.6	46.7	--	--	--
PLT-13	7	83.2	16.6	8.5	260.2	40.0	7	70.2	14.0
PLT-14	5.5	173.8	49.7	9	240.9	34.4	--	--	--
PLT-15	7	89.6	17.9	9	208.5	29.8	--	--	--
PLT-16	8	234.8	39.1	9	310.0	44.3	8	186.3	31.0
PLT-17	7	80.9	16.2	8.5	302.2	46.5	7	73.2	14.6
PLT-18	7	95.9	19.2	9	207.7	29.7	--	--	--
PLT-19	7	43.9	8.8	9	122.6	17.5	--	--	--
PLT-20	8	68.1	11.3	10	127.2	15.9	--	--	--
PLT-21	7	43.3	8.7	9	138.2	19.7	7	44.2	8.84

1. Average Driving Time is calculated based on the embedded depth excluding the 24-inch pre-drill depth

PILE LOAD TEST PROCEDURES AND EQUIPMENT

The oversized holes were pre-drilled utilizing an approximately 10 inch outside diameter hollow stem auger to an approximate depth of 2 feet below the ground surface. The pile load tests were performed three or more days after the piles were installed. An Enerpac 10-ton hydraulic pull jack and an Enerpac hydraulic 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 25-kip electronic load cell for tension, compression, and lateral loads. The following types of load tests were performed:

- Axial Tension Load Tests for skin friction evaluation;
- Lateral Load Tests;
- Axial Compression test for tip resistance evaluation.

The sequence of testing is as follows: Axial tension load tests were performed on piles designated as A and B at each pile load test location. For axial tension testing, Terracon's proprietary steel tri-pod system or a back hoe was used to develop the vertical tension reaction. A locking "E"- plate clamp was used to grip the top of the web. Terracon set up a 10-foot long, steel reference beam to rest the gauges and record movements relative to the test pile. The ends of the reference beam were supported such that they were 6-inches above ground and seated firmly on the ground surface.

Magnetic bases were attached to the web of the test pile approximately 4 inches above the ground surface to provide a suitable surface for the deflection gauges to rest against. The test loads were applied following a pre-determined load sequence. Deflections and loads were measured using a pair of calibrated Starrett dial gauges.

For lateral load testing, Terracon connected two (2) test piles together to test both piles simultaneously with each pile being the reaction pile for the other. The piles were spaced at an approximate horizontal distance of 10 feet. A flange clamp was set on each of the W-section piles to apply horizontal loading approximately 36 inches above the ground surface. Two reference beams were positioned near the outside edge of each test pile flange. Two calibrated two-inch stroke dial gauges were positioned on each pile along the strong axis horizontally with the magnetic base approximately 4 inches above ground surface to bear on the reference beam. The test loads were applied using a pre-determined cyclic-type load sequence. The load was measured using the electronic readout device from the load cell. The bottom and top deflections were recorded using the electronic readout device. The lateral load was applied in increments and decrements (i.e., loading and unloading cycles). The sequence of loading and unloading cycle includes 500-, 1000-, 1500-, 0-, 1500-, 2000-, 2500-, 0-, 2500-, 3000-, 3500-, and 0- lb, and so on. The loads were applied until the maximum lateral load of 7,000 lbs. was reached or the pile reached 2-inch of lateral displacement measured at 6 inches above the ground surface.

The axial compression tests were performed using a ½ inch plate being placed on the top of the pile followed by the Rice Lake DC-390 compression load cell, which was used to record the loads. The compression tests were performed in the shallower embedment piles only. These piles were designated as C piles. The deflection as measured using two calibrated Starrett dial gages. An Enerpac 5-ton cylinder jack was then placed on top of the load cell. The bucket of an excavator was used to provide the reaction load. The axial compression load was applied in load increments of 500 lbs. to a maximum of 13,000 lbs was reached or until the pile reached ¾ of an inch of vertical displacement.

SUMMARY OF PILE LOAD TEST RESULTS

The following table provides a summary of the pile embedment depth and lateral load at ½-inch lateral displacement at 6 inches above ground surface.

Pile Load Test Location (A)	Embedment Depth	Lateral Load at ½" Disp.	Pile Load Test Location (B)	Embedment Depth	Lateral Load at ½" Disp.
	feet	lbs.		feet	lbs.
PLT-1	8	1,400	PLT-1	10	1,500
PLT-2	8	1,600	PLT-2	10	1,500
PLT-3	7	1,500	PLT-3	9	1,400
PLT-4	8	1,700	PLT-4	10	1,700
PLT-5	7	1,200	PLT-5	9	2,000

Pile Load Test Location (A)	Embedment Depth	Lateral Load at ½” Disp.	Pile Load Test Location (B)	Embedment Depth	Lateral Load at ½” Disp.
	feet	lbs.		feet	lbs.
PLT-6	8	1,600	PLT-6	10	1,900
PLT-7	8	1,700	PLT-7	10	1,600
PLT-8	7	1,400	PLT-8	9	1,500
PLT-9	8	1,400	PLT-9	10	1,400
PLT-10	8	1,400	PLT-10	10	1,500
PLT-11	7	1,800	PLT-11	9	1,600
PLT-12	8	1,500	PLT-12	8.5	1,300
PLT-13	7	1,400	PLT-13	8.5	1,600
PLT-14	5.5	800	PLT-14	9	1,300
PLT-15	7	1,300	PLT-15	9	1,400
PLT-16	8	1,900	PLT-16	9	1,300
PLT-17	7	1,300	PLT-17	8.5	1,400
PLT-18	7	1,400	PLT-18	9	1,500
PLT-19	7	1,500	PLT-19	9	1,500
PLT-20	8	1,500	PLT-20	10	1,500
PLT-21	7	1,600	PLT-21	9	1,600

The following table provides a summary of the axial tension loads for pile movements of about ¼ inch.

Pile Load Test Location (A)	Embedment Depth	Tension Load at ¼” Disp.	Pile Load Test Location (B)	Embedment Depth	Tension Load at ¼” Disp.
	feet	lbs.		feet	lbs.
PLT-1	8	5,200	PLT-1	10	10,000
PLT-2	8	10,000	PLT-2	10	10,000
PLT-3	7	10,000	PLT-3	9	10,000
PLT-4	8	10,000	PLT-4	10	10,000
PLT-5	7	7,800	PLT-5	9	10,000
PLT-6	8	7,100	PLT-6	10	10,000
PLT-7	8	8,500	PLT-7	10	10,000
PLT-8	7	10,000	PLT-8	9	10,000
PLT-9	8	10,000	PLT-9	10	10,000
PLT-10	8	10,000	PLT-10	10	10,000
PLT-11	7	6,900	PLT-11	9	10,000

Pile Load Test Location (A)	Embedment Depth	Tension Load at ¼" Disp.	Pile Load Test Location	Embedment Depth	Tension Load at ¼" Disp.
	feet	lbs.	(B)	feet	lbs.
PLT-12	8	10,000	PLT-12	8.5	10,000
PLT-13	7	10,000	PLT-13	8.5	10,000
PLT-14	5.5	1,600	PLT-14	9	10,000
PLT-15	7	10,000	PLT-15	9	10,000
PLT-16	8	10,000	PLT-16	9	10,000
PLT-17	7	10,000	PLT-17	8.5	10,000
PLT-18	7	10,000	PLT-18	9	10,000
PLT-19	7	6,500	PLT-19	9	9,600
PLT-20	8	8,000	PLT-20	10	9,200
PLT-21	7	6,600	PLT-21	9	10,000

The following table provides a summary of the axial compression loads for pile movements of about ¼ inch.

Pile Load Test Location (C)	Embedment Depth	Compression Load at ¼" Disp.
	feet	lbs.
PLT-1C	8	13,000
PLT-3C	7	13,000
PLT-4C	8	13,000
PLT-7C	8	13,000
PLT-8C	7	13,000
PLT-9C	8	13,000
PLT-11C	7	13,000
PLT-13C	7	13,000
PLT-16C	8	13,000
PLT-17C	7	13,000
PLT-21C	7	13,000

PILE EMBEDMENT DEPTH ANALYSIS

We have performed geotechnical and structural analyses for evaluating the embedment depths of driven pile foundations to support the typical ATI racking systems when installed in soils. This analysis is based on the results of our widely spaced soil explorations, the structural loads as provided by ATI, LPILE parameters derived from this preliminary evaluation, and other noted assumptions. Subsequent analyses will be required once design level geotechnical information is available and after other design considerations are more fully defined. Therefore, the results of the analyses described below should not be used for design. Rather, these analyses are intended to assist you in roughly evaluating construction costs and development viability for the proposed project.

Our analyses have not considered the potential loss of steel due to corrosion during the design life of the structure. The final structural design should consider the anticipated steel loss as determined by a qualified Corrosion Engineer. Thicker pile sections or additional corrosion protection measures may be required if steel loss is predicted by corrosion analyses.

FROST HEAVE POTENTIAL

Based on the provided information, the solar arrays for this project are anticipated to be supported by driven piles. The driven piles should be designed to resist design loads including compression, uplift, frost heave action and lateral forces. The soils at this site are frost susceptible. The typical frost depth in this location for foundation design frost considerations is 36 inches (3 feet). Frost heave on pile foundations will be significant. If the anchorage of the foundations and the deadweight of the structure are not sufficient to resist these forces, it can cause uplift to structures. Based on our review of soil samples and published soil maps of the area, we recommend that an adfreeze stress (frost heave) of 1,500 pounds per square foot (psf) acting along the pile perimeter to a depth of 2.4 feet below the ground surface should be considered.

GEOTECHNICAL AXIAL CAPACITY

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. The upper 24 inches of soil for each pile should be neglected in the axial capacity analyses under frost heave load conditions. For compression load conditions, only the upper one foot of soil should be neglected.

Based on the results of the preliminary pile load testing program, the majority of the site appears to be relatively uniform. Below is a table of values recommended for the areas in proximity to the pile load tests:

Zone ID	Pile ID	Depth (feet bgs)	Ultimate Side Friction (psf)	Ultimate End Bearing (lbs)
A	PLT-2, PLT-3, PLT-4, PLT-8, PLT-9, PLT-10, PLT-12, PLT-13, PLT-16, PLT-16, PLT-17, and PLT-18	0-10	1,100	3000
B	PLT-5, PLT-6, PLT-7, PLT-11, and PLT-20	0-7	720	3000
		7-10	1,100	
C	PLT-1, PLT-14, PLT-19, and PLT-21	0-7	600	3000
		7-10	1,100	

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

$$\boldsymbol{Q_{ult\,(compressive)} = Q_{ult\,(end)} + 0.5 * H\text{^}2 \times P \times q_s}$$
$$\boldsymbol{Q_{ult\,(uplift)} = 0.5 * H\text{^}2 \times P \times q_s}$$

$Q_{ult} = \ Ultimate\ uplift\ or\ compression\ capacity\ of\ post\ (lbs)$
$Q_{ult-(end)} = \ Ultimate\ end\ bearing\ capacity\ per\ the\ table\ above\ (lbs)$
$H = \ Depth\ of\ pile\ embedment\ (ft)$
$P = \ Perimeter\ area\ of\ pile\ (i.e. W6 \times 9 = 1.64\ sqft/ft)$
$q_s = \ Skin\ friction\ per\ depth\ per\ the\ table\ above$

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

Based on the results of the SPT borings, we recommend an ultimate unit skin friction of 825 psf for piles embedded between depths of 10 and 20 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 2 foot of soil for each pile should be neglected. Based on the results of the SPT borings, we recommend an ultimate end bearing capacity of 3,000 pounds for W6x9 piles with embedment depths between 10 and 20 feet.

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

For allowable strength design, we recommend the allowable skin friction 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 10 feet. We recommend a factor of safety of at least 3 be applied to the end bearing ultimate values provided in this section for piles embedded greater than 10 feet.

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

The provided preliminary skin friction values are applicable for piles that are driven using a Vermeer PD-10 pile driver with a hydraulically operated hammer. If a smaller or larger drive hammer is used, we recommend that Terracon be consulted to determine the minimum drive time based on the actual equipment to be used.

For Allowable Stress Design (ASD), we recommend the allowable skin friction and allowable end bearing capacity values be determined by applying a factor of safety (FOS) of at least 1.5 to the ultimate values.

Piles should have a minimum center-to-center spacing of at least 3 times their largest cross-sectional dimension to prevent reduction in the axial capacities due to group effects.

The results of the analyses described above should be supplemented with additional pile load testing to confirm/modify the results prior to use in design. Rather, these analyses are intended to assist you in roughly evaluating construction costs and development viability for the proposed project

Final pile design to be completed by an engineering licensed in the State of Indiana based upon information contained in this preliminary geotechnical report, final design phase study and independent pile load testing.

GEOTECHNICAL LATERAL CAPACITY

Lateral load response of pile foundations was calculated using the computer program *L-Pile 2019*, 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 that can be used for design of the production piles. Recommended L-Pile input parameters for preliminary lateral load analysis for driven pile foundations are shown in the following table:

All Zones					
Depth (feet bgs)	**LPILE Soil Model** [1]	**Effective Unit Weight γ, (pcf)** [1]	**Estimated Cohesion, c (psf)** [1]	**Estimated Friction Angle, ϕ (°)** [1]	**Strain Factor, (ε_{50}) and Static Lateral Subgrade Modulus (k)** [1]
0 - 4	Stiff Clay w/o Free Water	125	1000	--	default

All Zones					
Depth (feet bgs)	LPILE Soil Model [1]	Effective Unit Weight γ, (pcf) [1]	Estimated Cohesion, c (psf) [1]	Estimated Friction Angle, ϕ (°) [1]	Strain Factor, (ε_{50}) and Static Lateral Subgrade Modulus (k) [1]
4 - 11.5	Stiff Clay w/o Free Water	130	4000	--	default

Notes for Above Tables:

1. Recommended soil model type, strain factor, and static lateral subgrade modulus inputs for use in LPILE software

L-PILE analyses were performed by applying the field test load that resulted in approximately ½-inch deflection at a point about six inches above the ground surface. The shear load was applied at approximately 2 feet above the ground surface. The effective unit weight, friction angle was based on the results of the SPT borings. The p- multiplier was 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 L-PILE analysis only using the 2019 version of L-Pile. These parameters are only applicable to piles embedded between six to nine feet below grade. In our evaluation, the piles were modeled as a Steel AISC Section Strong Axis.

Depth (feet bgs)	P- Multiplier – All Zones
0 – 2.4	0.84
2.4 – 11.5	1.2

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.

STRUCTURAL CAPACITY ANALYSIS & DISCUSSION

We have performed a preliminary structural embedment analysis using the geotechnical parameters outlined above. This analysis is based on the results of our widely-spaced soil explorations, the structural loads as provided by ATI, LPILE parameters derived from this study, and other noted assumptions. Our analyses have not considered the potential loss of steel due to corrosion during the design life of the structure. The final structural design should consider the anticipated steel loss as determined by a qualified corrosion engineer. Thicker foundation sections or additional corrosion protection measures may be required if steel loss is predicted by the corrosion analyses.

Approximate structural load conditions were analyzed based on top-of-pile load documents for the two single-axis tracker racking systems. Design conditions utilized for ATI pile array are 100 mph 3-second wind gust, and a maximum pile reveal of 6.0 feet. The actual top-of-pile structural loads will vary based on the selected racking system and the manufacturer's load information as determined in accordance with requirements by the applicable building codes and local municipality.

For the ATI pile array, the following table outlines the top-of-pile loads used in our structural analysis and the resulting preliminarily recommended pile section and embedment depths for the pile locations at around bore locations. The pile reveal height used in the analysis for the ATI pile array is 6.0 feet.

Zone A							
ATI							
Pile Type	Approximate Factored Loads					Structural Analysis Results	
	Compression (kips)	Uplift Load (kips)	Adfreeze Uplift (kips)	Shear (kips)	Moment (kip-ft.)	Recommended Pile Section	Recommended Pile Embedment (ft.)
Int.- Interior	3.119	0.362	5.904	1.272	1.488	W6x9	7.5
Int.- Seismic	3.119	0.362	5.904	1.272	1.488	W6x9	7.5
Int.- Gear Rack	3.119	0.362	5.904	1.272	1.488	W6x9	7.5
Ext.- Interior	3.322	0.548	6.012	1.536	1.788	W6x12	7.5
Ext.- Seismic	3.322	0.548	6.012	1.536	1.788	W6x12	7.5
Ext.- Gear Rack	3.300	0.548	6.012	1.536	1.788	W6x12	7.5

Zone B							
ATI							
Pile Type	Approximate Factored Loads					Structural Analysis Results	
	Compression	Uplift Load	Adfreeze Uplift	Shear	Moment	Recommended Pile Section	Recommended Pile Embedment
	(kips)	(kips)	(kips)	(kips)	(kip-ft.)		(ft.)
Int.- Interior	3.119	0.362	5.904	1.272	1.488	W6x9	10.0
Int.- Seismic	3.119	0.362	5.904	1.272	1.488	W6x9	10.0
Int.- Gear Rack	3.119	0.362	5.904	1.272	1.488	W6x9	10.0
Ext.- Interior	3.322	0.548	6.012	1.536	1.788	W6x12	10.0
Ext.- Seismic	3.322	0.548	6.012	1.536	1.788	W6x12	10.0
Ext.- Gear Rack	3.300	0.548	6.012	1.536	1.788	W6x12	10.0

Zone C							
ATI							
Pile Type	Approximate Factored Loads					Structural Analysis Results	
	Compression	Uplift Load	Adfreeze Uplift	Shear	Moment	Recommended Pile Section	Recommended Pile Embedment
	(kips)	(kips)	(kips)	(kips)	(kip-ft.)		(ft.)
Int.- Interior	3.119	0.362	5.904	1.272	1.488	W6x9	11.5
Int.- Seismic	3.119	0.362	5.904	1.272	1.488	W6x9	11.5
Int.- Gear Rack	3.119	0.362	5.904	1.272	1.488	W6x9	11.5
Ext.- Interior	3.322	0.548	6.012	1.536	1.788	W6x12	11.5
Ext.- Seismic	3.322	0.548	6.012	1.536	1.788	W6x12	11.5
Ext.- Gear Rack	3.300	0.548	6.012	1.536	1.788	W6x12	11.5

The analyses were performed by starting out with the design pile shape and minimum embedment depth to support the compression and/or tension load for each pile type. The pile embedment was deepened as necessary until a lateral deflection less than or equal to approximately 0.6-inches was achieved at the ground surface. If the deflection criteria could not be met by deepening the pile embedment due to the pile reaching a point of fixity, the next larger size of pile was modeled.

It should be noted that greater quantities of steel (i.e. thicker sections, greater pile lengths) may be required for foundation support if additional geotechnical investigations indicate adverse subsurface conditions. However, a full-scale pile load test program should be performed in order to provide design recommendations for steel sections.

As stated earlier, our analyses have been performed using preliminary information and are intended to assist you in roughly evaluating construction costs and viability for the proposed project. Ultimately, the design of foundations for the solar panel racking system will depend on a number of factors including the actual structural loading conditions, the structural serviceability requirements, anticipated corrosion losses, a detailed understanding of the site soil conditions, and other factors where complete and final information is not available at this time.

EARTHWORK

Grading plans were not available at the time of this report. Based on the available information, we have assumed that earthwork for the project will include clearing and grubbing, minimal (less than 2 feet) excavation and filling for solar arrays and equipment structures, trenching for cables and conduits, cutting and filling to achieve roadway grade, and excavations for stormwater management. The earthwork described in the following sections is preliminary in nature and intended for planning general site grading in the solar array areas, access roadways, drainage, and equipment structure areas (such as the transformer pad areas).

General

It is recommended that areas of proposed mat foundation structures be stripped of any tilled soil, topsoil, peat/muck, or soft/loose overburden soils containing organic matter. In access roadway, solar array and new fill areas of the site, the tilled soils/topsoil will create difficult access issues, particularly when soil possess high moisture content. These materials can be modified to increase their strength and any planned approaches to improve the strength of these soils should be tested. Please note, that any soil placed over tilled soils/topsoil will settle with time with the magnitude of the settlement being directly related to the thickness of these types of soils. Therefore, any materials consisting of topsoil, tilled soils, vegetation and organic matter should be stripped and wasted off site or could be re-spread in landscaped areas after completion of grading operations. Stripping depths between our boring locations and across the site could vary considerably. We recommend actual stripping depths be evaluated by a representative of Terracon during construction to aid in preventing removal of excess material.

Removal and/or relocation of any “to be abandoned” utilities should also be performed prior to rough site grading activities. We would anticipate removal and relocation, or re-routing, of any existing utilities that may currently exist within the footprint of the proposed development area would interfere with new construction. Where abandoned underground pipes are located beneath any mat or shallow foundations, they should be fully grouted if left in place. Excavations created due to utility relocations should be backfilled with structural fill material, placed and compacted in accordance with the recommendations provided in the following paragraphs, or with lean concrete or flowable fill if lean concrete or controlled density fill (CDF) is used as backfill. The contractor should refer to all of the new build Mechanical-Electrical-Plumbing (MEP) and foundation drawings to confirm that concrete backfill materials will not conflict with any new item installations or construction.

Any soft or yielding areas encountered within the new fill areas, solar array areas, substation and access road areas during proof-rolling operations should be undercut to expose firm stable soils or re-worked in place to a suitable acceptable condition. Chemical modification of the subgrade in the access road locations may be an alternative to removal, though any planned modification should be tested prior to implementation. It should be noted that an undercut depth somewhat greater than normal may be needed if the construction occurs during periods of inclement weather. The actual amount of undercut would need to be determined in the field during construction and is dependent on the subsurface conditions encountered, weather conditions and equipment used in the construction. Chemical stabilization is generally considered to be more cost effective than undercut and replacement of large areas.

Once the foundation excavation is made, the exposed subgrade soils should be examined by geotechnical personnel to determine that the suitable bearing materials have been encountered. If unsuitable soils are encountered, these soils should either be undercut to expose suitable soils or stabilized in place. Should the excavation expose materials that can be stabilized with #2 stone or durable dump-rock prior, provisions should be made to “drain” these materials to a nearby storm sewer or other drainage outlet. Any #2 stone or dump rock should be suitably choked-off at the top so as to prevent overlying finer grained materials from migrating into this open-graded material.

The rough soil subgrade elevation should be established with quality controlled cohesive or granular fill placed and compacted in accordance with requirements provided in section **Fill Material Types** and section **Fill Compaction Requirements**.

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.

Site Preparation

Within the substation area, strip and remove existing vegetation, debris, native trees, tree stumps and other deleterious materials from proposed access road areas, and any proposed ancillary structures and equipment storage building 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 structures and equipment storage areas 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).

Subgrade Preparation within the Substation Pad Area

The upper 6 inches of subgrade soils beneath proposed shallow footings and mat/slab foundations should be removed and recompacted as engineered fill material. 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 any new interior floor slabs should be scarified, moisture conditioned and compacted to a minimum depth of 12 inches. The moisture content and compaction of subgrade soils should be maintained until floor slab construction.

Subgrade soils beneath pavements 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.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than four 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.

Structural fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Lean Clay	CL (LL<40)	All Locations and Elevations
Fat clay and moderate plasticity clays	CH (LL>50) and CL with 40<LL<50	>1.5 feet below the subgrade elevation
Well Graded Granular	GW[2]	All Locations and Elevations
Low Volume Change Material[3]	CL or GW[2] and (LL<40 & PI<22)	All Locations and Elevations
#2 Crushed Stone	GP or GW	All Locations and Elevations

Fill Type [1]	USCS Classification	Acceptable Location for Placement
On-site Soils	CL, CH, SC, CL-ML	Onsite native soils appear suitable for use as engineered fill after drying. During wet season, it will be extremely difficult to dry the soils to suitable moisture condition, thereby making it very difficult to achieve specified compaction. Use of on-site soils as structural fill should meet the requirements for “acceptable location for placement” indicated above.

1. New structural fill should consist of approved materials that are free of organic matter, peat, debris and rock fragments larger than 3 inches in any dimension. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Similar to ODOT 304 aggregate base or crushed dolomite aggregate or granular material such as sand, gravel, or crushed stone containing at least 18% low plasticity fines.
3. Low plasticity cohesive soil or granular soil having at least 18% low plasticity fines.

Fill should be placed and compacted in horizontal lifts, not exceeding 8 inches loose thickness, using equipment and procedures that will produce recommended densities throughout the lift.

Fill Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Item	Description
Fill Lift Thickness (Structural Areas)	8-inches or less in loose thickness if heavy self-propelled compaction equipment is used. 4 to 6 inches or less if hand compaction equipment is used.
Compaction Requirements[1] (Structural Areas)	Minimum 98% of the material’s Standard Proctor maximum dry density (ASTM D698)
Compaction Requirements (Landscape Areas)	Minimum 95% of the material’s Standard Proctor maximum dry density (ASTM D 698) provided long-term plans do not include a structure in these areas.
Moisture Content – Cohesive Soil (Low Plasticity)	Within ±3% of optimum moisture content (OMC) as determined by the Standard Proctor test at the time of placement and compaction
Moisture Content[2] – Granular Material	Workable Moisture Levels

1. 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. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proof-rolled.
3. All materials to be used as engineered fill should be tested in the laboratory to determine their suitability and compaction characteristics.

Fill Material Considerations

In the areas of the proposed solar array panels, fill material may not be needed. These areas should only be receiving driven steel piles for solar panel support and the subgrade should only be prepared in a manner to minimize erosion and provide a stable surface for installation of driven piles.

Where proposed equipment structures are located, structural fill should be placed over a stable subgrade prepared and proof rolled as discussed above. The soils to be used as structural fill should be free of organics, roots, or other deleterious materials. The fill should be non-plastic granular material containing less than 12 percent fines (material passing the No. 200 sieve).

All structural fill should be placed in loose lifts not to exceed 12 inches in thickness and compacted to a minimum of 98% of the soil's standard Proctor maximum dry density (ASTM D698) using the vibratory drum roller discussed previously. Fill brought to the site should ideally be within 3 percent (wet or dry) of the optimum moisture content.

Some manipulation of the moisture content (such as wetting, drying) may be required during the filling operation to obtain the required degree of compaction. The manipulation of the moisture content is highly dependent on weather conditions and site drainage conditions. A sufficient number of density tests should be performed to confirm the required compaction of the fill material.

Construction Considerations

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. Tracked equipment should be considered in areas of the site where wet surface soil conditions are present to help reduce rutting and disturbance of the near surface soils.

Particular attention should be given to the methods for subgrade drainage in consideration of the wet conditions observed on site. The gravel access road should not be recessed into the existing subgrade without methods to drain the subgrade moisture. Roads should incorporate subgrade drainage methods. Maintenance activities should be increased onsite to address the development of rutting in a timely manner. The risk of damaging the underlaying geogrid layers and/or rutting the subgrade soils is significantly increased if delays in grading and other maintenance activities result in the progression of rutting beyond the original design assumptions. More frequent maintenance will be required in areas subject to turning traffic.

We understand the construction of new gravel access roads above grade may inhibit the surface flow drainage capabilities of the site. The use of open graded aggregate on above grade portions of the gravel access roads can be considered as a means of allowing some water flow across the above grade gravel access roads. Based on our observation of roadway performance on previous phases of this project, open graded aggregate may be used in above grade portions of the gravel access roads, provided they are fractured/angular and our recommendations for subgrade drainage are implemented. The open graded aggregate will be less stable than aggregate base course, therefore additional thickness and frequency of maintenance activities should be expected. Open graded aggregates are more stable if confined, therefore exposed gravel layer edges may need to be widened to develop stability at the wheel path. Terracon has not performed any surface flow drainage analysis to determine the effect of the open graded aggregate on site drainage, nor do we guarantee that the open graded aggregate will facilitate surface drainage.

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.

The geotechnical engineer 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.

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction, including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of low plasticity cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

Compaction requirements for bedding and backfilling around utilities may need to be adjusted to the pipe material type and the pipe manufacturer bedding and backfill material recommendation. If utility trenches in non-pavement areas are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill to reduce the infiltration and conveyance of surface water through the trench backfill. Granular backfill is recommended for use as backfill in utility trenches in areas beneath pavements.

Grading and Drainage

During the dry season, the site should generally remain relatively workable in that since there is little rainfall, the soils stay dry. However, during the wet season, there is frequent heavy rain from thunderstorms. This will make getting the surface soils dry to remain workable will be difficult. Also, during the rainy season, since the near surface soils are silty and clayey, they will be susceptible to erosion if not adequately protected from run off of the heavy rains. Until vegetation to established on the exposed surface soils, they will remain susceptible to erosion even if construction is otherwise complete.

The site is generally flat and appears to be poorly drained. Drainage tiles were likely installed to facilitate farming activities and site access. Filling the drainage ditches/swales or destruction of other site drainage systems (e.g., drainage tiles) will result in increased groundwater levels, softer soils, and generally undesirable subsurface conditions.

During construction the contractor may want to consider implementing a program to lower groundwater to facilitate access and mobilization around the site. If such a program is implemented, groundwater levels should be lowered to a depth of at least two feet below the surface of any vibratory compaction operations.

Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of slabs. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Any water that collects over, or adjacent to, construction areas should be promptly removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or these materials should be scarified, moisture conditioned, and recompacted, prior to slab construction. All these processes should be observed by Terracon.

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.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

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.

The Geotechnical Engineer 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.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Field density tests should be conducted during placement and compaction of engineered fill. The testing frequency should be in accordance with the following table.

Fill Placement Area	Recommended Testing Frequency (ASTM D6938)
Building Pads	Each vertical foot of fill placed should be tested at a frequency of 1 test per every 2,500 square feet of fill placed, or a minimum of 1 test per building pad per vertical foot of fill placed
Solar Arrays	Each vertical foot of fill placed should be tested at a frequency of 1 test per every 20,000 square feet of fill placed, or a minimum of 1 test per solar array block quadrant per vertical foot of fill placed
Utility Trench Backfill	Each vertical foot of fill placed should be tested at an interval of every 100 linear feet of fill placed

The Geotechnical Engineer may require additional tests as considered necessary to check on the uniformity of compaction. No additional layers of fill should be placed until the field density test results indicate that the specified density has been obtained.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

ACCESS ROADWAYS

Aggregate Surface Roadway Design Recommendations

We understand that new roadways for post construction traffic within the project site will consist of aggregate surfaced roadways. Post-construction design truck load frequencies have not been provided at the time of this report, therefore, we have assumed one pick-up truck per day and one fully loaded truck per month. We understand the roadways may be subjected to fire truck loading.

Pavement sections based upon a more detailed design could be provided if specific traffic loading, frequencies, and desired pavement design life are provided.

Subgrade soils beneath aggregate surfaced roadways should be prepared and constructed as outlined in the **Earthwork** section of this report.

An analysis of the proposed pavement section was performed as outlined in Section 4.1.2 of the 1993 AASHTO Design of Pavement Structures for aggregate-surfaced roads. The design analysis evaluates both the allowable rutting depth and allowable serviceability loss as design considerations. For the analyses, an allowable rutting depth of 2-inches and a serviceability loss of 1.0 were used. Based on the soils encountered near surface during the field exploration, a resilient modulus of 8,000 psi was used for the design analyses.

The results of the analyses indicate that the allowable rutting depth controls the design. Based on an allowable rutting depth of 2-inches, an aggregate-surfaced road section consisting of a minimum 6-inch thickness of compacted aggregate surface course placed over prepared and compacted subgrade over the design life of 20 years with proper maintenance and adequate surface drainage.

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 increase 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 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.

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 without vibration, before being proof-rolled with a loaded tandem-axle dump truck. Particular attention should be paid to high traffic areas that were rutted and disturbed during construction, drainage crossings and areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by replacing the materials with properly compacted fill. When proof-rolling/subgrade stabilization has been completed to the satisfaction of the Geotechnical Engineer, a geotextile fabric may be placed followed by the aggregate base course. It should be known that the current design does not require geotextile or geogrid for structural support, however should be considered for areas with wet and/or loose/soft subgrade soils.

Aggregate surfaced drives, regardless of the section thickness or subgrade preparation measures, will require on-going maintenance and repairs to keep it 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.

Chemical Stabilization of Access Road Subgrade

Medium stiff native cohesive soils were encountered in borings to depths extending to 2.5 to 6.5 feet below ground surface. Therefore, upon exposure, these soils are anticipated to be unstable. As stated previously in the report, chemical stabilization is a cost-effective method for remediating the unstable soils anticipated at the access road subgrade elevations. Terracon's scope of services included performing chemical mix design from samples obtained at 5 different locations.

Terracon collected 5 bulk soil samples below the topsoil extending to about 4 feet below ground surface at boring locations B-21-, B-21-, B-21-, B-21- and B-21-. We contacted Mt. Carmel Stabilization Group for supplying chemical admixtures for performing the testing. Based on our local experience in the area cement samples were used for the mix design analysis. Each of the selected bulk samples were tested with cement admixtures at three different percentages (3%, 5% and 7%). We measured the change in unconfined compressive strengths at each of the three different cement percentages. The results of the chemical mix design compressive strength tests are presented in the **Exploration Results** section of this report.

Based on Ohio Department of Resources (ODNR), Mixture Design for Chemically Stabilized Soils table 1120.05-1 Minimum Unconfined Compressive Strength, we recommend that treatment with a minimum of 3% cement admixture should be performed for stabilization of the subgrade soils to a minimum depth of 18 inches below the subgrade elevation.

SHALLOW SPREAD FOOTINGS

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 spread footings.

Medium stiff clay soils were encountered in the upper portion of the subsurface profile at this site. We anticipate that lightly-loaded equipment such as inverters will be placed with the PV array area of the site. No loads have been provided for the equipment, but we anticipate these structures will be lightly loaded. We anticipate that general equipment pads typically exert an average pressure of 1,000 psf or less, and circuit breaker foundations exert an average pressure of about 500 psf.

We recommend that these foundations should bear on stiff native clays. If medium strength (soft to medium stiff) clays are present at the “Design Footing Level,” we recommend that these materials be partially over excavated and replaced with a properly compacted granular material such as ODOT 304 crushed gravel, or other material as approved by the geotechnical engineer. On a preliminary design basis, we anticipate that the over excavation will be less than about 3 feet, but this recommendation should be reviewed when further details are known.

If cuts are performed to establish the finished grade and groundwater is encountered in exposed granular soils, recompaction of the exposed subgrade materials should not be performed until the groundwater is lowered to a depth of at least 2 feet below the bottom of the lowest excavation (typically foundations).

Shallow Foundation Design Parameters

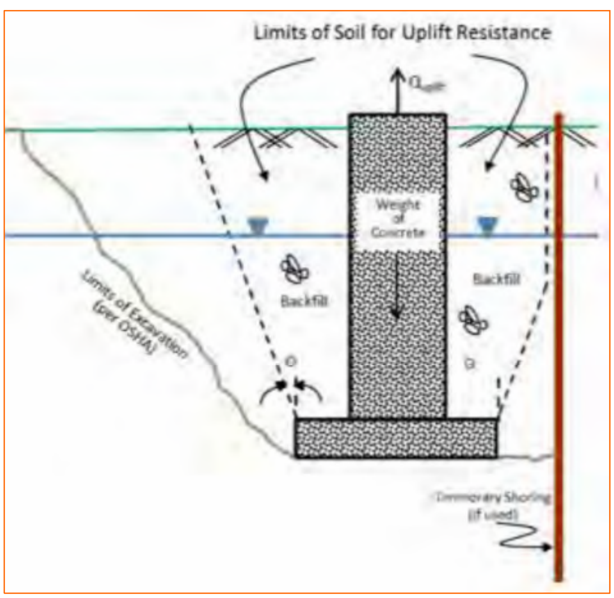
Item	Description
Maximum Net Allowable Bearing Pressure [1, 2]	2,000 psf
Required Bearing Stratum [3]	■ Stiff native clay, or ■ Compacted crushed stone extended to stiff clay or a maximum of 3 feet below the planned bottom of footing
Ultimate Passive Resistance [4] **(equivalent fluid pressures)**	■ 290 pcf (cohesive backfill) ■ 360 pcf (granular backfill)
Ultimate Coefficient of Sliding Friction [5]	■ 0.30 (native clay) ■ 0.40 (granular material)
Minimum Embedment below Finished Grade for Frost Protection	Exterior footings in unheated areas: 36 inches
Estimated Total Settlement from Structural Loads [2]	■ Less than about 2 inches for transformers ■ Less than about 1 inch for circuit breakers and control buildings

Item	Description
Estimated Differential Settlement [2]	About ½ to 2/3 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in the **Project Description**.
3. Lower strength soils should be over excavated and replaced per the recommendations above and the **Foundation Construction Considerations** section.
4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
6. For design under "point loading" conditions, a subgrade modulus of 110 pci is recommended.

DESIGN PARAMETERS - UPLIFT LOADS

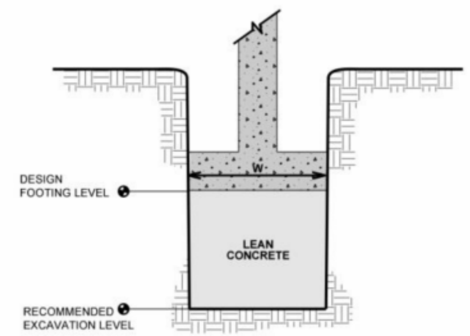
Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ, of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum total unit weight of 120 pcf should be used for the backfill. This unit weight should be reduced to 58 pcf for portions of the backfill or natural soils below the groundwater elevation.



FOUNDATION CONSTRUCTION CONSIDERATIONS

As noted in **Earthwork**, the footing 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 footing excavations should be removed/reconditioned before foundation concrete is placed.

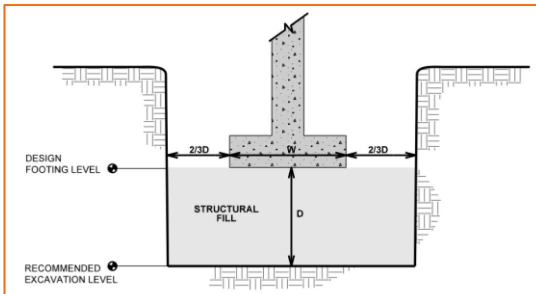
If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below.



LEAN CONCRETE BACKFILL

NOTE: EXCAVATIONS ARE SHOWN VERTICAL; HOWEVER, THE SIDEWALLS SHOULD BE SLOPED AS NECESSARY FOR SAFETY

Over-excavation for granular structural fill placement below footings should be conducted as shown below. The over-excavation should be backfilled up to the footing base elevation, with describe soil type placed, as recommended in the **Earthwork** section.



OVER-EXCAVATION / BACKFILL ZONE

NOTE: EXCAVATIONS ARE SHOWN VERTICAL; HOWEVER, THE SIDEWALLS SHOULD BE SLOPED AS NECESSARY FOR SAFETY

For a turned-down concrete slab, we recommend that “footings” at the edges of the slab bear upon or within at least medium stiff or loose native soils or new structural fill at a depth of at least 36 inches below exterior grade for frost depth considerations.

The slab should be supported directly on new base course material consisting of free draining granular material. We recommend a minimum 6-inch thick free draining granular base, such as relatively clean, well-graded crushed dolomite. This material will serve as a leveling course, a capillary moisture break, help provide load distribution, and expedite construction. Care will be necessary to avoid contaminating this layer with soil prior to slab placement.

During earthwork procedures, care should be taken to maintain the subgrade moisture content prior to construction of the slab. If the subgrade should become desiccated, the affected material should be removed, or these materials should be scarified, moistened, and re-compacted prior to floor slab placement.

Where appropriate, saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual.

The use of a vapor retarder should be considered beneath concrete slabs on grade that will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

For design under "point loading" conditions, a subgrade modulus of 110 pci is recommended.

DRILLED SHAFT DESIGN PARAMETERS - SUBSTATION

Drilled Shaft Foundation Design

Deep foundations, including drilled shaft foundations and/or direct embedment foundations with concrete backfill, may be utilized for the support of substation structures for the project. Drilled shaft foundations should have a minimum depth of 10 feet or 3B (where B is the shaft diameter), whichever is greater.

Based on the geotechnical engineering analyses, subsurface exploration and laboratory test results, the geotechnical design parameters have been determined for the subsurface profile and are presented in the following sections.

Design Parameters

Our recommendations provided below are based on the subsurface information encountered near boring locations B-21-43 (SUB), and B-21-44 (SUB). If the location of the new substation and equipment pad areas change, we should be consulted prior to the design and construction of foundations.

It is anticipated that some of the substation structures/appurtenances will be supported on deep foundation systems such as drilled shaft/pier foundation elements. It is recommended that each drilled shaft element be at least 30 inches in diameter. Based on our subsurface findings near the Borings B-21-43 (SUB), and B-21-44 (SUB), it is recommended that drilled shaft lengths should be at least 10 feet long and it should be terminated within bedrock (top of bedrock was encountered at approximately 17 to 18 feet below the existing ground surface at the substation explorations).

It is recommended that the drilled shaft design should incorporate a factor of safety of 3 for end bearing and 2 for side resistance, when subjected to axial compression loading situation. A factor of safety of 2½ is recommended for side resistance against uplift loading situation. Soil parameters for axial design of drilled shaft are provided in the following section.

Recommended geotechnical parameters of drilled shaft foundations have been developed for use in the MFAD, SHAFT and L-PILE computer program. Based on the encountered subsurface conditions, laboratory test results, and field penetration test results, generalized engineering properties have been provided at Borings B-21-43 (SUB), and B-21-44 (SUB), as shown in the following table.

B-21-43 (SUB)

Soil Layer Number	Soil Type	Depth to Bottom of Layer (1) (feet)	Total Unit Weight (pcf)	Un-drained Shear Strength (ksf)	Friction Angle (Degrees)	Adhesion Factor	Strain E_{50}	K-Value (pci)	MFAD Deformation Modulus (ksi)	Bearing Capacity Factor N_c(3)	Bearing Capacity Factor N_q
1 (2)	Clay[1]	4.5	125	1.0	--	0.55	0.012	300	0.6	--	--
2	Clay[1]	18.5	131	4.0	--	0.51	0.004	1500	2.5	7	--
3	Sand[2] (Dolomite modelled as Sand)	20	130	--	36	--	--	120	7	--	87
4	Bedrock	30	Refer to the table below for Rock Properties								

1. L Pile Model - Stiff Clay w/o Free Water (Reese)
2. L Pile Model - Sand (Reese)
3. Groundwater was encountered at 18.5 feet during drilling and at 16.0 feet upon completion (4).

Layer No.	Rock Type	Depth to Bottom of Layer (1) (feet)	Effective Rock Cohesion (ksf)	Effective Friction Angle for Rock (°)	Rock/ Concrete Bond Strength (ksf)	Deformation Modulus (ksi)	Unconfined Compressive Strength (psi)	Elastic Modulus (ksi)	RQD (%)
4	Dolomite	25.0	3.4	36	20	973	7,724	459	58
4	Dolomite	30.0	3.2	35	20	850	5,366	702	72

B-21-44 (SUB)

Soil Layer Number	Soil Type	Depth to Bottom of Layer (1) (feet)	Total Unit Weight (pcf)	Un-drained Shear Strength (ksf)	Friction Angle (Degrees)	Adhesion Factor	Strain E_{50}	K-Value (pci)	MFAD Deformation Modulus (ksi)	Bearing Capacity Factor N_c (3)	Bearing Capacity Factor N_q
1 (2)	Clay[1]	6.5	125	1.0	--	0.55	0.012	300	0.6	--	--
2	Clay[1]	18.5	131	4.0	--	0.51	0.004	1500	2.5	7	--
3	Bedrock	30	Refer to the table below for Rock Properties								

1. L Pile Model - Stiff Clay w/o Free Water (Reese)
2. L Pile Model - Sand (Reese)
3. Groundwater was encountered at 18.5 feet during drilling and at 12.0 feet upon completion (4).

Layer No.	Rock Type	Depth to Bottom of Layer (1) (feet)	Effective Rock Cohesion (ksf)	Effective Friction Angle for Rock (°)	Rock/ Concrete Bond Strength (ksf)	Deformation Modulus (ksi)	Unconfined Compressive Strength (psi)	Elastic Modulus (ksi)	RQD (%)
3	Dolomite	20.5	3.0	34	20	663	5,391	338	40
3	Dolomite	25.5	3.4	36	20	973	8,719	594	70
3	Dolomite	28.5	3.0	34	20	663	4,987	336	37

Notes:

1. Depth referenced to existing ground surface.
2. The side resistance of the uppermost 3 feet of the soil should be ignored due to the potential for disturbance caused during the drilled shaft construction.
3. Bearing capacity factor N_c=7 is based on drilled shaft constructed using slurry displacement method, if drilled shaft is constructed using dry/temporary casing method then N_c=8 can be used.
4. Groundwater levels during construction or at other times in the life of the structures 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.

Drilled Shaft Construction Considerations

The following additional construction considerations, during the drilled shaft installations should be followed:

- Due to presence of shallow bedrock, rock coring may be required to advance the shaft to the proposed depth.

- If temporary casing is used to prevent caving during drilling, the casing should be removed as the concrete is placed in the hole, assuring that enough head is maintained.

- . A casing, if used during construction of the shaft, should be removed after concrete is poured. Casing should not be left in place permanently as during the shaft construction process, voids/gaps could get created between the casing and the surrounding soils. If the casing cannot be removed for some reason, jet grouting should be performed to completely fill the gaps/voids between the casing and the surrounding soils. In that case there may still be a reduction in the skin friction capacity of the shaft, which will have to be evaluated by the project geotechnical and structural engineers.

- The actual bearing elevation at each drilled shaft location should be determined in the field during construction through inspection by an authorized representative of the geotechnical engineer.
- If effective dewatering is not practical, concrete should be placed at the bottom of the excavation by pumping or by using a tremie pipe.
- To facilitate construction, concrete should be on-site and ready for placement as shaft excavations are completed.
- It is recommended that no completed drilled shaft holes be left open overnight without being filled with concrete.

MAT FOUNDATIONS

General

We understand the main foundation component in the array area will include driven pile foundations for support of solar arrays; however, some lightly-loaded, inverter structures are typically required across the site. In general, small, lightly-loaded, inverter structures may be supported on driven piles or isolated mat foundation systems.

Mat foundations could be considered for supporting heavy equipment loads or structures that are sensitive to movements. Subgrades for mat foundations should be prepared following the recommendation presented in the **Earthwork** section above**.** We recommend that mat foundations should be supported on a minimum 24-inch thick free draining granular base, such as relatively clean, well-graded crushed dolomite**.**

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils (at least stiff consistency or medium dense relative density) and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The footings could also bear on properly compacted backfill extending down to the suitable soils. Over-excavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of over excavation depth below footing base elevation. The over excavation should then be backfilled up to the footing base elevation with structural fill placed in lifts of 8 inches or less in loose thickness and compacted to at least 98 percent of the material's maximum dry density (ASTM D 698). A summary of the design parameters is listed in the table below

Mat/Slab Design Parameters

Item	Description
Slab Support [1]	Minimum 6 inches of free-draining (less than 6% passing the U.S. No. 200 sieve) crushed aggregate compacted to at least 95% of ASTM D 698 [2, 3] -over- At least 24 inches of low plasticity cohesive or granular soils with at least 15% passing the U.S. No. 200 sieve material should be present below floor slabs where fat clay (CH) or elastic silt (MH) soils are present
Estimated Modulus of Subgrade Reaction [2]	110 pounds per square inch per inch (psi/in) for point loads
Minimum Width	3½ feet
Modulus Correction Factor [4]	$k_c=k((b+1)/2b)^2$
Maximum Design Contact Stress	2,000 psf
Total Estimated Settlement	1 inch or less
Differential Settlement	¾-inch over 4 feet
Adhesion	850 psf

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
3. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.
4. 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.

If exposed to the exterior grade, the sides of the mat foundation should be backfilled with compacted soil and consideration should also be made with regard to frost protection. A minimum 3 feet foundation embedment should be used for frost protection as indicated in the above table.

If lateral load resistance is required, an allowable coefficient of friction between the bottom of the concrete mat and the underlying granular structural fill can be assumed to be 0.3. This value includes a theoretical safety factor of about 1½ against sliding. It is recommended that passive pressure resistance along the sides of the foundation be neglected.

Mat/Slab Foundations Construction Considerations

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 recompacted prior to construction.

Based upon the subsurface conditions determined from the geotechnical explorations, subgrade soils exposed during construction are anticipated to be relatively workable depending on the weather. If earthwork is completed during the wet season, we recommend extra precautionary measures to protect subgrade soils due to presence of onsite soft/loose soil which are sensitive to moisture fluctuation. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site.

If unstable, soft/loose or wet subgrade conditions develop during construction, suitable methods of stabilization will be required such as chemical treatment, undercutting/replacement and use of geotextile fabric as recommended in the **Earthwork** section above.

The geotechnical engineer 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.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations may occur between exploration point locations and/or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in the report, to provide observation and testing services during construction. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services 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.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, cost estimating, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Type of Exploration	Number of Explorations	Depth (feet) [1]	Planned Location
Borings	2	28.5 to 30	Substation area
Borings	42	7.3 to 20	Array areas
Pile Load Testing – Tensile and Axial Uplift	21 locations (2 piles at each location)	7 to 10	Array areas
Pile Load Testing – Axial Compression	11 locations (1 pile at each location)	7 and 8	Array areas

1. Below ground surface

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained from Google Earth™. If more precise elevations and boring locations are desired, we recommend the borings be surveyed.

Boring Exploration Procedures: We advanced borings with a track-mounted Mobil B-57 (#613) drill rig using continuous-flight, hollow-stem augers. Four samples were obtained in the upper 10 feet of each boring and samples were obtained at depth intervals of approximately 5 feet thereafter. Soil sampling was performed using split-barrel sampling procedures.

In the split-barrel sampling procedure, a standard 2-inch outside 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.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. The field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and includes modifications based on observations and tests of the samples in our laboratory.

Pile Installation: Fifty-three (53) piles, two (2) at ten (10) locations and three (3) at eleven (11) locations, were installed at twenty (21) locations. W6x9 piles were installed by Terracon.

Pile Load Testing: We conducted pile load testing according to the methods defined in the report above. With exceptions of hold times, the load testing is conducted in general accordance with ASTMs D1143 Standard Test Methods for Deep Foundation Elements Under Static Axial Compressive Load, D3689 Standard Test Methods for Deep Foundations Under Static Axial Tensile Load, and D3966 Standard Test Methods for Deep Foundations Under Lateral Load.

Pile Removal: We removed piles by excavation, utilizing a track-hoe after the completion of pile load testing. Upon completion we backfilled the area with soil cuttings while tamping with the excavator bucket and tracking over the ground surface at completion.

Laboratory Testing

Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System. The project engineer reviewed the field data and assigned laboratory tests. The following tests were performed on selected samples.

- Moisture content of soil by mass
- Fines content
- Gradation
- Standard Proctor
- Unconfined compressive strength of rock samples

Corrosivity Testing

Samples of the near surface soils obtained from the array areas at the twenty-two (22) exploration locations were tested in the laboratory for the following properties in general accordance with the corresponding standards:

- Ph analysis
- Chloride, sulfate, and sulfide content
- Oxidation-Reduction potential
- Electrical resistivity testing
- Total salts

These results are presented in the **Corrosivity** section of this report as well as the **Exploration Results** section.

Laboratory Thermal Resistivity Testing

A total of eleven (11) bulk samples and 10 undisturbed samples were obtained from the PV array areas and one (1) of both in substation area. A total of thirty-five (35) laboratory thermal resistivity tests were performed. The near surface materials were remolded at 85 and 95 percent of the maximum dry density as determined by ASTM D698.

These results are presented in the **Exploration Results** section of this report.

Field Electrical Resistivity Testing

Field electrical resistivity tests were performed at twenty-two (22) locations in general accordance with the Wenner Four Point method (ASTM G57) consistent with the schedule in the following table. The results of this testing are expected to assist the designers of electrical grounding components and corrosion protection.

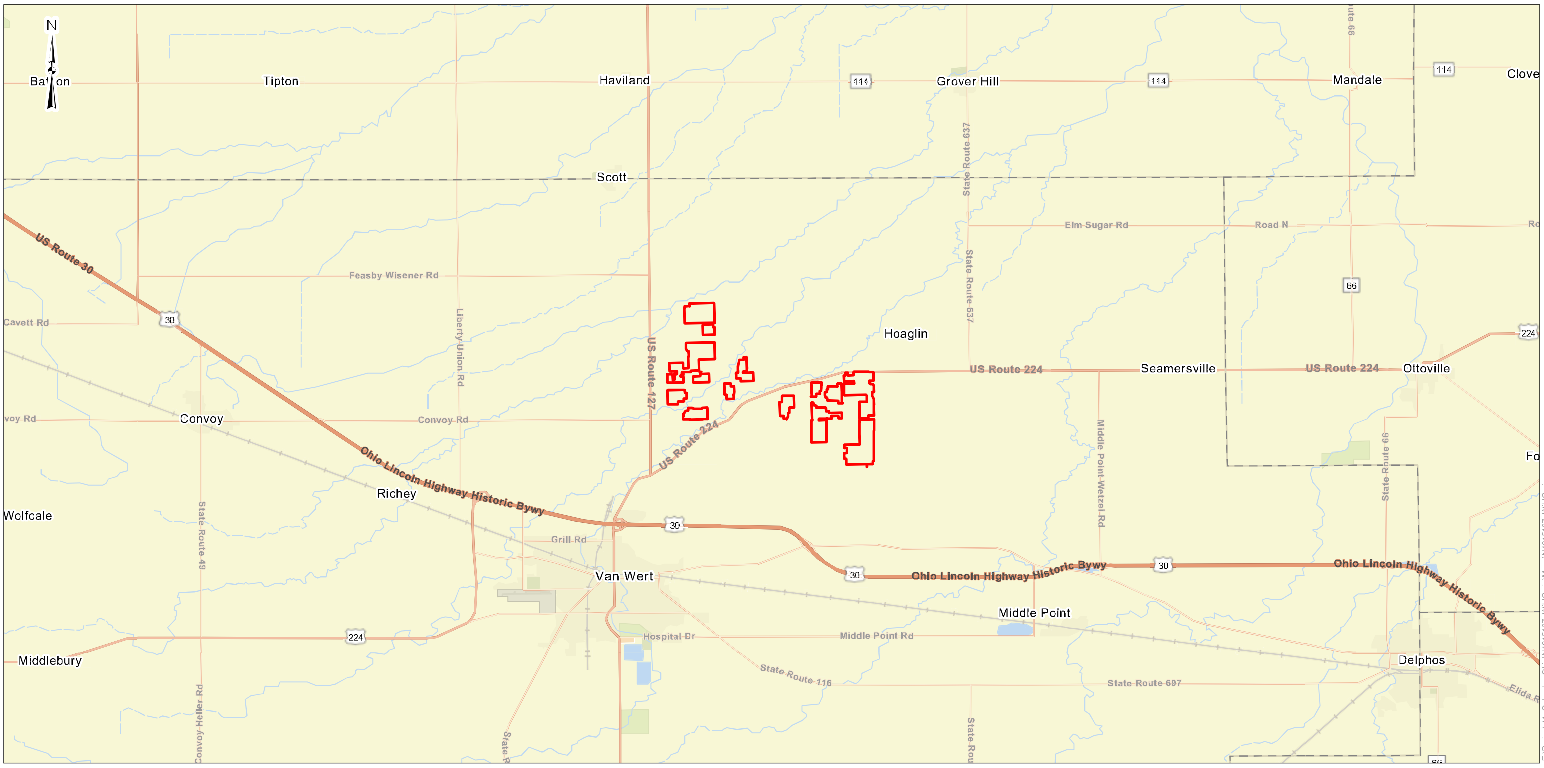
In Situ Resistivity Test Location	Proposed Test Array Quantity	"a" Spacing Interval
Proposed Array Areas	21	1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, 75, and 100
Proposed Substation Area	1	1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, 75, 100, 150, 225, 300, and 400

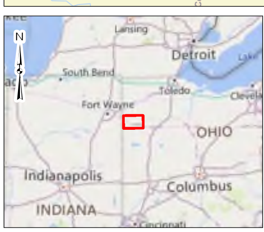
The results of the resistivity testing are presented in **Exploration Results**. Also provided in the exhibit are the distances from the center point to each pin, for each respective electrode spacing...

SITE LOCATION AND EXPLORATION PLANS

Contents:

Note: All attachments are one page unless noted above.





Legend

Site Boundary

DATASOURCES:
ESRI World Street Map.

Miles: 0, 1, 2, 4

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

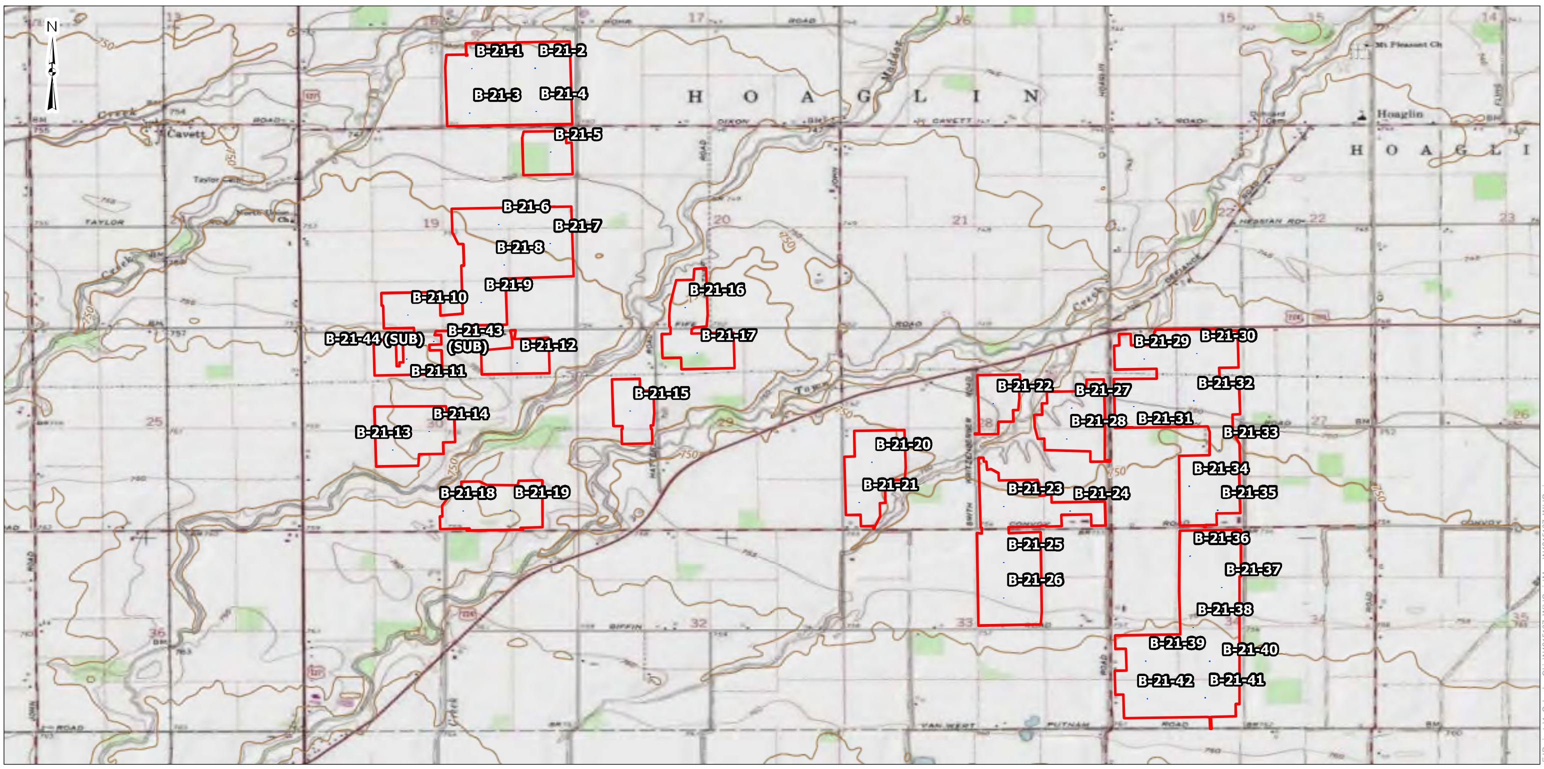
800 Morrison Road Grahanna, Ohio 43230

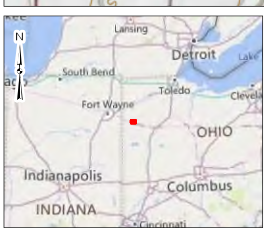
PH. (614) 328-5150 terracon.com

SITE PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720





Legend

- Site Boundary
- Proposed Boring Location
- USA Topo Maps
- Normal Index Contours
- Normal Intermediate Contours

DATASOURCES:
USGS Topo tile base map service of The National Map (TNM), data refreshed May 2020;

0 1,250 2,500 5,000 Feet

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

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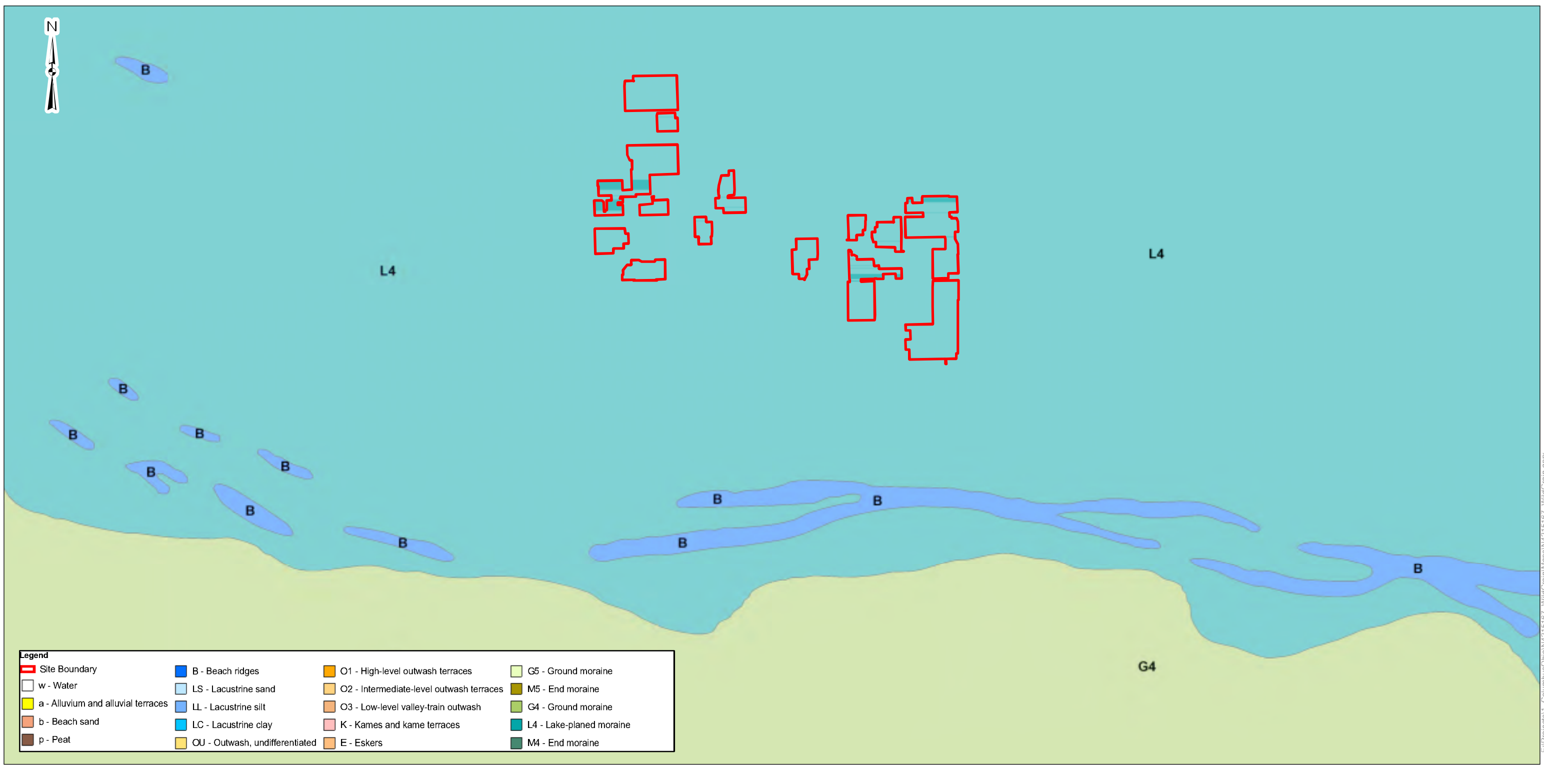
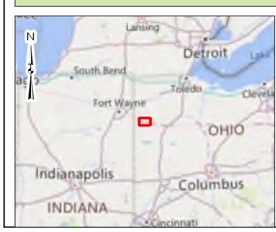
EXPLORATION PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720





DATASOURCES:
Ohio USGS.

Feet
0 3,000 6,000 12,000

Project No.: N4215167

Date: October 2021

Drawn By: KT

Reviewed By: JNT

Terracon

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GEOLOGY PLAN

Wild Grain Solar
Van Wert County, Ohio

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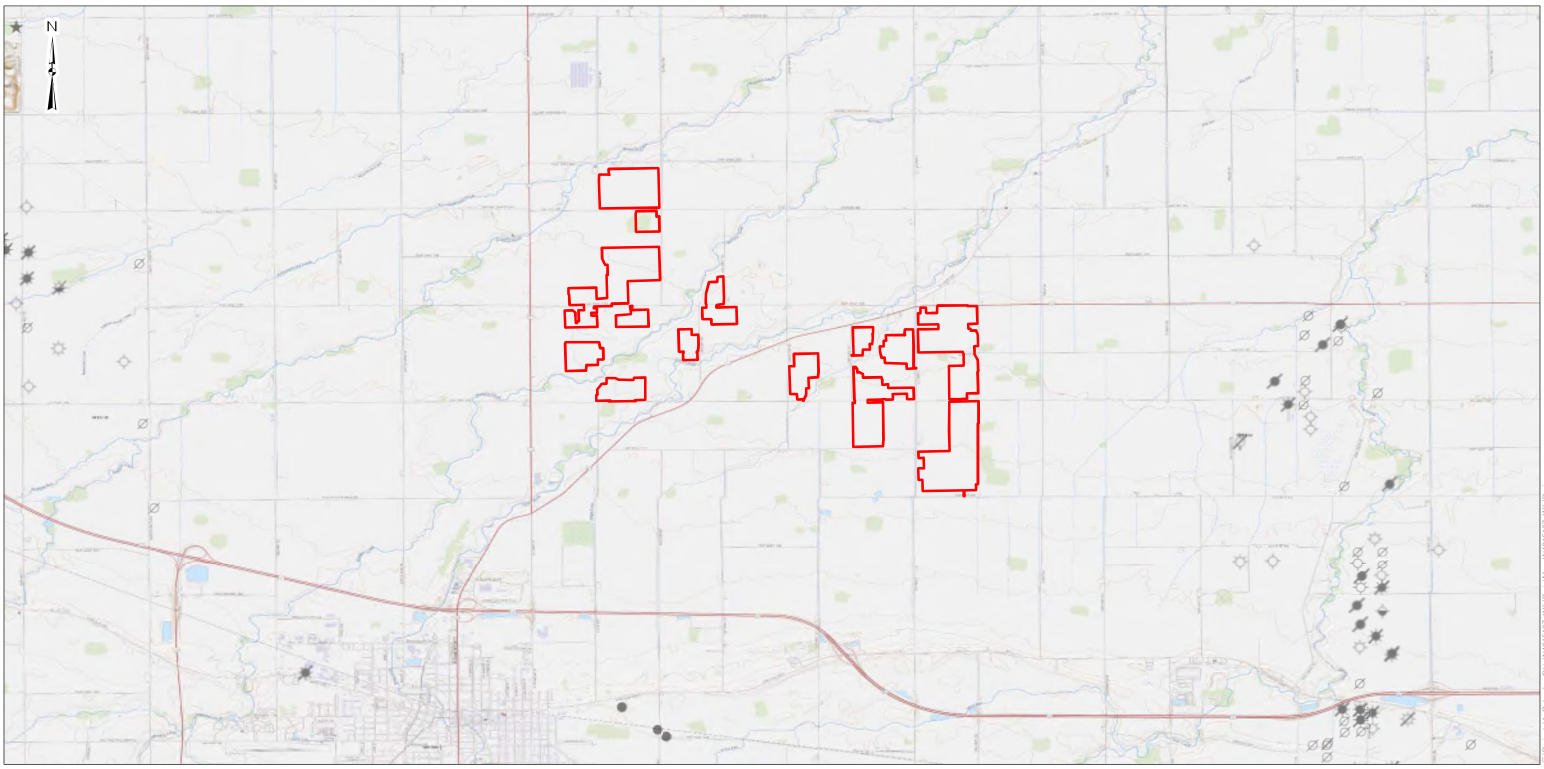
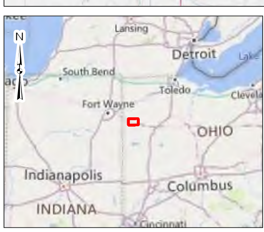
Portland, Oregon 9720





Legend

- Site Boundary

Ohio Oil and Gas Wells

- Unknown status
- Dry hole
- Dry hole with gas show
- Dry hole with oil show
- Expired permit
- Gas
- Oil
- Plugged gas
- Plugged gas with oil show
- Plugged injection
- Plugged oil
- Plugged oil and gas
- Plugged oil with gas show

DATASOURCES:
USGS Topo tile base map service of The National Map (TNM), data refreshed May 2020;9; Wells acquired from ohiodnr.gov.

0 0.5 1 2 Miles

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

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Ohio Oil and Gas Wells

Wild Grain Solar
Van Wert County, Ohio

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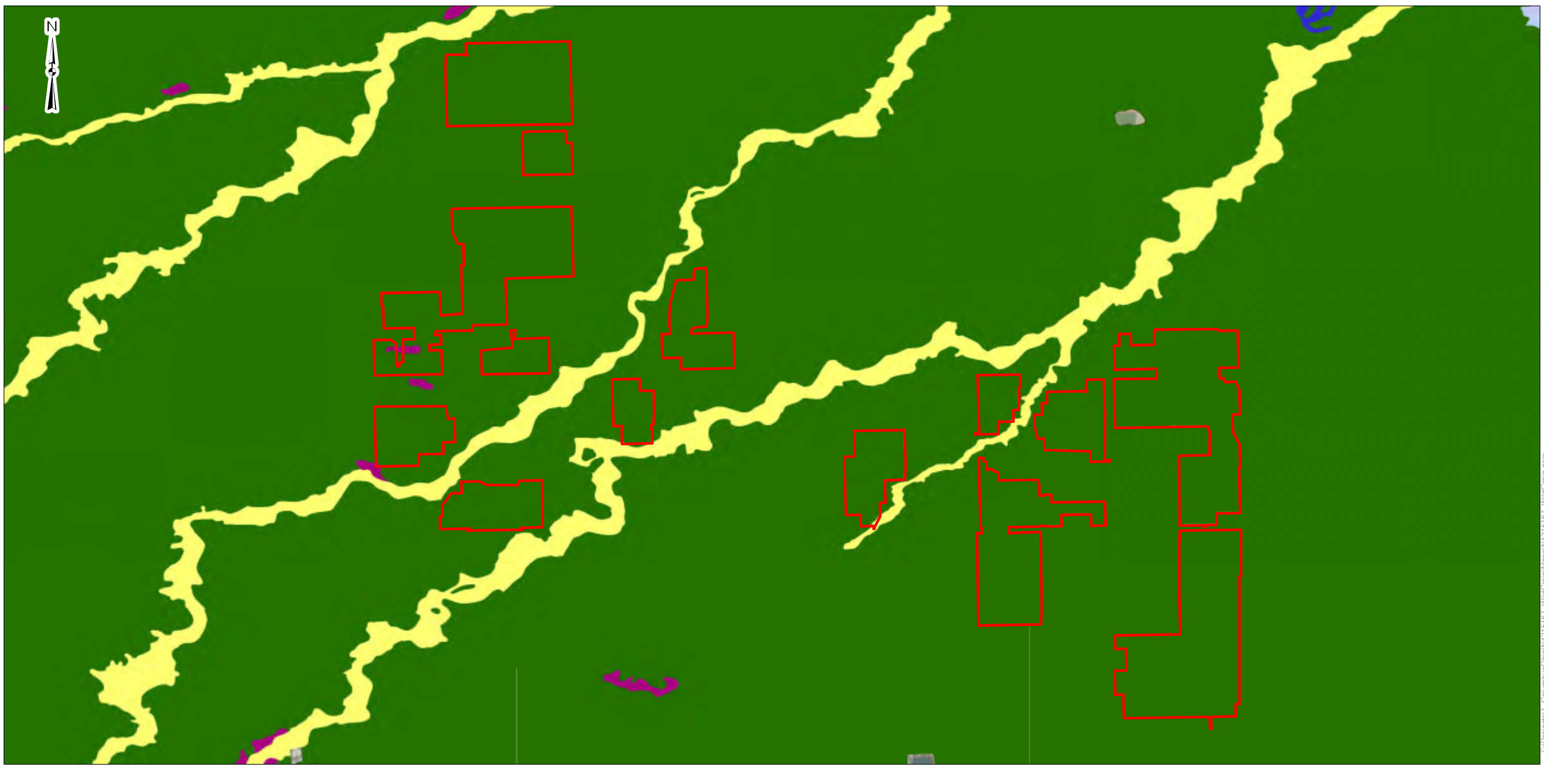

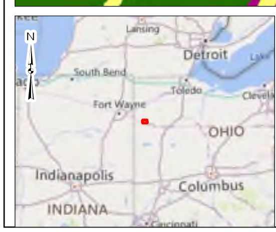

Legend

Site Boundary

Soil Parent Materials

Till

Alluvium

Outwash

DATASOURCES:
ESRI World Imagery provided
by USDAFSA, NAIP 2019; NRCS data.

Feet
0 1,250 2,500 5,000

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

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PARENT SOIL MATERIAL PLAN

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Van Wert County, Ohio

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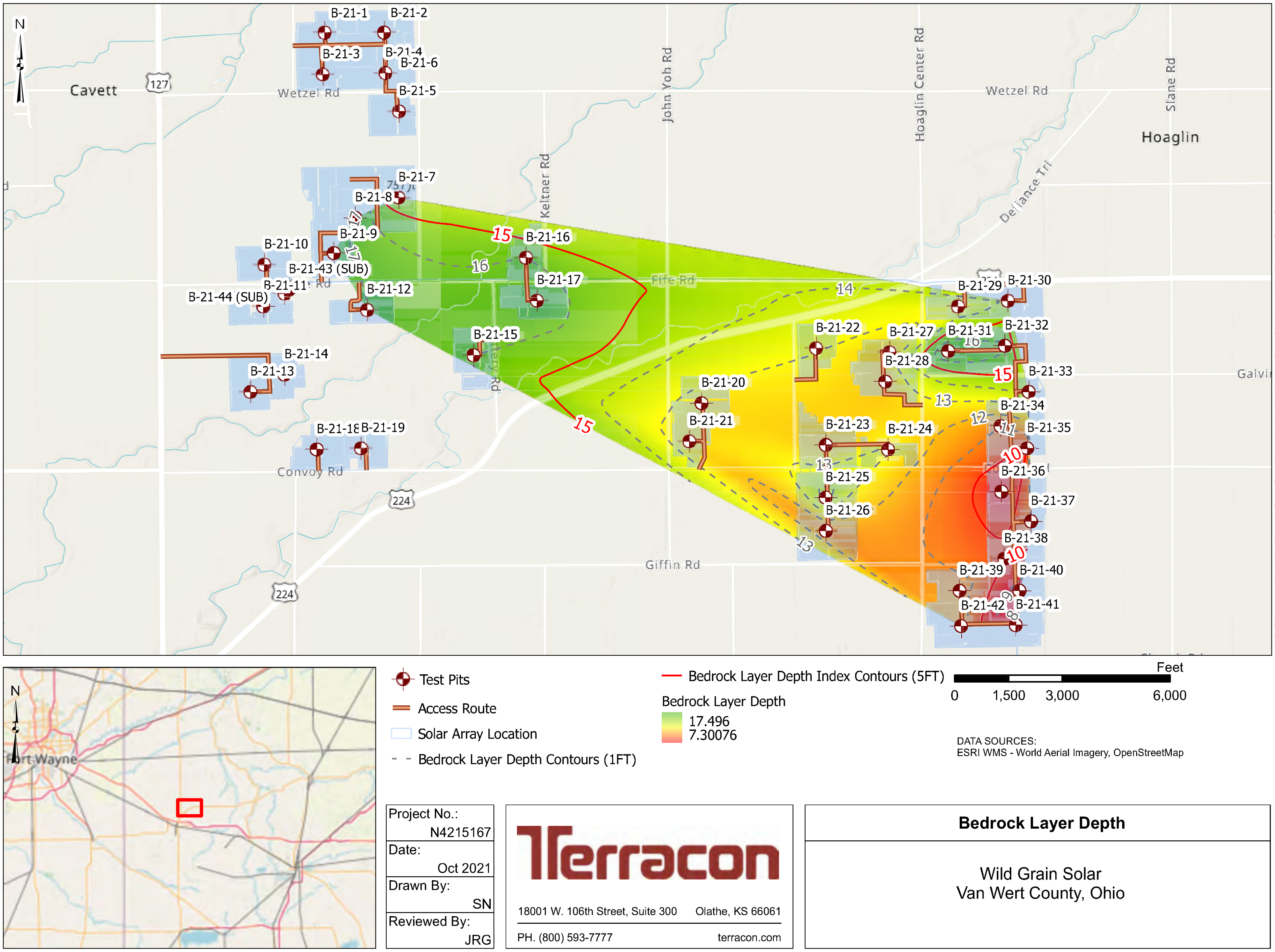


Project No.:	N4215167
Date:	Oct 2021
Drawn By:	SN
Reviewed By:	JRG

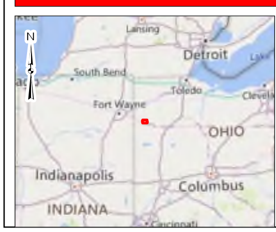
Terracon

18001 W. 106th Street, Suite 300 Olathe, KS 66061

PH. (800) 593-7777 terracon.com

Bedrock Layer Depth

Wild Grain Solar
Van Wert County, Ohio



Legend

Site Boundary

Corrosion of Steel

- High
- Moderate
- Low
- Null

DATASOURCES:
ESRI World Imagery provided
by USDAFSA, NAIP 2019; NRCS data.

0 1,250 2,500 5,000 Feet

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

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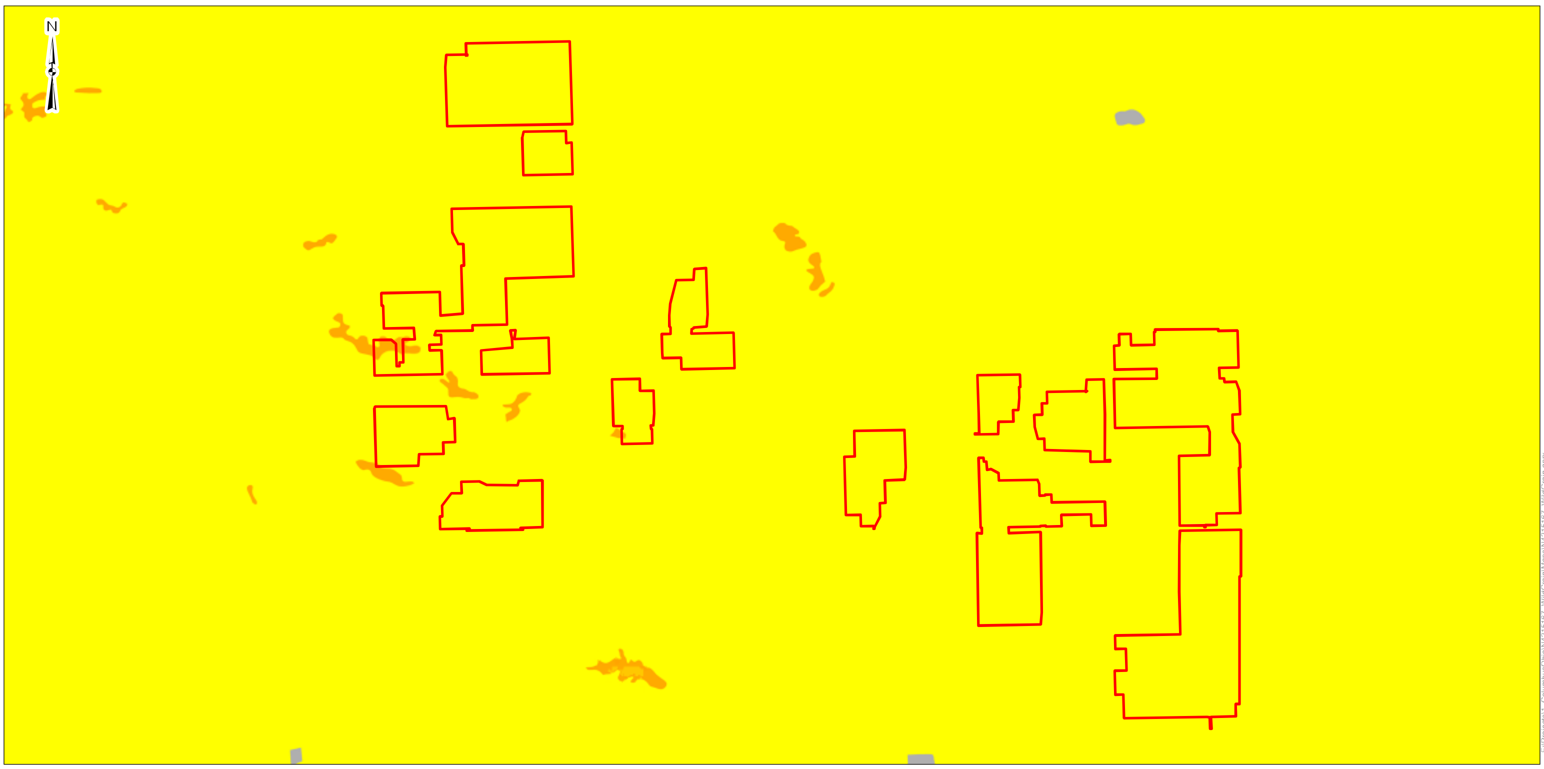
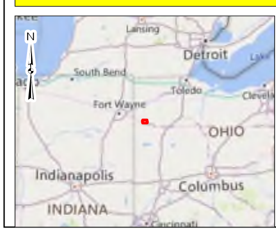
STEEL CORROSION RISK PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720





Legend

Site Boundary

Corrosion of Concrete

- High
- Moderate
- Low
- Null

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

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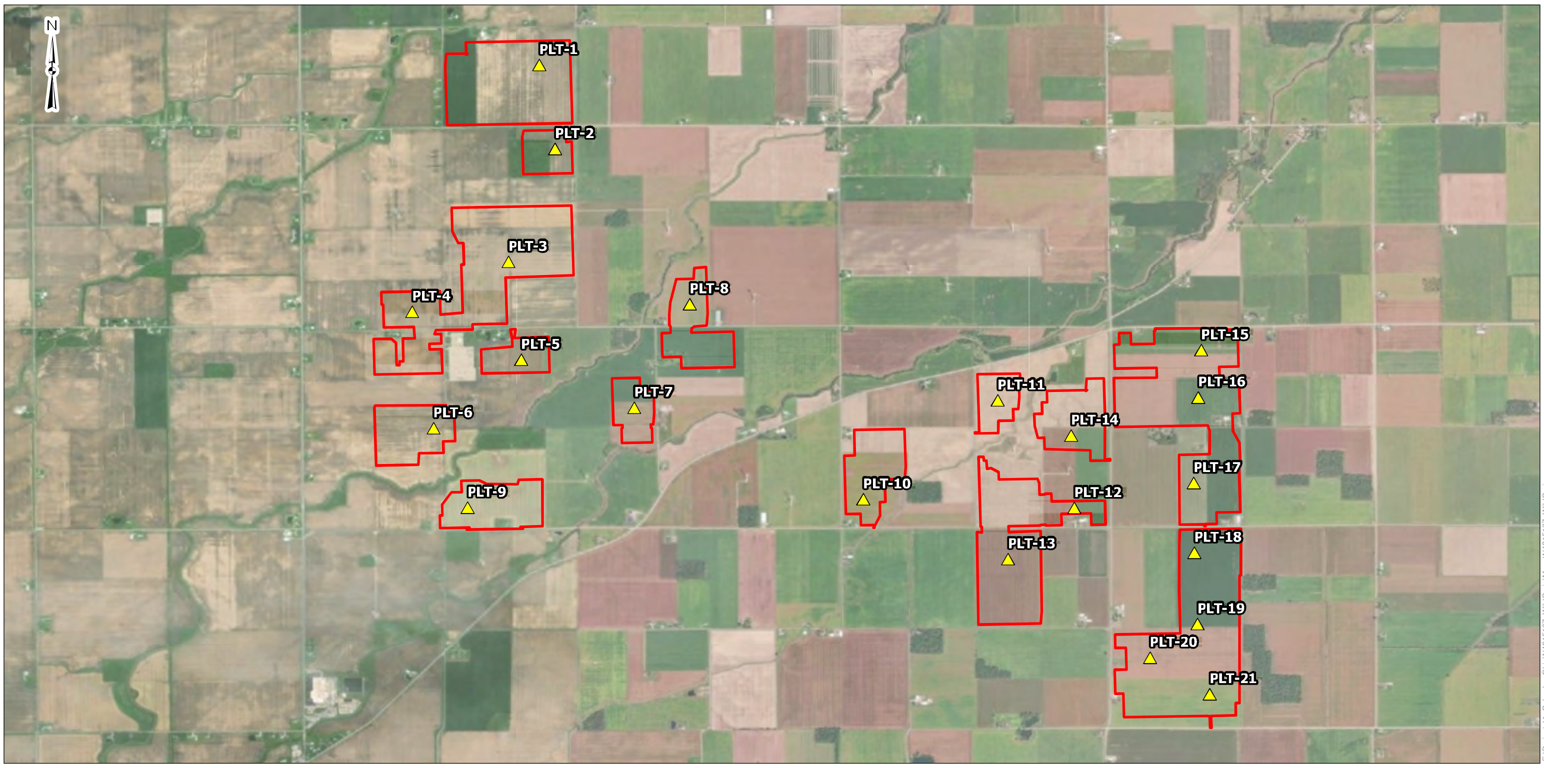
DATASOURCES:
ESRI World Imagery provided
by USDAFSA, NAIP 2019; NRCS data.

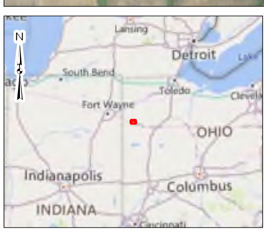
0 1,250 2,500 5,000 Feet

CONCRETE CORROSION RISK PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720





Legend

- Site Boundary
- Pile Load Test Location

DATASOURCES:
ESRI World Imagery provided
by USDAFSA, NAIP 2019

0 1,250 2,500 5,000 Feet

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

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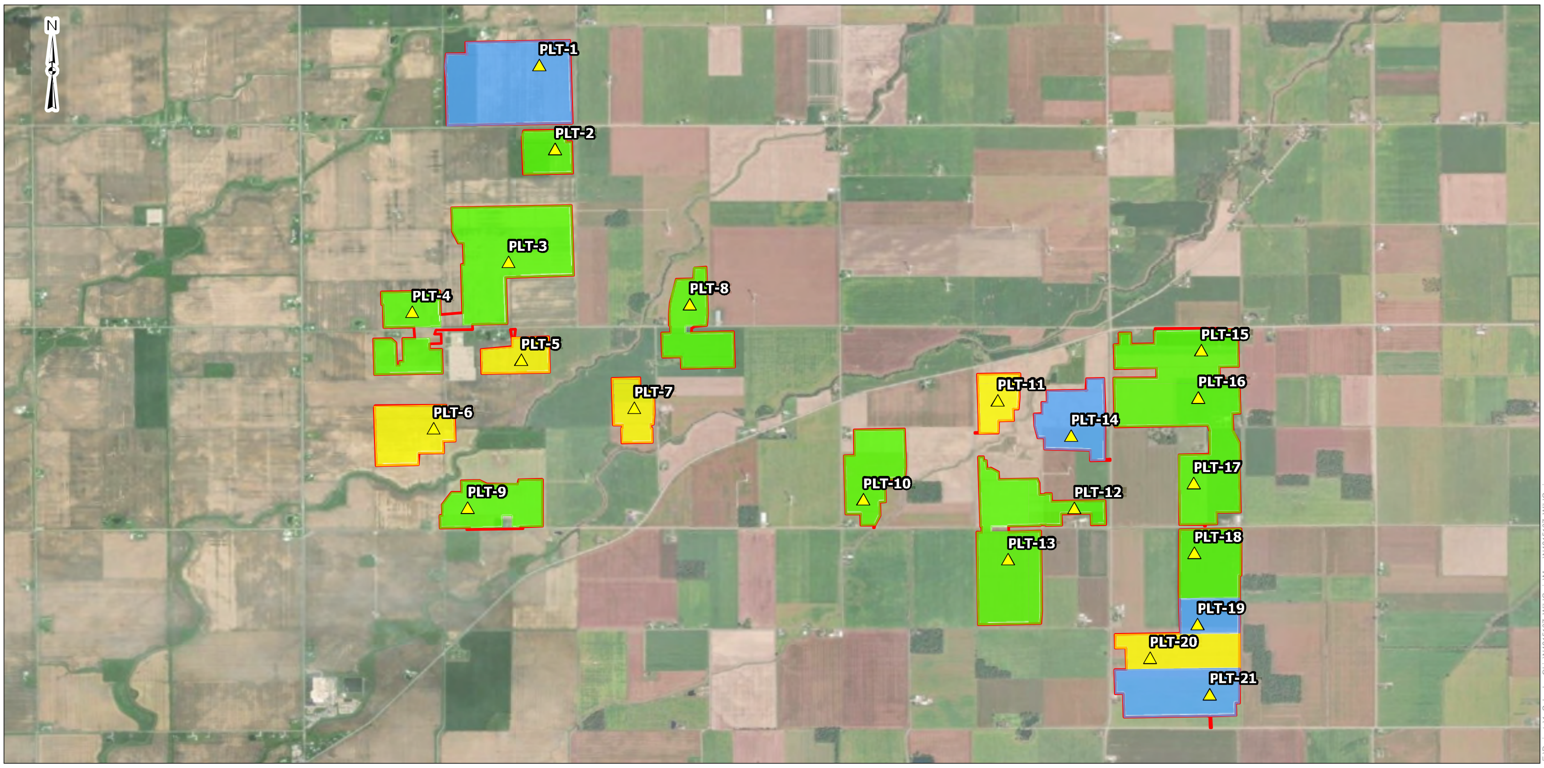
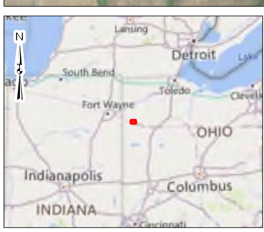
PILE TEST LOCATION PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720





Legend

- Site Boundary
- Pile Load Test Location
- Zone A
- Zone B
- Zone C

DATASOURCES:
ESRI World Imagery provided
by USDAFSA, NAIP 2019

Feet
0 1,250 2,500 5,000

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

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PILE ZONE LOCATION PLAN

Wild Grain Solar
Van Wert County, Ohio

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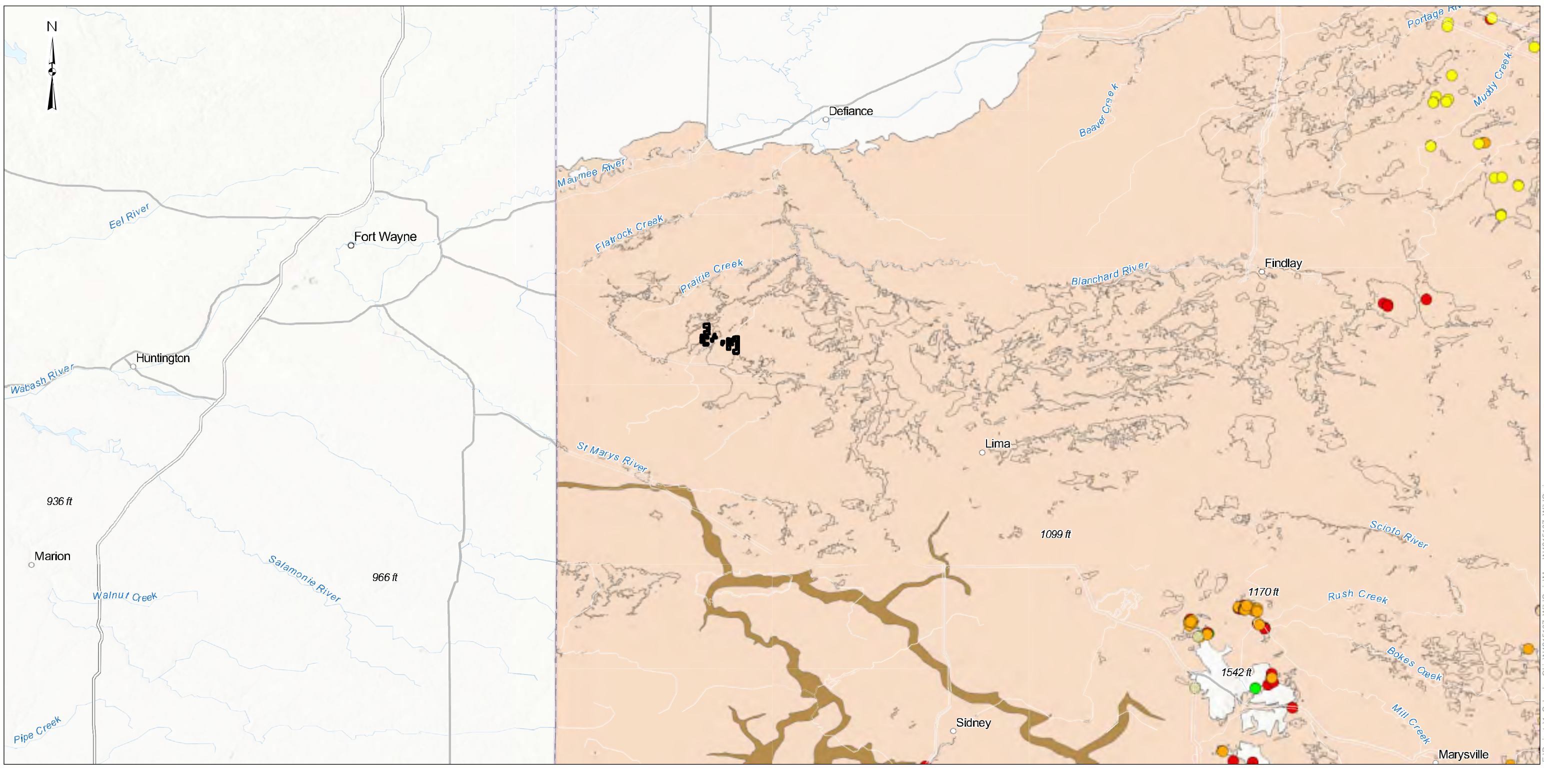
Portland, Oregon 9720



Legend

Site Boundary

Karst

- Check
- Karst - Field Verified
- Karst - Suspect-Field Visited
- Karst - Suspect-Not Visited
- Maybe
- Spring

Karst Areas

- LS
- LS-SH

DATASOURCES:
Ohio USGS.

0 5 10 20 Miles

Project No.:	N4215167
Date:	October 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

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KARST PLAN

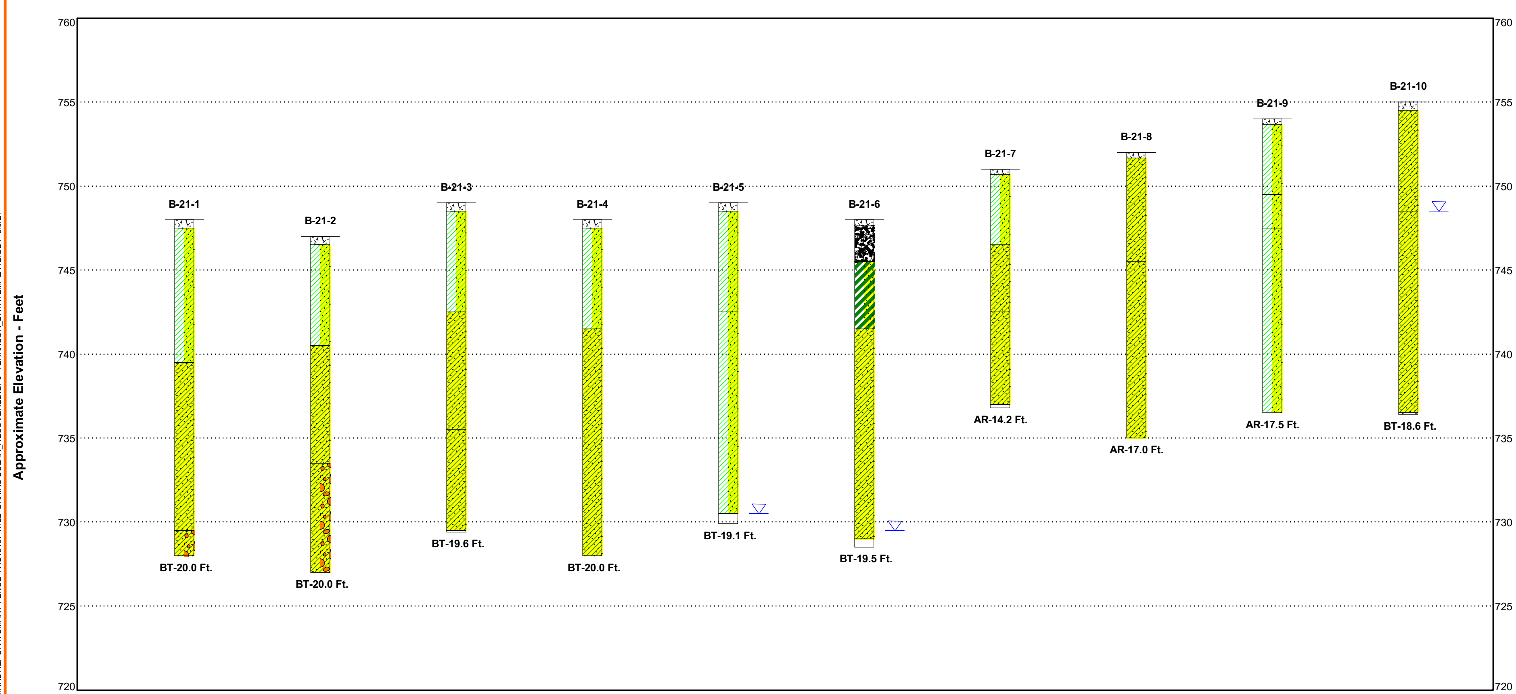
Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720

EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.



Explanation

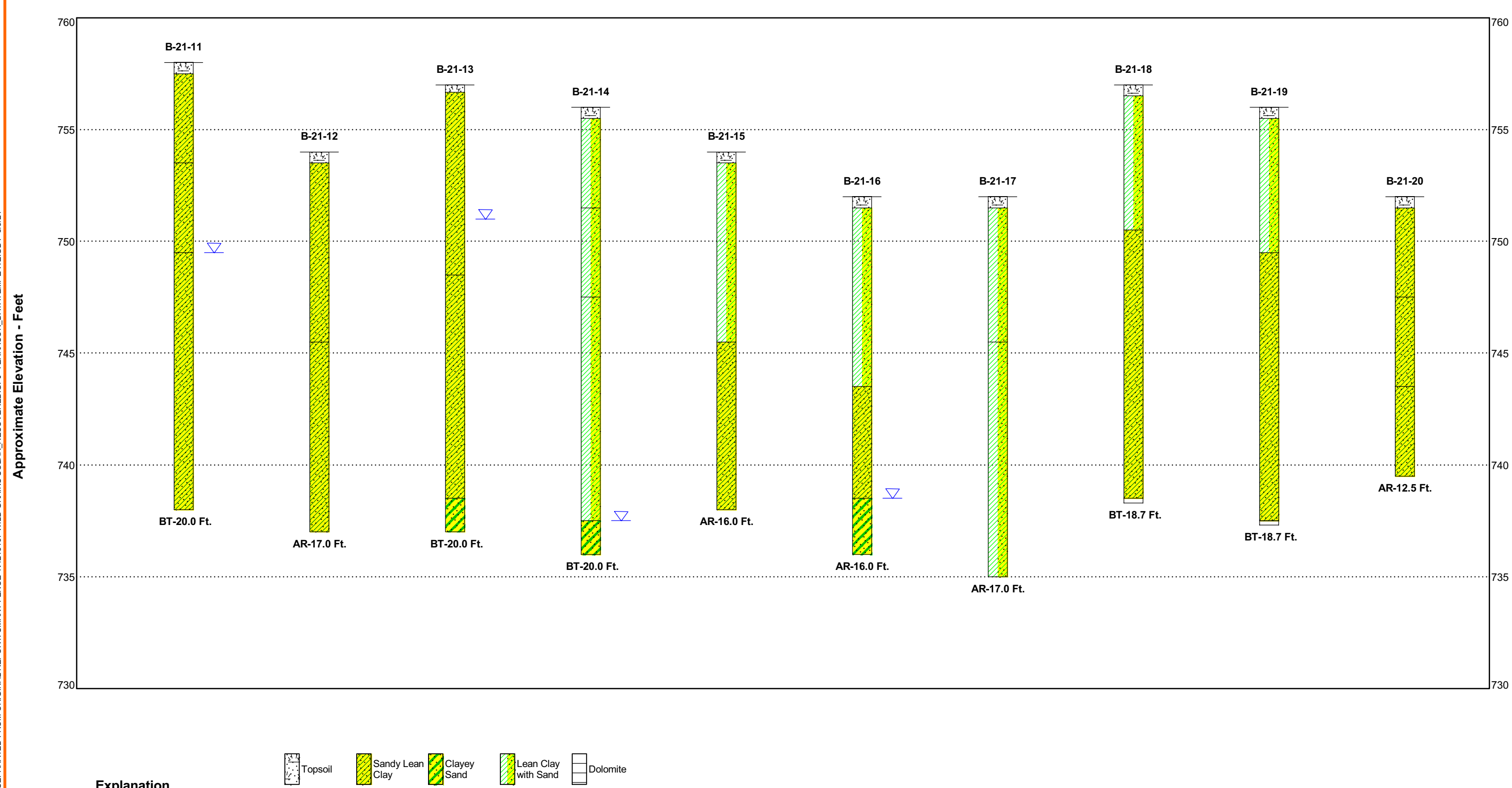
Topsoil | Lean Clay with Sand | Sandy Lean Clay | Sandy Lean Clay with Gravel | Dolomite | Fill | Fat Clay with Sand

B-21-1 — Borehole Number
Moisture Content — %w
LL PL — Liquid and Plastic Limits
Sampling (See General Notes)
Borehole Lithology
AR BT — Borehole Termination Type

Water Level Reading at time of drilling.
Water Level Reading after drilling.

NOTES:
See Exploration Plan for orientation of soil profile.
See General Notes in Supporting Information for symbols and soil classifications.
Soils profile provided for illustration purposes only.
Soils between borings may differ
AR - Auger Refusal
BT - Boring Termination

Project No.: N4215167	Terracon 800 Morrison Rd Gahanna, OH	**SUBSURFACE PROFILE**
Date: 8/9/2021		WILD GRAINS SOLAR US 27 VAN WERT, OH
Scale: N.T.S		



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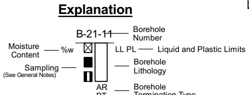


Water Level Reading at time of drilling.

Water Level Reading after drilling.

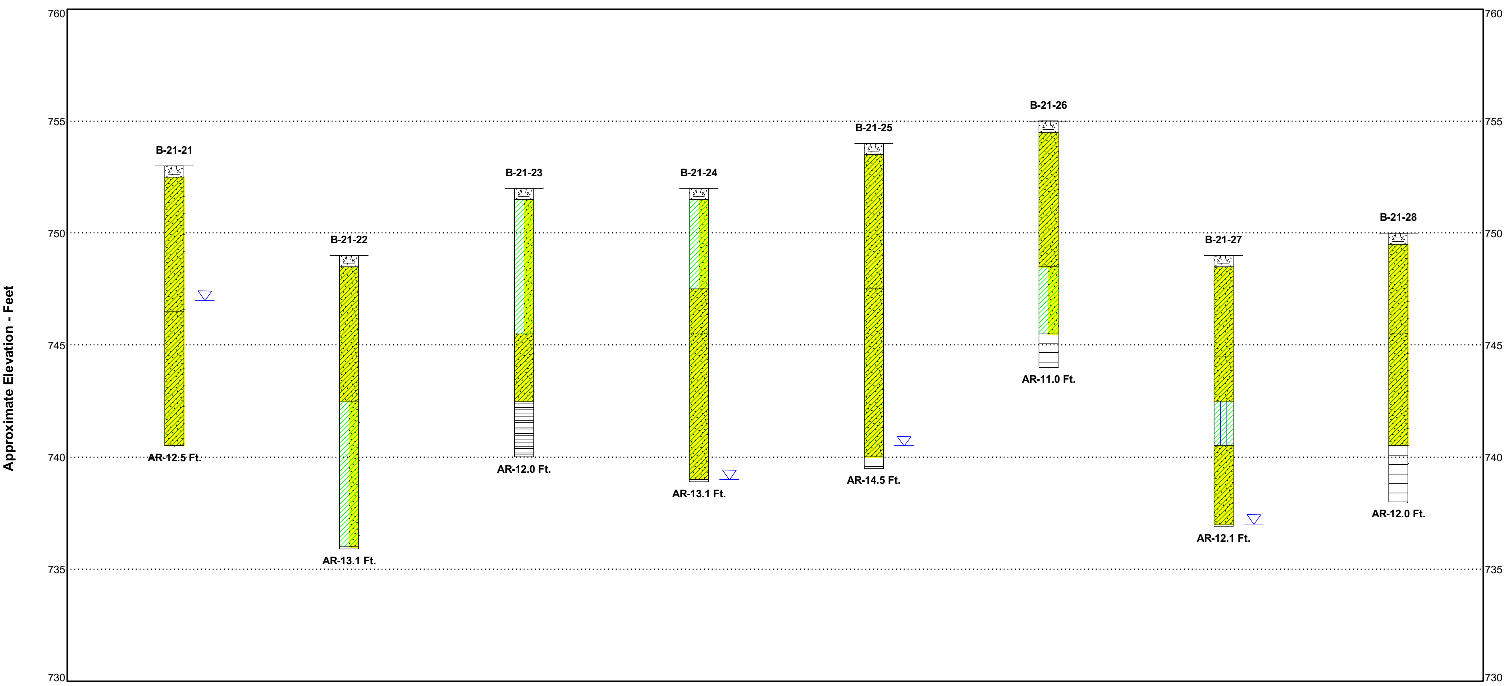
NOTES:
See Exploration Plan for orientation of soil profile.
See General Notes in Supporting Information for symbols and soil classifications.
Soils profile provided for illustration purposes only.
Soils between borings may differ
AR - Auger Refusal
BT - Boring Termination

Project No.: N4215167	
Date: 8/9/2021	Terracon 800 Morrison Rd Gahanna, OH
Scale: N.T.S	

SUBSURFACE PROFILE

WILD GRAINS SOLAR
US 27
VAN WERT, OH

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SMART FENCE N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/9/21



Topsoil
Sandy Lean Clay
Lean Clay with Sand
Dolomite
Shale
Silty Clay

Explanation

B-21-21 — Borehole Number
Moisture Content — %w
LL PL — Liquid and Plastic Limits
Sampling (See General Notes)
Borehole Lithology
AR BT — Borehole Termination Type
Water Level Reading at time of drilling.
Water Level Reading after drilling.

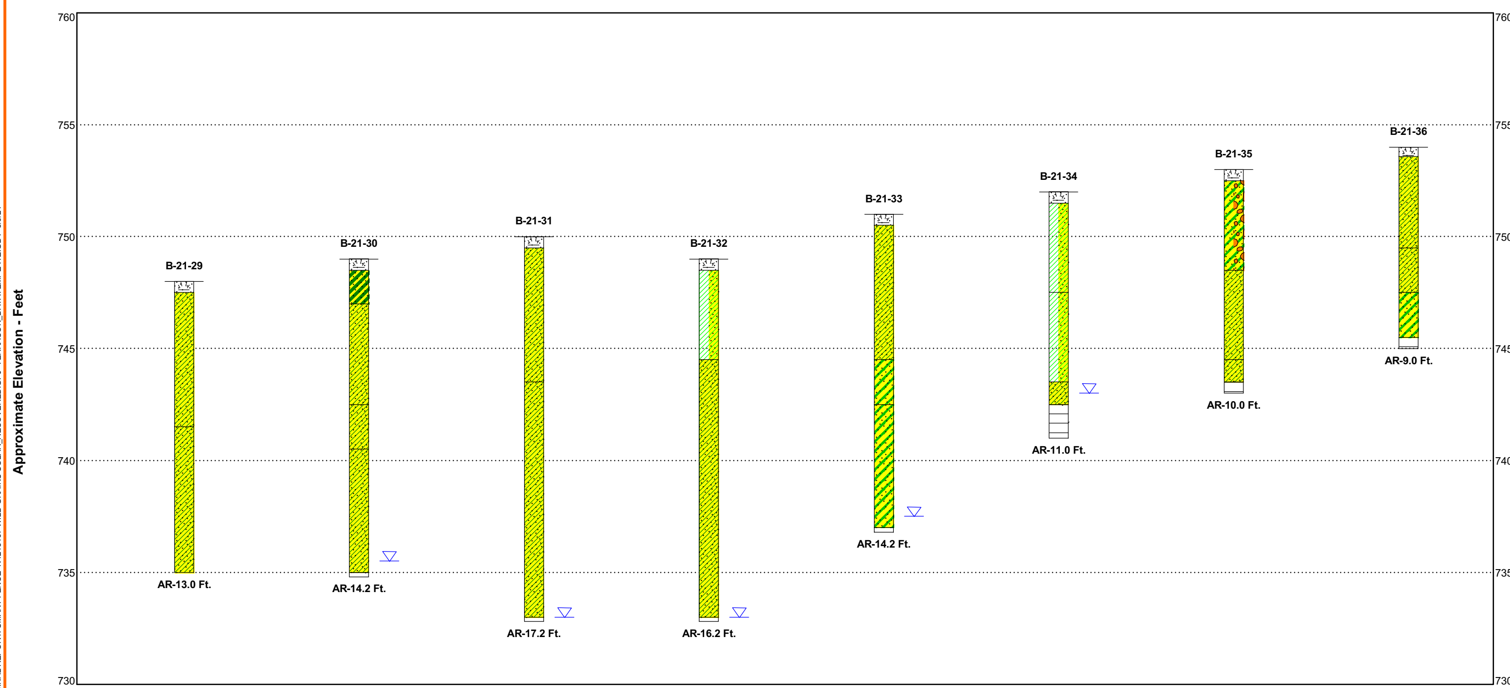
NOTES:
See Exploration Plan for orientation of soil profile.
See General Notes in Supporting Information for symbols and soil classifications.
Soils profile provided for illustration purposes only.
Soils between borings may differ
AR - Auger Refusal
BT - Boring Termination

Project No.: N4215167
Date: 8/9/2021
Scale: N.T.S

Terracon
800 Morrison Rd
Gahanna, OH

SUBSURFACE PROFILE

WILD GRAINS SOLAR
US 27
VAN WERT, OH



Explanation

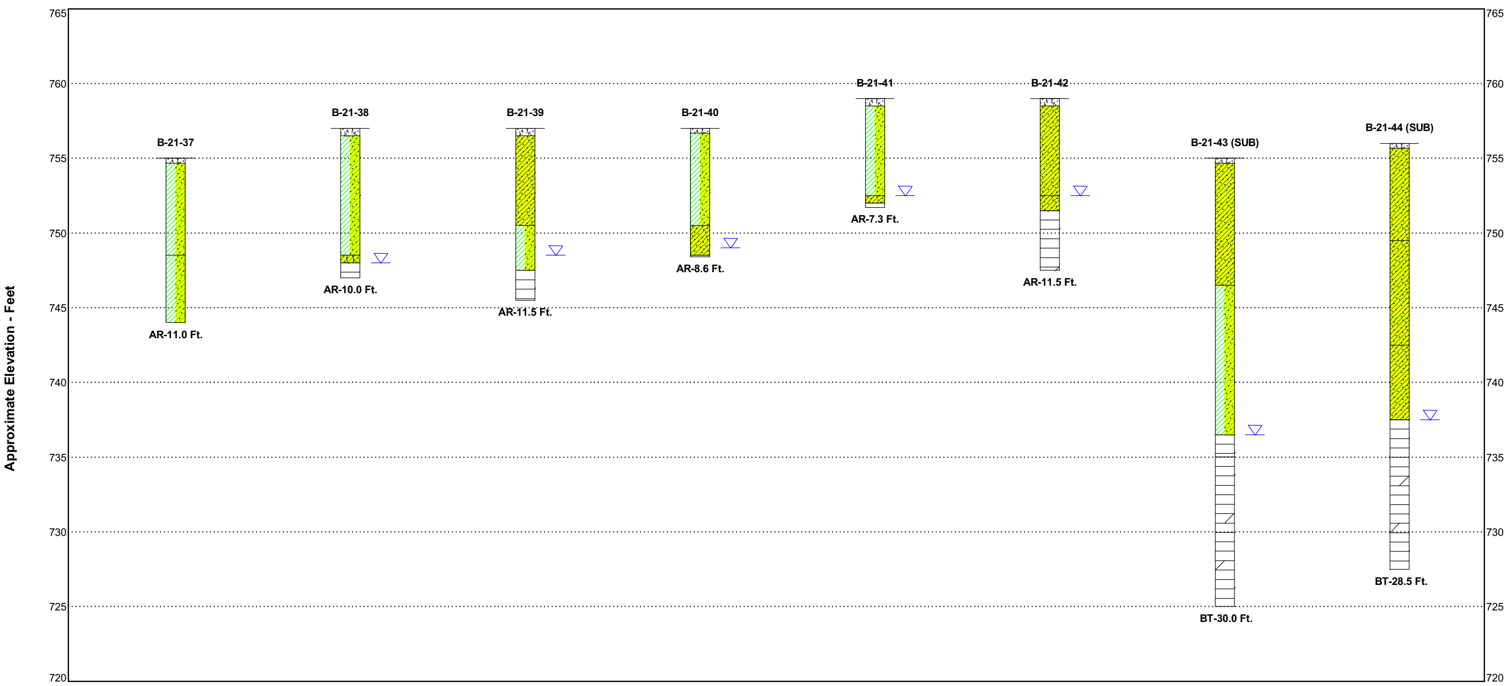
Topsoil | Sandy Lean Clay | Sandy Fat Clay | Dolomite | Lean Clay with Sand | Clayey Sand | Clayey Sand with Gravel

B-21-29 — Borehole Number
Moisture Content — %w
LL PL — Liquid and Plastic Limits
Sampling (See General Notes)
Borehole Lithology
AR BT — Borehole Termination Type

Water Level Reading at time of drilling.
Water Level Reading after drilling.

NOTES:
See Exploration Plan for orientation of soil profile.
See General Notes in Supporting Information for symbols and soil classifications.
Soils profile provided for illustration purposes only.
Soils between borings may differ
AR - Auger Refusal
BT - Boring Termination

Project No.: N4215167	Terracon	**SUBSURFACE PROFILE**
Date: 8/9/2021	800 Morrison Rd Gahanna, OH	WILD GRAINS SOLAR US 27 VAN WERT, OH
Scale: N.T.S		



Topsoil | Lean Clay with Sand | Sandy Silty Clay | Dolomite | Sandy Lean Clay

Explanation

B-21-37 — Borehole Number

Moisture Content — %w

LL PL — Liquid and Plastic Limits

Sampling (See General Notes)

Borehole Lithology

AR BT — Borehole Termination Type

Water Level Reading at time of drilling.

Water Level Reading after drilling.

NOTES:
See Exploration Plan for orientation of soil profile.
See General Notes in Supporting Information for symbols and soil classifications.
Soils profile provided for illustration purposes only.
Soils between borings may differ
AR - Auger Refusal
BT - Boring Termination

Project No.: N4215167	Terracon	**SUBSURFACE PROFILE**
Date: 8/9/2021	800 Morrison Rd Gahanna, OH	WILD GRAINS SOLAR US 27 VAN WERT, OH
Scale: N.T.S		

BORING LOG NO. B-21-1

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9507° Longitude: -84.5596°

Approximate Surface Elev.: 748 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	747.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to very stiff				X	18	2-4-6-6 N=10		4.0 (HP)	24.0	
					X	14	2-4-4 N=8		3.5 (HP)	39.0	
			5		X	18	3-5-7 N=12		4.5 (HP)	16.0	
					X	18	3-11-14 N=25		4.5 (HP)	13.0	
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff	739.5+/-			X	18	4-11-13 N=24		4.5 (HP)	14.0	25-14-11
			10								
					X	18	1-11-14 N=25		4.5 (HP)	15.0	
			15								
18.5	**SANDY LEAN CLAY WITH GRAVEL (CL)**, gray, moist, hard, contains dolomite fragments	729.5+/-			X	18	22-36-40 N=76		-	6.0	
20.0	***Boring Terminated at 20 Feet***	728+/-	20								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-2

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9507° Longitude: -84.5551°

Approximate Surface Elev.: 747 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	746.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	3-3-4-5 N=7		3.5 (HP)	23.0	
									-		
			5			18	3-5-9 N=14		4.5 (HP)	16.0	
6.5		740.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, very stiff					18	3-10-12 N=22		-	17.0	
			10			18	4-9-12 N=21		4.5 (HP)	11.0	
13.5		733.5+/-									
	SANDY LEAN CLAY WITH GRAVEL (CL), gray, moist, hard		15			6	20-18-18 N=36		-	8.0	
						18	9-12-19 N=31		4.5 (HP)	8.0	
20.0		727+/-	20								
	Boring Terminated at 20 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-3

PROJECT: Wild Grains Solar

**CLIENT: Avangrid Renewables
Portland, OR**

**SITE: US 27
Van Wert, OH**

LOCATION See Exploration Plan

Latitude: 40.9475° Longitude: -84.5598°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	748.5+/-									
	LEAN CLAY WITH SAND (CL), brown, moist, medium stiff to stiff				X	13	2-2-3-6 N=5		4.5 (HP)	20.0	
					X	18	2-3-4 N=7		4.0 (HP)	21.0	
			5		X	18	3-3-7 N=10		4.5 (HP)	19.0	36-17-19
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, very stiff to hard	742.5+/-			X	18	4-13-14 N=27		4.5 (HP)	13.0	
			10		X	18	5-14-20 N=34		4.5 (HP)	11.0	
13.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff to hard	735.5+/-	15		X	18	4-11-14 N=25		4.5 (HP)	12.0	
19.5		729.5+/-			X		15-23-50/0"		4.5 (HP)	8.0	
19.6	**DOLOMITE**, very severely weathered, gray	729.5+/-									
	Boring Terminated at 19.6 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-4

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9476° Longitude: -84.5550°

Approximate Surface Elev.: 748 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	747.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					15	2-3-3-5 N=6		4.0 (HP)	24.0	
						18	1-3-6 N=9		4.0 (HP)	22.0	
			5			18	2-2-8 N=10		4.5 (HP)	18.0	
6.5		741.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff					18	8-12-16 N=28		4.5 (HP)	12.0	
			10			18	4-14-14 N=28		4.5 (HP)	11.0	
			15			18	4-6-10 N=16		4.5 (HP)	21.0	
						18	6-10-18 N=28		4.5 (HP)	8.8	
20.0		728+/-	20								
	Boring Terminated at 20 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-5

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9446° Longitude: -84.5540°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6")**	748.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff					18	3-3-3-3 N=6		3.5 (HP)	22.0	
				Cave in		12	2-3-4 N=7		4.5 (HP)	22.0	
			5			18	1-2-3 N=5		4.5 (HP)	23.0	
6.5		742.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, gray, moist, very stiff					18	5-10-12 N=22		4.5 (HP)	13.0	
			10			18	7-12-12 N=24		4.5 (HP)	12.0	
			15			18	16-8-10 N=18		4.5 (HP)	18.0	
18.5		730.5+/-		▽							
19.1	**DOLOMITE**, very severely weathered, gray	730+/-				6	50-50/1"				
	Boring Terminated at 19.1 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 18.5' during drilling*

Cave in at 3.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-24-2021	Boring Completed: 06-24-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-6

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9476° Longitude: -84.5550°

Approximate Surface Elev.: 748 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)
0.3	**TOPSOIL(4")**	747.5+/-
2.5	**FILL - SANDY LEAN CLAY**, brown, moist, Contains brick fragments.	745.5+/-
6.5	**FAT CLAY WITH SAND (CH)**, brown, moist, medium stiff to stiff	741.5+/-
19.0	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff to hard	729+/-
19.5	**DOLOMITE**, very severely weathered, gray	728.5+/-

Boring Terminated at 19.5 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0–2		SPT	12	2-3-5-6 N=8		-	25.0	
2.5–4.5		Shelby tube					-	
4.5–6		SPT	18	1-3-5 N=8		4.5 (HP)	21.0	52-20-32
6.5–8	Cave in at 8.0'	SPT	18	6-17-21 N=38		4.5 (HP)	13.0	
8.5–10		SPT	18	8-20-20 N=40		4.5 (HP)	12.0	
13.5–15		SPT	18	6-7-12 N=19		4.5 (HP)	16.0	
18.5–19.5	Groundwater at 18.5'	SPT	6	10-50/5"		-	9.0	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 18.5' during drilling

Cave in at 8.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-24-2021	Boring Completed: 06-24-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-7

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9381° Longitude: -84.5540°

Approximate Surface Elev.: 751 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4")**	750.5+/-									
	LEAN CLAY WITH SAND (CL), brown, moist, medium stiff				X	14	2-2-3-4 N=5		3.0 (HP)	24.0	
					X	8	1-3-3 N=6		3.5 (HP)	25.0	
4.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, very stiff to hard	746.5+/-	5	Cave in at 6.0'	X	18	3-7-16 N=23		4.5 (HP)	10.0	
					X	18	7-14-16 N=30		4.5 (HP)	9.0	
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, hard	742.5+/-			X	18	7-13-26 N=39		4.5 (HP)	12.0	
			10								
14.0		737+/-			X	6	3-50/2"		-	17.0	
14.2	**DOLOMITE**, very severely weathered, gray	737+/-									
	Auger Refusal on Dolomite Bedrock at 14.2 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:
Rock dust in spoon refusal at 14'

WATER LEVEL OBSERVATIONS

No free water encountered

Cave in at 6.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-24-2021	Boring Completed: 06-24-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-8

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9365° Longitude: -84.5573°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4")**	751.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-2-3-3 N=5		2.5 (HP)	26.0	
						18	2-4-5 N=9		3.5 (HP)	19.0	
			5						-	20.2	
6.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff to hard			Cave in		18	9-14-18 N=32		4.5 (HP)	11.0	
						18	5-12-18 N=30		4.5 (HP)	12.0	
			10								
			15			18	3-8-10 N=18		4.5 (HP)	17.0	
17.0		735+/-									
	Auger Refusal on Dolomite Bedrock at 17 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

Introduced water for rock coring at 20'

WATER LEVEL OBSERVATIONS

No free water encountered

Cave in at 7.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-24-2021	Boring Completed: 06-24-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-9

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9338° Longitude: -84.5589°

Approximate Surface Elev.: 754 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4.0")**	753.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff				X	12	2-3-4-4 N=7		2.5 (HP)	23.0	
					X	11	3-3-4 N=7		2.5 (HP)	22.0	
4.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, moist, very stiff	749.5+/-	5		X	18	4-7-11 N=18		4.5 (HP)	16.0	
6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, gray, moist, very stiff	747.5+/-			X	18	5-7-12 N=19		4.5 (HP)	37.0	
			10		X	18	3-8-11 N=19		4.5 (HP)	12.0	28-13-15
			15		X	18	5-11-18 N=29		4.5 (HP)	19.0	
17.5	***Auger Refusal on Dolomite Bedrock at 17.5 Feet***	736.5+/-									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-10

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9329° Longitude: -84.5642°

Approximate Surface Elev.: 755 (Ft.) +/-

GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	0.5	**TOPSOIL(6")**	754.5+/-									
		SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					9	2-3-4-9 N=7		3.0 (HP)	24.0	
							10	2-3-5 N=8		3.5 (HP)	24.0	
				5			11	3-5-5 N=10		4.5 (HP)	18.0	
	6.5		748.5+/-									
		SANDY LEAN CLAY (CL), gray, moist, very stiff to hard					18	10-12-12 N=24		4.5 (HP)	12.0	25-14-11
							18	5-14-17 N=31		4.5 (HP)	11.0	
				10								
				15			18	10-12-15 N=27		4.5 (HP)	16.0	
	18.5		736.5+/-									
	18.6	**DOLOMITE**, very severely weathered, gray	736.5+/-				0	50/0"		-		
		Boring Terminated at 18.6 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 6.5' during drilling

Cave in at 4.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-23-2021	Boring Completed: 06-23-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-11

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9298° Longitude: -84.5643°

Approximate Surface Elev.: 758 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6")**	757.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff				X	15	2-2-3-3 N=5		4.0 (HP)	17.0	
				Cave in	X	18	3-4-5 N=9		4.5 (HP)	17.0	
4.5		753.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, very stiff		5		X	18	5-8-12 N=20		4.5 (HP)	16.0	
					X	18	5-8-10 N=18		4.5 (HP)	15.0	
8.5		749.5+/-		▽							
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff to hard				X	18	6-7-13 N=20		4.5 (HP)	23.0	
			10								
					X	18	10-14-22 N=36		4.5 (HP)	13.0	
			15								
					X	18	3-14-20 N=34		4.5 (HP)	13.0	
20.0		738+/-	20								
	Boring Terminated at 20 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8.5' during drilling*

Cave in at 4.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-24-2021	Boring Completed: 06-24-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-12

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9295° Longitude: -84.5564°

Approximate Surface Elev.: 754 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	753.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to very stiff					14	2-3-5-7 N=8		4.5 (HP)	23.0	
			5			18	3-6-12 N=18		4.5 (HP)	14.0	
						18	6-5-8 N=13		4.5 (HP)	12.0	
8.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, hard					18	7-11-20 N=31		4.5 (HP)	12.0	
			10								
						18	7-17-28 N=45		4.5 (HP)	9.0	
			15								
17.0		737+/-									

Auger Refusal on Dolomite Bedrock at 17 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-13

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9232° Longitude: -84.5653°

Approximate Surface Elev.: 757 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4.0")**	756.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff				X	12	2-3-4-6 N=7		4.5 (HP)	17.0	
					X	6	3-4-5 N=9		4.5 (HP)	22.0	
			5	▽	X	18	2-2-5 N=7		2.0 (HP)	27.0	
					X	18	4-7-8 N=15		-	8.0	23-12-11
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff	748.5+/-			X	18	3-7-9 N=16		4.5 (HP)	12.0	
			10								
					X	18	3-9-15 N=24		4.5 (HP)	14.0	
			15								
18.5	**CLAYEY SAND (SC)**, trace gravel, gray, wet, dense	738.5+/-			X	18	9-15-20 N=35		-	8.0	
20.0	***Boring Terminated at 20 Feet***	737+/-	20								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 6.0' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-14

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9246° Longitude: -84.5627°

Approximate Surface Elev.: 756 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	755.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	3-4-4-5 N=8		4.5 (HP)	21.0	
									-		
4.5		751.5+/-	5								
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, very stiff					18	6-8-10 N=18		4.5 (HP)	15.0	
						18	7-9-16 N=25		4.5 (HP)	14.0	
8.5		747.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, gray, moist, very stiff to hard					18	17-20-20 N=40		4.5 (HP)	11.0	
			10								
						18	5-9-16 N=25		4.5 (HP)	18.0	
			15								
18.5		737.5+/-		▽							
	CLAYEY SAND (SC), trace gravel, gray, wet, medium dense					18	9-11-17 N=28		-	10.0	
20.0		736+/-	20								
	Boring Terminated at 20 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 18.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-28-2021	Boring Completed: 06-28-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL N4215167 WILD GRAINS SOLAR_TEST FILE.GPJ TERRACON_DATATEMPLATE.GDT 8/9/21

BORING LOG NO. B-21-15

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9260° Longitude: -84.5483°

Approximate Surface Elev.: 754 (Ft.) +/-

DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	753.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, stiff to very stiff				X	18	2-4-5-7 N=9		4.5 (HP)	19.0	
					X	14	4-4-6 N=10		4.5 (HP)	17.0	
			5		X	18	3-5-5 N=10		4.5 (HP)	17.0	
					X	18	5-13-15 N=28		4.5 (HP)	16.0	
8.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff to hard				X	18	6-8-12 N=20		4.5 (HP)	12.0	
			10								
					X	10	23-25-25 N=50		4.5 (HP)	27.0	
			15								
16.0		738+/-									
	Auger Refusal on Dolomite Bedrock at 16 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-16

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9335° Longitude: -84.5443°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	751.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	4-4-6-8 N=10		4.5 (HP)	21.0	
						18	3-3-5 N=8		4.5 (HP)	23.0	
			5			18	2-6-9 N=15		4.5 (HP)	22.0	38-18-20
						18	3-9-11 N=20		4.5 (HP)	14.0	
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff	743.5+/-				18	6-11-18 N=29		4.5 (HP)	12.0	
			10								
13.5	**CLAYEY SAND (SC)**, trace gravel, gray, wet, very dense	738.5+/-		▽		18	16-32-38 N=70		-	9.0	
16.0		736+/-	15								

Auger Refusal on Dolomite Bedrock at 16 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 13.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-17

PROJECT: Wild Grains Solar

**CLIENT: Avangrid Renewables
Portland, OR**

**SITE: US 27
Van Wert, OH**

LOCATION See Exploration Plan

Latitude: 40.9302° Longitude: -84.5434°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	751.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-2-6-7 N=8		4.0 (HP)	22.0	
						18	2-3-3 N=6		3.5 (HP)	23.0	
			5			18	2-3-4 N=7		4.0 (HP)	22.0	
6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, gray, moist, very stiff to hard	745.5+/-				18	3-10-13 N=23		4.5 (HP)	17.0	
			10			18	4-10-15 N=25		4.5 (HP)	12.0	
			15			18	10-19-23 N=42		4.5 (HP)	11.0	
17.0	***Auger Refusal on Dolomite Bedrock at 17 Feet***	735+/-									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-18

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9189° Longitude: -84.5602°

Approximate Surface Elev.: 757 (Ft.) +/-

DEPTH	DESCRIPTION	ELEVATION (Ft.)
0.5	**TOPSOIL(6.0")**	756.5+/-
6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, moist, soft to medium stiff	750.5+/-
18.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff to hard	738.5+/-
18.7	**DOLOMITE**, very severely weathered, gray	738.5+/-

Boring Terminated at 18.7 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0–1.5			17	2-2-4-4 N=6		3.5 (HP)	25.0	
2.5–4.5						-		
4.5–6			8	2-2-2 N=4		2.5 (HP)	25.0	
6.5–8			18	4-10-12 N=22		4.5 (HP)	17.0	
8.5–10			18	9-8-11 N=19		4.5 (HP)	9.0	
13.5–15			18	7-13-17 N=30		4.5 (HP)	12.0	
18.5–18.7			2	50/2"		-		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-19

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9189° Longitude: -84.5569°

Approximate Surface Elev.: 756 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	755.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-2-4-6 N=6		4.0 (HP)	25.0	
						18	2-3-3 N=6		3.5 (HP)	24.0	34-15-19
			5			18	3-3-5 N=8		4.5 (HP)	19.0	
6.5		749.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, hard					18	10-16-22 N=38		4.5 (HP)	11.0	
						18	7-15-18 N=33		4.5 (HP)	12.0	
			10								
						18	16-20-26 N=46		4.5 (HP)	21.0	
			15								
18.5		737.5+/-									
18.7	**DOLOMITE**, very severely weathered, gray	737.5+/-					50/2"		-		
	Boring Terminated at 18.7 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-20

PROJECT: Wild Grains Solar

**CLIENT: Avangrid Renewables
Portland, OR**

**SITE: US 27
Van Wert, OH**

LOCATION See Exploration Plan

Latitude: 40.9224° Longitude: -84.5309°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	751.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-3-7-8 N=10		4.5 (HP)	18.0	
						12	2-3-3 N=6		4.0 (HP)	20.0	
4.5		747.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, very stiff to hard		5			18	3-8-10 N=18		-	16.0	
						18	5-12-20 N=32		4.5 (HP)	13.0	
8.5		743.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff					18	10-12-14 N=26		4.5 (HP)	16.0	
			10								
12.5		739.5+/-									
	Auger Refusal on Dolomite Bedrock at 12.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-21

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9195° Longitude: -84.5318°

Approximate Surface Elev.: 753 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	752.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, stiff to very stiff				X	18	2-2-8-8 N=10		4.5 (HP)	20.0	
					X	18	4-6-8 N=14		4.5 (HP)	18.0	
			5	▽	X	18	8-12-15 N=27		4.5 (HP)	15.0	
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff to hard	746.5+/-			X	18	6-9-12 N=21		4.5 (HP)	15.0	
			10		X	18	6-18-21 N=39		4.5 (HP)	11.0	
12.5	***Auger Refusal on Dolomite Bedrock at 12.5 Feet***	740.5+/-									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 6.0' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-22

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9266° Longitude: -84.5222°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	748.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, stiff					18	4-5-5-7 N=10		4.5 (HP)	21.0	
			5			18	4-6-7 N=13		4.5 (HP)	17.0	
6.5		742.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, gray, moist, very stiff to hard					18	5-13-21 N=34		4.5 (HP)	13.0	
						18	10-12-15 N=27		4.5 (HP)	13.0	26-14-12
			10								
13.0		736+/-									
13.1	**DOLOMITE**, very severely weathered, gray	736+/-					50/1"		-		
	Auger Refusal on Dolomite Bedrock at 13.1 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-23

PROJECT: Wild Grains Solar

**CLIENT: Avangrid Renewables
Portland, OR**

**SITE: US 27
Van Wert, OH**

LOCATION See Exploration Plan

Latitude: 40.9192° Longitude: -84.5214°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	751.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff				X	18	2-4-4-4 N=8		4.5 (HP)	20.0	
					X	18	2-4-5 N=9		4.5 (HP)	22.0	
			5		X	18	2-6-7 N=13		4.5 (HP)	14.0	
6.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, hard				X	18	6-15-20 N=35		4.5 (HP)	28.0	
					X	14	4-18-50/2"		4.5 (HP)	15.0	
9.5		742.5+/-									
	SHALE, very severely weathered, gray		10								
12.0		740+/-									
	Auger Refusal on Shale Bedrock at 12 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-24

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9188° Longitude: -84.5167°

Approximate Surface Elev.: 752 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	751.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-3-3-4 N=6		4.0 (HP)	20.0	
						18	2-4-4 N=8		3.5 (HP)	29.0	
4.5		747.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, stiff		5			18	1-4-8 N=12		4.5 (HP)	14.0	
6.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff to hard					18	7-13-20 N=33		4.5 (HP)	13.0	
						18	7-15-15 N=30		4.5 (HP)	11.0	
			10								
13.0		739+/-		▽							
13.1	**DOLOMITE**, very severely weathered, gray	739+/-					50/1"		-		
	Auger Refusal on Dolomite Bedrock at 13.1 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 13.0' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-25

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9152° Longitude: -84.5214°

Approximate Surface Elev.: 754 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	753.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, stiff to very stiff				X	18	3-4-6-7 N=10		4.5 (HP)	22.0	
					X	7	4-4-5 N=9		4.5 (HP)	23.0	
			5		X	18	4-8-10 N=18		4.5 (HP)	14.0	
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, hard	747.5+/-			X	18	4-18-28 N=46		4.5 (HP)	11.0	
					X	18	5-15-20 N=35		4.5 (HP)	11.0	
			10								
14.0		740+/-		▽							
14.5	**DOLOMITE**, very severely weathered, gray	739.5+/-			X	12	23-38-50/0"		4.5 (HP)	12.0	
	Auger Refusal on Dolomite Bedrock at 14.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 13.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-26

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9126° Longitude: -84.5214°

Approximate Surface Elev.: 755 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	754.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-4-4-6 N=8		3.5 (HP)	23.0	
									-		
			5			18	3-3-5 N=8		2.0 (HP)	24.0	
6.5		748.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, gray, moist, very stiff to hard					18	5-12-17 N=29		4.5 (HP)	14.0	31-14-17
						10	6-38-50/4"		-	8.0	
9.5		745.5+/-									
	DOLOMITE, very severely weathered, gray		10								
11.0		744+/-									

Auger Refusal on Dolomite Bedrock at 11 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-29-2021	Boring Completed: 06-29-2021
Drill Rig: CME45B (#3924)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-27

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9263° Longitude: -84.5165°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6")**	748.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff				X	18	3-3-3-5 N=6		3.5 (HP)	23.0	
4.5		744.5+/-		Cave in	X	9	2-3-3 N=6		4.0 (HP)	22.0	
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, hard	742.5+/-	5		X	18	3-12-20 N=32		4.5 (HP)	13.0	
8.5	**SILTY CLAY (CL-ML)**, gray, moist, hard	740.5+/-			X	18	6-12-18 N=30		-	20.0	25-18-7
12.0	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff	737+/-	10	▽	X	18	5-11-12 N=23		4.0 (HP)	11.0	
12.1	**DOLOMITE**, very severely weathered, gray	737+/-					50/0"		-		
	Auger Refusal on Dolomite Bedrock at 12.1 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

Dolomite frag refusal at 12'

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 12' during drilling*

Cave in at 4.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-25-2021	Boring Completed: 06-25-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-28

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9240° Longitude: -84.5169°

Approximate Surface Elev.: 750 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	749.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff					16	2-3-4-4 N=7		4.5 (HP)	21.0	
						10	2-3-3 N=6		3.5 (HP)	16.0	
4.5		745.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, stiff to hard		5			18	1-5-10 N=15		4.5 (HP)	14.0	
						18	8-12-17 N=29		4.5 (HP)	12.0	
						14	30-35-50/4"		4.5 (HP)	9.0	
9.5		740.5+/-									
	DOLOMITE, very severely weathered, gray		10								
12.0		738+/-									
	Auger Refusal on Dolomite Bedrock at 12 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-29

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9298° Longitude: -84.5113°

Approximate Surface Elev.: 748 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	747.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff				X	18	2-4-4-6 N=8		-	20.0	
					X	18	2-4-4 N=8		4.5 (HP)	23.0	
6.5		741.5+/-	5		X	18	1-3-9 N=12		3.5 (HP)	30.0	
	SANDY LEAN CLAY (CL), gray, moist, very stiff to hard				X	18	6-10-17 N=27		4.5 (HP)	17.0	
			10		X	18	8-10-20 N=30		4.5 (HP)	17.0	
13.0		735+/-									
	Auger Refusal on Dolomite Bedrock at 13 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-30

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9302° Longitude: -84.5075°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	748.5+/-									
2.0	**SANDY FAT CLAY (CH)**, trace gravel, brown, moist, soft to medium stiff	747+/-				18	1-2-2-4 N=4		3.0 (HP)	24.0	51-18-33
									-		
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, medium stiff	742.5+/-	5	▽		9	3-3-3 N=6		4.0 (HP)	24.0	43-16-27
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, very stiff	740.5+/-				18	1-7-9 N=16		-	13.0	
						18	10-24-31 N=55		-	9.0	
14.0	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, hard	735+/-	10	▽		5	10-50/2"		-	3.0	
14.2	**DOLOMITE**, very severely weathered, gray	735+/-									

Auger Refusal on Dolomite Bedrock at 14.2 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 13.5' during drilling*

▽ *Groundwater observed at 6' upon completion*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-31

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9264° Longitude: -84.5121°

Approximate Surface Elev.: 750 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	749.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff				X	14	1-3-4-6 N=7		4.5 (HP)	23.0	
					X	18	3-4-4 N=8		4.0 (HP)	21.0	
			5		X	18	3-4-8 N=12		4.5 (HP)	12.0	
6.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, very stiff to hard	743.5+/-			X	18	3-11-18 N=29		4.5 (HP)	13.0	
					X	18	4-11-13 N=24		4.5 (HP)	10.0	
			10								
			15		X	7	9-30-30 N=60		-	8.0	
17.0		733+/-		∇							
17.2	**DOLOMITE**, very severely weathered, gray	733+/-			X		50/2"		-		
	Auger Refusal on Dolomite Bedrock at 17.2 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

∇ *Groundwater encountered at 17' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-32

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9268° Longitude: -84.5077°

Approximate Surface Elev.: 749 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.5	748.5+/-	**TOPSOIL(6.0")**
4.5	744.5+/-	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, moist, medium stiff
16.0	733+/-	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, very stiff to hard
16.2	733+/-	**DOLOMITE**, very severely weathered, gray

Auger Refusal on Dolomite Bedrock at 16.2 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0–1.5			16	2-2-4-4 N=6		4.5 (HP)	20.0	
2.5–4			18	2-3-3 N=6		4.5 (HP)	22.0	
4.5–6			18	4-8-12 N=20		4.5 (HP)	13.0	
6.5–8			18	4-7-13 N=20		4.5 (HP)	13.0	
8.5–10			18	4-40-43 N=83		4.5 (HP)	7.0	
13.5–15			13	10-32-42 N=74		-	7.0	
16	▽			50/2"		-		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 16' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-33

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9232° Longitude: -84.5059°

Approximate Surface Elev.: 751 (Ft.) +/-

DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	750.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff very stiff				X	14	1-4-6-6 N=10		4.5 (HP)	23.0	
					X	7	2-3-5 N=8		4.0 (HP)	20.0	
			5		X	18	2-6-11 N=17		4.5 (HP)	13.0	
6.5	**CLAYEY SAND (SC)**, trace gravel, gray, wet, medium dense	744.5+/-			X	6	6-14-15 N=29		-	9.0	
8.5	**CLAYEY SAND (SC)**, trace gravel, gray, wet, very dense	742.5+/-			X	18	4-30-26 N=56		-	8.0	
			10								
14.0		737+/-		▽	X	6	48-50/2"		-	5.0	
14.2	**DOLOMITE**, very severely weathered, gray	737+/-									
	Auger Refusal on Dolomite Bedrock at 14.2 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 13.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-34

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9206° Longitude: -84.5081°

Approximate Surface Elev.: 752 (Ft.) +/-

GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	0.5	**TOPSOIL(6.0")**	751.5+/-									
		LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff					12	2-3-3-3 N=6		4.5 (HP)	21.0	
	4.5		747.5+/-									
		LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, very stiff		5			18	2-7-13 N=20		4.5 (HP)	14.0	
							18	4-14-14 N=28		4.5 (HP)	16.0	
	8.5		743.5+/-									
		SANDY LEAN CLAY (CL), trace gravel, gray, moist, hard			▽		12	6-32-50/2"		-	10.0	
	9.5		742.5+/-									
		DOLOMITE, very severely weathered, gray		10								
	11.0		741+/-									
		Auger Refusal on Dolomite Bedrock at 11 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 9' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-35

PROJECT: Wild Grains Solar

**SITE: US 27
Van Wert, OH**

**CLIENT: Avangrid Renewables
Portland, OR**

LOCATION See Exploration Plan

Latitude: 40.9189° Longitude: -84.5060°

Approximate Surface Elev.: 753 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	752.5+/-									
	CLAYEY SAND WITH GRAVEL (SC), brown, moist, loose				X	12	2-2-3-5 N=5		4.5 (HP)	23.0	
					X	12	3-3-3 N=6		4.5 (HP)	23.0	42-15-27
4.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, moist, very stiff	748.5+/-	5		X	18	2-8-10 N=18		4.5 (HP)	13.0	
					X	18	4-8-11 N=19		4.5 (HP)	17.0	
8.5	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, hard	744.5+/-			X	6	10-28-50/2"		-	7.0	
9.5		743.5+/-									
10.0	**DOLOMITE**, very severely weathered, gray	743+/-	10								
	Auger Refusal on Dolomite Bedrock at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-30-2021	Boring Completed: 06-30-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-36

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9156° Longitude: -84.5080°

Approximate Surface Elev.: 754 (Ft.) +/-

GRAPHIC LOG	DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	0.4	**TOPSOIL(5.0")**	753.5+/-									
		SANDY LEAN CLAY (CL), trace gravel, brown, moist, soft to medium stiff					18	2-2-2-3 N=4		2.0 (HP)	24.0	
							12	2-2-3 N=5		2.5 (HP)	21.0	
	4.5		749.5+/-									
		SANDY LEAN CLAY (CL), trace gravel, brown, moist, very stiff		5			18	2-8-12 N=20		4.5 (HP)	13.0	
	6.5		747.5+/-									
		CLAYEY SAND (SC), trace gravel, gray, moist, dense to very dense					18	4-16-26 N=42		-		
	8.5		745.5+/-									
	9.0	**DOLOMITE**, very severely weathered, gray	745+/-				3	50/3"		-		
		Auger Refusal on Dolomite Bedrock at 9 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-37

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9134° Longitude: -84.5057°

Approximate Surface Elev.: 755 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4.0")**	754.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff				X	18	2-2-3-4 N=5		4.5 (HP)	20.0	
					X	18	2-3-3 N=6		4.5 (HP)	24.0	
			5		X	18	2-2-3 N=5		3.0 (HP)	25.0	
6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, gray, moist, hard	748.5+/-			X	18	6-15-17 N=32		4.5 (HP)	13.0	
					X	16	12-38-50 N=88		4.5 (HP)	7.0	
11.0		744+/-	10								

Auger Refusal on Dolomite Bedrock at 11 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water encountered

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-38

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9105° Longitude: -84.5078°

Approximate Surface Elev.: 757 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	756.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, soft to stiff					18	2-3-3-4 N=6		-	24.0	
									-		
			5			18	2-2-2 N=4		2.0 (HP)	25.0	
						18	3-4-9 N=13		4.5 (HP)	13.0	
8.5		748.5+/-									
9.0	**SANDY SILTY CLAY (CL-ML)**, trace gravel, brown, moist, hard	748+/-		∇		8	12-50/5"		-	18.0	16-11-5
10.0	**DOLOMITE**, very severely weathered, gray	747+/-	10								
	Auger Refusal on Dolomite Bedrock at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

∇ *Groundwater encountered at 9' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-39

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9081° Longitude: -84.5112°

Approximate Surface Elev.: 757 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	756.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					14	2-4-6-6 N=10		4.0 (HP)	19.0	
						18	3-3-3 N=6		3.0 (HP)	23.0	
			5			18	2-3-3 N=6		3.0 (HP)	22.0	
6.5		750.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, very stiff to hard			▽		18	3-8-9 N=17		4.5 (HP)	12.0	26-12-14
				▽		18	8-24-30 N=54		-	8.0	
9.5		747.5+/-									
	DOLOMITE, very severely weathered, gray		10								
11.5		745.5+/-									
	Auger Refusal on Dolomite Bedrock at 11.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8.5' during drilling*

▽ *Groundwater observed at 7' upon completion*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-40

PROJECT: Wild Grains Solar

**CLIENT: Avangrid Renewables
Portland, OR**

**SITE: US 27
Van Wert, OH**

LOCATION See Exploration Plan

Latitude: 40.9081° Longitude: -84.5066°

Approximate Surface Elev.: 757 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4.0")**	756.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-3-3-4 N=6		-	23.0	
						18	2-3-4 N=7		2.5 (HP)	19.0	
			5			18	2-3-5 N=8		2.0 (HP)	25.0	
6.5		750.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, stiff			▽		18	2-5-8 N=13		-	9.0	
8.5		748.5+/-									
8.6	**DOLOMITE**, very severely weathered, gray	748.5+/-					50/1"		-		
	Auger Refusal on Dolomite Bedrock at 8.6 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-41

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9054° Longitude: -84.5069°

Approximate Surface Elev.: 759 (Ft.) +/-

DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	758.5+/-									
	LEAN CLAY WITH SAND (CL), trace gravel, brown, moist, soft to medium stiff					18	2-3-3-3 N=6		4.0 (HP)	23.0	
						18	3-3-3 N=6		4.0 (HP)	23.0	
			5			10	2-2-2 N=4		3.0 (HP)	34.0	
6.5		752.5+/-		▽							
7.0	**SANDY LEAN CLAY (CL)**, trace gravel, gray, moist, hard	752+/-				7	10-50/3"		4.5 (HP)	11.0	
7.3	**DOLOMITE**, very severely weathered, gray	751.5+/-									

Auger Refusal on Dolomite Bedrock at 7.3 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 6.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-42

PROJECT: Wild Grains Solar

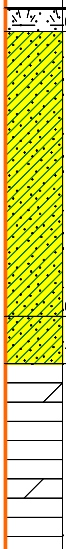
CLIENT: Avangrid Renewables, Portland, OR

SITE: US 27, Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9054° Longitude: -84.5111°

Approximate Surface Elev.: 759 (Ft.) +/-



DEPTH	Material Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.5	**TOPSOIL(6.0")**	758.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff					18	2-4-4-5 N=8		4.5 (HP)	22.0	
						18	2-3-4 N=7		4.0 (HP)	22.0	
			5			18	4-4-7 N=11		4.5 (HP)	22.0	29-15-14
6.5		752.5+/-		▽							
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, hard					16	8-22-50/5"		-	10.0	
7.5		751.5+/-									
	DOLOMITE, very severely weathered, gray					6	30-50/1"		-		
			10								
11.5		747.5+/-									

Auger Refusal on Dolomite Bedrock at 11.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 6.5' during drilling*

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 07-01-2021	Boring Completed: 07-01-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-43 (SUB)

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9310° Longitude: -84.5624°

Approximate Surface Elev.: 755 (Ft.) +/-

DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4")**	754.5+/-									
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff very stiff					16	3-5-6-7 N=11		4.5 (HP)	21.0	
						10	2-3-5 N=8		3.0 (HP)	22.0	
			5			18	2-7-10 N=17		4.5 (HP)	16.0	
8.5		746.5+/-				18	4-12-14 N=26		4.5 (HP)	13.0	
	LEAN CLAY WITH SAND (CL), trace gravel, gray, moist, very stiff to hard		10			18	10-14-17 N=31		4.5 (HP)		27-14-13
			15			18	4-9-12 N=21		4.5 (HP)		
18.5		736.5+/-									
20.0	**DOLOMITE**, very severely weathered, gray	735+/-				8	26-28-50/2"		-		
	DOLOMITE, Severely to very severely weathered, moderately hard to hard, close to moderately close joints spacing, medium to thin badded, fair RQD, slightly to moderately open,gray. Vugs encountered at 22.7', 23.1', 25.2', 26.4', 26.9', 28.7', and 29.6' .		20 / 25			52		58			

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"/NQ2

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 18.5' during drilling

Groundwater observed at 16' upon completion

Cave in at 16.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-23-2021	Boring Completed: 06-23-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-43 (SUB)

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables
Portland, OR

SITE: US 27
Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9310° Longitude: -84.5624°

Approximate Surface Elev.: 755 (Ft.) +/-

GRAPHIC LOG	DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	DOLOMITE, Severely to very severely weathered, moderately hard to hard, close to moderately close joints spacing, medium to thin badded, fair RQD, slightly to moderately open,gray. Vugs encountered at 22.7', 23.1', 25.2', 26.4', 26.9', 28.7', and 29.6' . *(continued)*				58		72			
	30.0 725+/-	30								
	Boring Terminated at 30 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"/NQ2

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 18.5' during drilling

Groundwater observed at 16' upon completion

Cave in at 16.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-23-2021	Boring Completed: 06-23-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-44 (SUB)

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9307° Longitude: -84.5627°

Approximate Surface Elev.: 756 (Ft.) +/-

DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
0.3	**TOPSOIL(4")**	755.5+/-							
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, medium stiff to stiff			12	1-2-3-5 N=5		3.5 (HP)	24.0	
				10	1-4-5 N=9		4.5 (HP)	20.0	
			5				-	17.5	
6.5		749.5+/-							
	SANDY LEAN CLAY (CL), trace gravel, brown, moist, very stiff to hard			18	6-10-17 N=27		4.5 (HP)	12.0	
				18	12-18-22 N=40		4.5 (HP)	10.0	
			10						
13.5		742.5+/-							
	SANDY LEAN CLAY (CL), trace gravel, gray, moist, very stiff			18	5-12-17 N=29		4.5 (HP)	13.0	
			15						
18.5		737.5+/-							
	DOLOMITE, Severely to very severely weathered, moderately hard to hard, close to moderately close joints spacing, medium to thin badded, poor to fair RQD, slightly to moderately open,gray. Vugs encountered at 21.5', 24.0', 25.6', 26.3', and 28.2' .			22		40			
			20						
				55		70			
			25						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"/NQ2

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 18.5' during drilling

Groundwater observed at 12' upon completion

Cave in at 16.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-23-2021	Boring Completed: 06-23-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

BORING LOG NO. B-21-44 (SUB)

PROJECT: Wild Grains Solar

CLIENT: Avangrid Renewables Portland, OR

SITE: US 27 Van Wert, OH

LOCATION See Exploration Plan

Latitude: 40.9307° Longitude: -84.5627°

Approximate Surface Elev.: 756 (Ft.) +/-

GRAPHIC LOG	DEPTH / MATERIAL DESCRIPTION / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	DOLOMITE, Severely to very severely weathered, moderately hard to hard, close to moderately close joints spacing, medium to thin badded, poor to fair RQD, slightly to moderately open,gray. Vugs encountered at 21.5', 24.0', 25.6', 26.3', and 28.2' . *(continued)*				26		37			
	28.5 — 727.5+/-									
	Boring Terminated at 28.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
HSA 3.25"/NQ2

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater encountered at 18.5' during drilling

Groundwater observed at 12' upon completion

Cave in at 16.0'

Terracon
800 Morrison Rd
Gahanna, OH

Boring Started: 06-23-2021	Boring Completed: 06-23-2021
Drill Rig: Mobile B-57 (#613)	Driller: Zach
Project No.: N4215167	

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS
Wild Grains Solar ■ Van Wert, OH
Terracon Project No. N4215167

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Rock Core; Grab Sample; Shelby Tube; Standard Penetration Test	**Water Initially Encountered**; **Water Level After a Specified Period of Time**; **Water Level After a Specified Period of Time**; **Cave In Encountered**	**N** Standard Penetration Test Resistance (Blows/Ft.); **(HP)** Hand Penetrometer; **(T)** Torvane; **(DCP)** Dynamic Cone Penetrometer; **UC** Unconfined Compressive Strength; **(PID)** Photo-Ionization Detector; **(OVA)** Organic Vapor Analyzer
	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 water level observations.	

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

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

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

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

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-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.

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

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[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.

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

[I] If soil contains $\geq$ 15% gravel, add "with gravel" to group name.

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

[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.

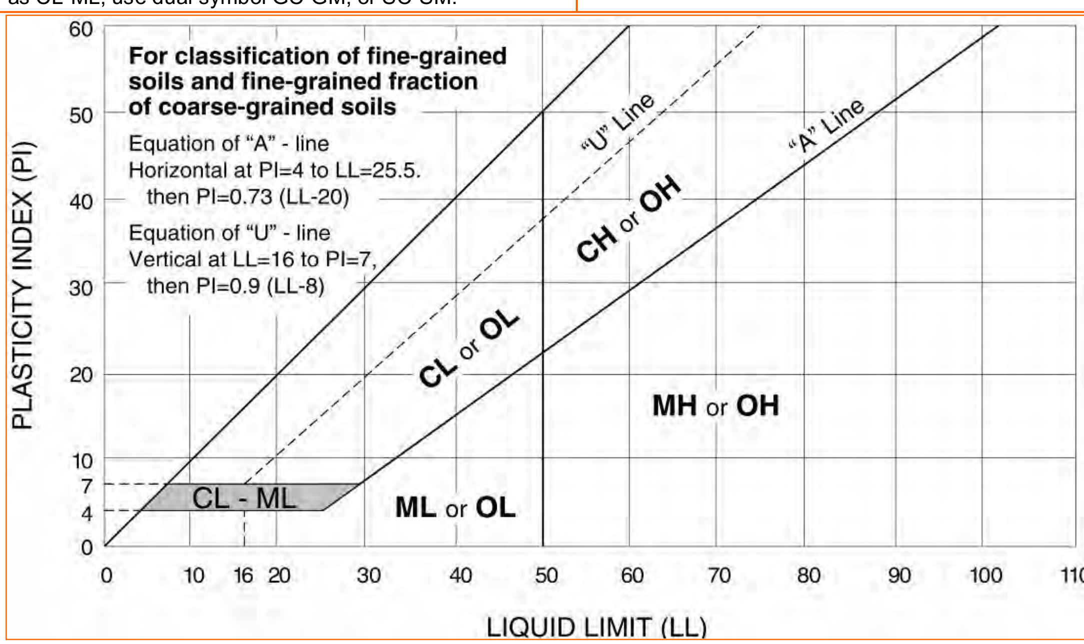
[M] If soil contains $\geq$ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] $PI \geq 4$ and plots on or above "A" line.

[O] $PI < 4$ or plots below "A" line.

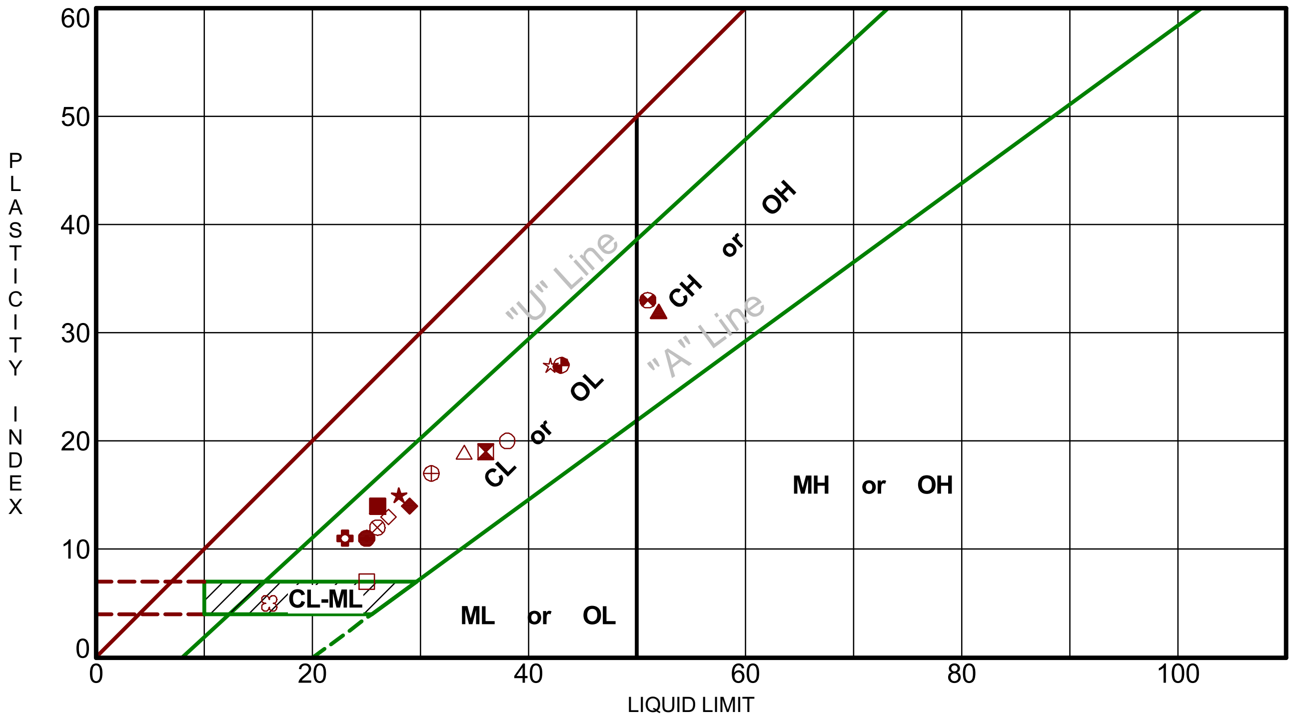
[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
●	B-21-1	8.5 - 10	25	14	11	63.6	CL	SANDY LEAN CLAY
⧗	B-21-3	4.5 - 6	36	17	19	78.9	CL	LEAN CLAY with SAND
▲	B-21-6	4.5 - 6	52	20	32	82.8	CH	FAT CLAY with SAND
★	B-21-9	8.5 - 10	28	13	15	74.4	CL	LEAN CLAY with SAND
⊙	B-21-10	6.5 - 8	25	14	11	68.1	CL	SANDY LEAN CLAY
✿	B-21-13	6.5 - 8	23	12	11	66.7	CL	SANDY LEAN CLAY
○	B-21-16	4.5 - 6	38	18	20	74.1	CL	LEAN CLAY with SAND
△	B-21-19	2.5 - 4	34	15	19	72.2	CL	LEAN CLAY with SAND
⊗	B-21-22	8.5 - 10	26	14	12	70.3	CL	LEAN CLAY with SAND
⊕	B-21-26	6.5 - 8	31	14	17	74.9	CL	LEAN CLAY with SAND
□	B-21-27	6.5 - 8	25	18	7	99.6	CL-ML	SILTY CLAY
◉	B-21-30	0 - 2	51	18	33	59.5	CH	SANDY FAT CLAY
◕	B-21-30	4.5 - 6	43	16	27	66.1	CL	SANDY LEAN CLAY
☆	B-21-35	2.5 - 4	42	15	27	45.7	SC	CLAYEY SAND with GRAVEL
✾	B-21-38	8.5 - 9.4	16	11	5	59.6	CL-ML	SANDY SILTY CLAY
■	B-21-39	6.5 - 8	26	12	14	73.3	CL	LEAN CLAY with SAND
◆	B-21-42	4.5 - 6	29	15	14	61.4	CL	SANDY LEAN CLAY
◇	B-21-43 (SUB)	8.5 - 10	27	14	13	74.4	CL	LEAN CLAY with SAND

PROJECT: Wild Grains Solar

PROJECT NUMBER: N4215167

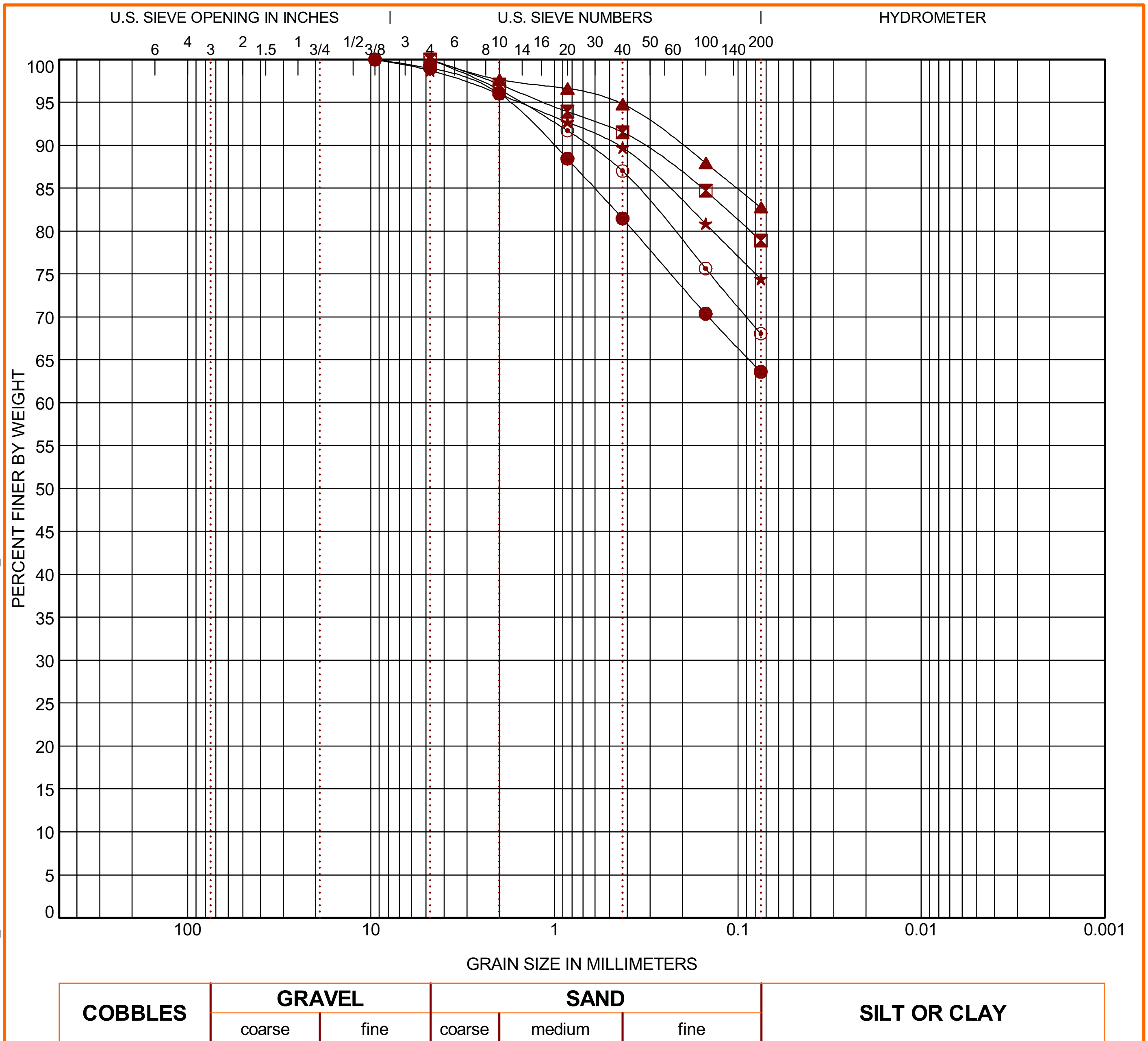
SITE: US 27
Van Wert, OH

Terracon
800 Morrison Rd
Gahanna, OH

CLIENT: Avangrid Renewables
Portland, OR

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



Boring ID		Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-21-1	8.5 - 10	SANDY LEAN CLAY (CL)	14.0	25	14	11		
⊠	B-21-3	4.5 - 6	LEAN CLAY with SAND (CL)	19.0	36	17	19		
▲	B-21-6	4.5 - 6	FAT CLAY with SAND (CH)	21.0	52	20	32		
★	B-21-9	8.5 - 10	LEAN CLAY with SAND (CL)	12.0	28	13	15		
⊙	B-21-10	6.5 - 8	SANDY LEAN CLAY (CL)	12.0	25	14	11		

Boring ID		Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-21-1	8.5 - 10	1.012				1.0	35.4		63.6	
⊠	B-21-3	4.5 - 6	0.337				0.0	21.1		78.9	
▲	B-21-6	4.5 - 6	0.204				0.0	17.2		82.8	
★	B-21-9	8.5 - 10	0.452				1.3	24.3		74.4	
⊙	B-21-10	6.5 - 8	0.66				0.0	31.9		68.1	

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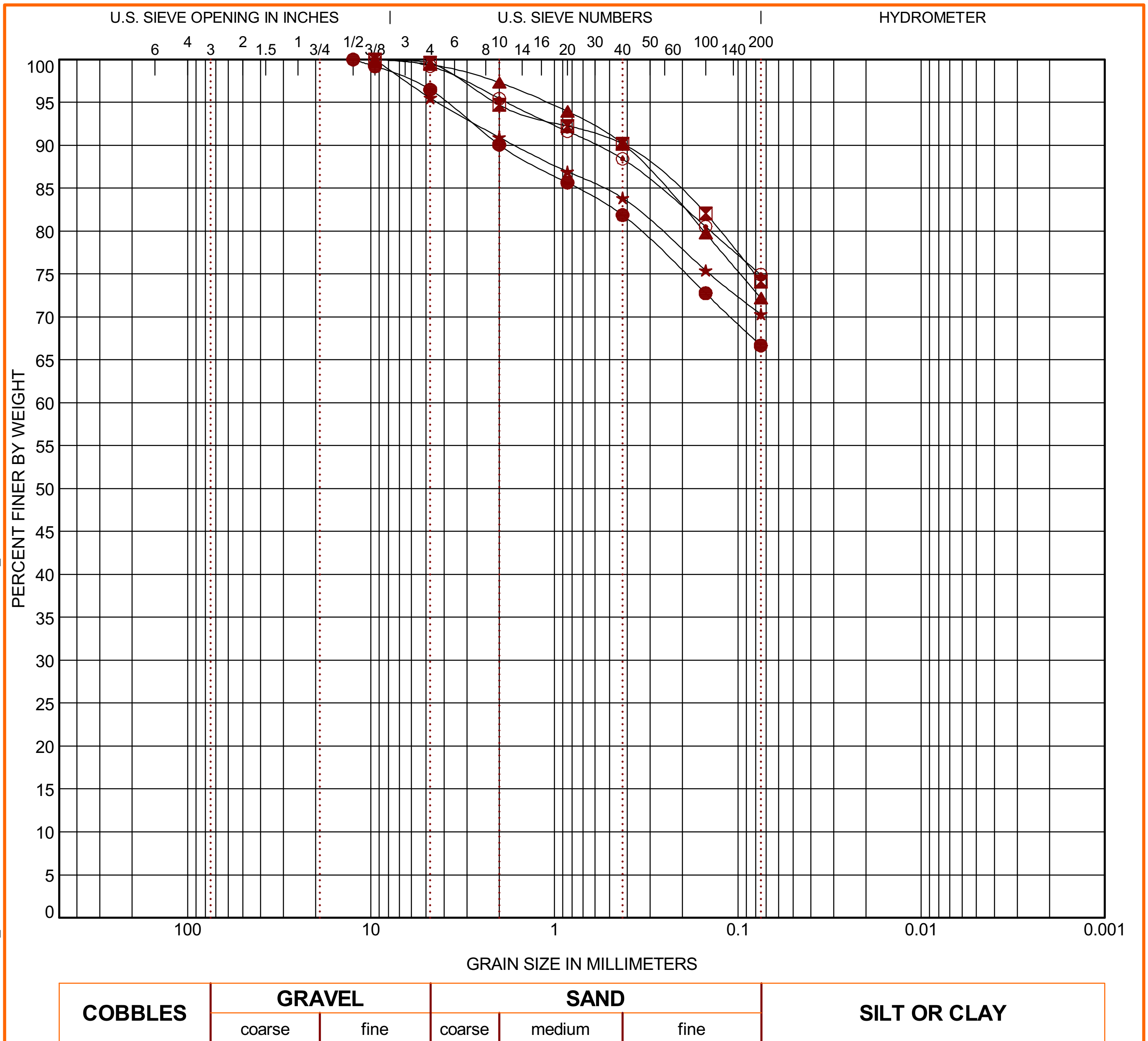

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-21-13	6.5 - 8	SANDY LEAN CLAY (CL)	8.0	23	12	11		
⊠ B-21-16	4.5 - 6	LEAN CLAY with SAND (CL)	22.0	38	18	20		
▲ B-21-19	2.5 - 4	LEAN CLAY with SAND (CL)	24.0	34	15	19		
★ B-21-22	8.5 - 10	LEAN CLAY with SAND (CL)	13.0	26	14	12		
⊙ B-21-26	6.5 - 8	LEAN CLAY with SAND (CL)	14.0	31	14	17		

Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-21-13	6.5 - 8	1.976				3.5	29.8		66.7	
⊠ B-21-16	4.5 - 6	0.416				0.3	25.5		74.1	
▲ B-21-19	2.5 - 4	0.417				0.6	27.2		72.2	
★ B-21-22	8.5 - 10	1.634				4.5	25.2		70.3	
⊙ B-21-26	6.5 - 8	0.597				0.8	24.3		74.9	

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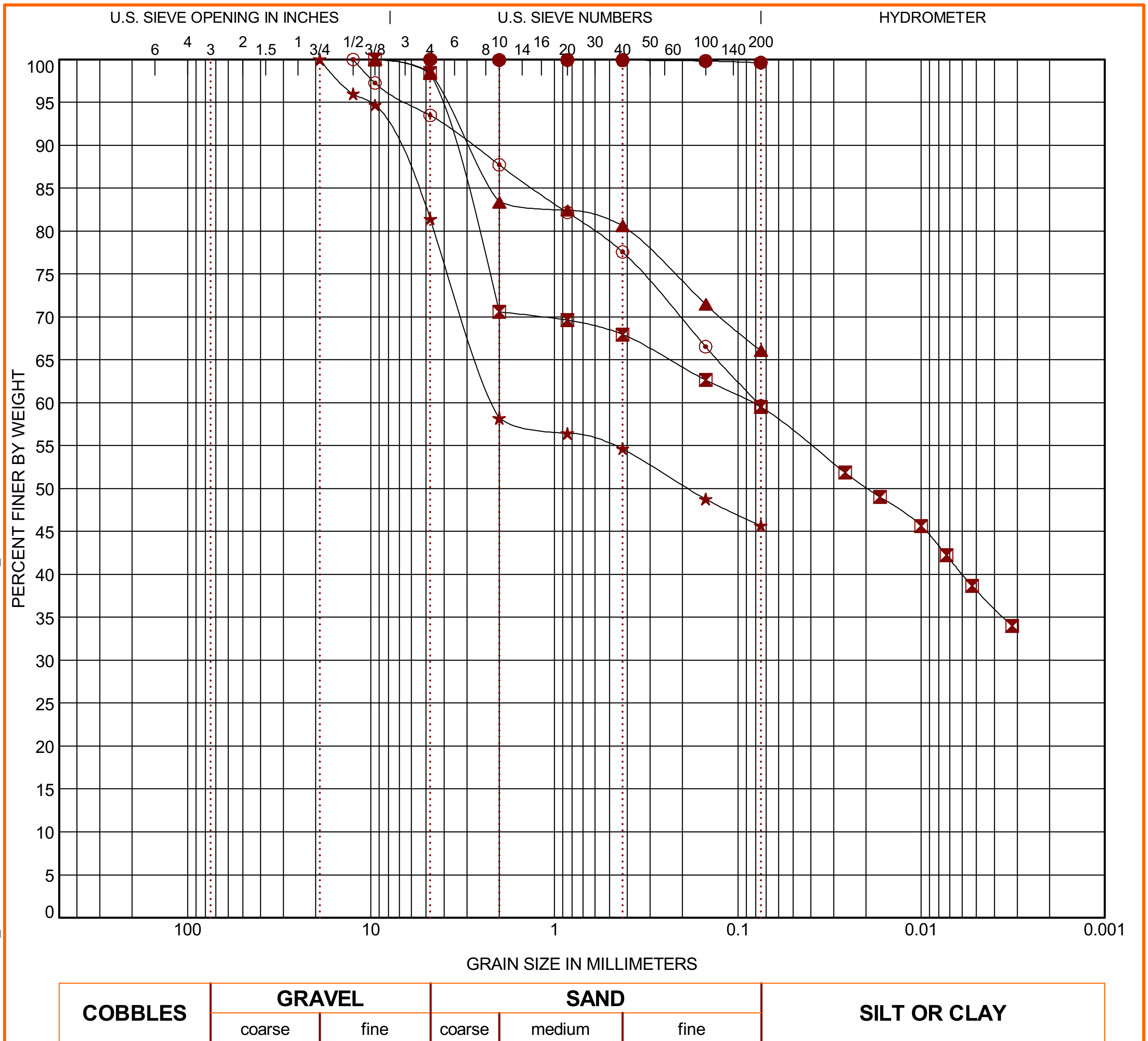

Boring ID		Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-21-27	6.5 - 8	SILTY CLAY (CL-ML)	20.0	25	18	7		
⊠	B-21-30	0 - 2	SANDY FAT CLAY (CH)	24.0	51	18	33		
▲	B-21-30	4.5 - 6	SANDY LEAN CLAY (CL)	24.0	43	16	27		
★	B-21-35	2.5 - 4	CLAYEY SAND with GRAVEL (SC)	23.0	42	15	27		
⊙	B-21-38	8.5 - 9.4	SANDY SILTY CLAY (CL-ML)	18.0	16	11	5		

Boring ID		Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-21-27	6.5 - 8					0.0	0.4		99.6	
⊠	B-21-30	0 - 2	3.658	0.02			1.6	38.9	21.4		38.1
▲	B-21-30	4.5 - 6	2.921				1.5	32.4		66.1	
★	B-21-35	2.5 - 4	7.432	0.186			18.6	35.7		45.7	
⊙	B-21-38	8.5 - 9.4	2.812				6.5	33.8		59.6	

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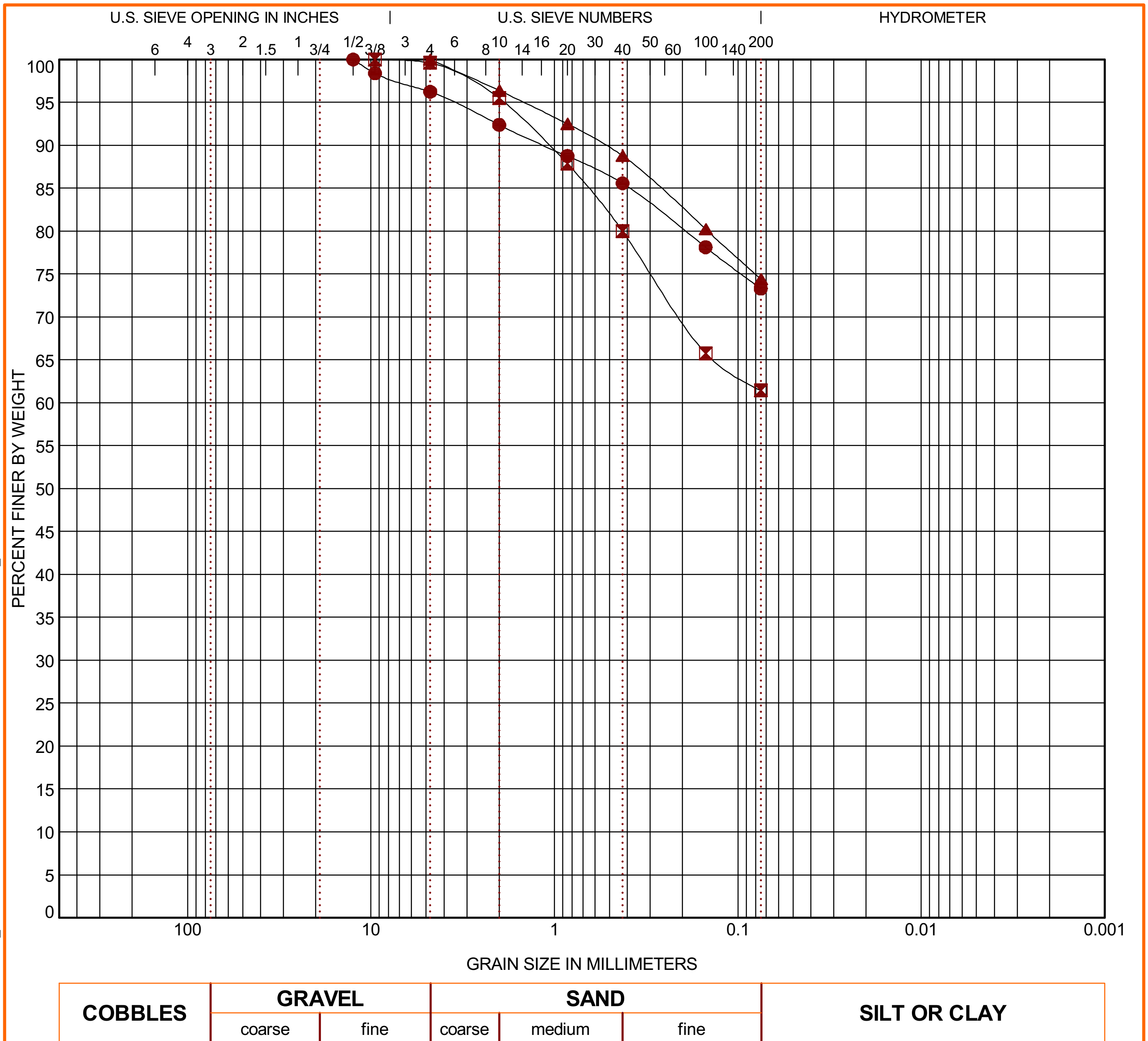

	Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-21-39	6.5 - 8	LEAN CLAY with SAND (CL)	12.0	26	12	14		
⊠	B-21-42	4.5 - 6	SANDY LEAN CLAY (CL)	22.0	29	15	14		
▲	B-21-43 (SUB)	8.5 - 10	LEAN CLAY with SAND (CL)		27	14	13		

	Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-21-39	6.5 - 8	1.139				3.8	22.9		73.3	
⊠	B-21-42	4.5 - 6	1.08				0.4	38.2		61.4	
▲	B-21-43 (SUB)	8.5 - 10	0.532				0.0	25.6		74.4	

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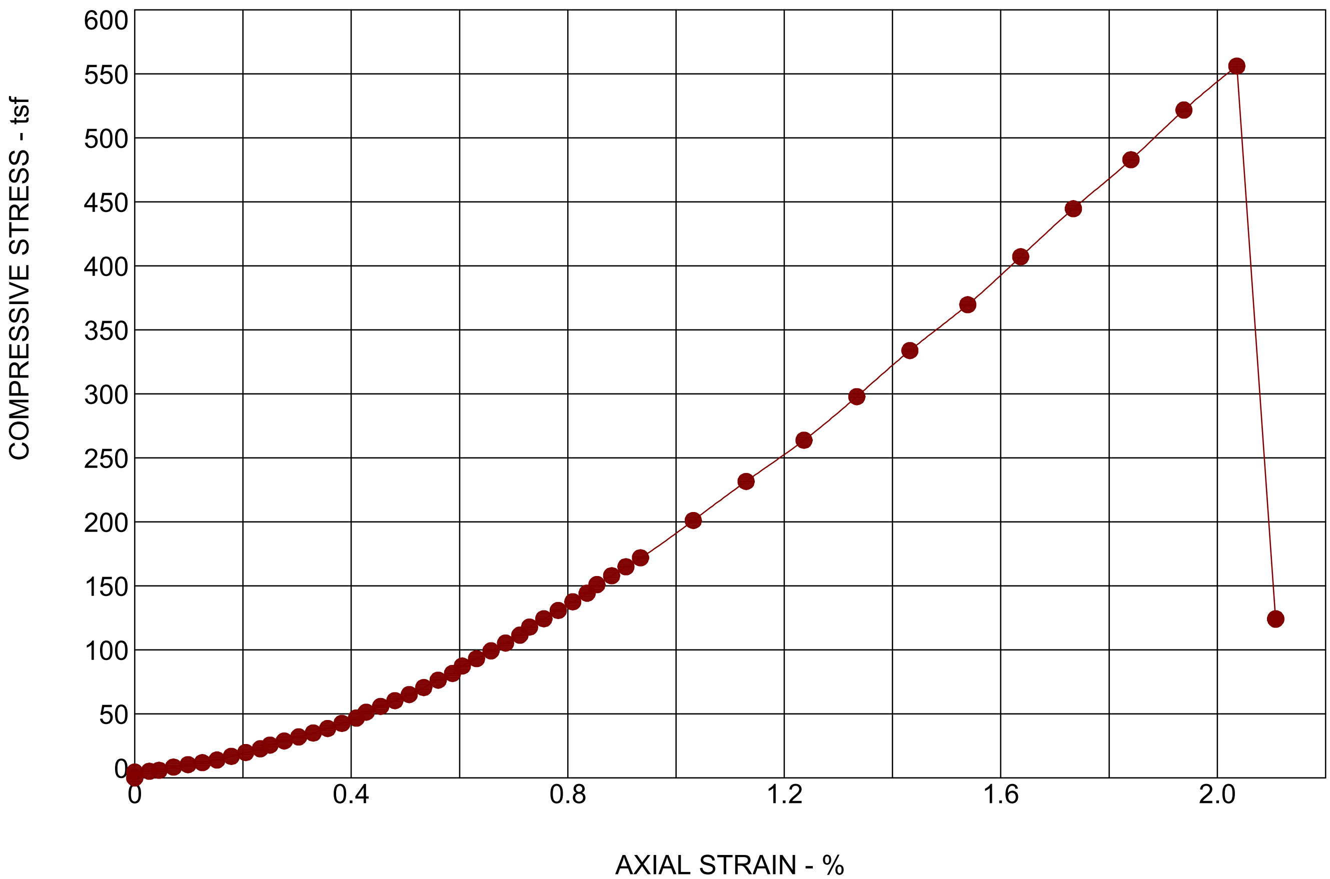
LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE USCS-2_SCOUR N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/28/21

UNCONFINED COMPRESSION TEST

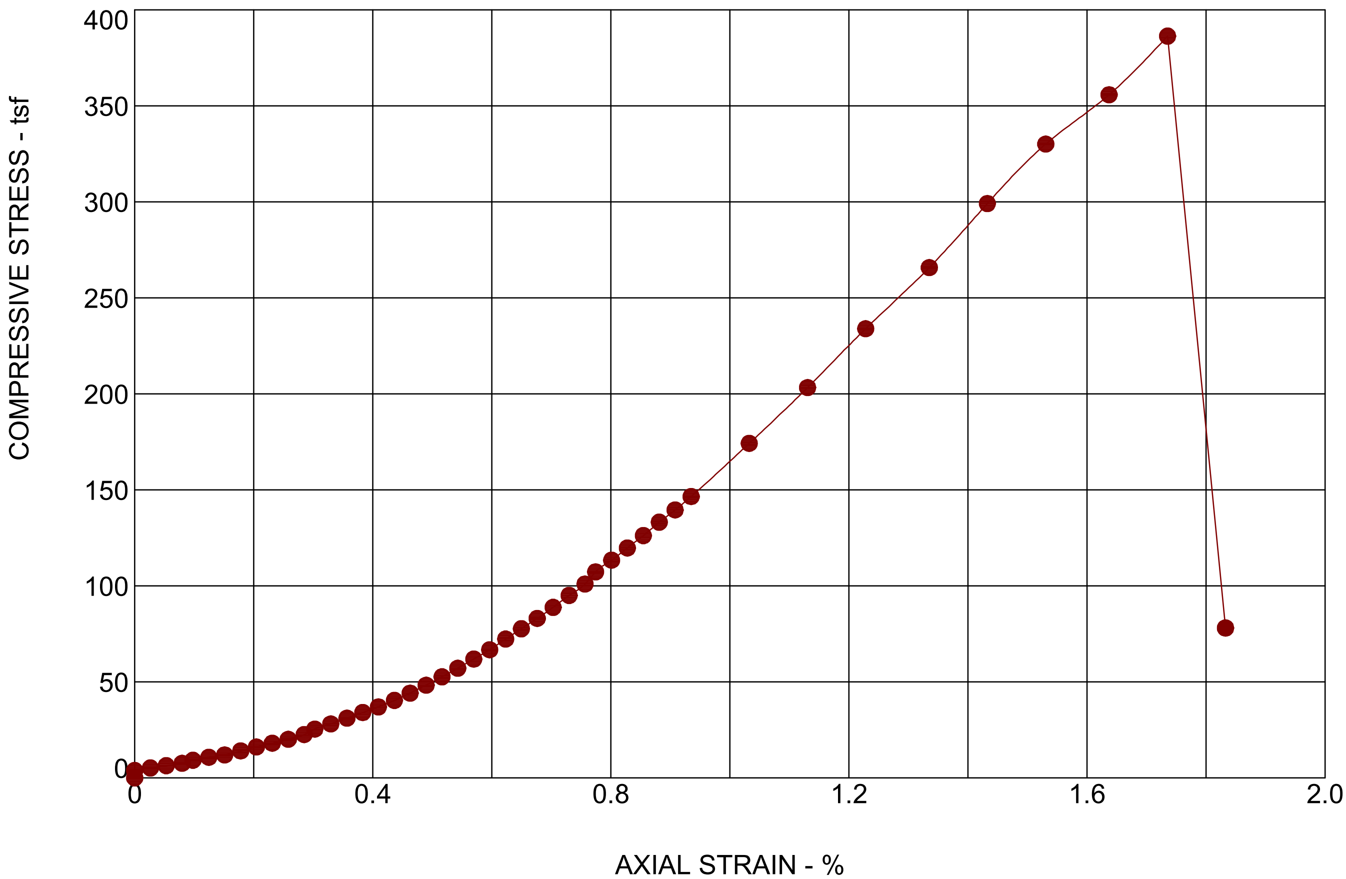


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	0
	Dry Density:	pcf	162
	Diameter:	in.	1.98
	Height:	in.	4.00
	Height / Diameter Ratio:		2.02
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.04
	Unconfined Compressive Strength	(tsf)	556.08
	Undrained Shear Strength:	(tsf)	278.04
	Strain Rate:	in/min	0.0398
	Remarks:		

SAMPLE TYPE: CORE	SAMPLE LOCATION: B-21-43 (SUB) @ 21.4 feet			
DESCRIPTION: DOLOMITE	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	0
	Dry Density:	pcf	162
	Diameter:	in.	1.98
	Height:	in.	3.97
	Height / Diameter Ratio:		2.01
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.74
	Unconfined Compressive Strength	(tsf)	386.33
	Undrained Shear Strength:	(tsf)	193.17
	Strain Rate:	in/min	0.0397
	Remarks:		

SAMPLE TYPE: CORE	SAMPLE LOCATION: B-21-43 (SUB) @ 28.6 feet			
DESCRIPTION: DOLOMITE	LL	PL	PI	Percent < #200 Sieve

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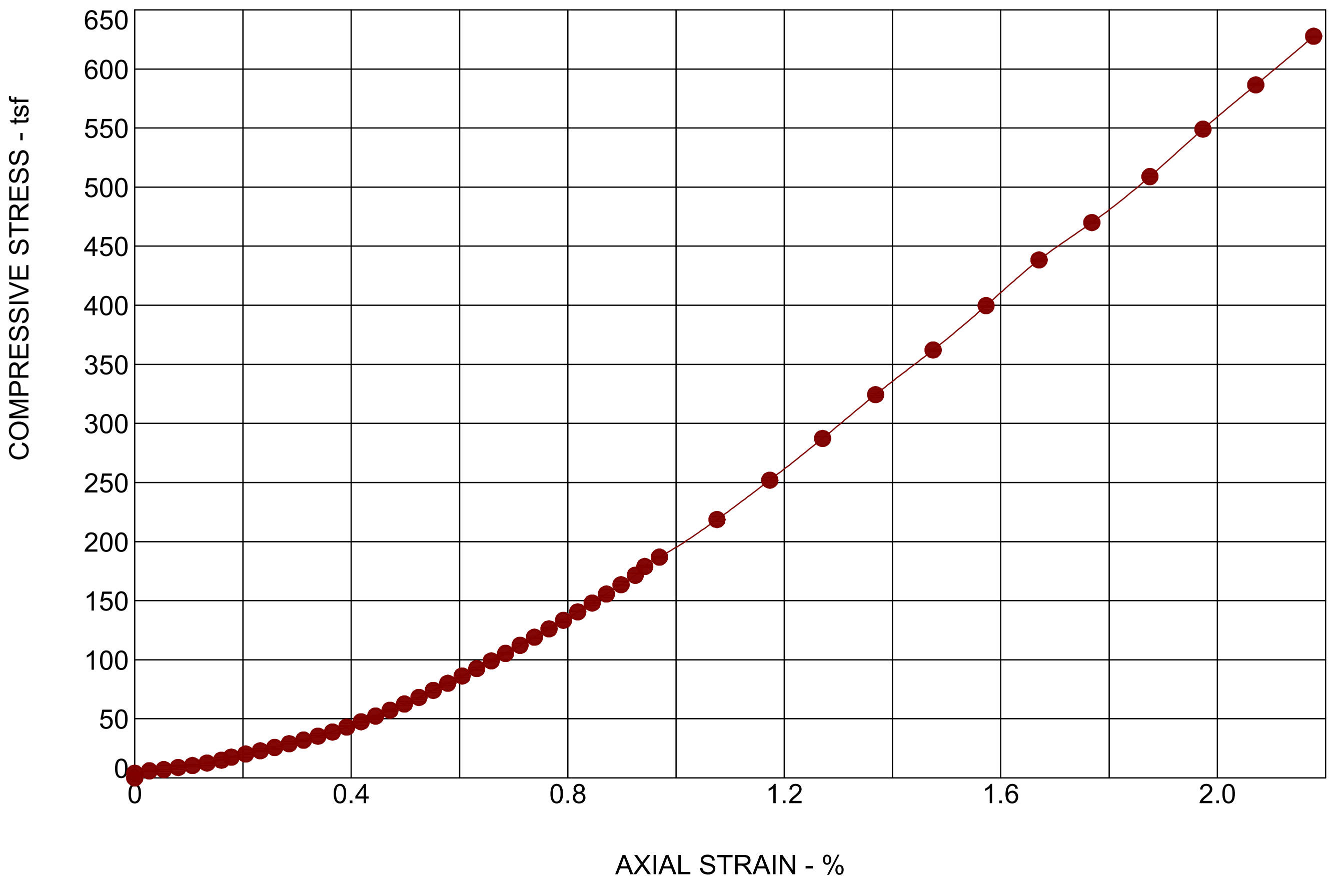
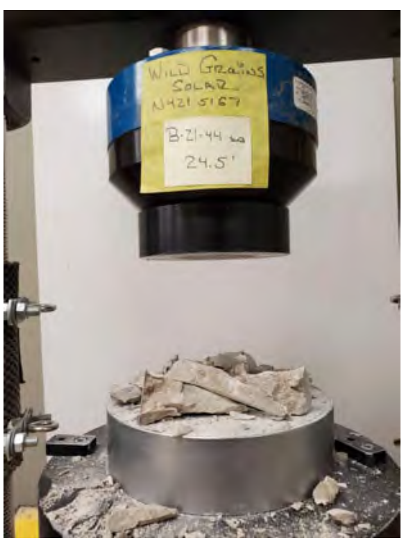
UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	0
	Dry Density:	pcf	166
	Diameter:	in.	1.98
	Height:	in.	4.00
	Height / Diameter Ratio:		2.02
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.18
	Unconfined Compressive Strength	(tsf)	627.69
	Undrained Shear Strength:	(tsf)	313.84
	Strain Rate:	in/min	0.0399
	Remarks:		

SAMPLE TYPE: CORE	SAMPLE LOCATION: B-21-44 (SUB) @ 24.5 feet			
DESCRIPTION: DOLOMITE	LL	PL	PI	Percent < #200 Sieve

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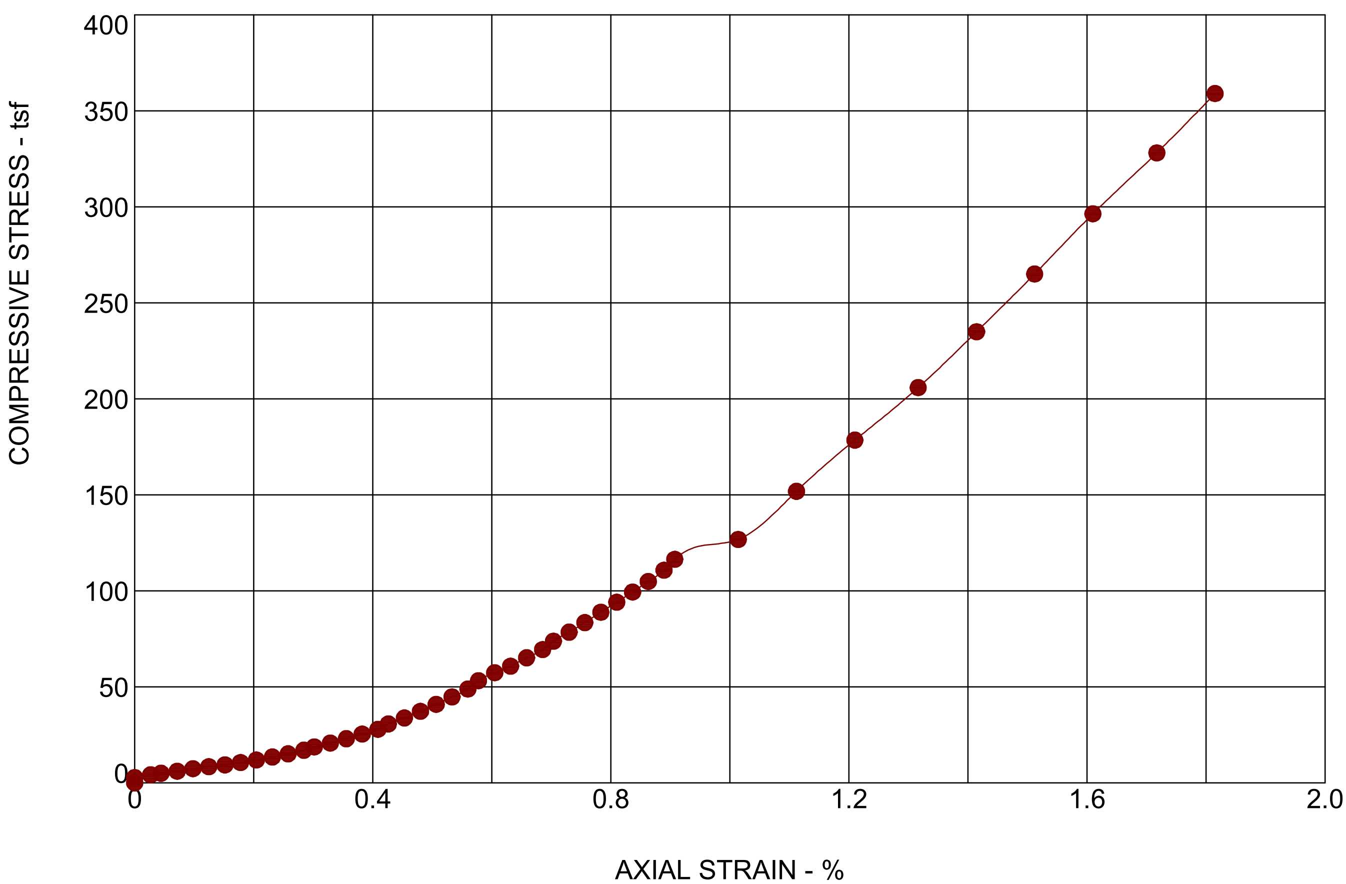
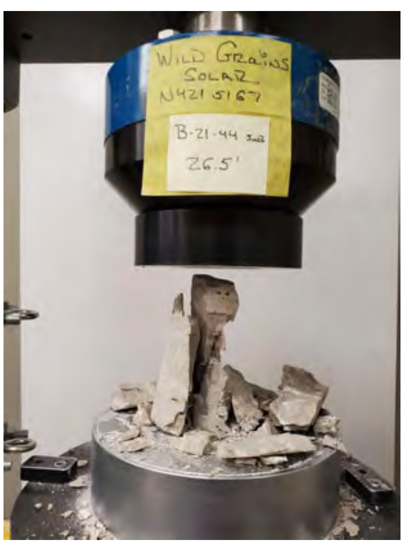
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/14/21

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH



SPECIMEN TEST DATA

Moisture Content:	%	0
Dry Density:	pcf	160
Diameter:	in.	1.98
Height:	in.	3.96
Height / Diameter Ratio:		2.01
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	1.82
Unconfined Compressive Strength	(tsf)	359.03
Undrained Shear Strength:	(tsf)	179.51
Strain Rate:	in/min	0.0396
Remarks:		

SAMPLE TYPE: CORE	SAMPLE LOCATION: B-21-44 (SUB) @ 26.5 feet				
DESCRIPTION: DOLOMITE	LL	PL	PI	Percent < #200 Sieve	

PROJECT: Wild Grains Solar

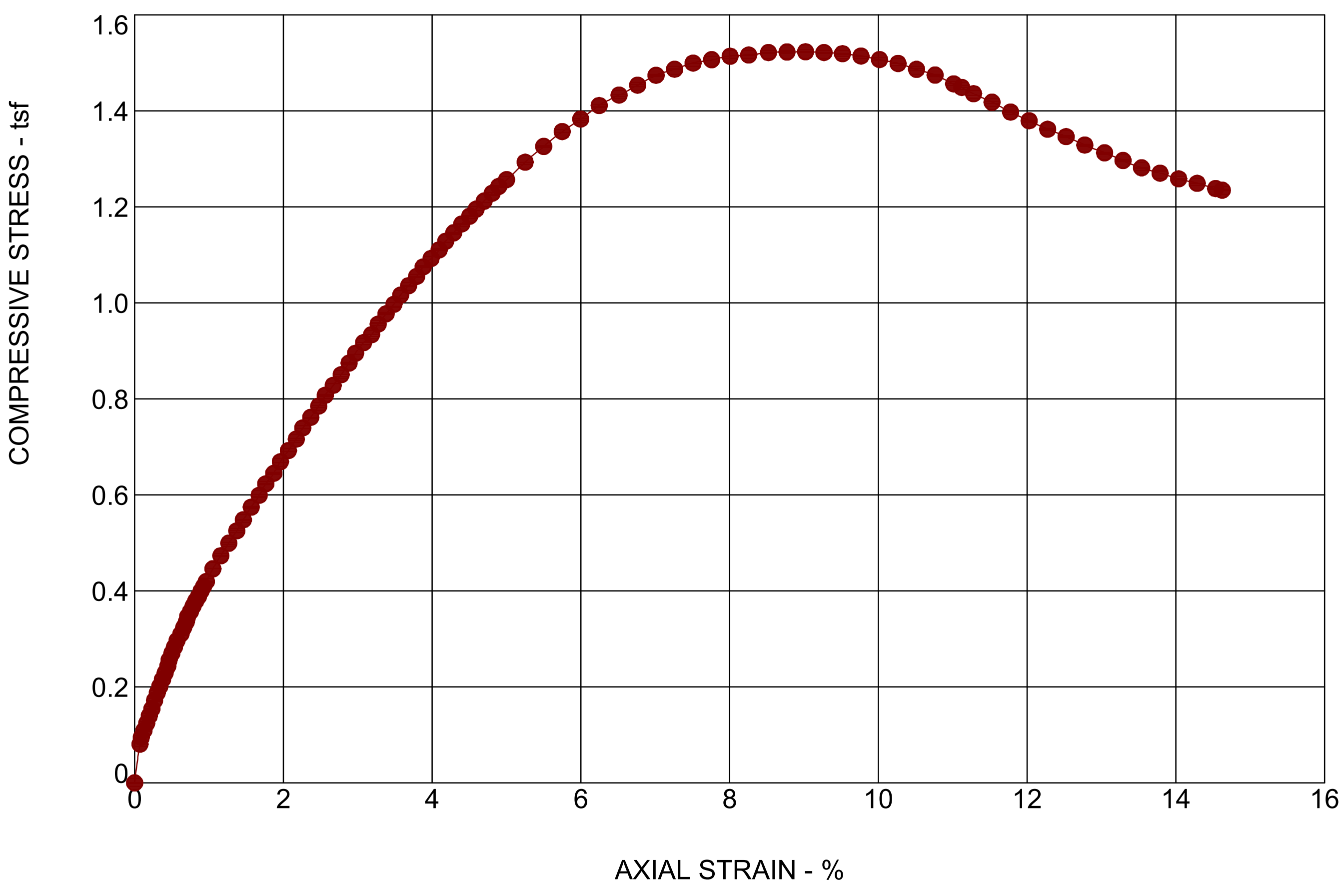
Terracon

PROJECT NUMBER: N4215167

SITE: US 27
Van Wert, OH

CLIENT: Avangrid Renewables
Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	102
	Diameter:	in.	3.98
	Height:	in.	4.60
	Height / Diameter Ratio:		1.16
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	9.02
	Unconfined Compressive Strength	(tsf)	1.52
	Undrained Shear Strength:	(tsf)	0.76
	Strain Rate:	in/min	0.0919
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

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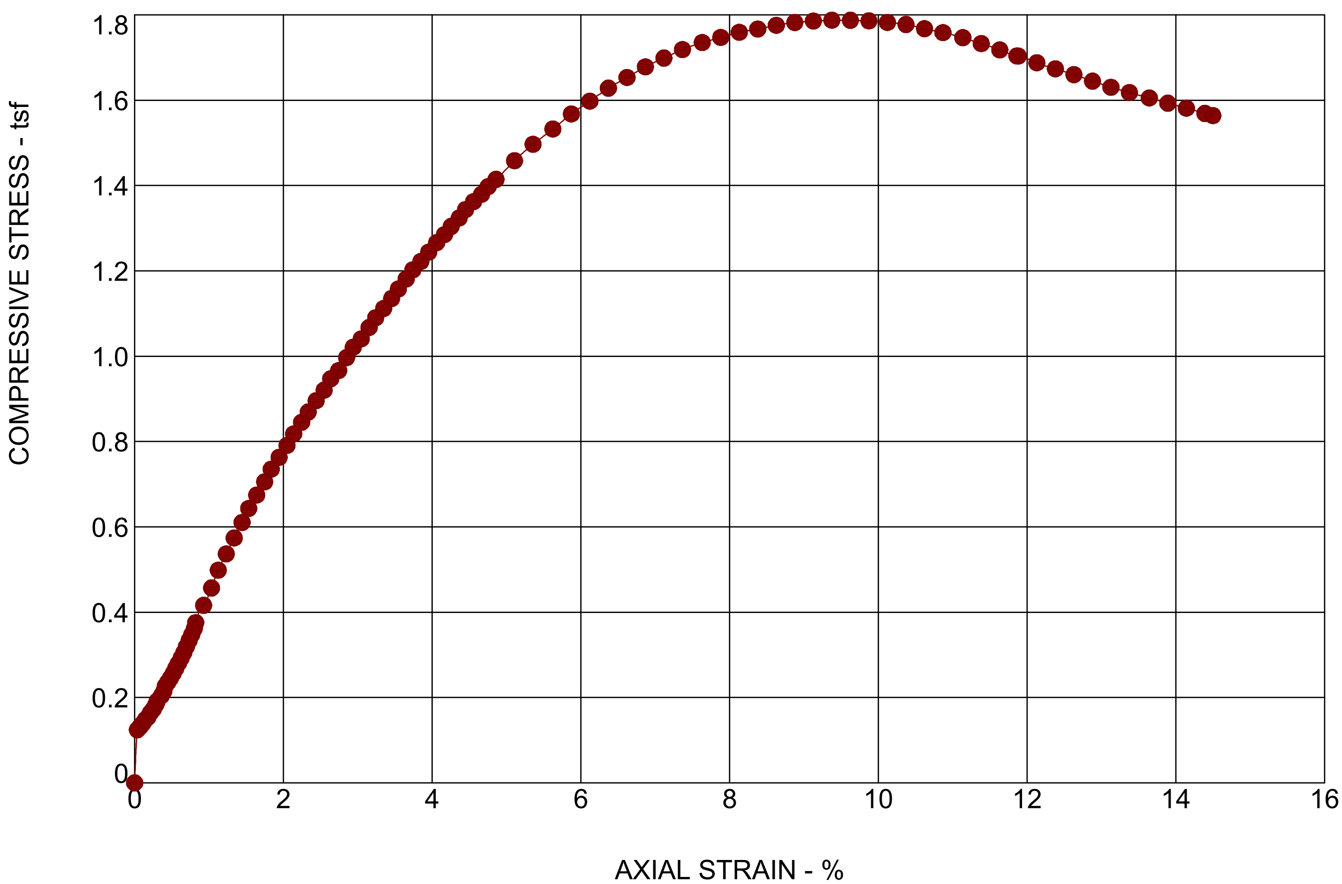
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



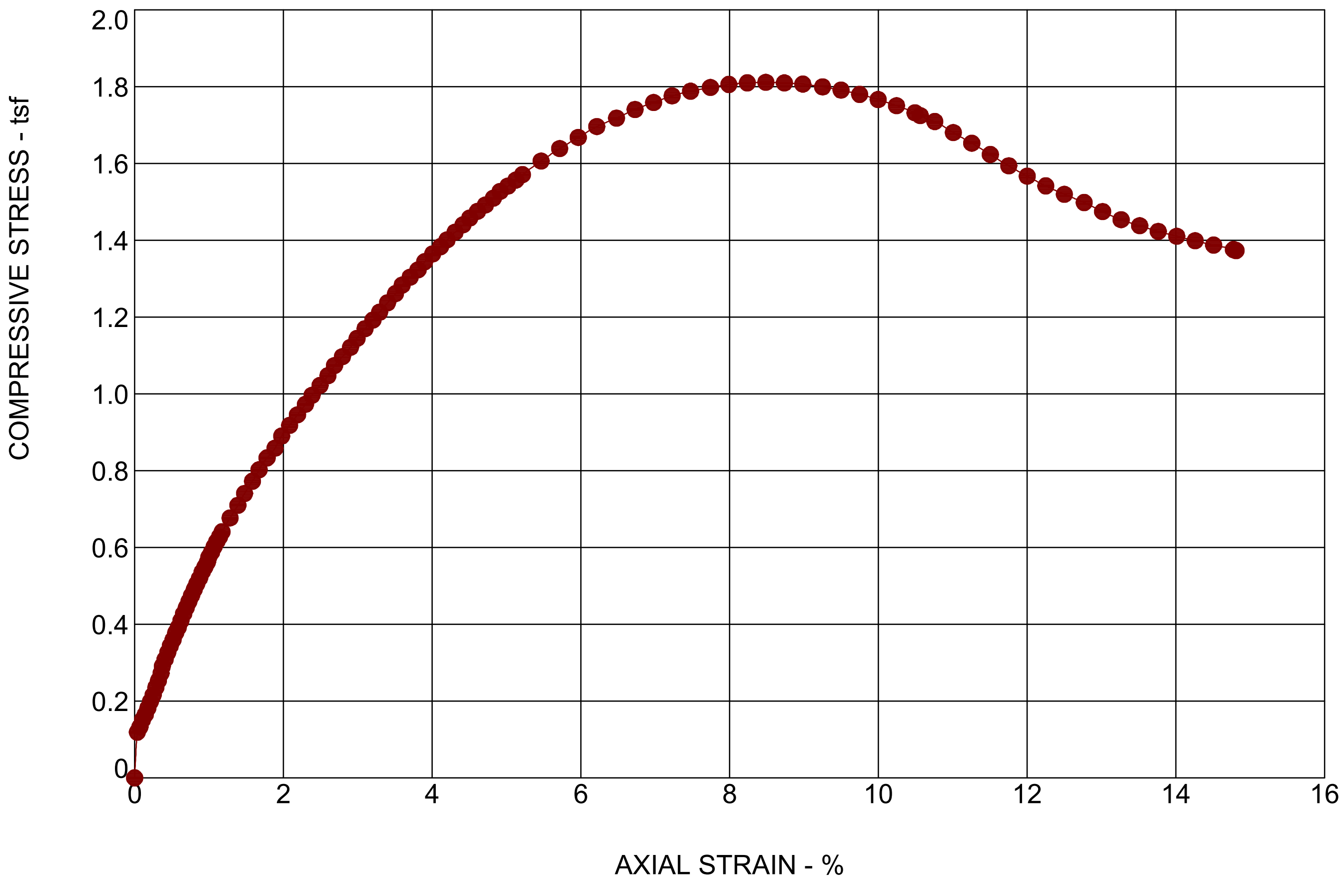
SPECIMEN FAILURE PHOTOGRAPH

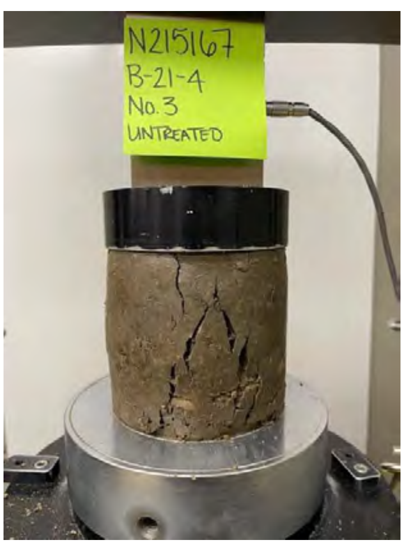

SPECIMEN TEST DATA		
Moisture Content:	%	20
Dry Density:	pcf	102
Diameter:	in.	3.97
Height:	in.	4.60
Height / Diameter Ratio:		1.16
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	9.38
Unconfined Compressive Strength	(tsf)	1.79
Undrained Shear Strength:	(tsf)	0.89
Strain Rate:	in/min	0.0920
Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	102
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	8.49
	Unconfined Compressive Strength	(tsf)	1.81
	Undrained Shear Strength:	(tsf)	0.91
	Strain Rate:	in/min	0.0917
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

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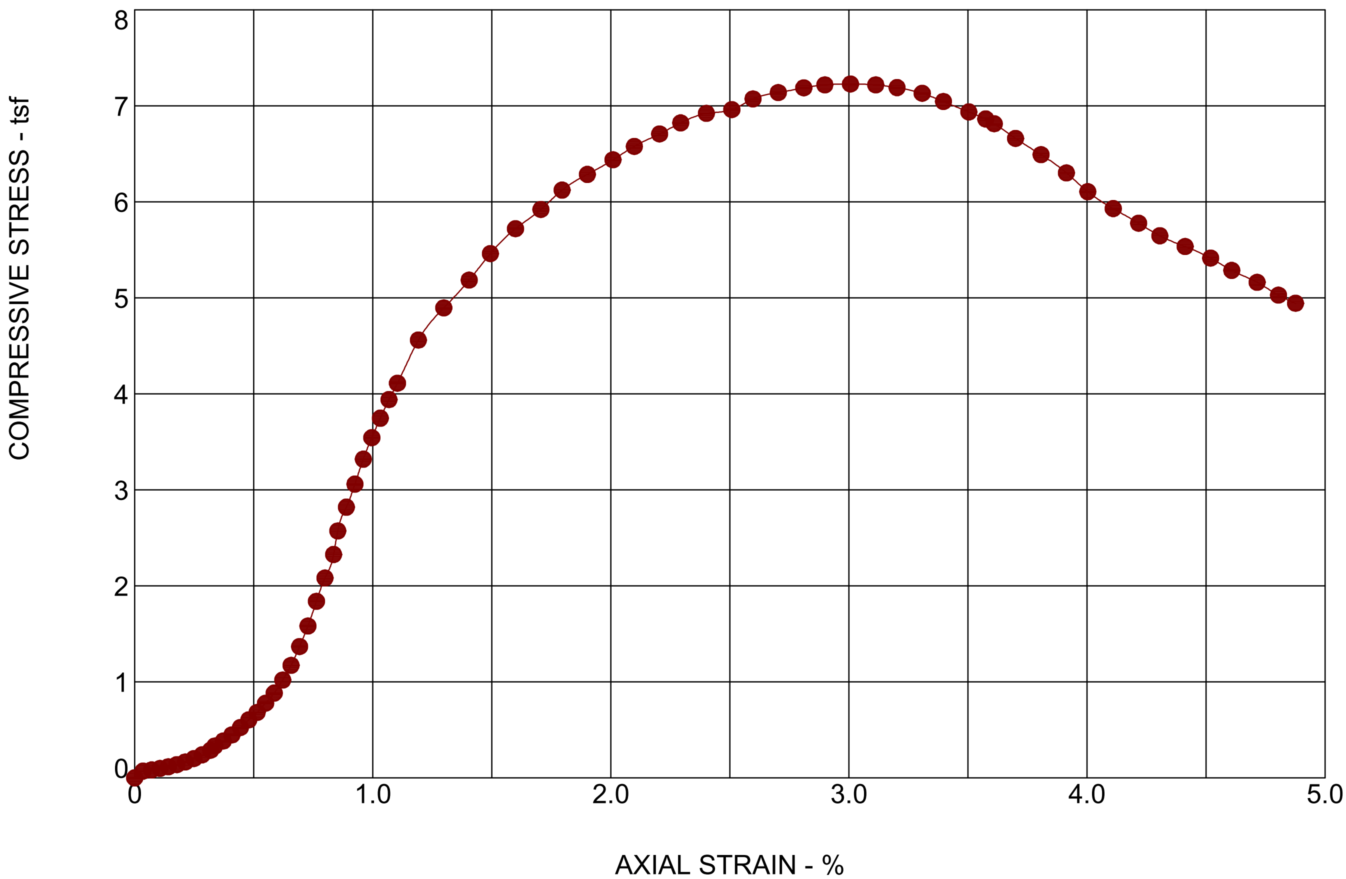
UNCONFINED COMPRESSION TEST

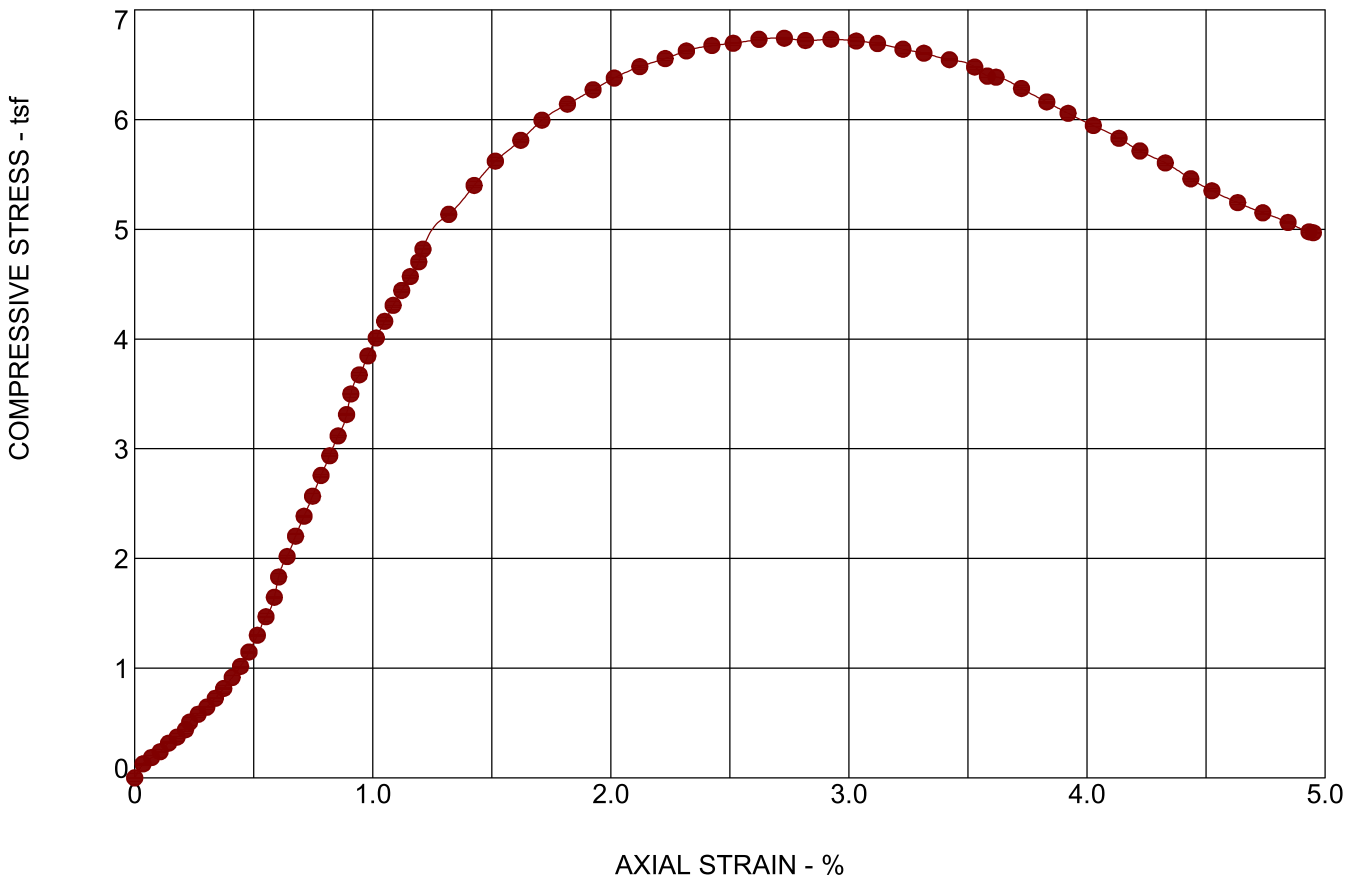


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	3.01
	Unconfined Compressive Strength	(tsf)	7.23
	Undrained Shear Strength:	(tsf)	3.61
	Strain Rate:	in/min	0.0920
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

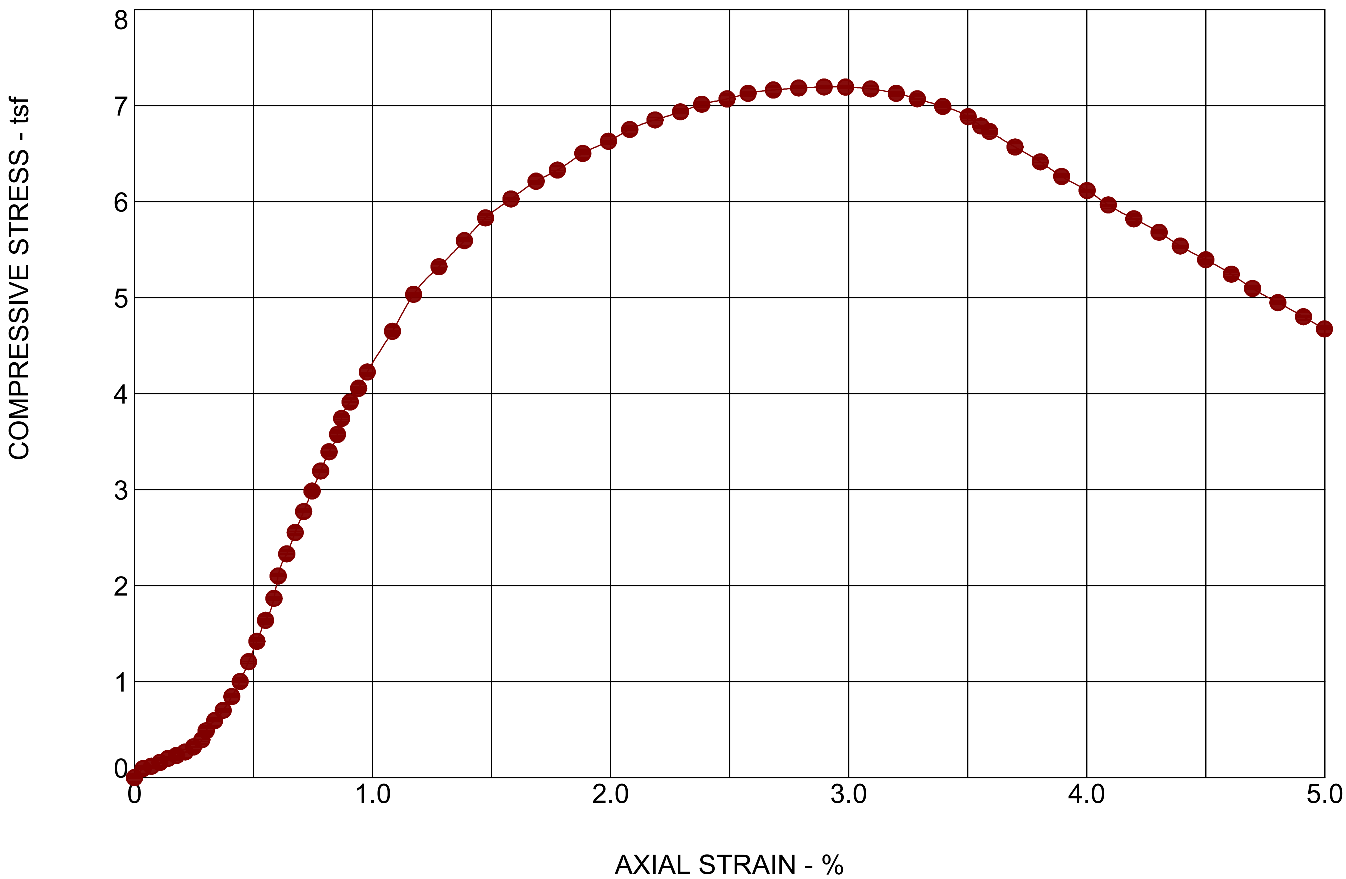


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.73
	Unconfined Compressive Strength	(tsf)	6.74
	Undrained Shear Strength:	(tsf)	3.37
	Strain Rate:	in/min	0.0921
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

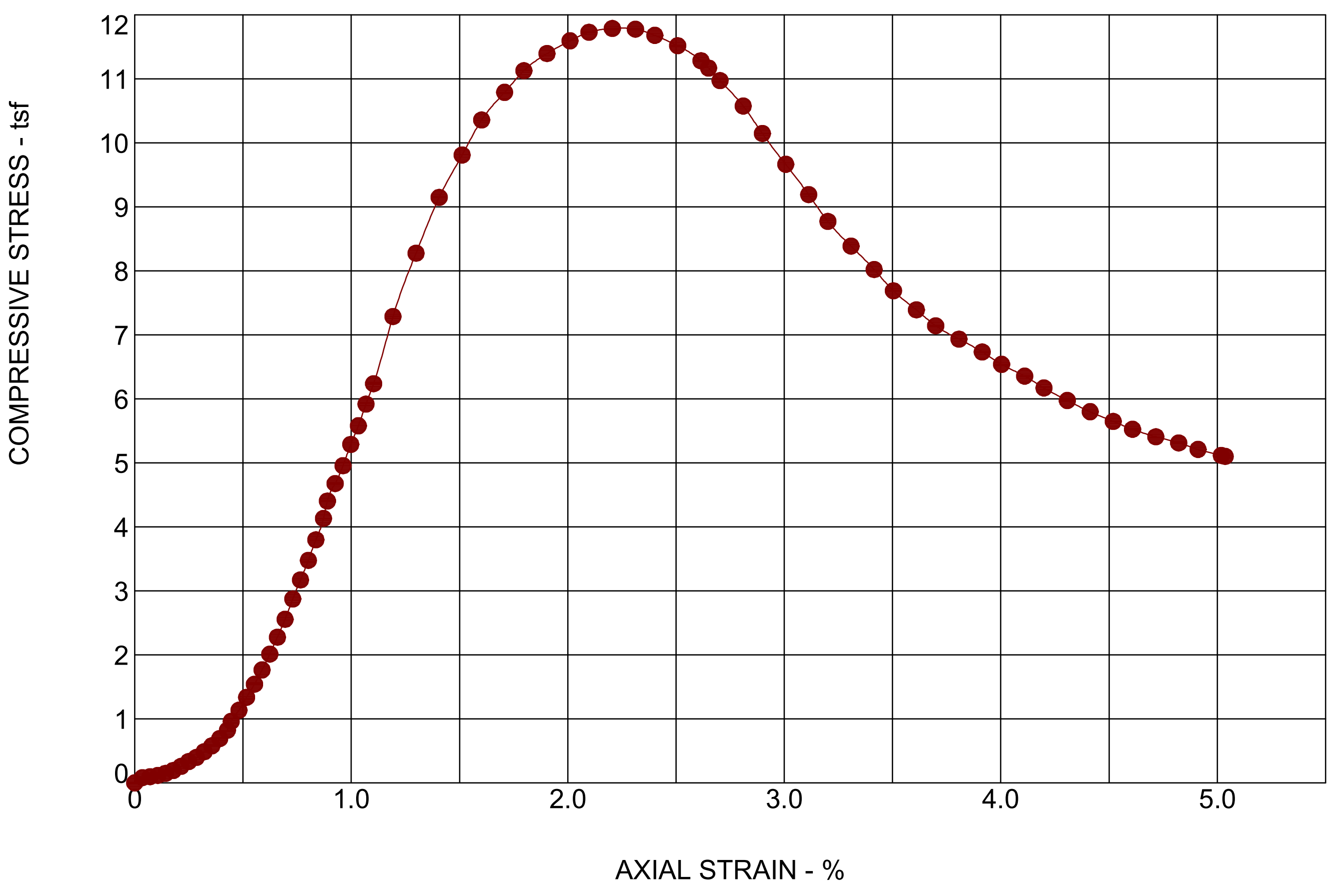


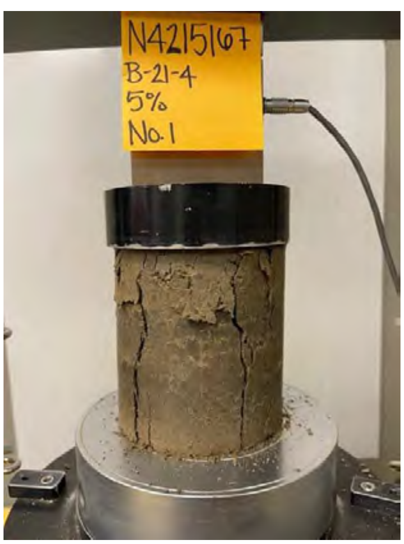
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.90
	Unconfined Compressive Strength	(tsf)	7.19
	Undrained Shear Strength:	(tsf)	3.60
	Strain Rate:	in/min	0.0918
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 00 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



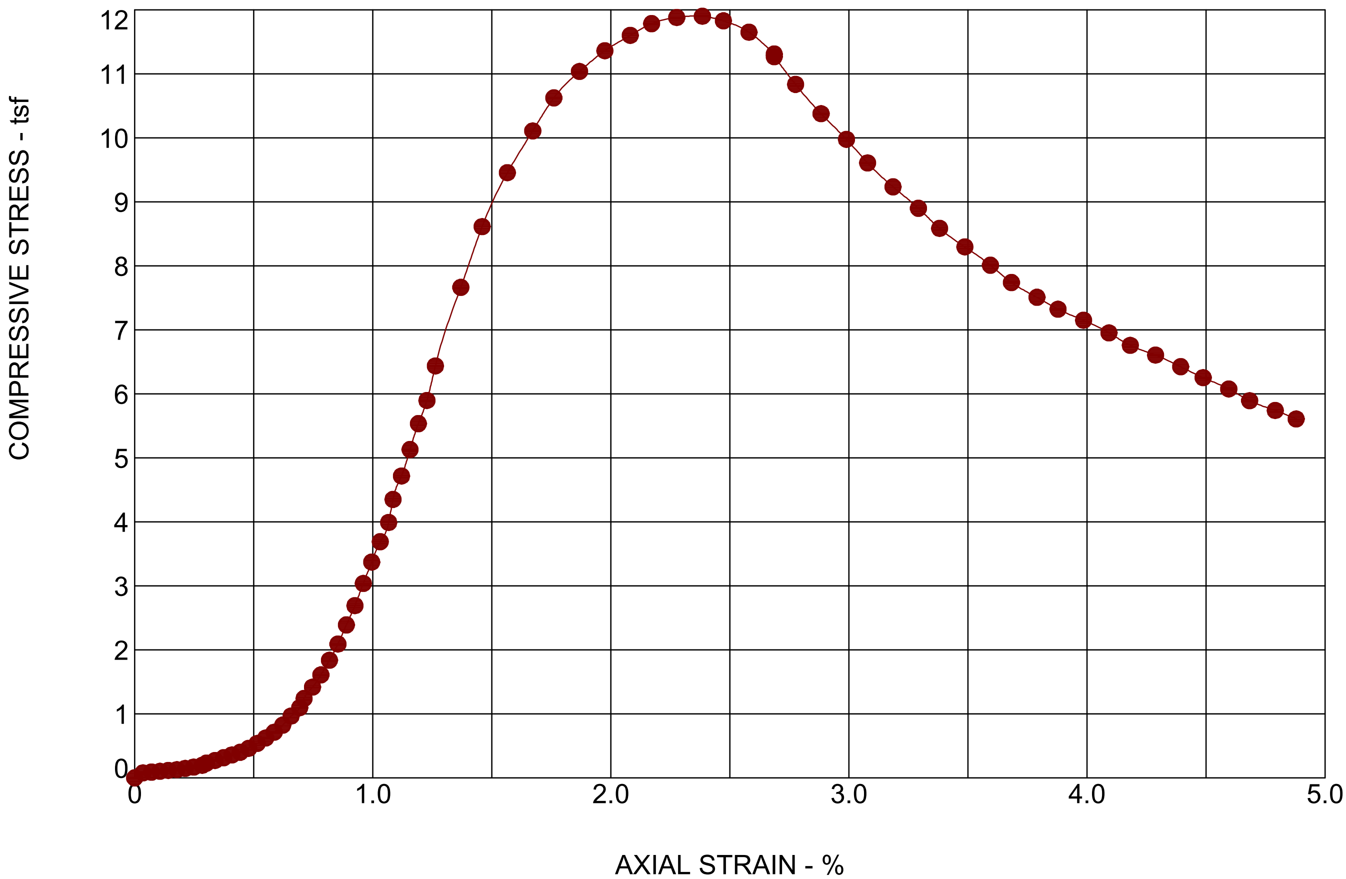
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.21
	Unconfined Compressive Strength	(tsf)	11.79
	Undrained Shear Strength:	(tsf)	5.89
	Strain Rate:	in/min	0.0925
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

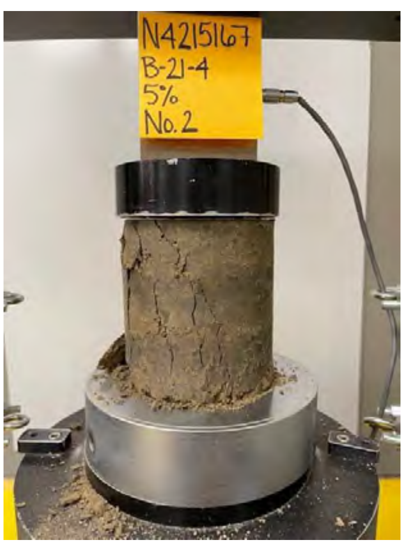
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/5/21

UNCONFINED COMPRESSION TEST

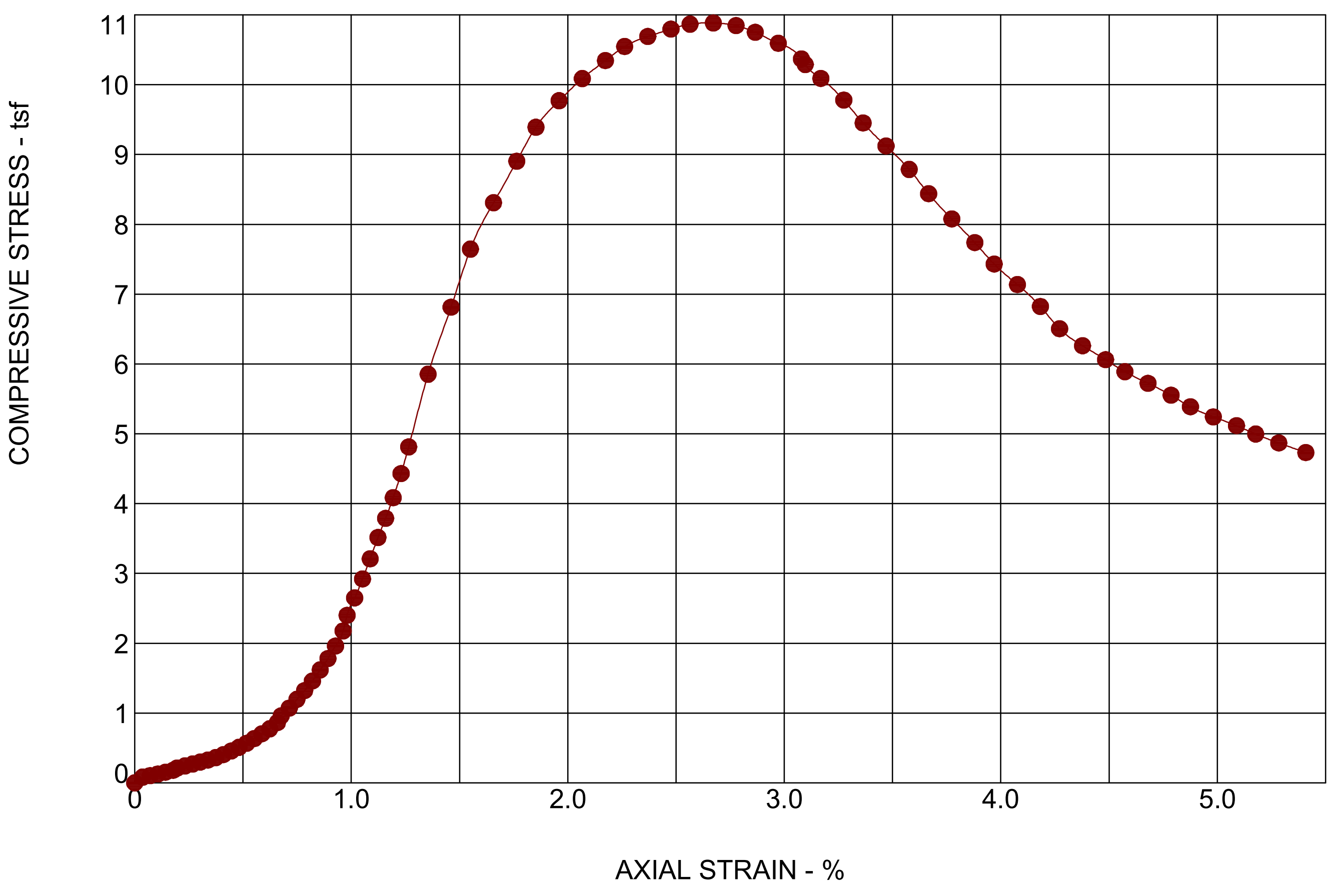


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.38
	Unconfined Compressive Strength	(tsf)	11.90
	Undrained Shear Strength:	(tsf)	5.95
	Strain Rate:	in/min	0.0914
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

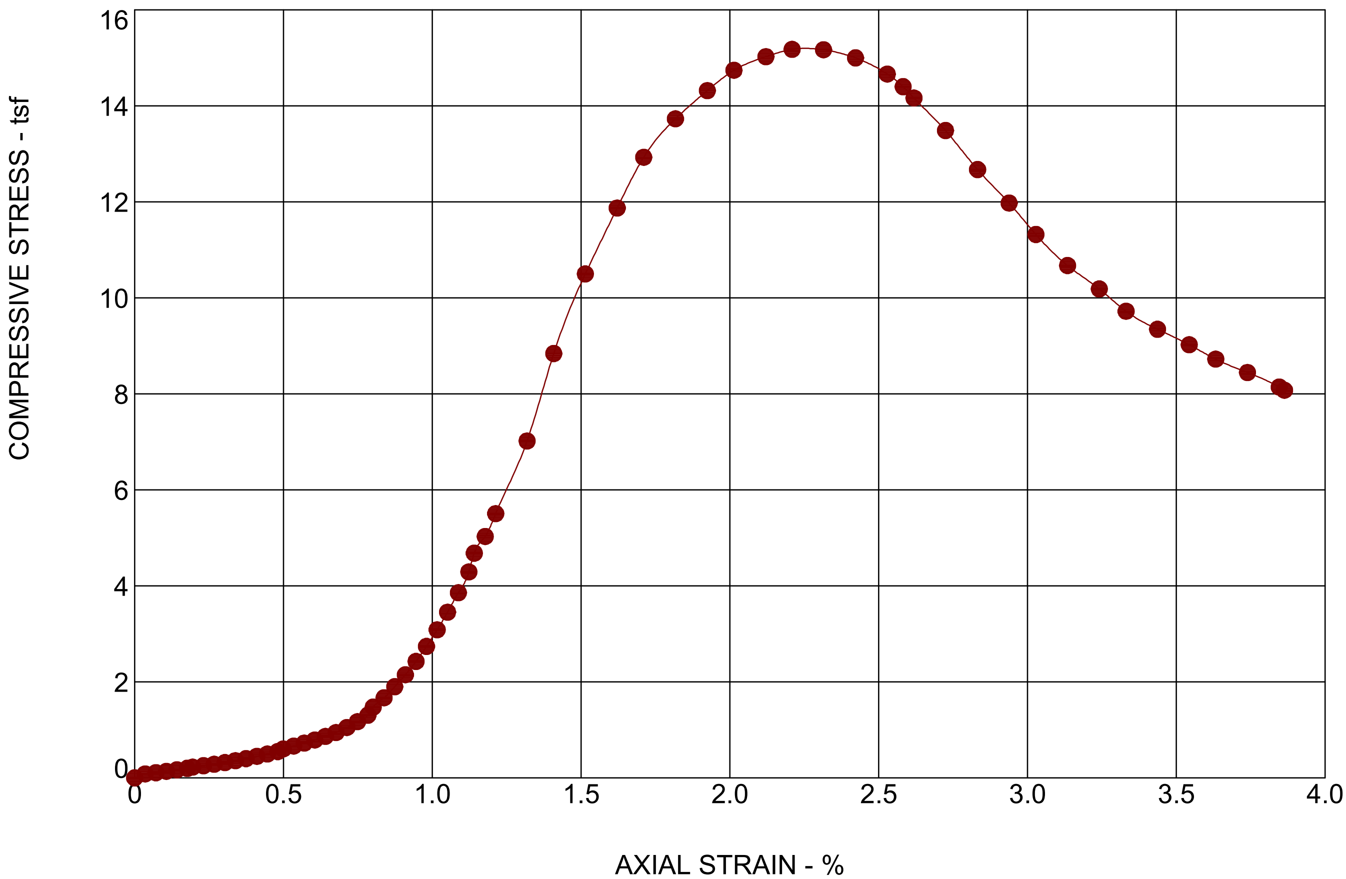


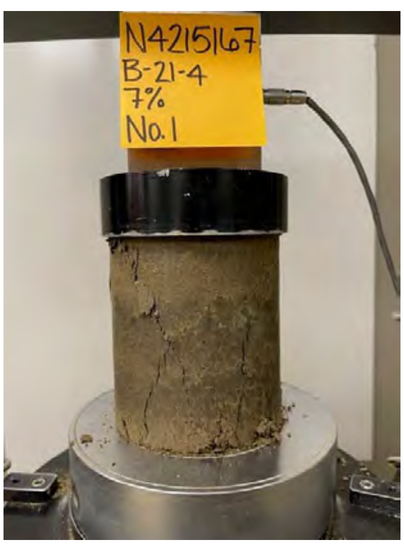
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.67
	Unconfined Compressive Strength	(tsf)	10.88
	Undrained Shear Strength:	(tsf)	5.44
	Strain Rate:	in/min	0.0919
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

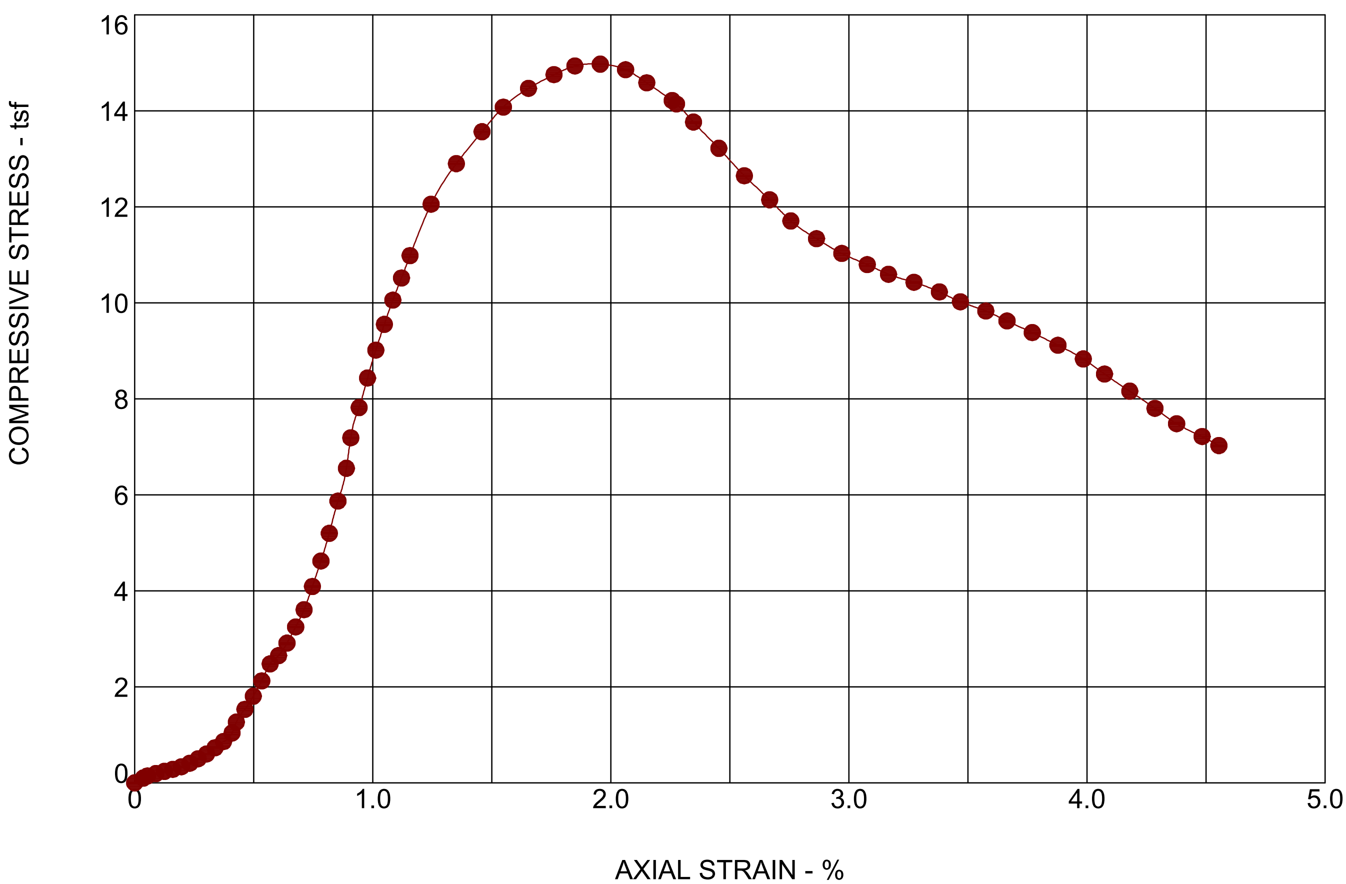


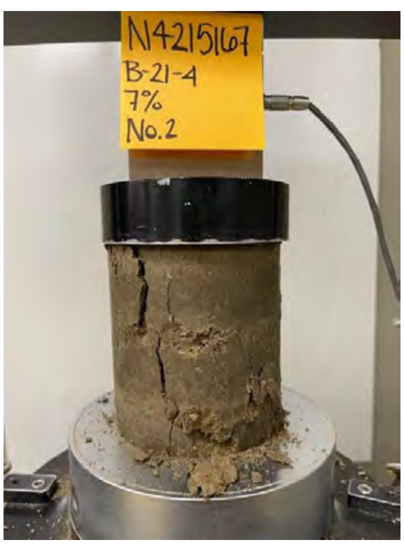
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.21
	Unconfined Compressive Strength	(tsf)	15.18
	Undrained Shear Strength:	(tsf)	7.59
	Strain Rate:	in/min	0.0917
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

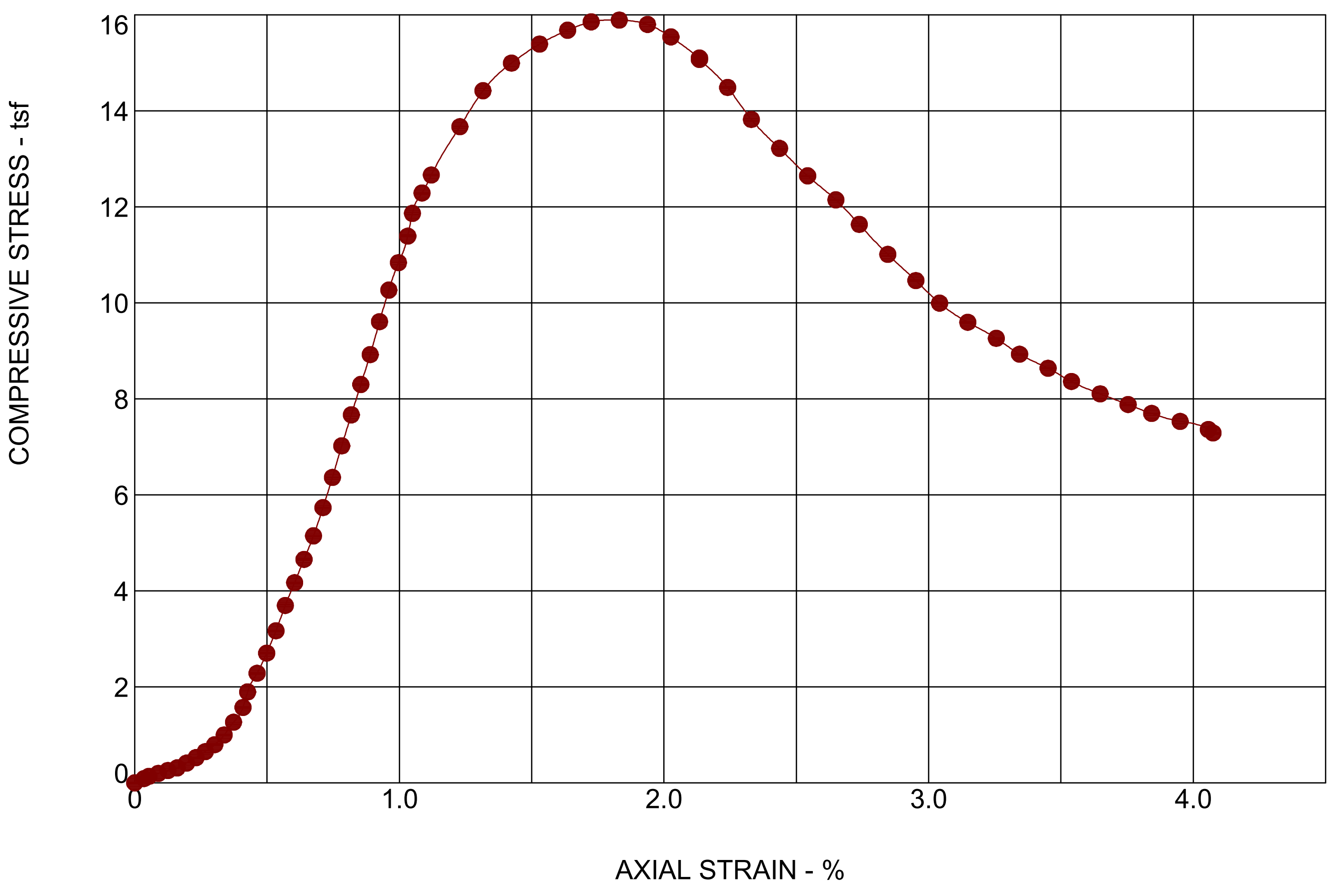


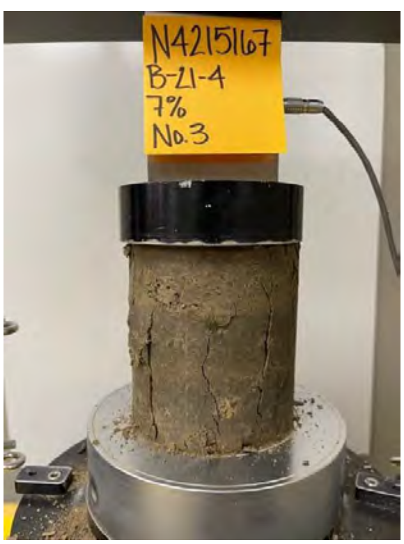
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.60
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.96
	Unconfined Compressive Strength	(tsf)	14.97
	Undrained Shear Strength:	(tsf)	7.49
	Strain Rate:	in/min	0.0917
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

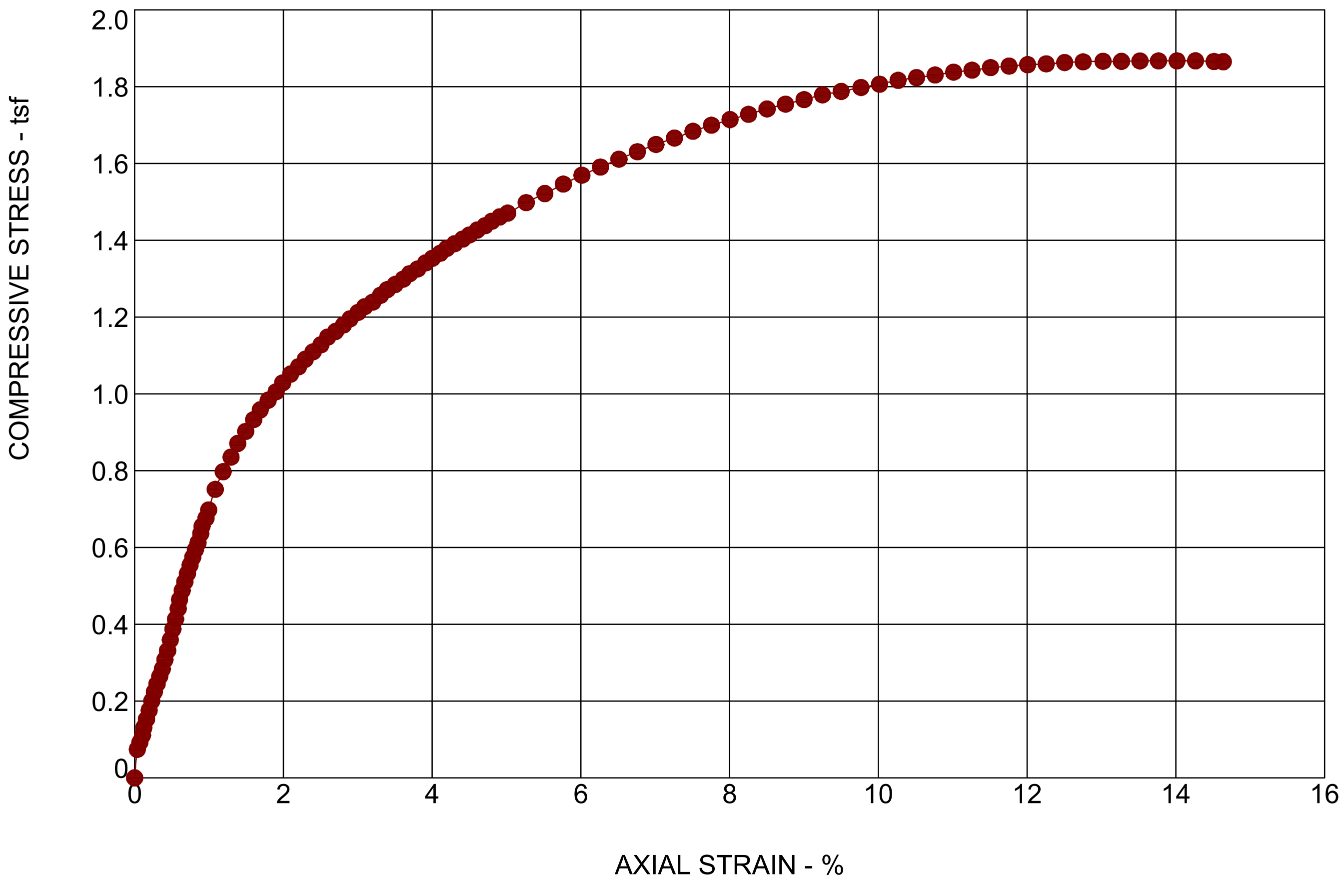


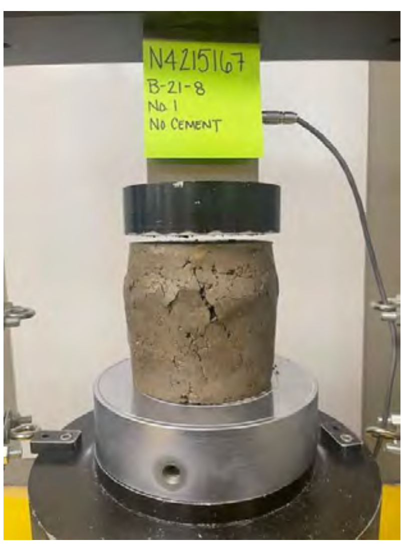
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.60
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.83
	Unconfined Compressive Strength	(tsf)	15.89
	Undrained Shear Strength:	(tsf)	7.95
	Strain Rate:	in/min	0.0922
	Remarks: One Point MDD/OM%: 102.4 @ 20.3%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-4 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

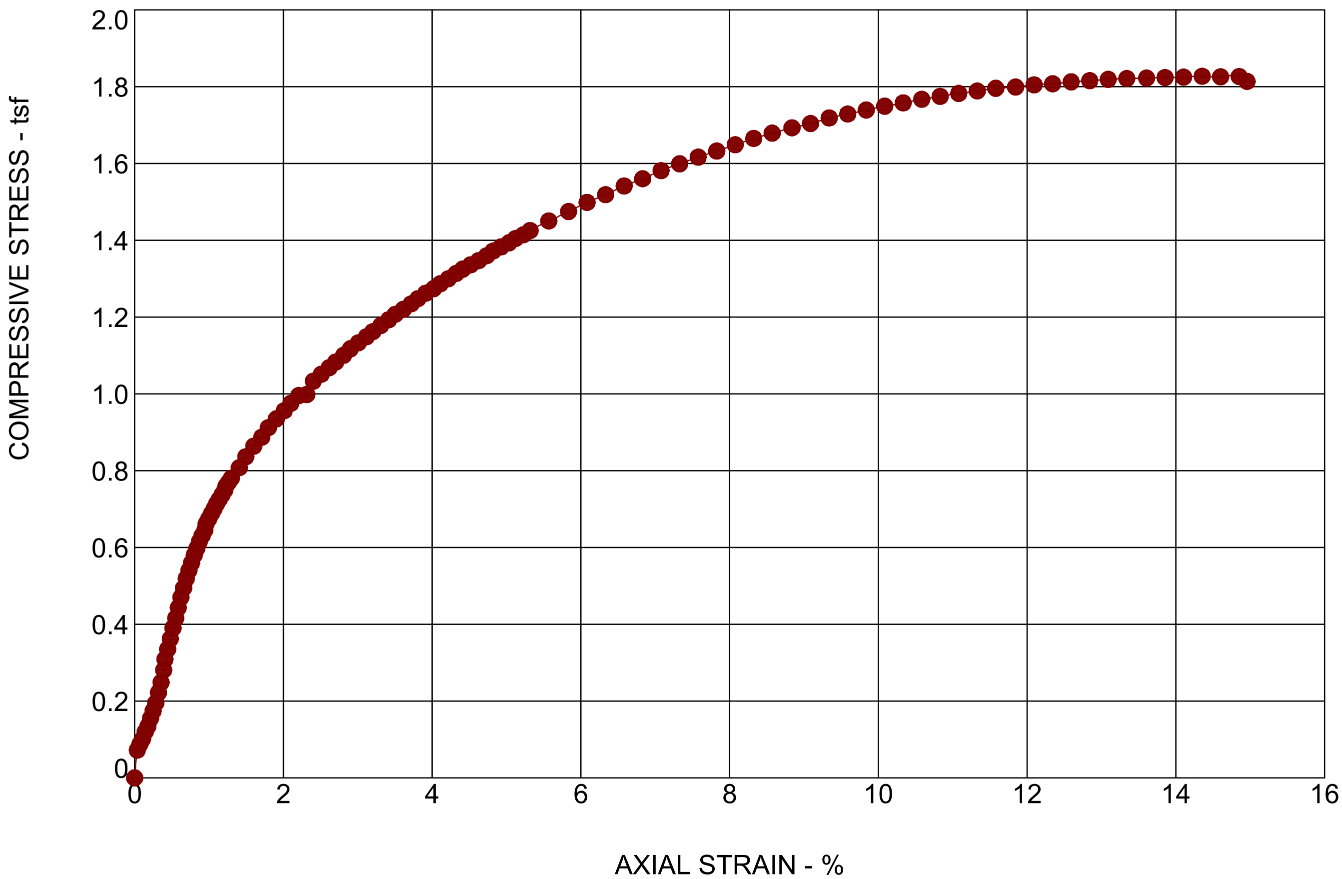


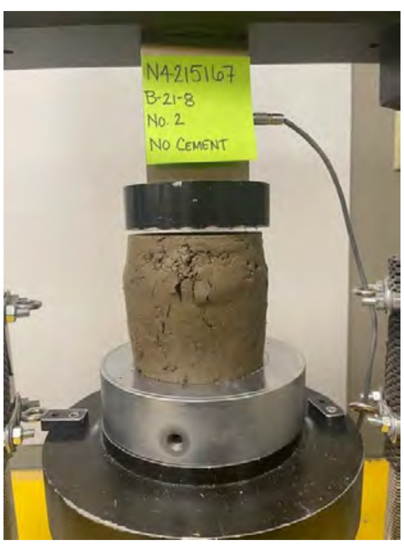
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	105
	Diameter:	in.	3.98
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	14.26
	Unconfined Compressive Strength	(tsf)	1.87
	Undrained Shear Strength:	(tsf)	0.93
	Strain Rate:	in/min	0.0914
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

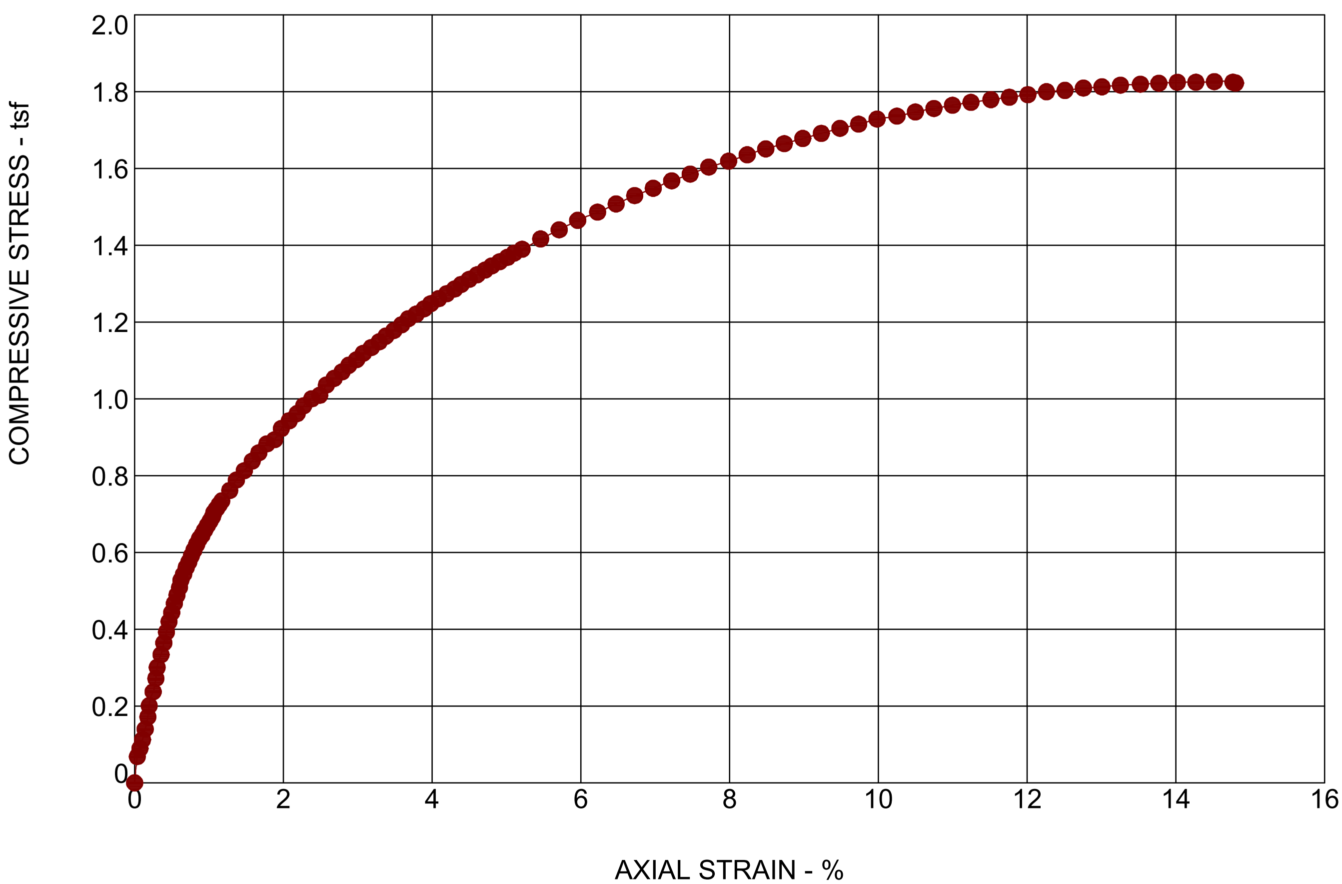


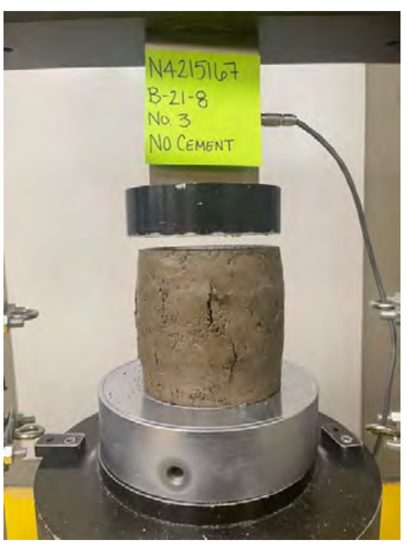
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.98
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	14.35
	Unconfined Compressive Strength	(tsf)	1.83
	Undrained Shear Strength:	(tsf)	0.91
	Strain Rate:	in/min	0.0917
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

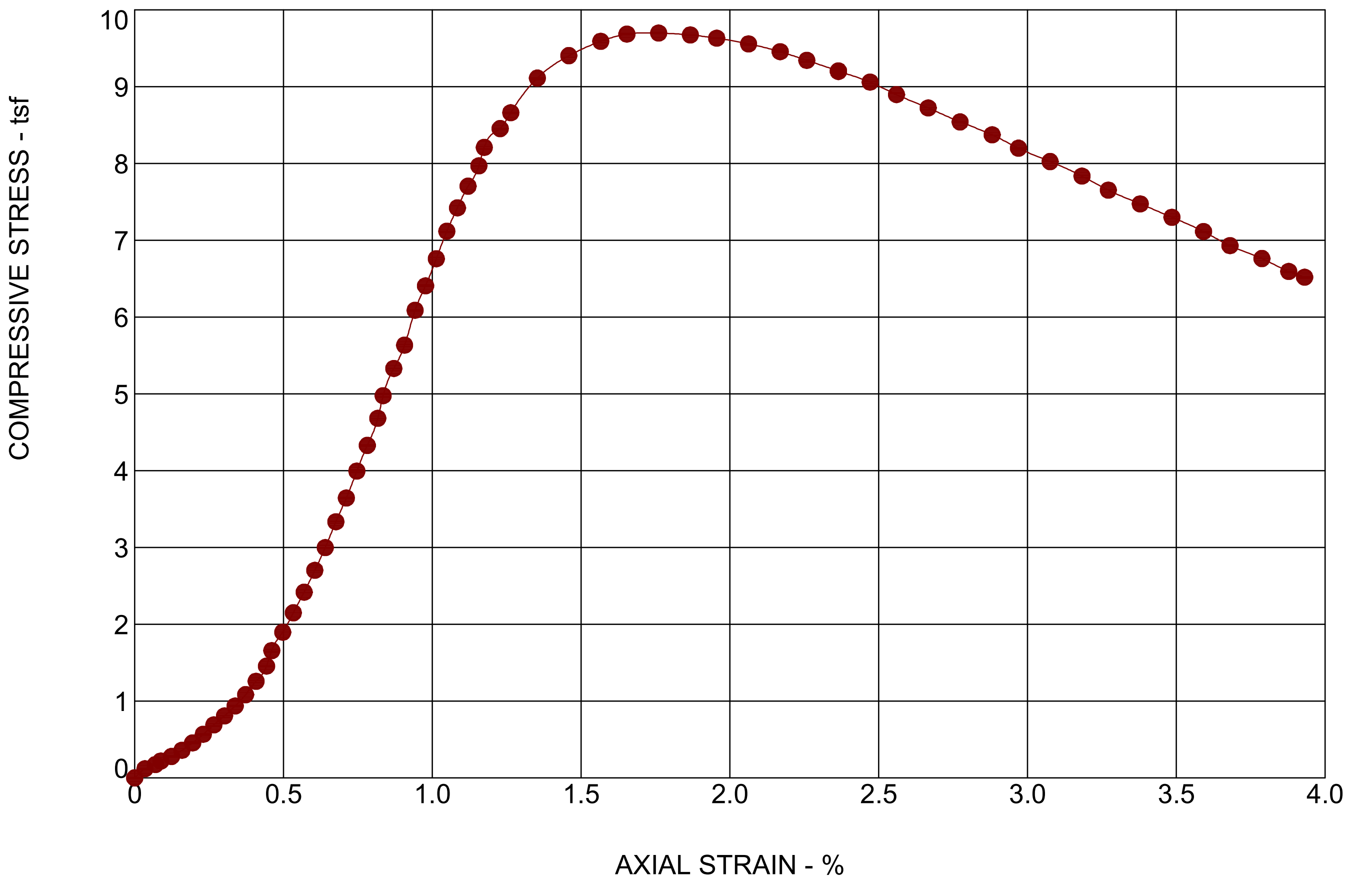


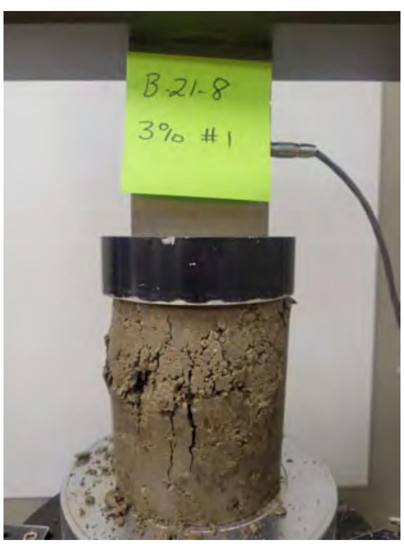
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	14.52
	Unconfined Compressive Strength	(tsf)	1.83
	Undrained Shear Strength:	(tsf)	0.91
	Strain Rate:	in/min	0.0914
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

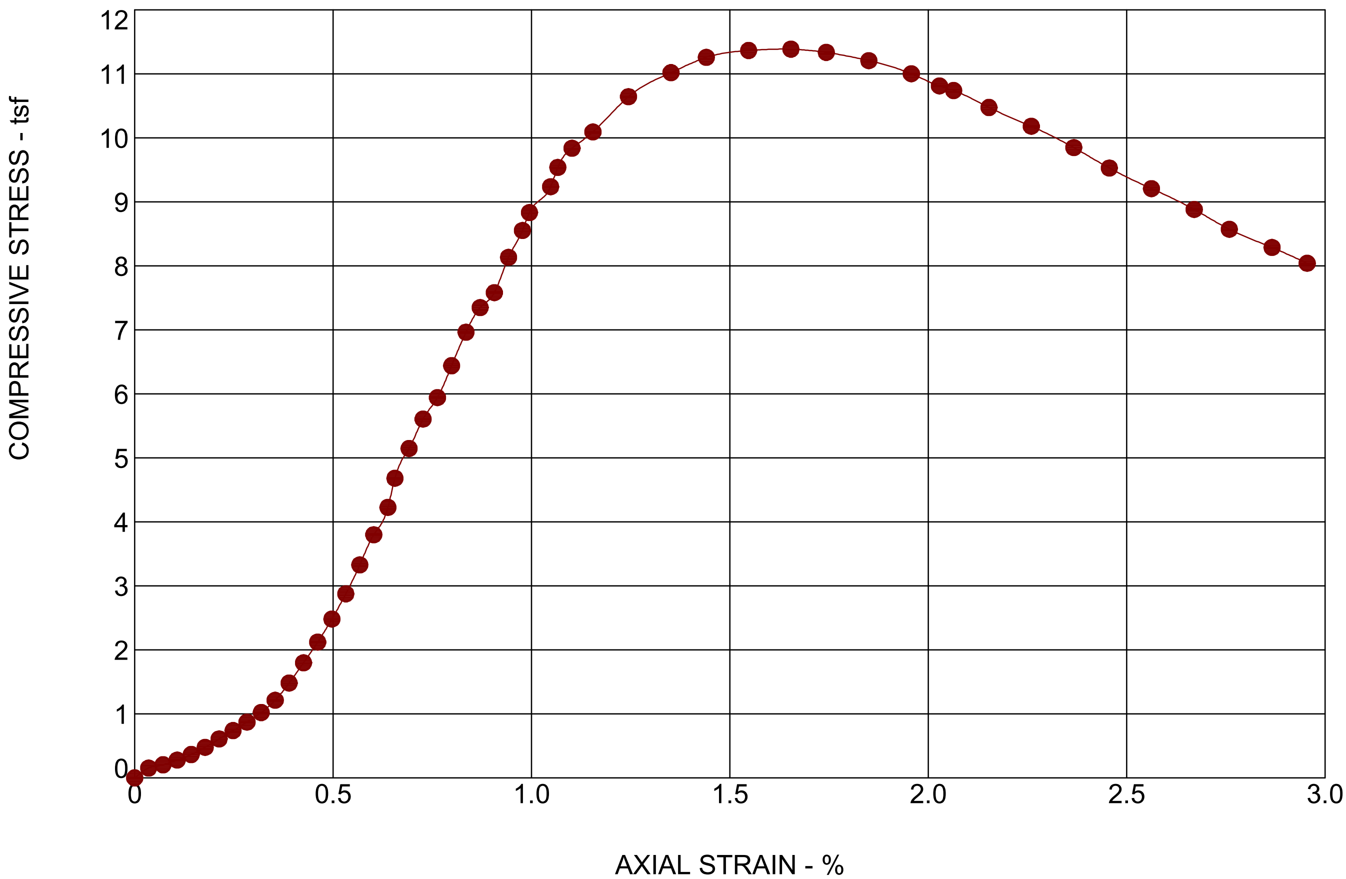


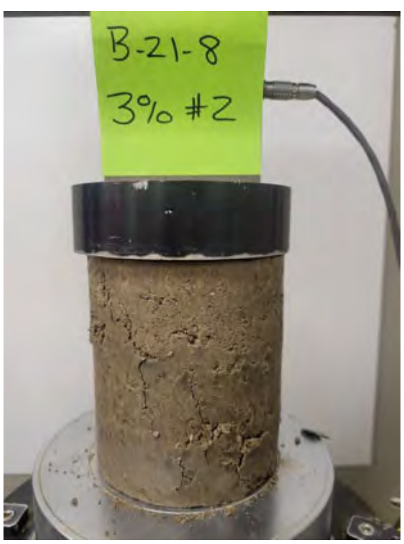
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	102
	Diameter:	in.	4.00
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.76
	Unconfined Compressive Strength	(tsf)	9.70
	Undrained Shear Strength:	(tsf)	4.85
	Strain Rate:	in/min	0.0917
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

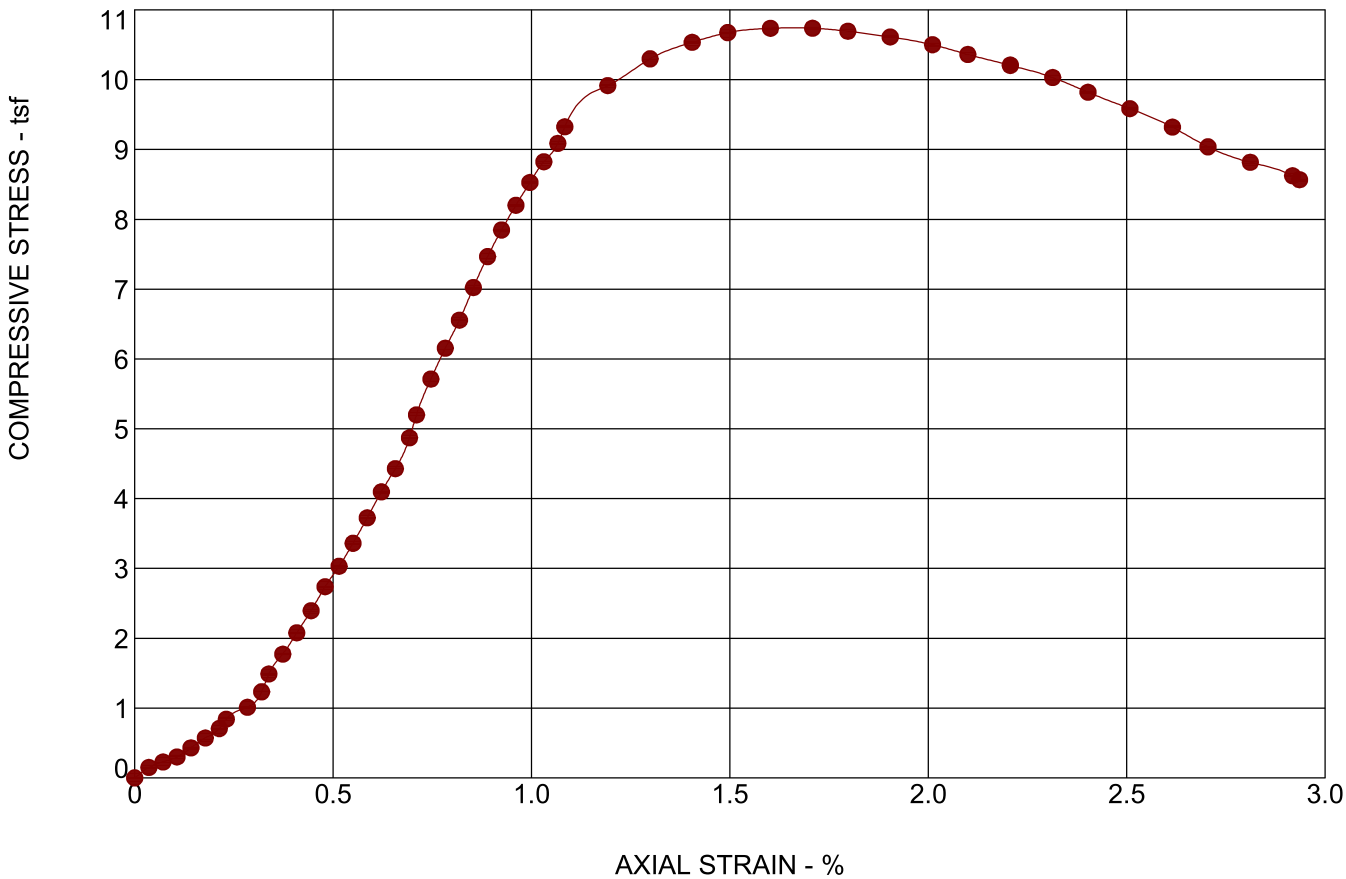


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.65
	Unconfined Compressive Strength	(tsf)	11.39
	Undrained Shear Strength:	(tsf)	5.69
	Strain Rate:	in/min	0.0924
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

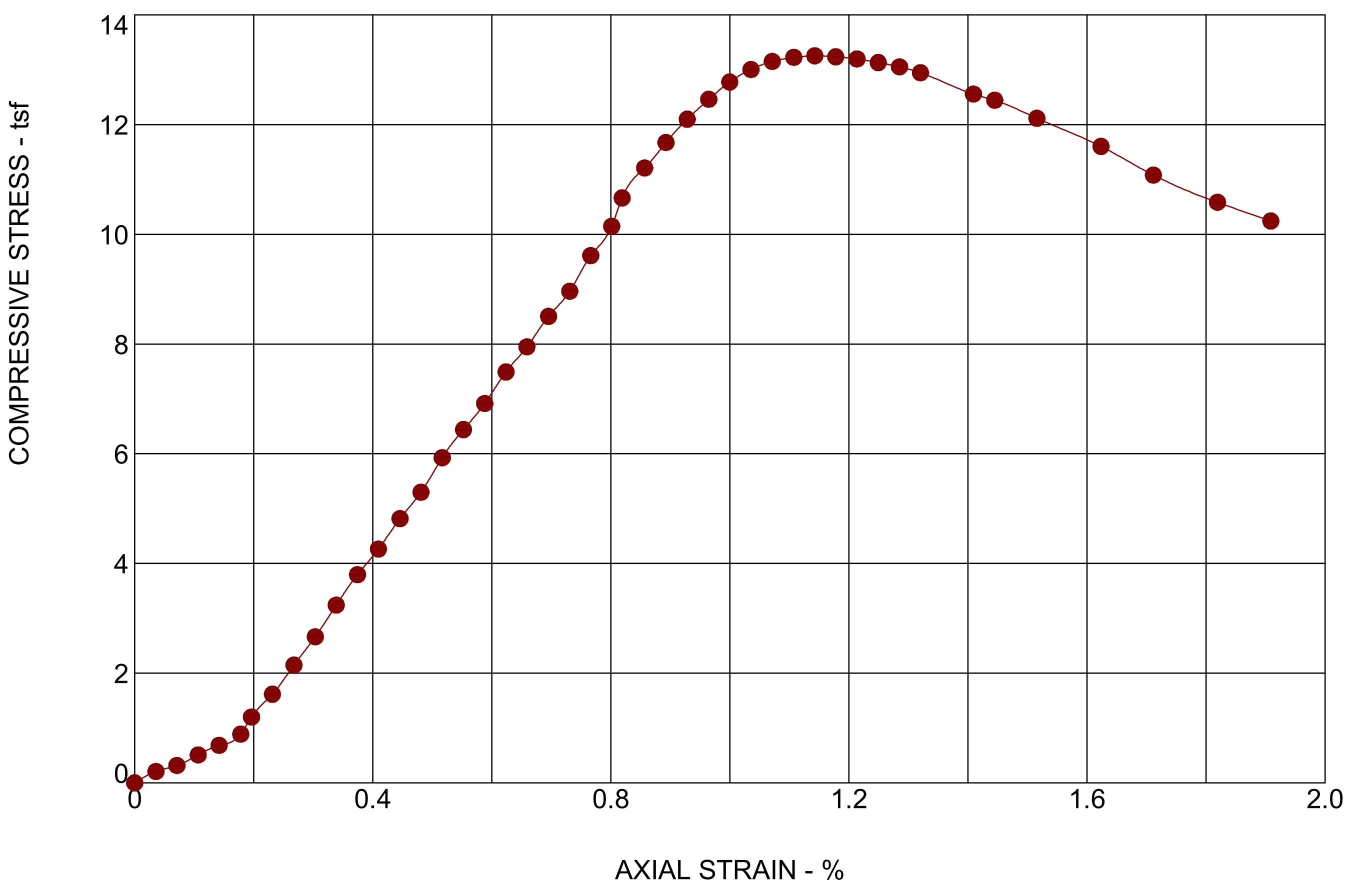


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	4.00
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.71
	Unconfined Compressive Strength	(tsf)	10.74
	Undrained Shear Strength:	(tsf)	5.37
	Strain Rate:	in/min	0.0918
	Remarks: Proctor Value: 103.0 @ 19.2%		

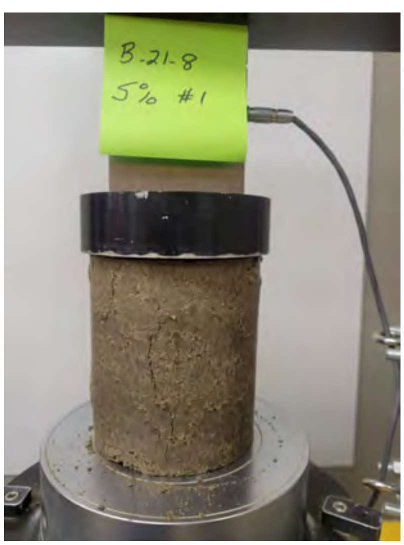
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

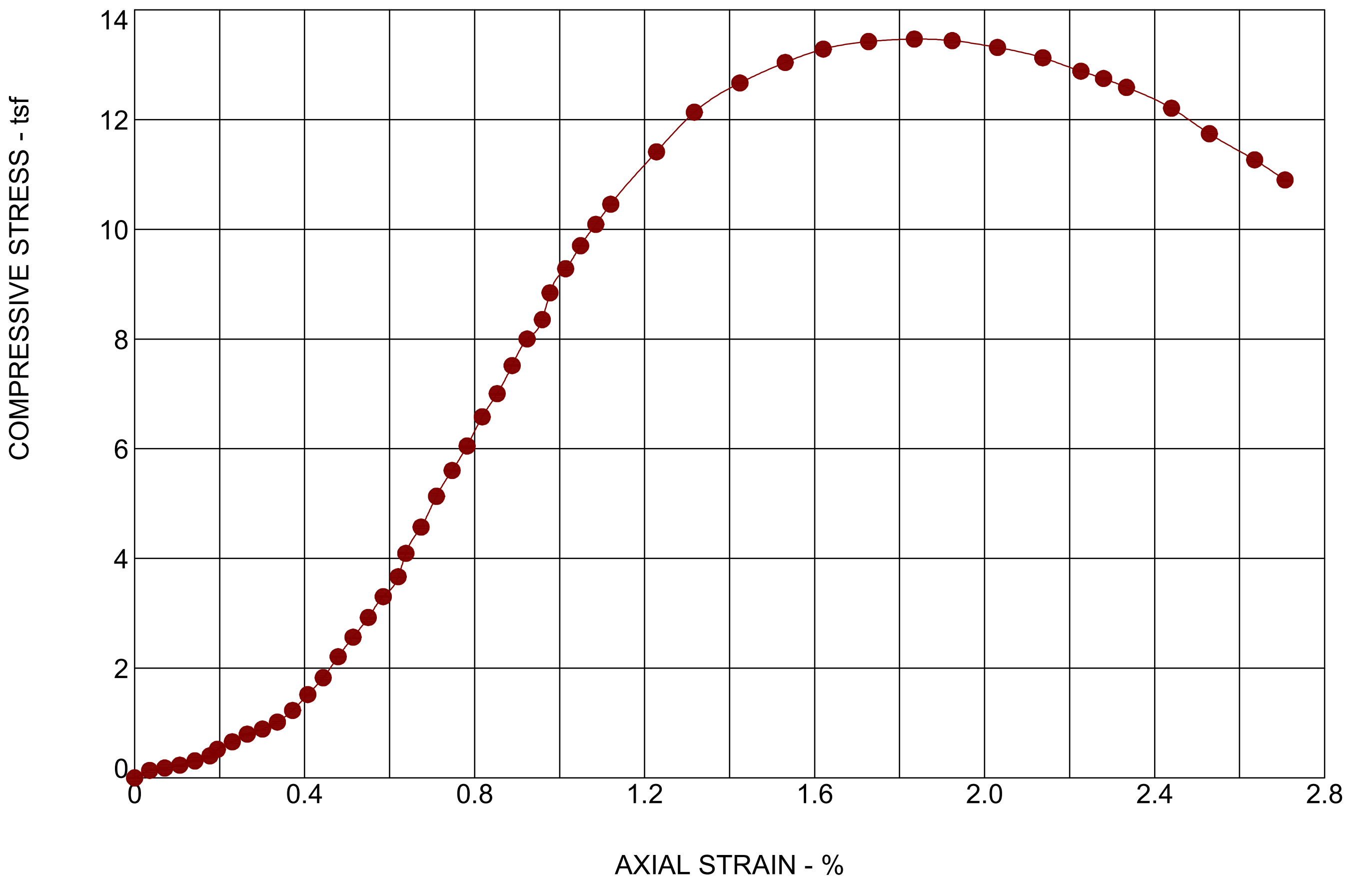


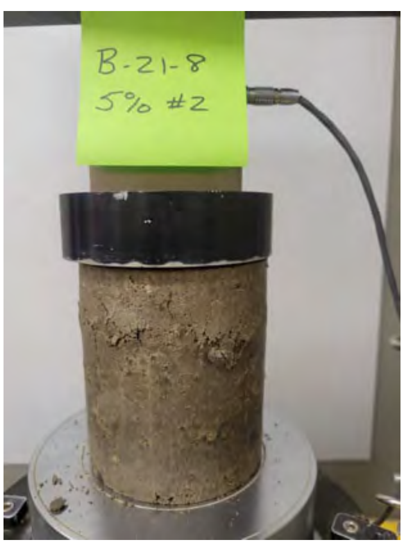
SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.98
Height:	in.	4.59
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	1.14
Unconfined Compressive Strength	(tsf)	13.25
Undrained Shear Strength:	(tsf)	6.63
Strain Rate:	in/min	0.0922
Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

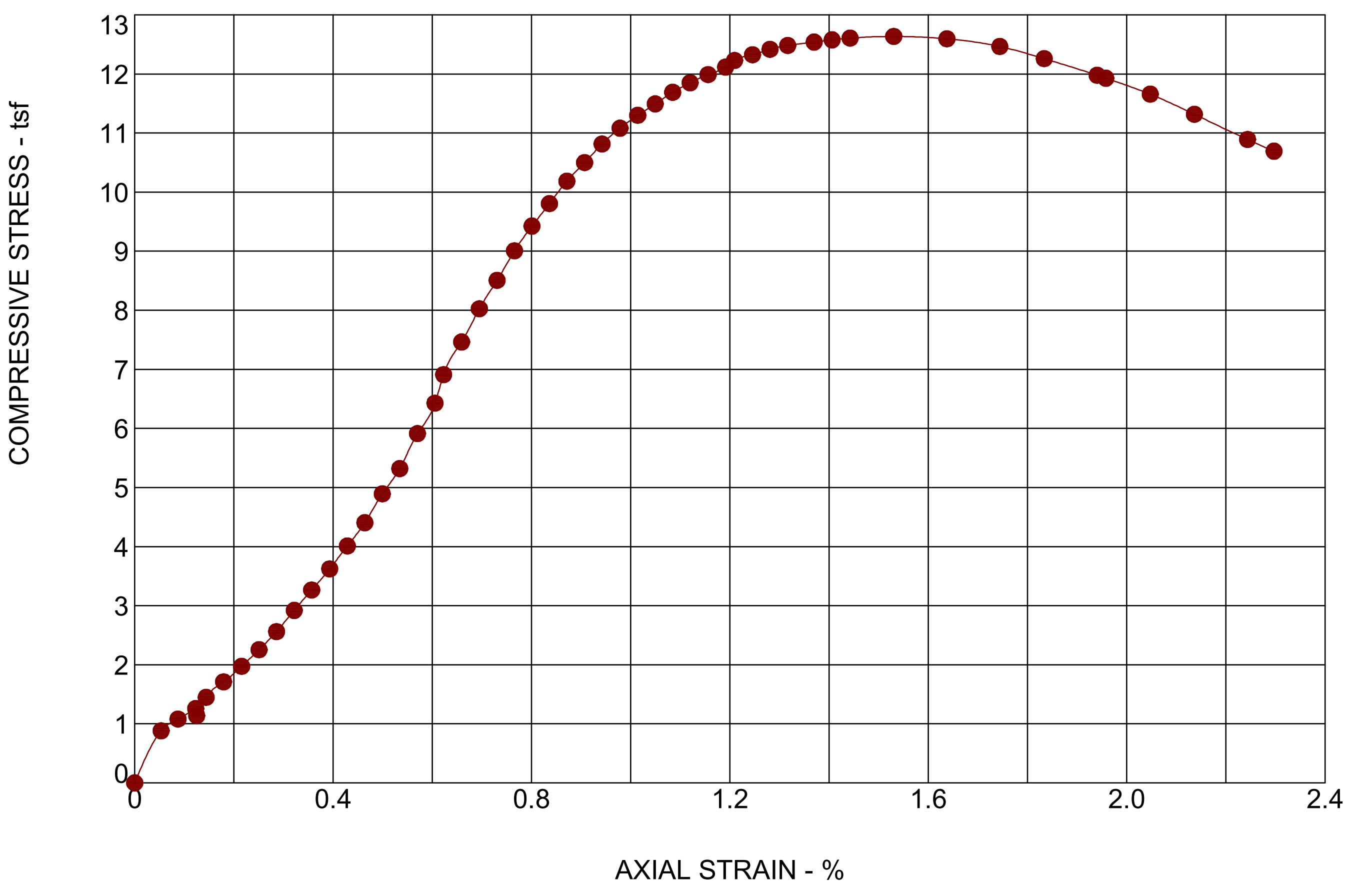


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.83
	Unconfined Compressive Strength	(tsf)	13.47
	Undrained Shear Strength:	(tsf)	6.73
	Strain Rate:	in/min	0.0920
	Remarks: Proctor Value: 103.0 @ 19.2%		

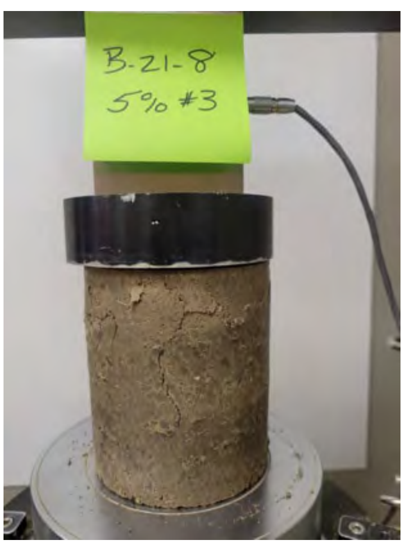
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

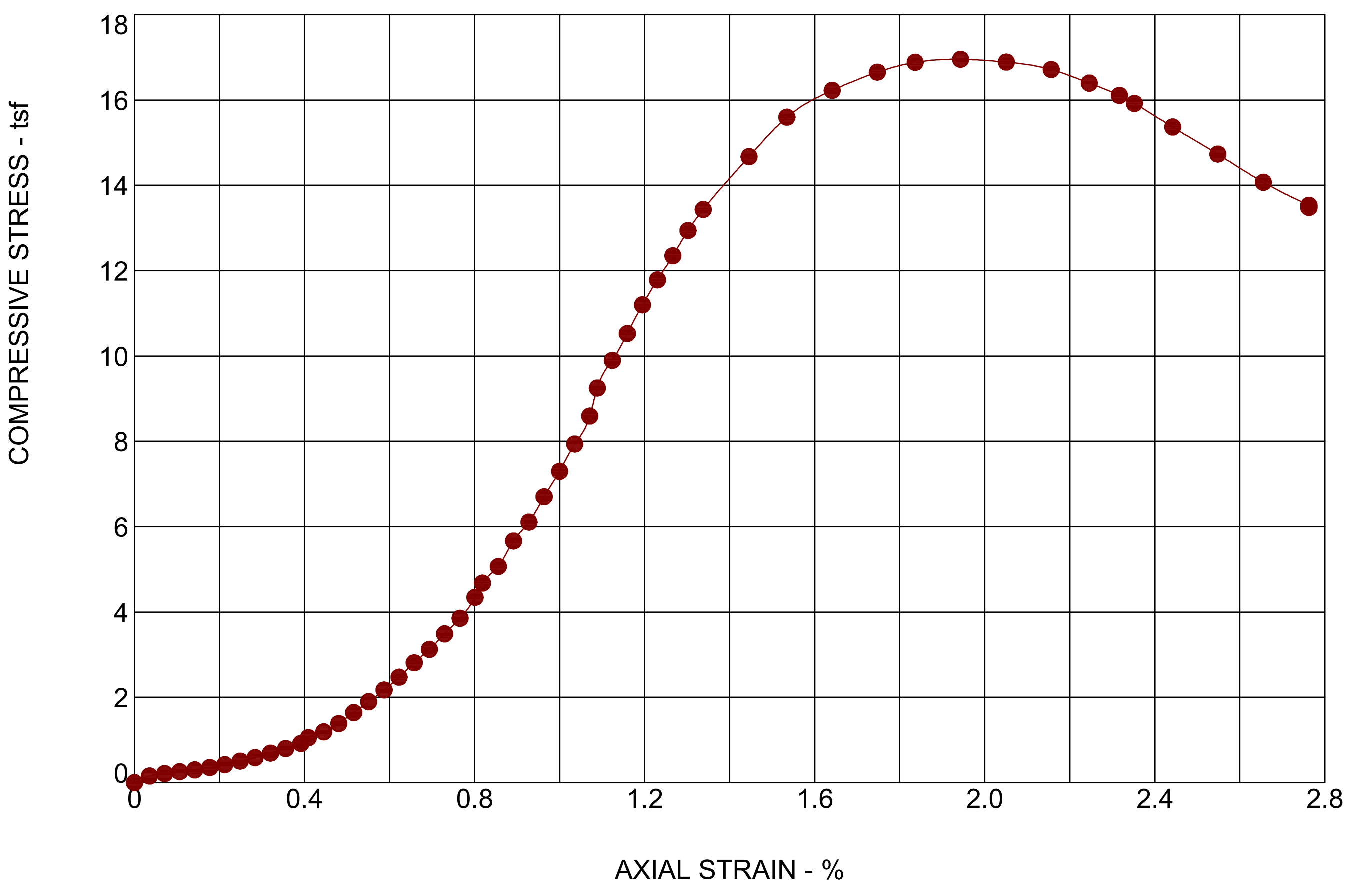


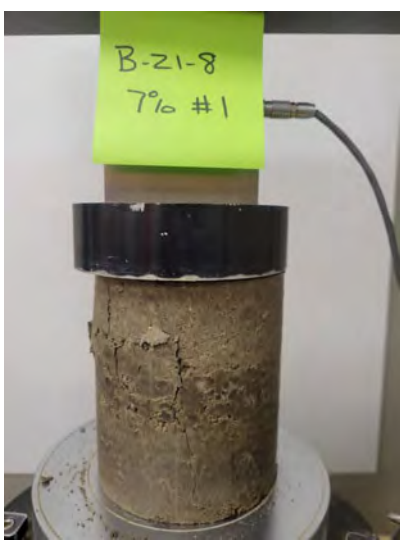
SPECIMEN TEST DATA		
Moisture Content:	%	20
Dry Density:	pcf	104
Diameter:	in.	3.99
Height:	in.	4.59
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	1.53
Unconfined Compressive Strength	(tsf)	12.64
Undrained Shear Strength:	(tsf)	6.32
Strain Rate:	in/min	0.0867
Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

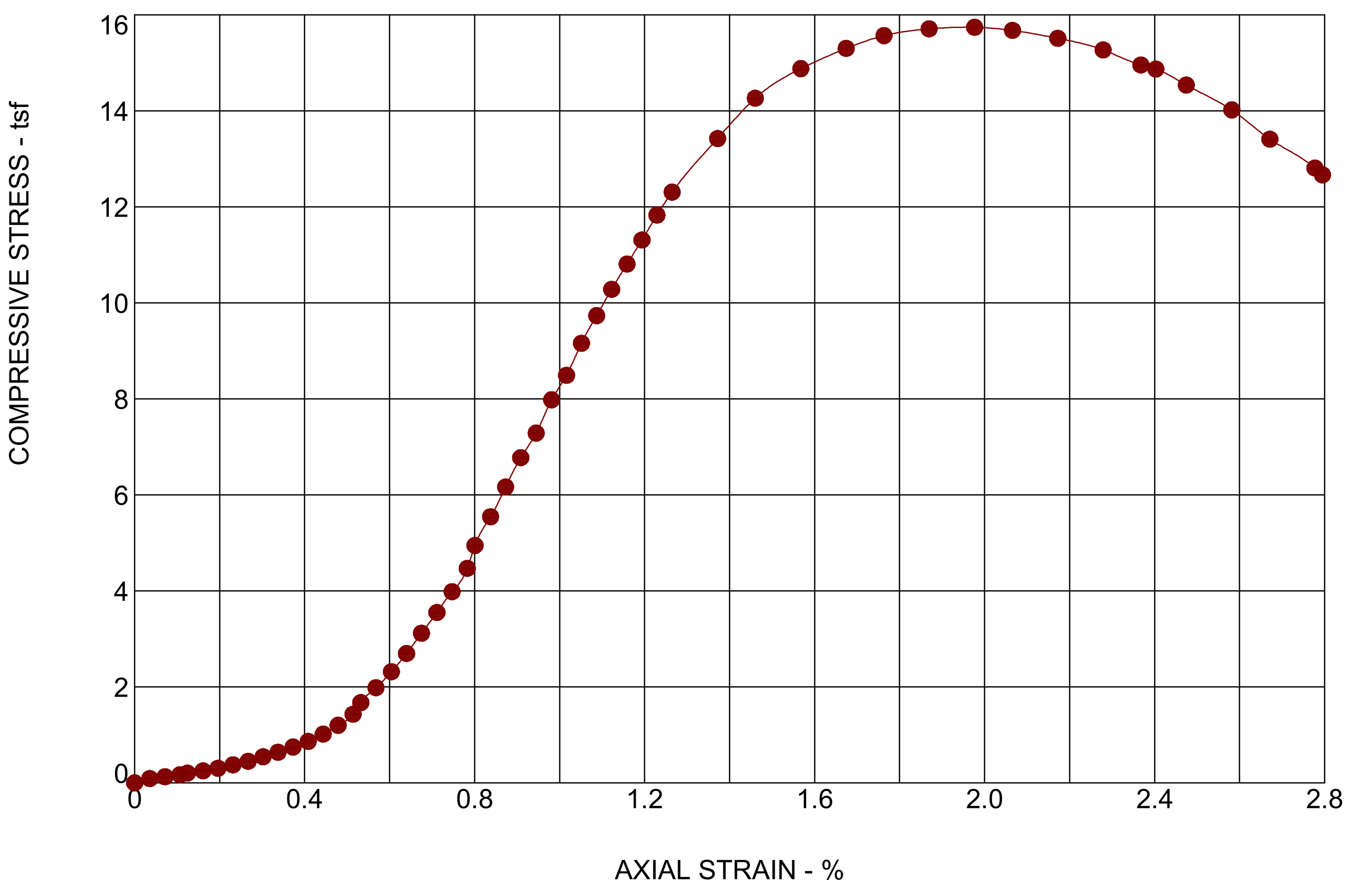


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.60
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.94
	Unconfined Compressive Strength	(tsf)	16.95
	Undrained Shear Strength:	(tsf)	8.48
	Strain Rate:	in/min	0.0919
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

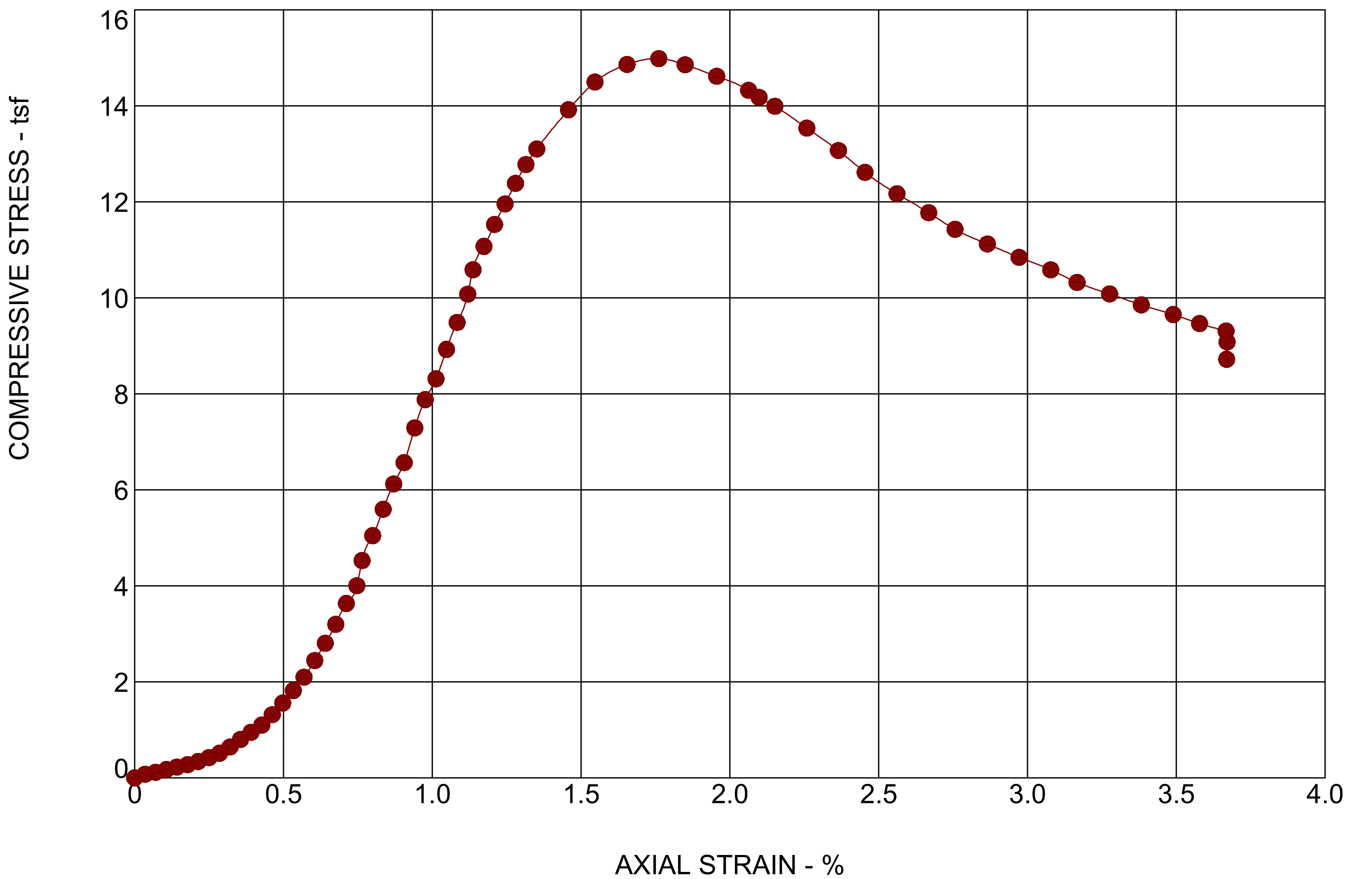


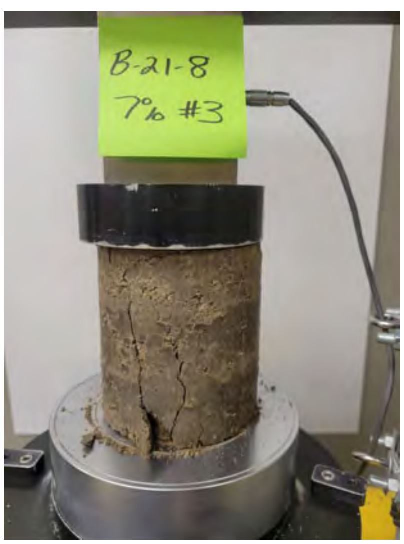
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.60
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.98
	Unconfined Compressive Strength	(tsf)	15.74
	Undrained Shear Strength:	(tsf)	7.87
	Strain Rate:	in/min	0.0918
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

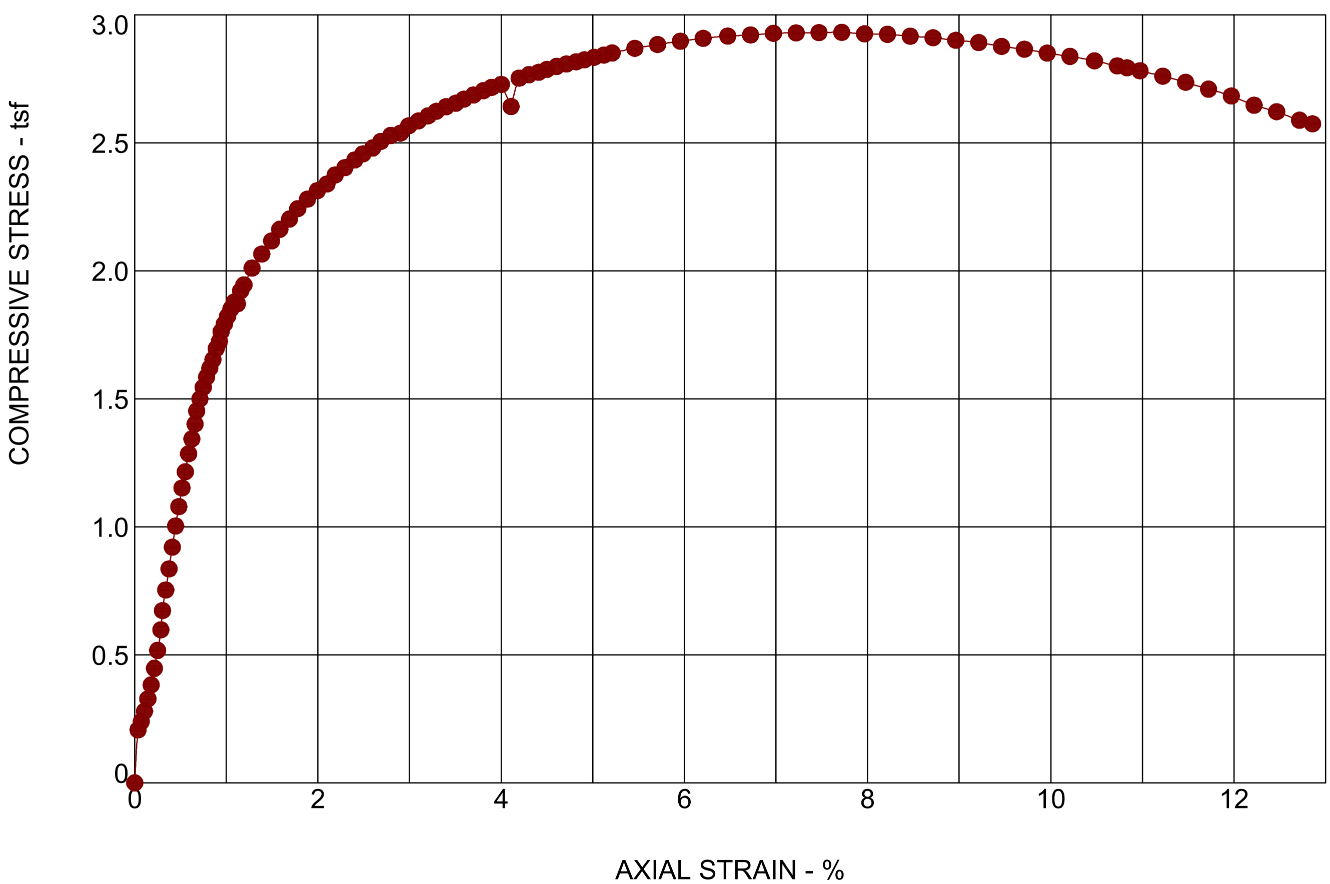


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.76
	Unconfined Compressive Strength	(tsf)	14.99
	Undrained Shear Strength:	(tsf)	7.49
	Strain Rate:	in/min	0.0903
	Remarks: Proctor Value: 103.0 @ 19.2%		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-8 @ 0 - 4 feet			
DESCRIPTION: FAT CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



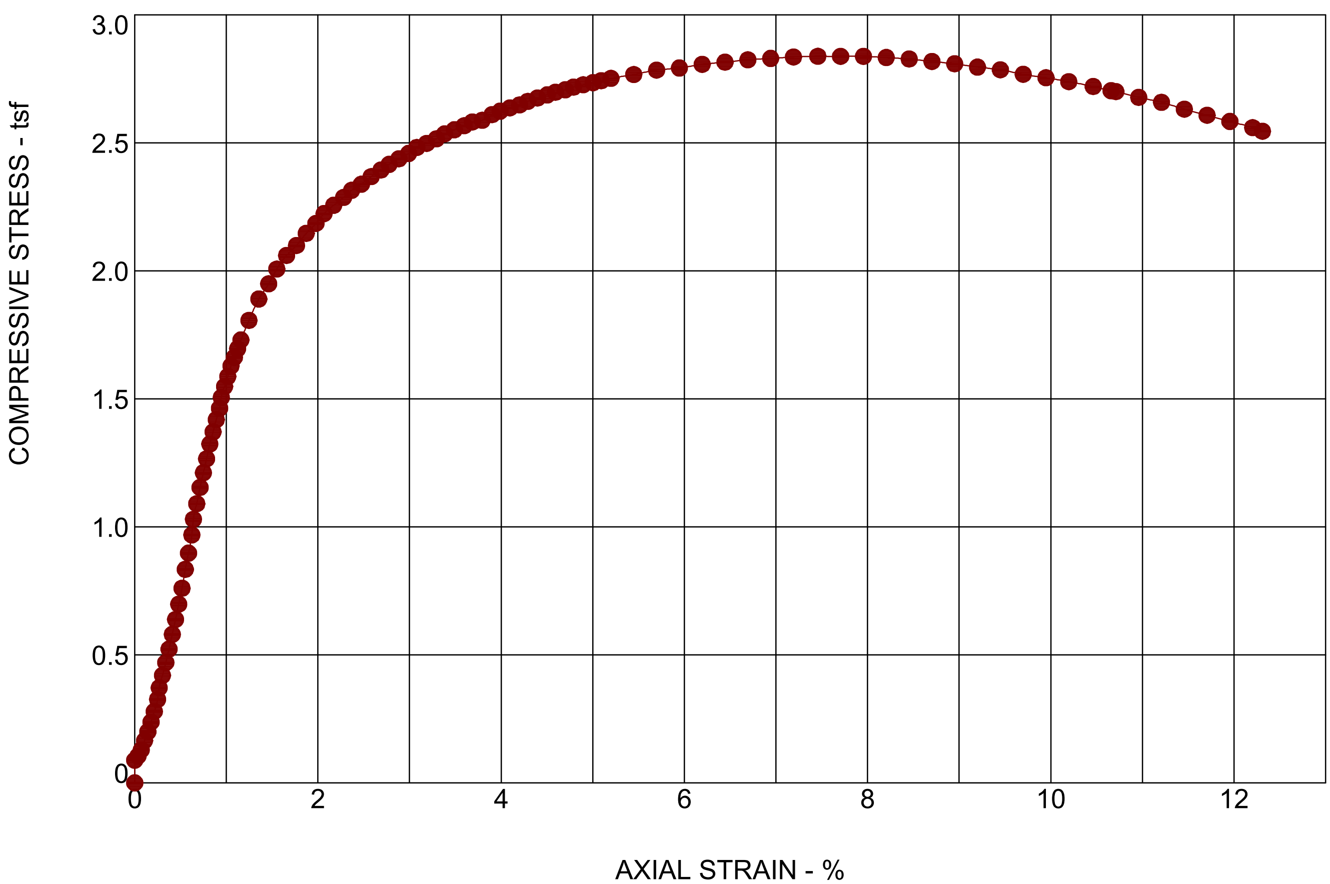
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	7.72
	Unconfined Compressive Strength	(tsf)	2.93
	Undrained Shear Strength:	(tsf)	1.47
	Strain Rate:	in/min	0.0913
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/4/21

UNCONFINED COMPRESSION TEST

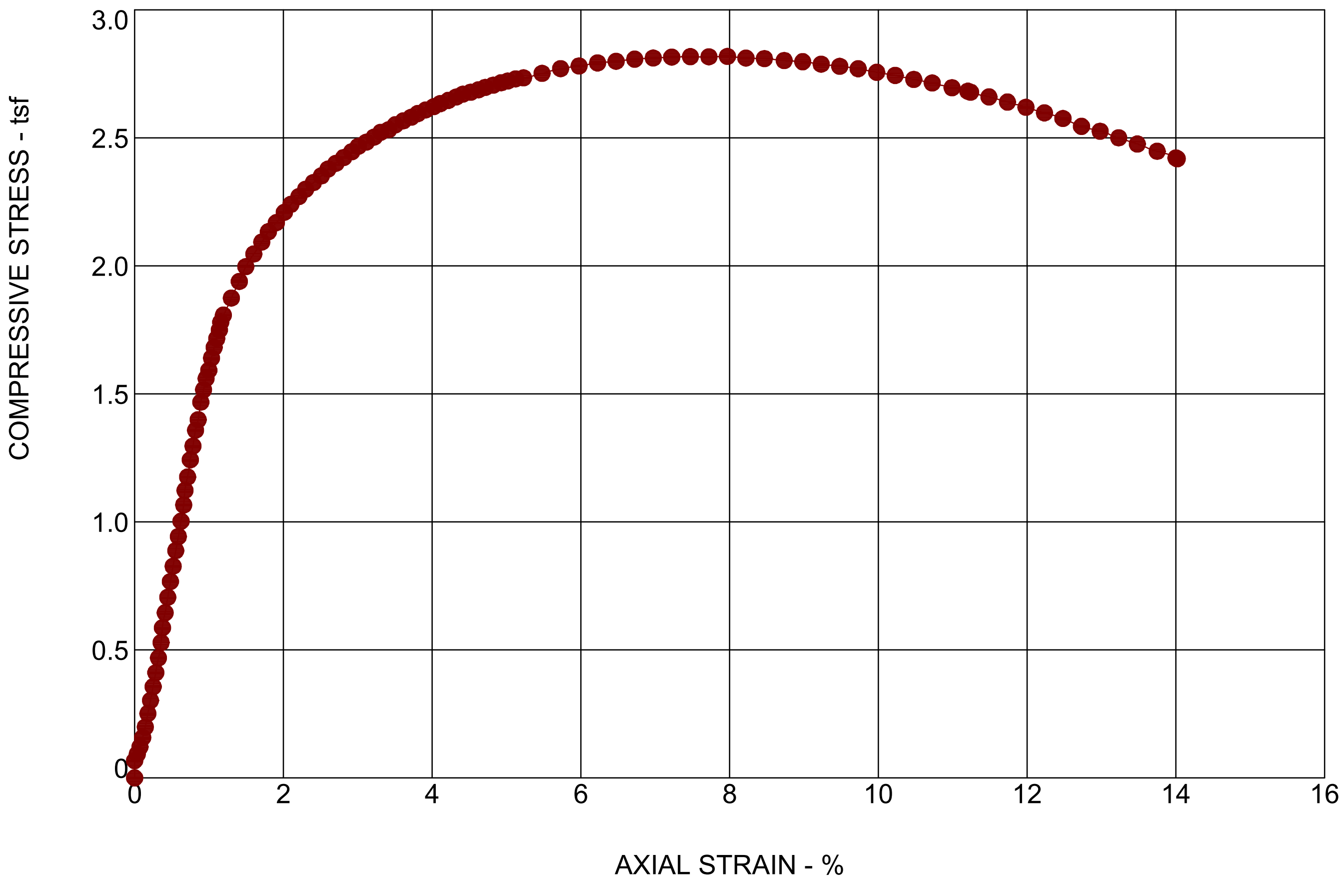


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	106
	Diameter:	in.	3.98
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	7.46
	Unconfined Compressive Strength	(tsf)	2.84
	Undrained Shear Strength:	(tsf)	1.42
	Strain Rate:	in/min	0.0917
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

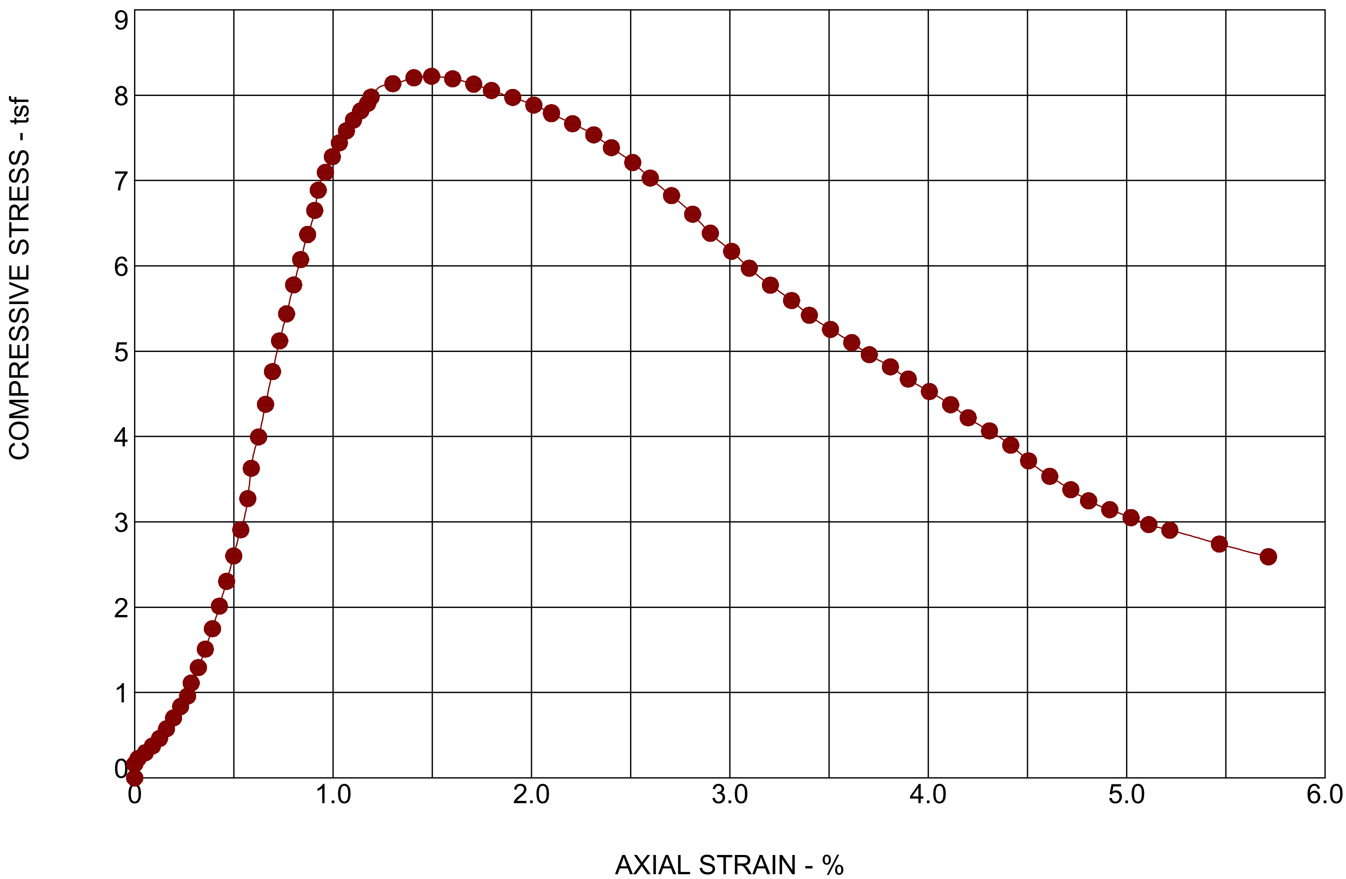


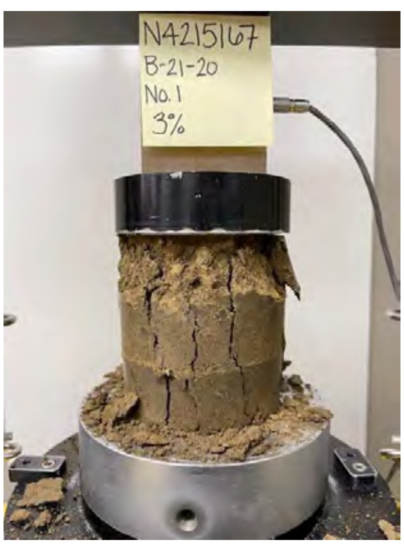
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	7.97
	Unconfined Compressive Strength	(tsf)	2.82
	Undrained Shear Strength:	(tsf)	1.41
	Strain Rate:	in/min	0.0915
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

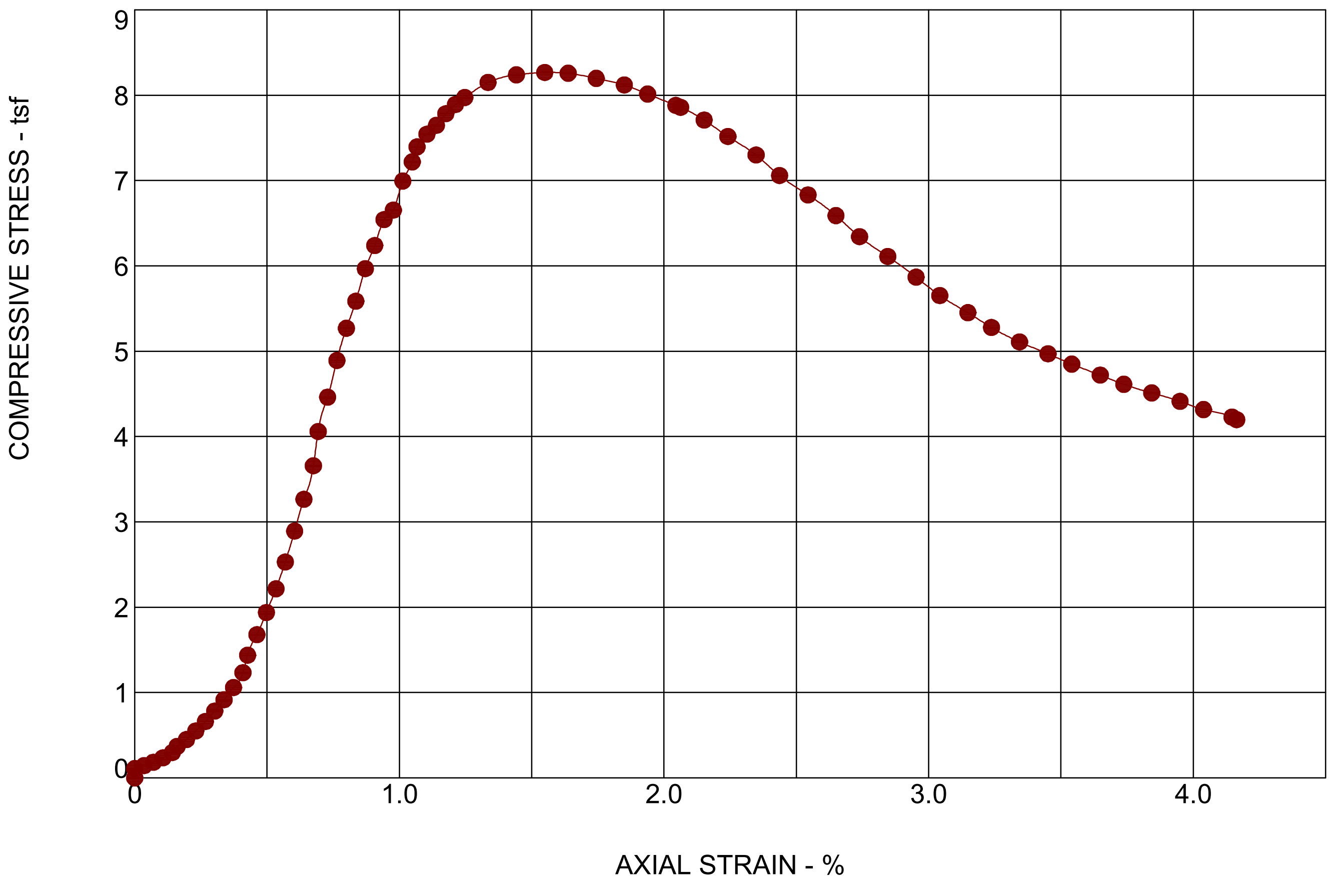


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	18
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.50
	Unconfined Compressive Strength	(tsf)	8.22
	Undrained Shear Strength:	(tsf)	4.11
	Strain Rate:	in/min	0.0911
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

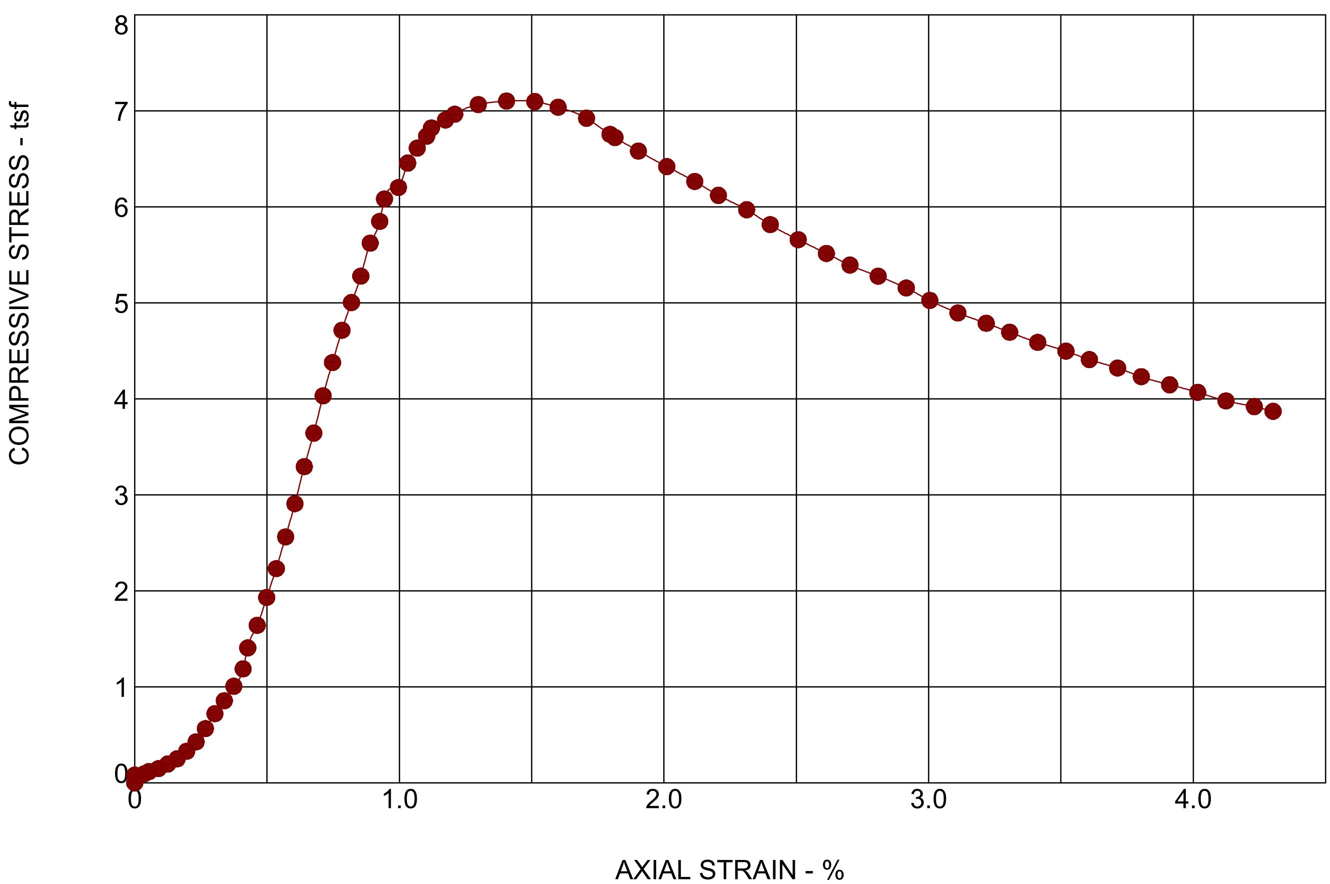


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	18
	Dry Density:	pcf	104
	Diameter:	in.	3.97
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.55
	Unconfined Compressive Strength	(tsf)	8.27
	Undrained Shear Strength:	(tsf)	4.13
	Strain Rate:	in/min	0.0913
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	18
	Dry Density:	pcf	102
	Diameter:	in.	3.98
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.40
	Unconfined Compressive Strength	(tsf)	7.10
	Undrained Shear Strength:	(tsf)	3.55
	Strain Rate:	in/min	0.0916
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar

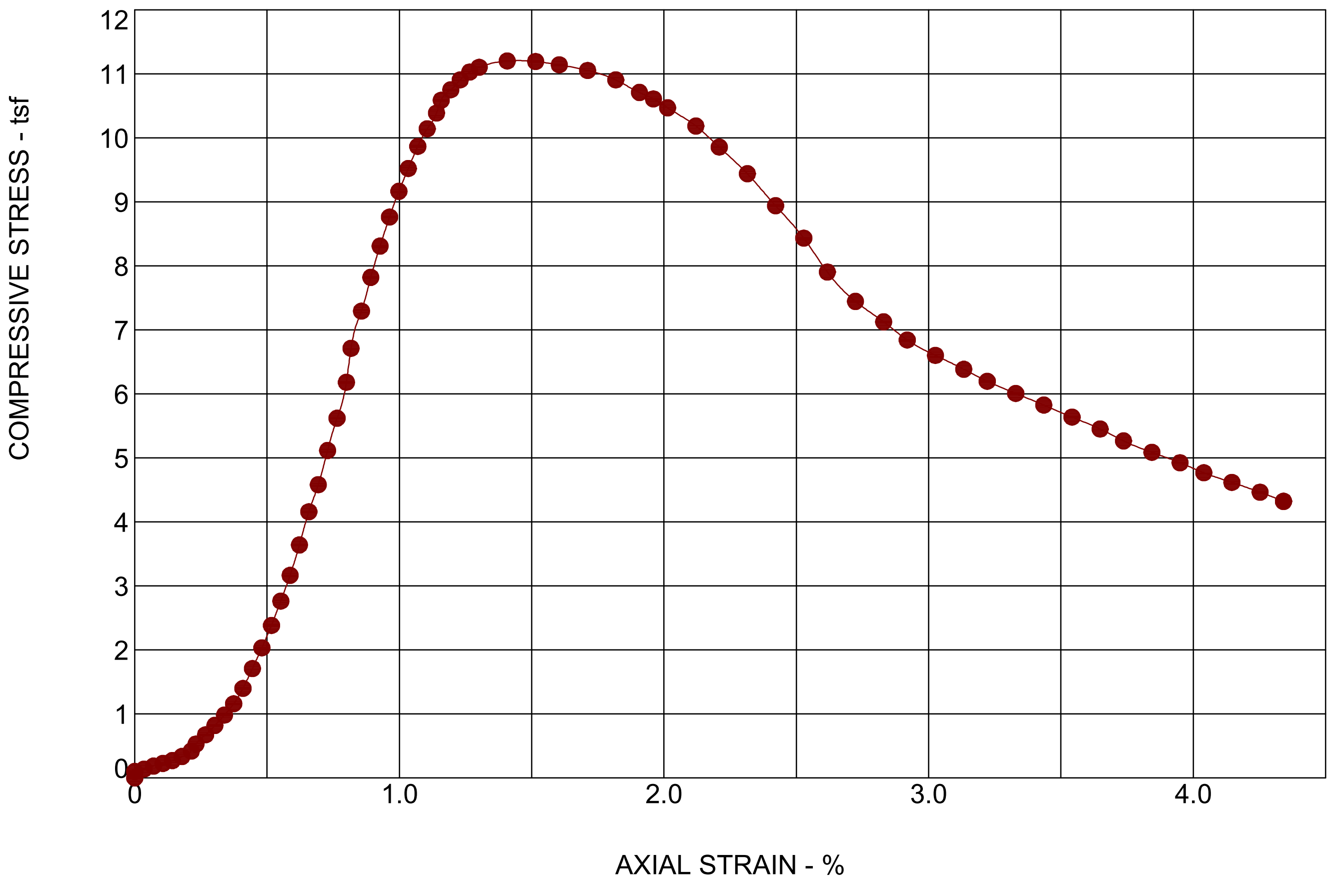
SITE: US 27
Van Wert, OH

Terracon

PROJECT NUMBER: N4215167

CLIENT: Avangrid Renewables
Portland, OR

UNCONFINED COMPRESSION TEST



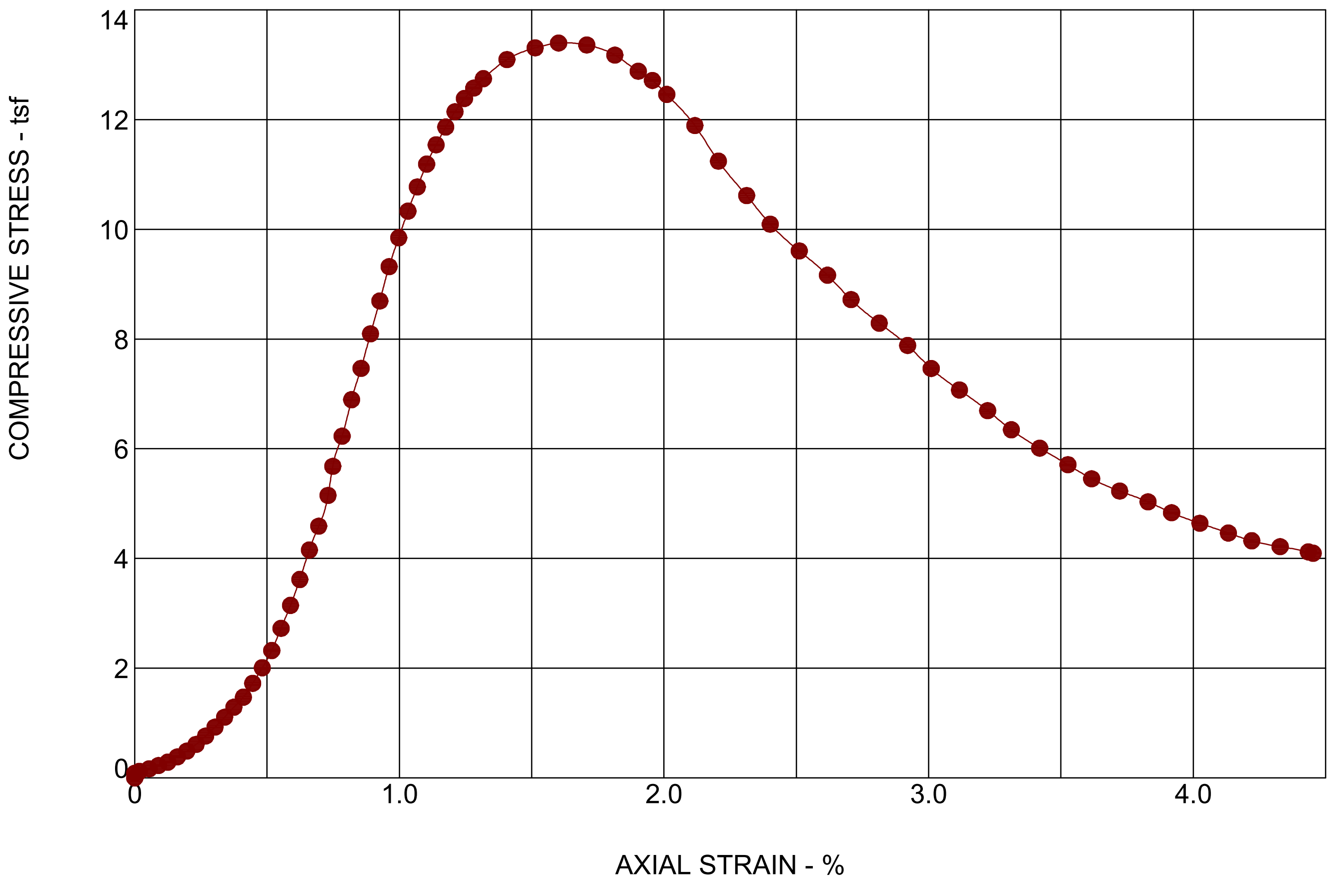
SPECIMEN FAILURE PHOTOGRAPH

SPECIMEN TEST DATA		
Moisture Content:	%	18
Dry Density:	pcf	104
Diameter:	in.	3.98
Height:	in.	4.58
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	1.41
Unconfined Compressive Strength	(tsf)	11.20
Undrained Shear Strength:	(tsf)	5.60
Strain Rate:	in/min	0.0911
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

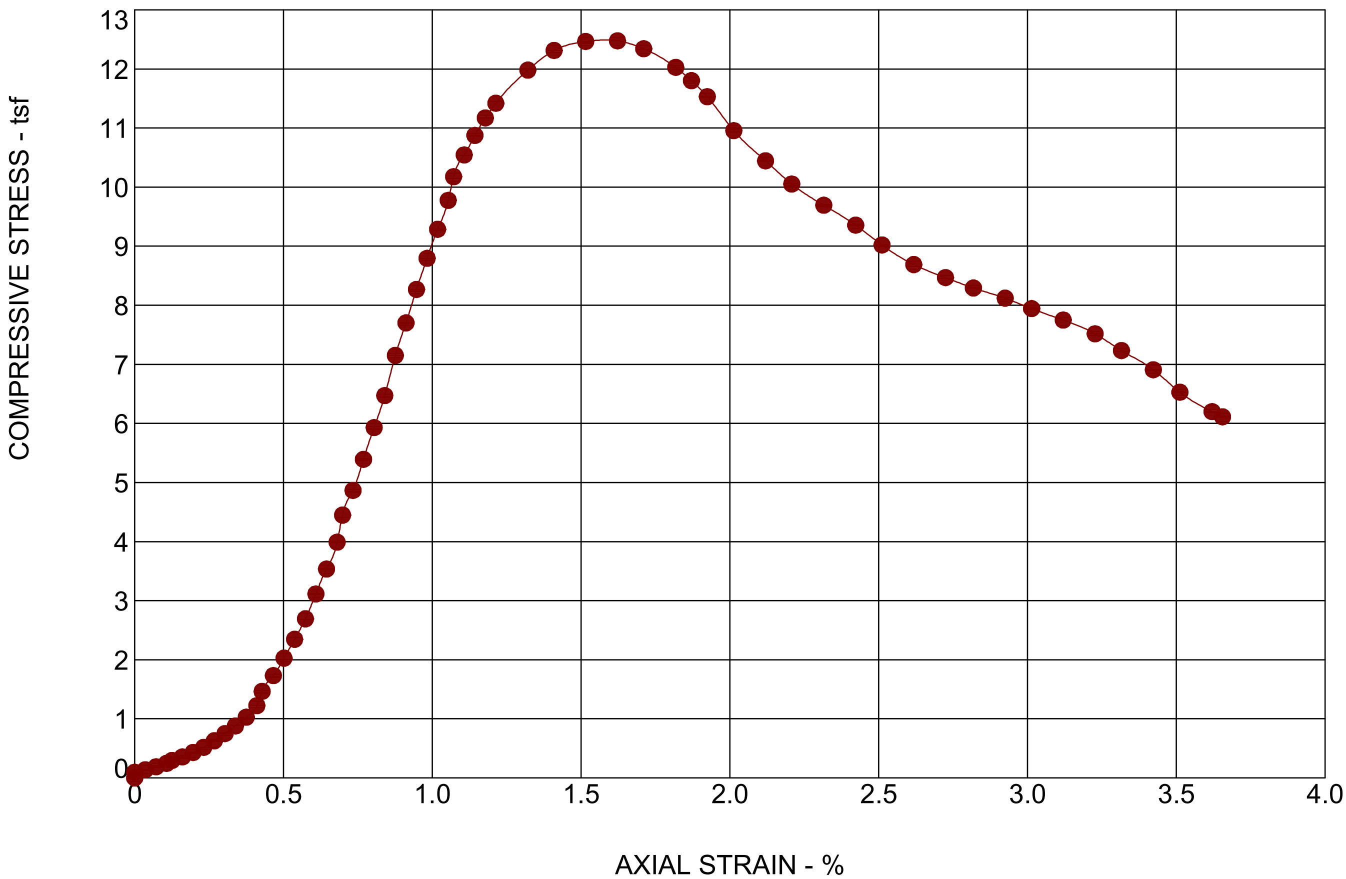


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	18
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.60
	Unconfined Compressive Strength	(tsf)	13.40
	Undrained Shear Strength:	(tsf)	6.70
	Strain Rate:	in/min	0.0913
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

SPECIMEN TEST DATA		
Moisture Content:	%	18
Dry Density:	pcf	104
Diameter:	in.	3.99
Height:	in.	4.58
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	1.62
Unconfined Compressive Strength	(tsf)	12.48
Undrained Shear Strength:	(tsf)	6.24
Strain Rate:	in/min	0.0913

Remarks: One Point MDD/OM%: 104.7 @ 19.2

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar

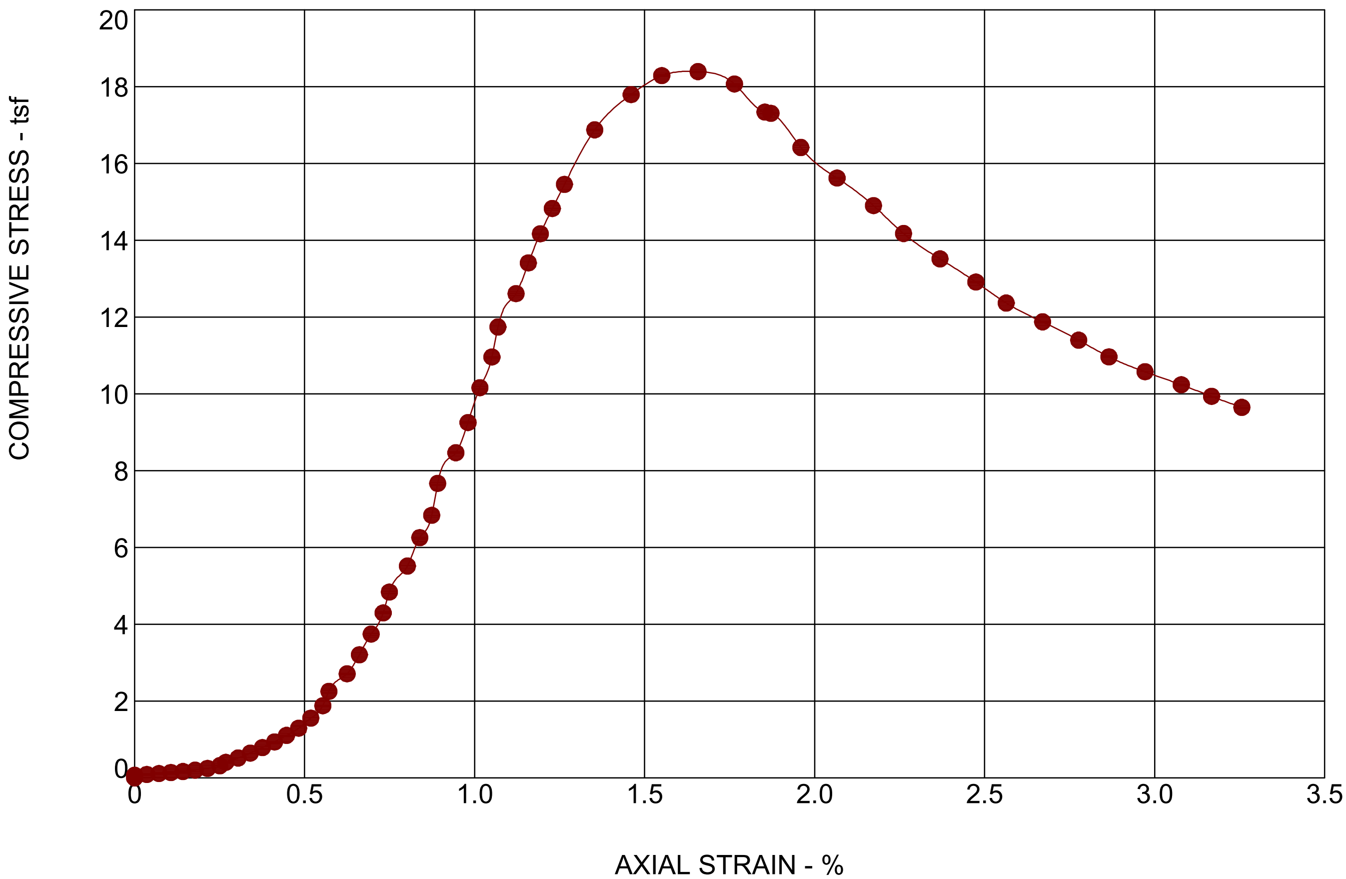
SITE: US 27
Van Wert, OH

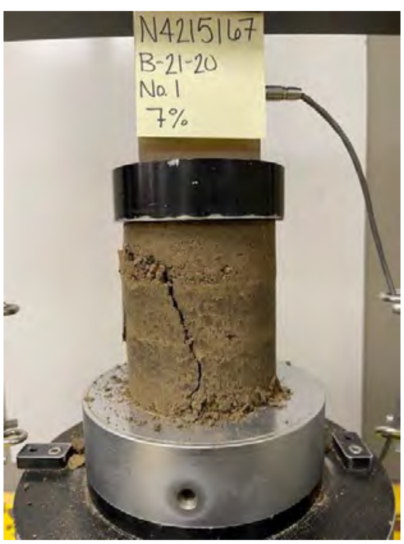
Terracon

PROJECT NUMBER: N4215167

CLIENT: Avangrid Renewables
Portland, OR

UNCONFINED COMPRESSION TEST



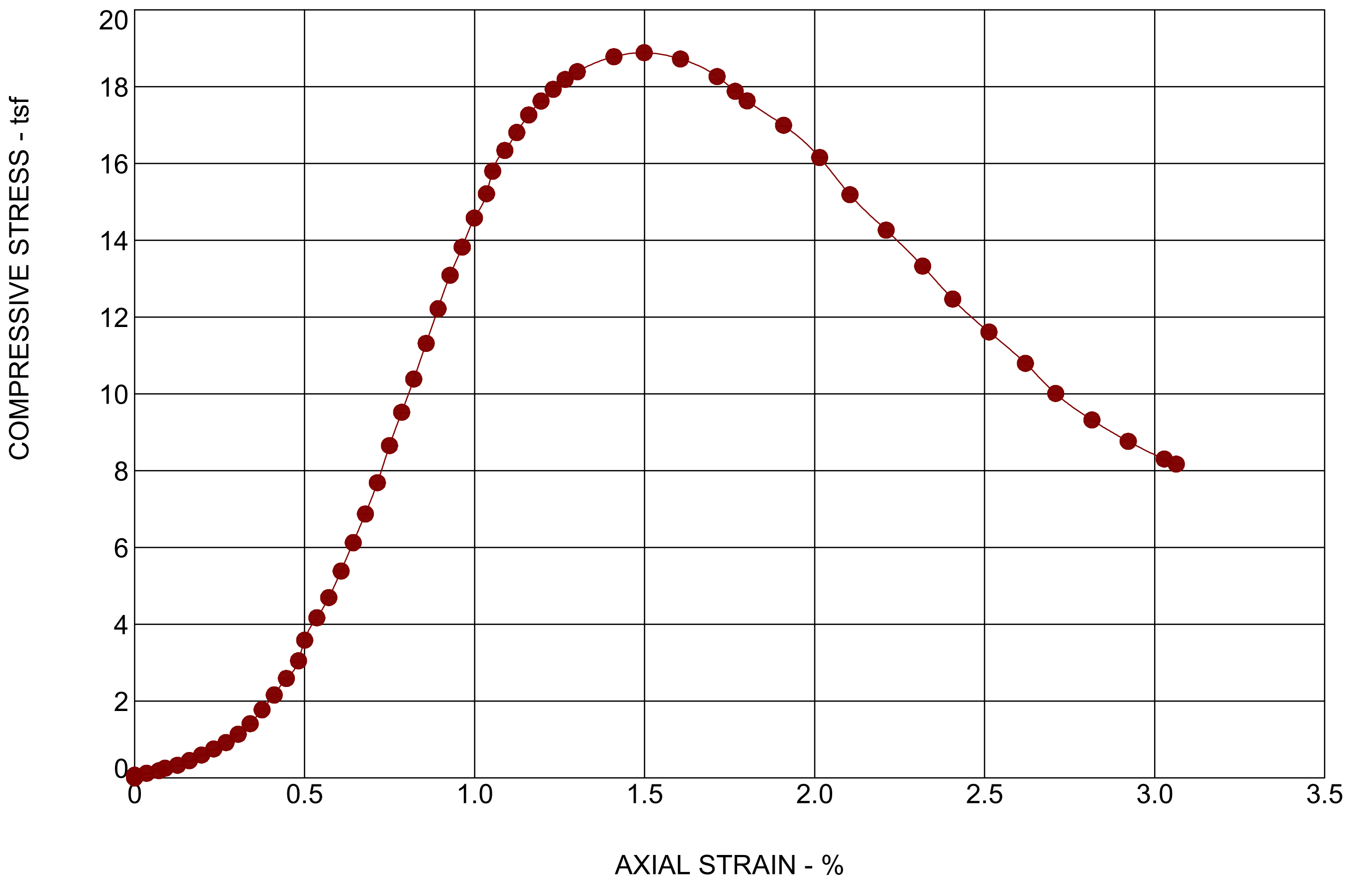
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	17
	Dry Density:	pcf	105
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.66
	Unconfined Compressive Strength	(tsf)	18.39
	Undrained Shear Strength:	(tsf)	9.20
	Strain Rate:	in/min	0.0915
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/4/21

UNCONFINED COMPRESSION TEST

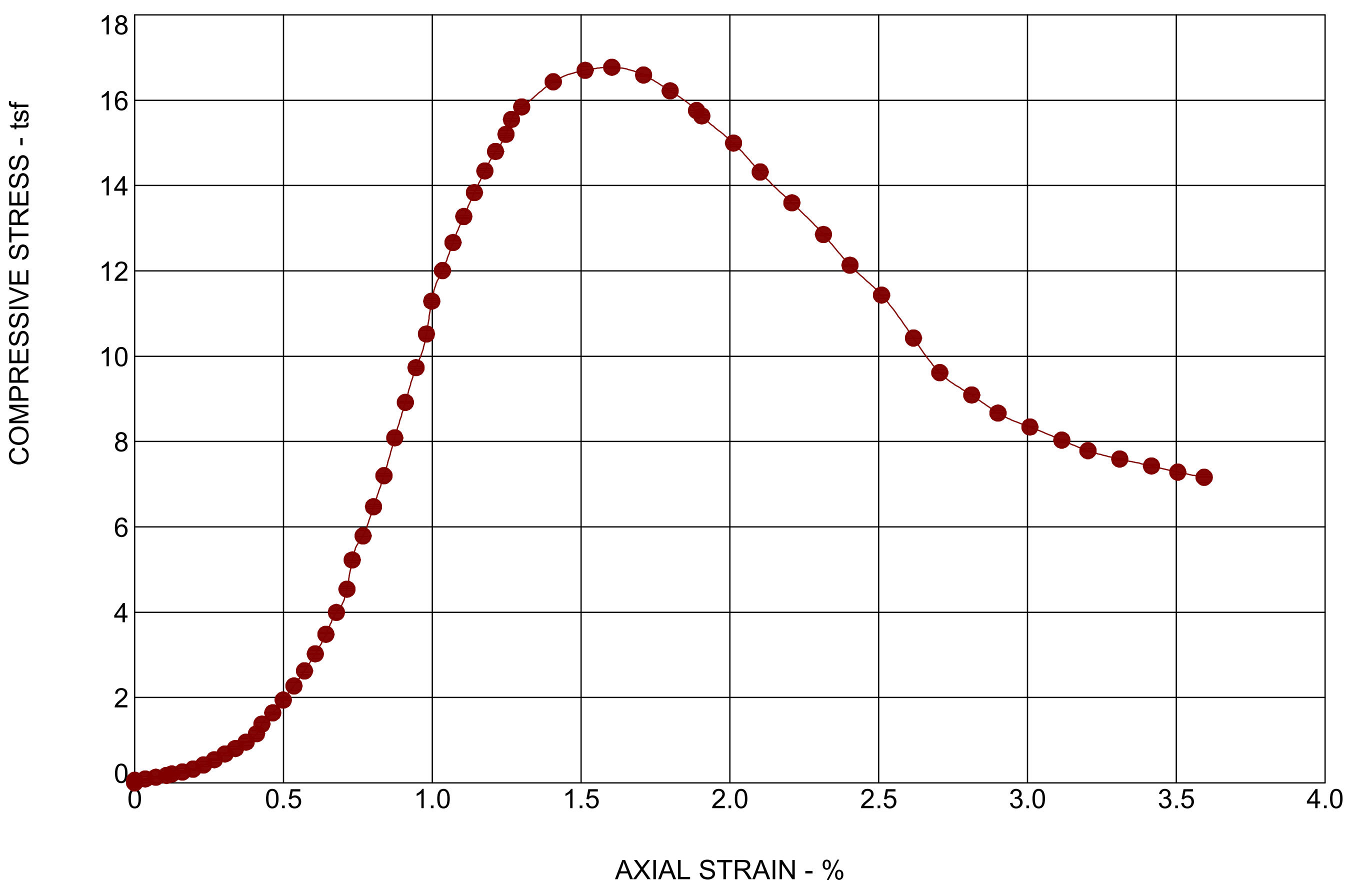


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	18
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.50
	Unconfined Compressive Strength	(tsf)	18.88
	Undrained Shear Strength:	(tsf)	9.44
	Strain Rate:	in/min	0.0915
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

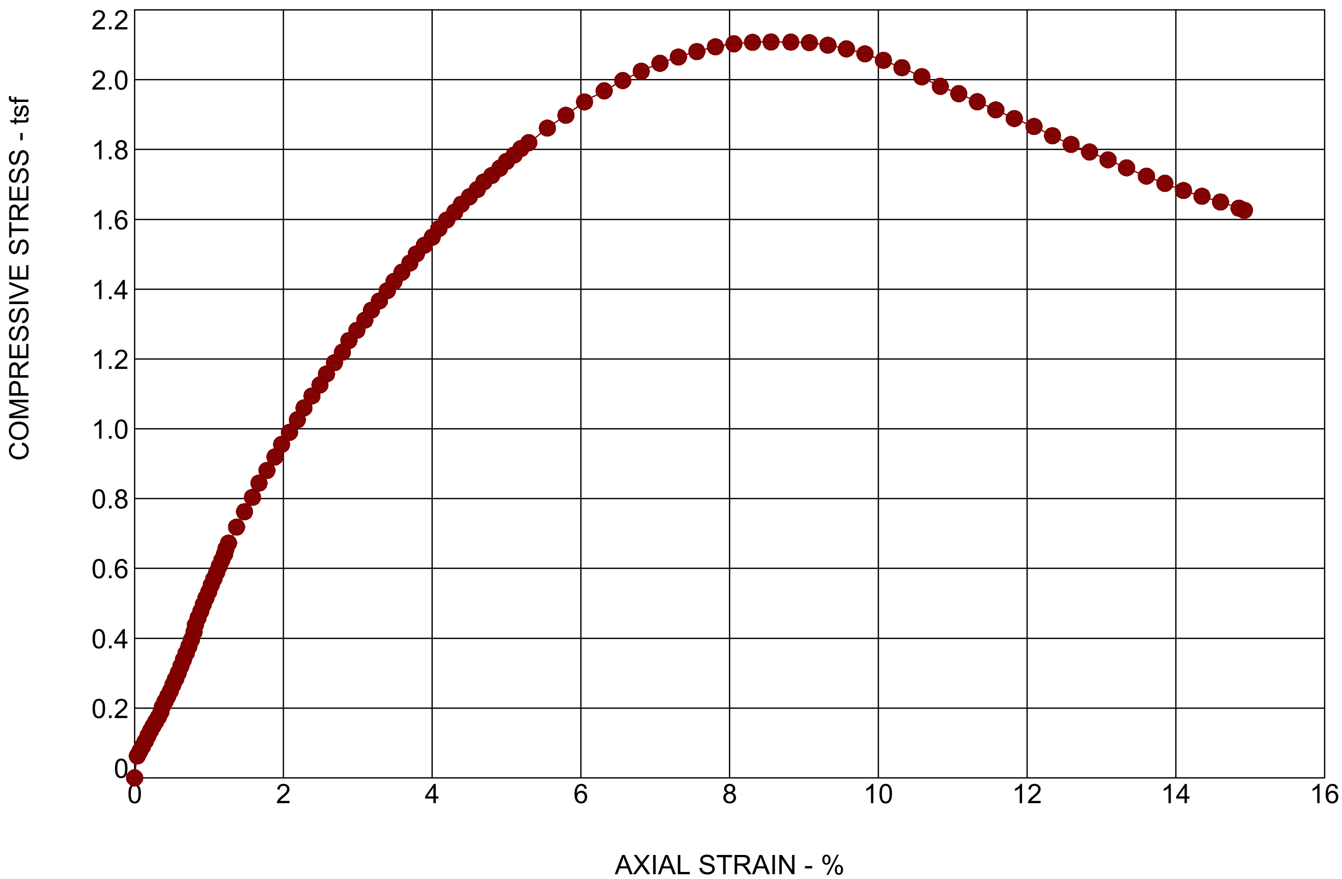


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	17
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	1.60
	Unconfined Compressive Strength	(tsf)	16.77
	Undrained Shear Strength:	(tsf)	8.39
	Strain Rate:	in/min	0.0914
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-20 @ 0- 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

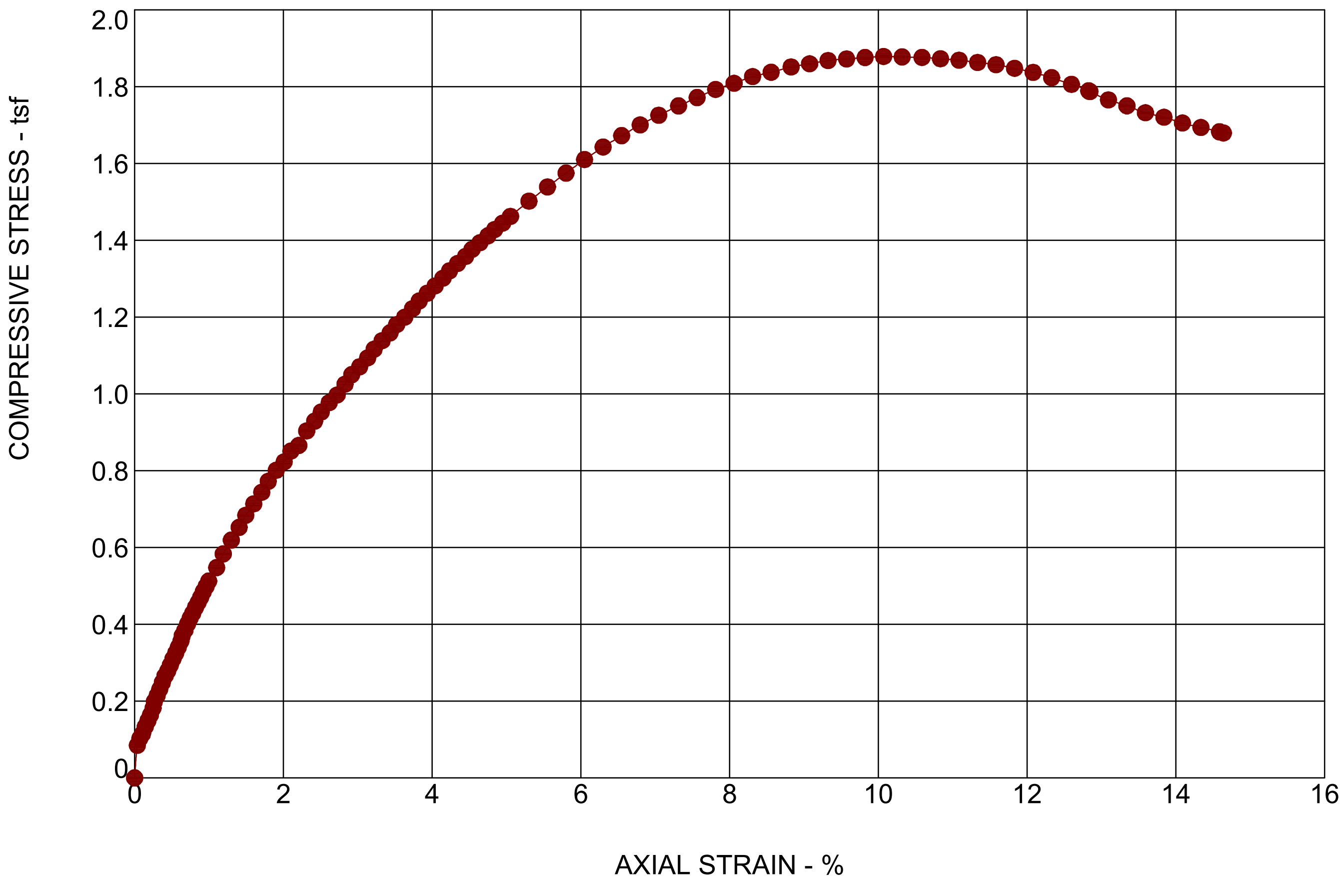


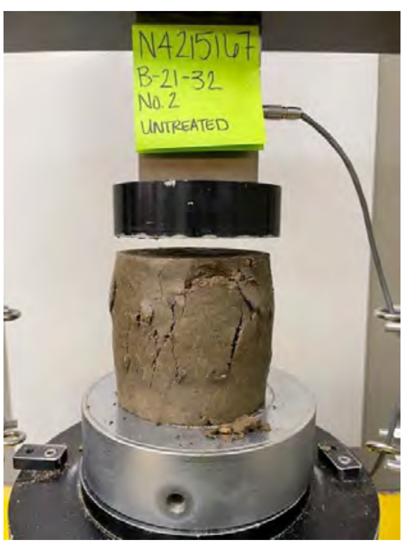
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	8.56
	Unconfined Compressive Strength	(tsf)	2.11
	Undrained Shear Strength:	(tsf)	1.05
	Strain Rate:	in/min	0.0915
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

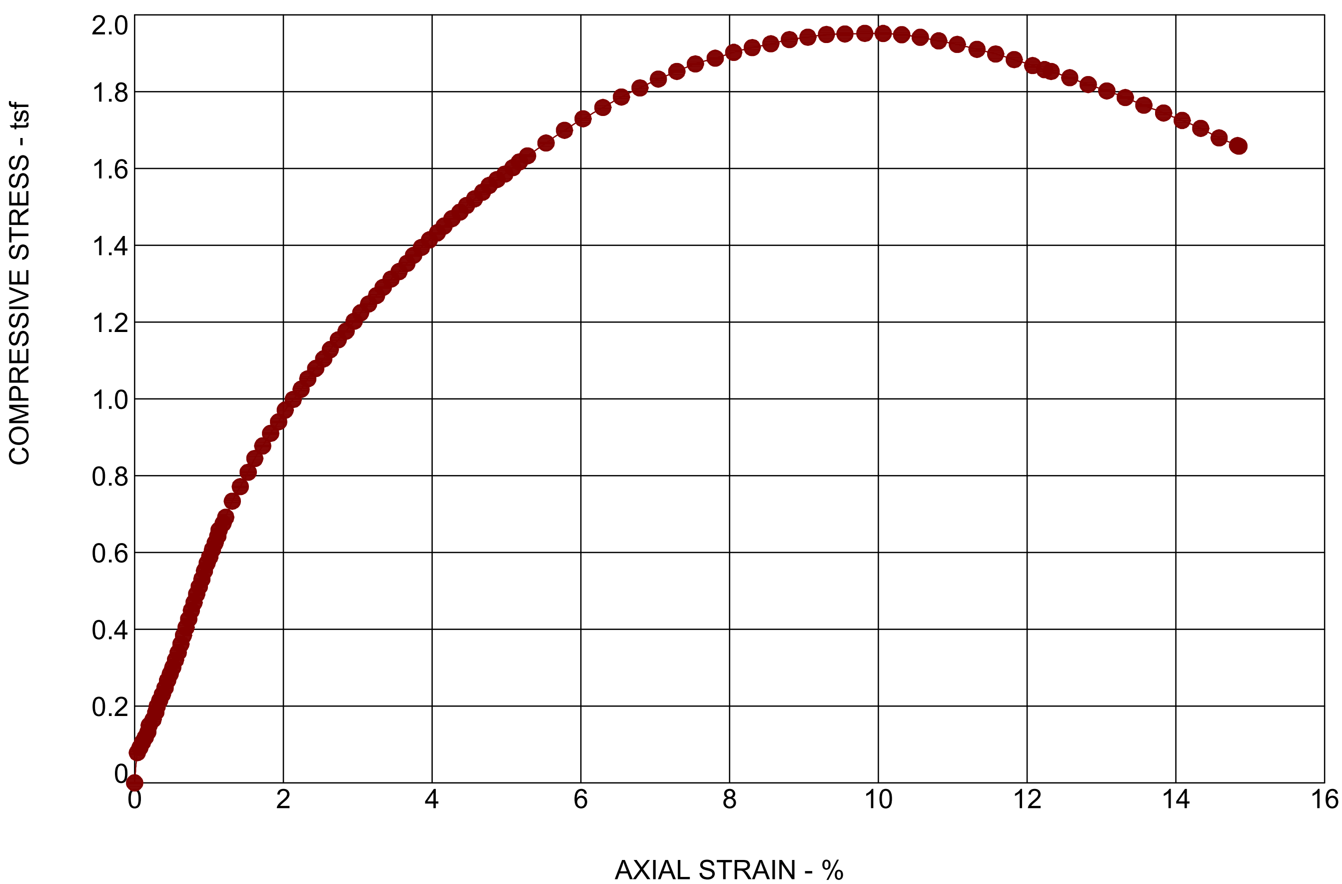


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.97
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	10.07
	Unconfined Compressive Strength	(tsf)	1.88
	Undrained Shear Strength:	(tsf)	0.94
	Strain Rate:	in/min	0.0914
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

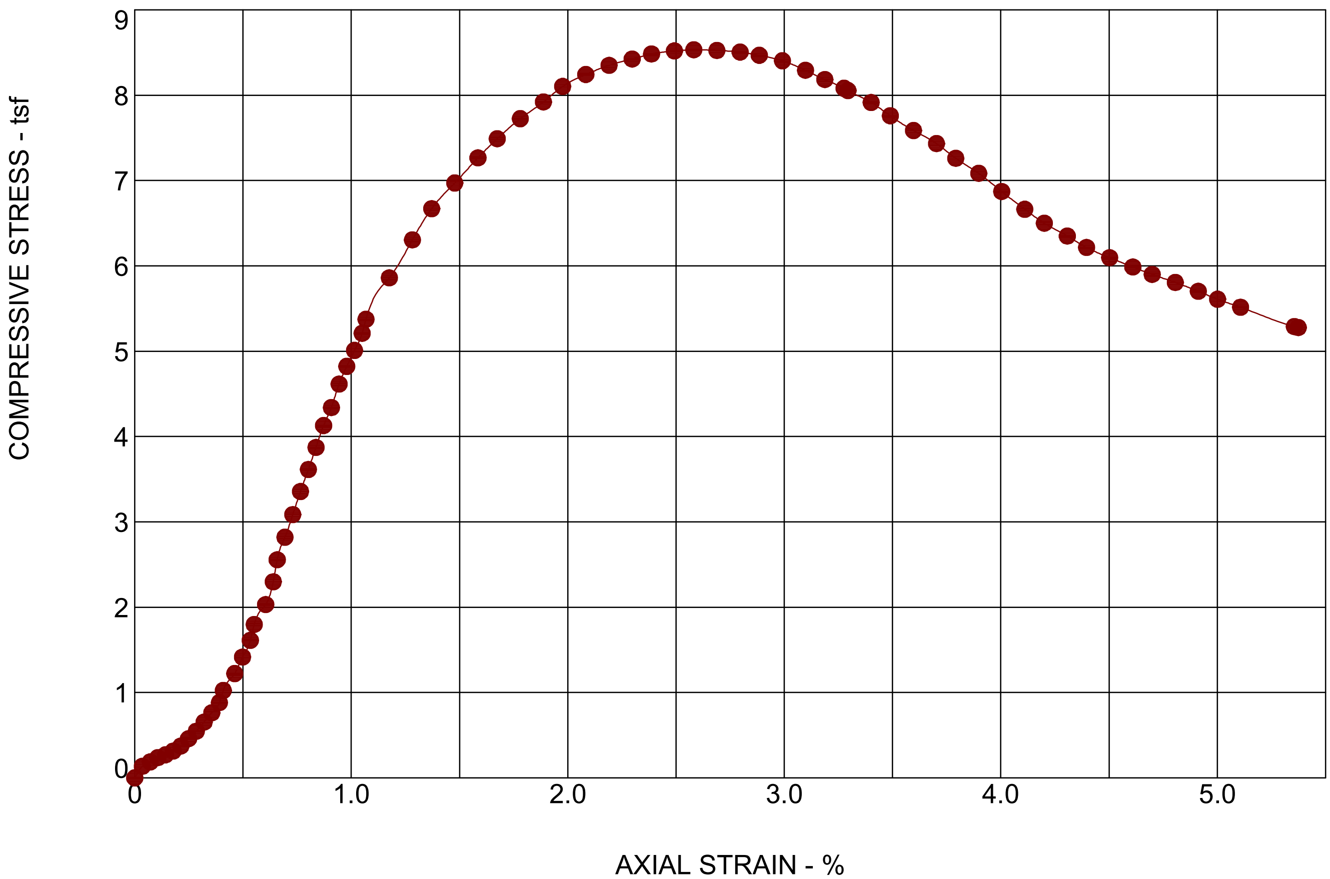


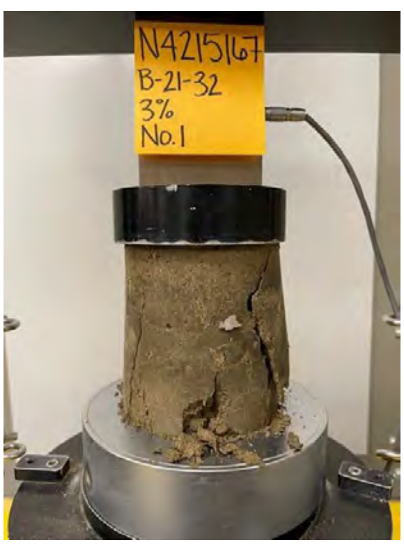
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.57
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	9.82
	Unconfined Compressive Strength	(tsf)	1.95
	Undrained Shear Strength:	(tsf)	0.98
	Strain Rate:	in/min	0.0915
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

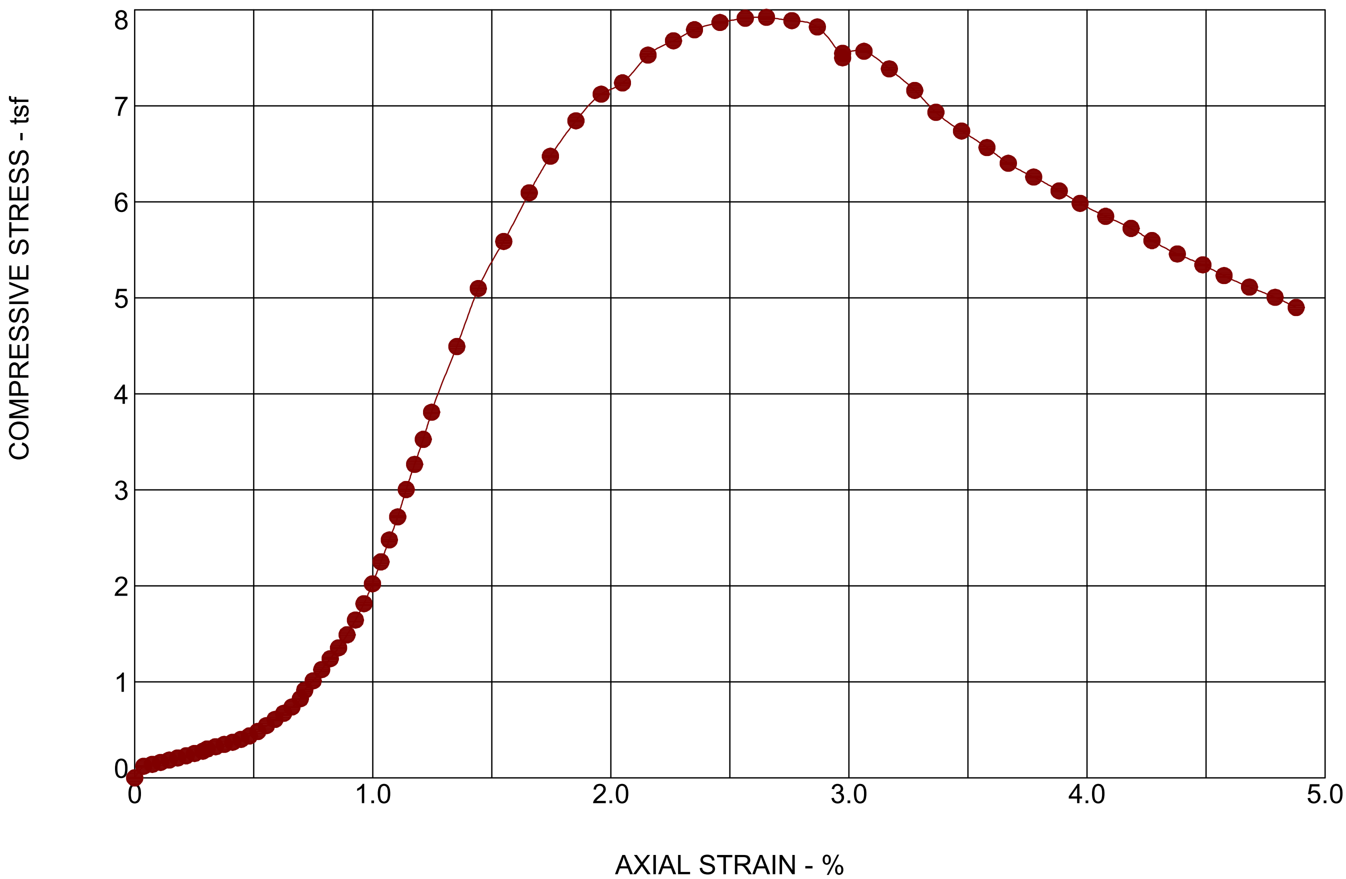


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.58
	Unconfined Compressive Strength	(tsf)	8.53
	Undrained Shear Strength:	(tsf)	4.27
	Strain Rate:	in/min	0.0919
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

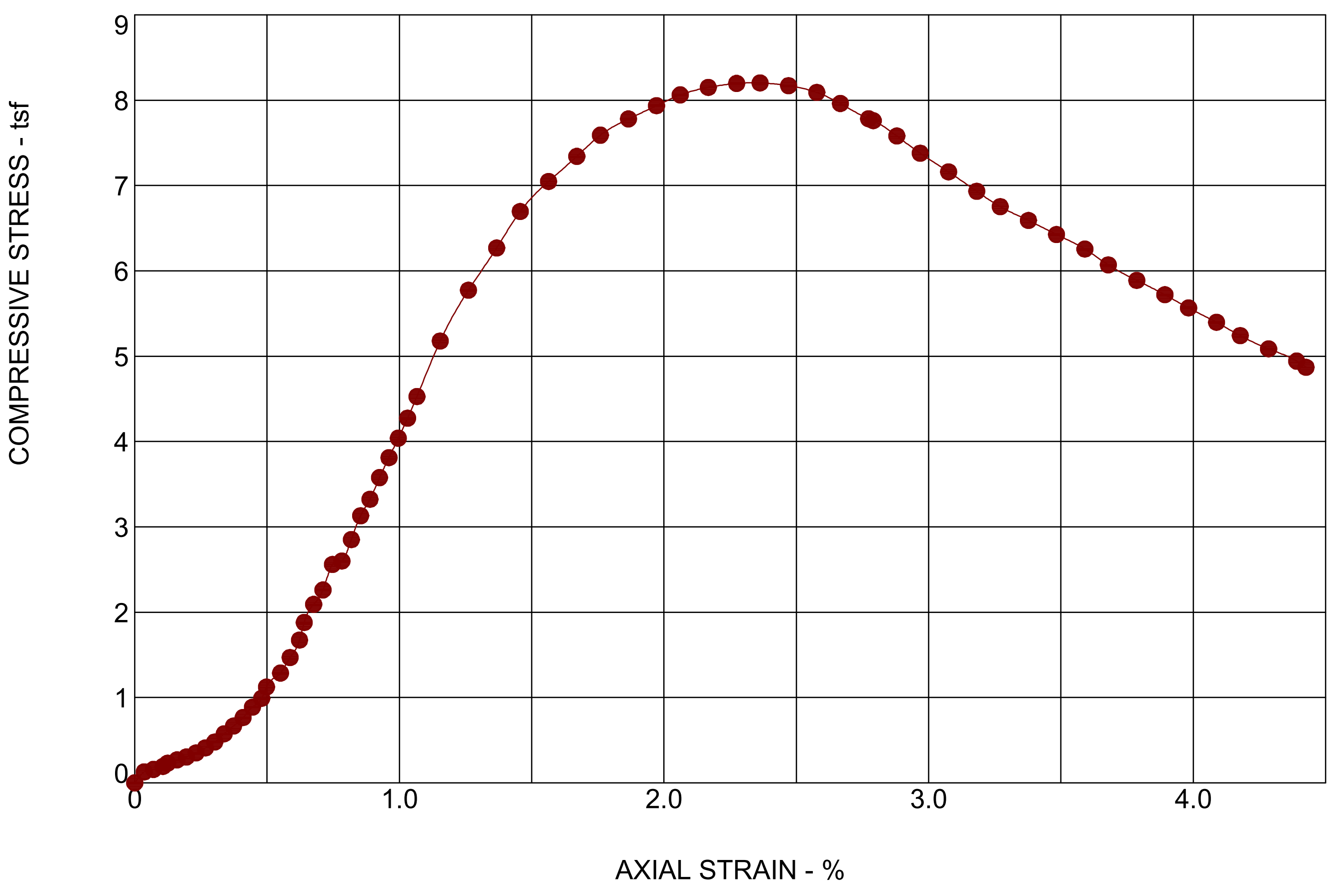


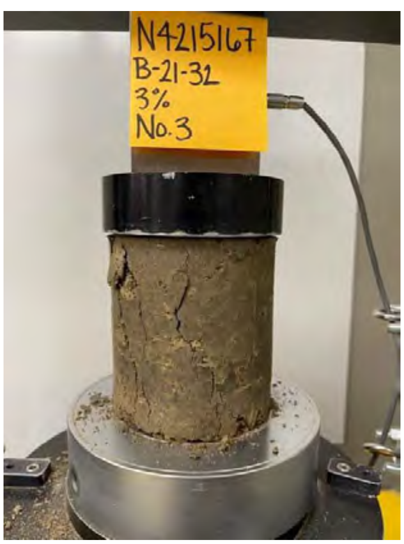
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.65
	Unconfined Compressive Strength	(tsf)	7.92
	Undrained Shear Strength:	(tsf)	3.96
	Strain Rate:	in/min	0.0920
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

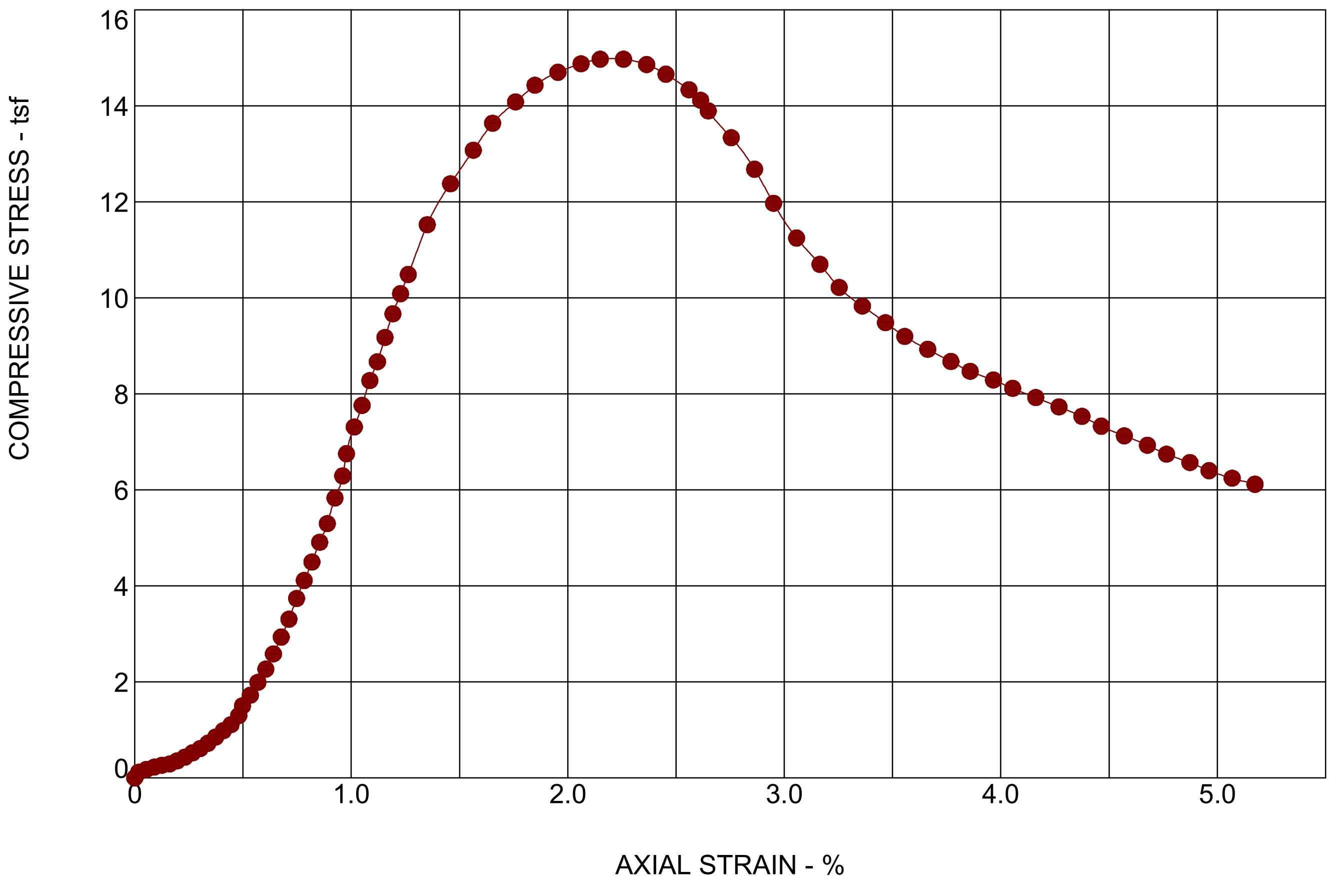


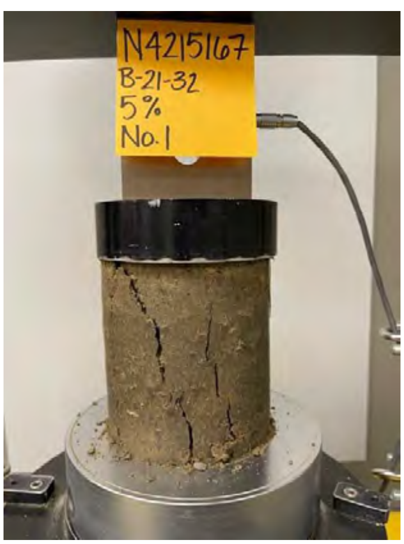
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.36
	Unconfined Compressive Strength	(tsf)	8.20
	Undrained Shear Strength:	(tsf)	4.10
	Strain Rate:	in/min	0.0916
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



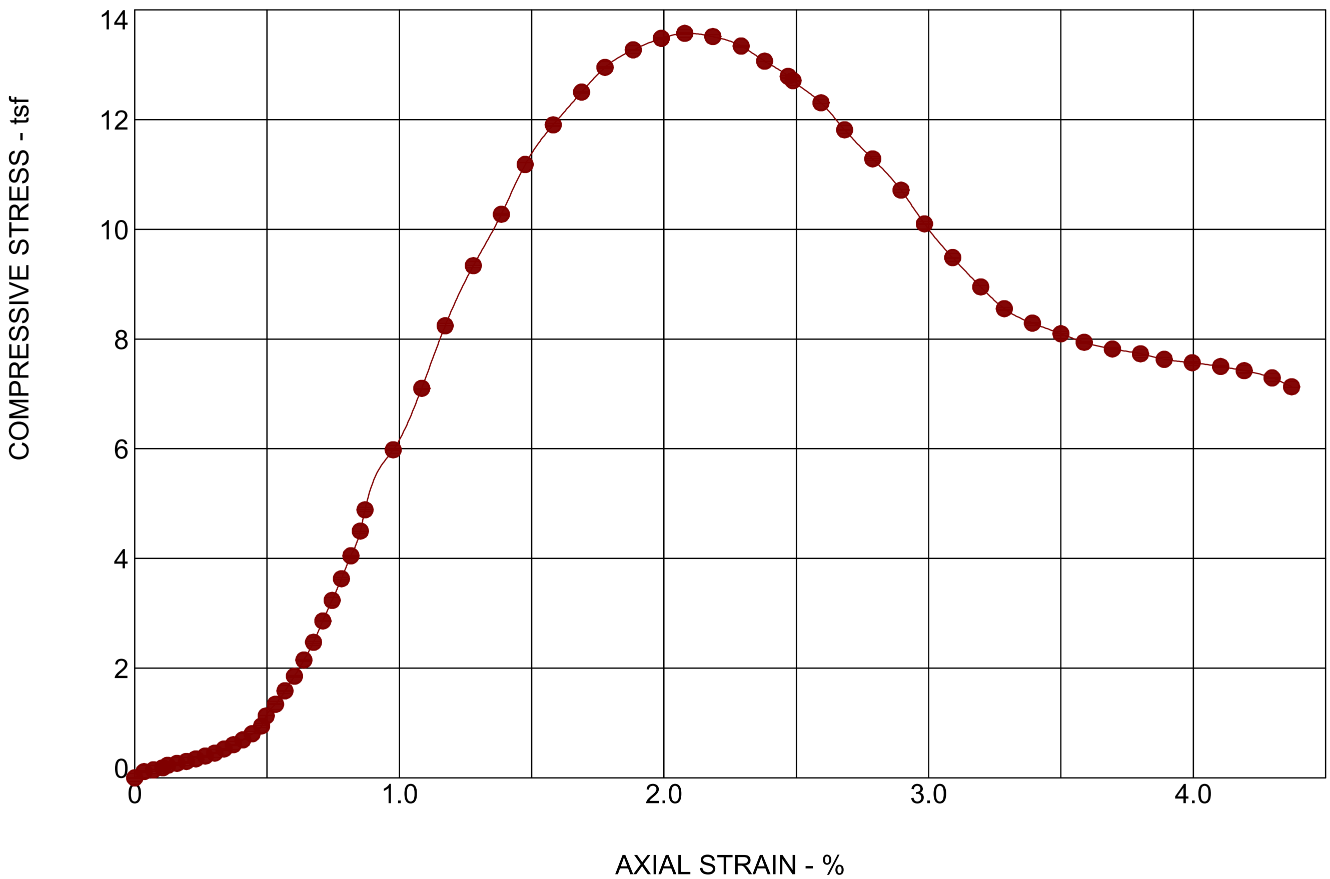
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.15
	Unconfined Compressive Strength	(tsf)	14.97
	Undrained Shear Strength:	(tsf)	7.49
	Strain Rate:	in/min	0.0913
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

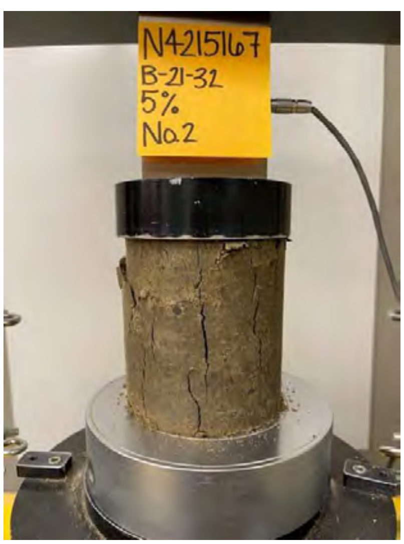
PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/6/21

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

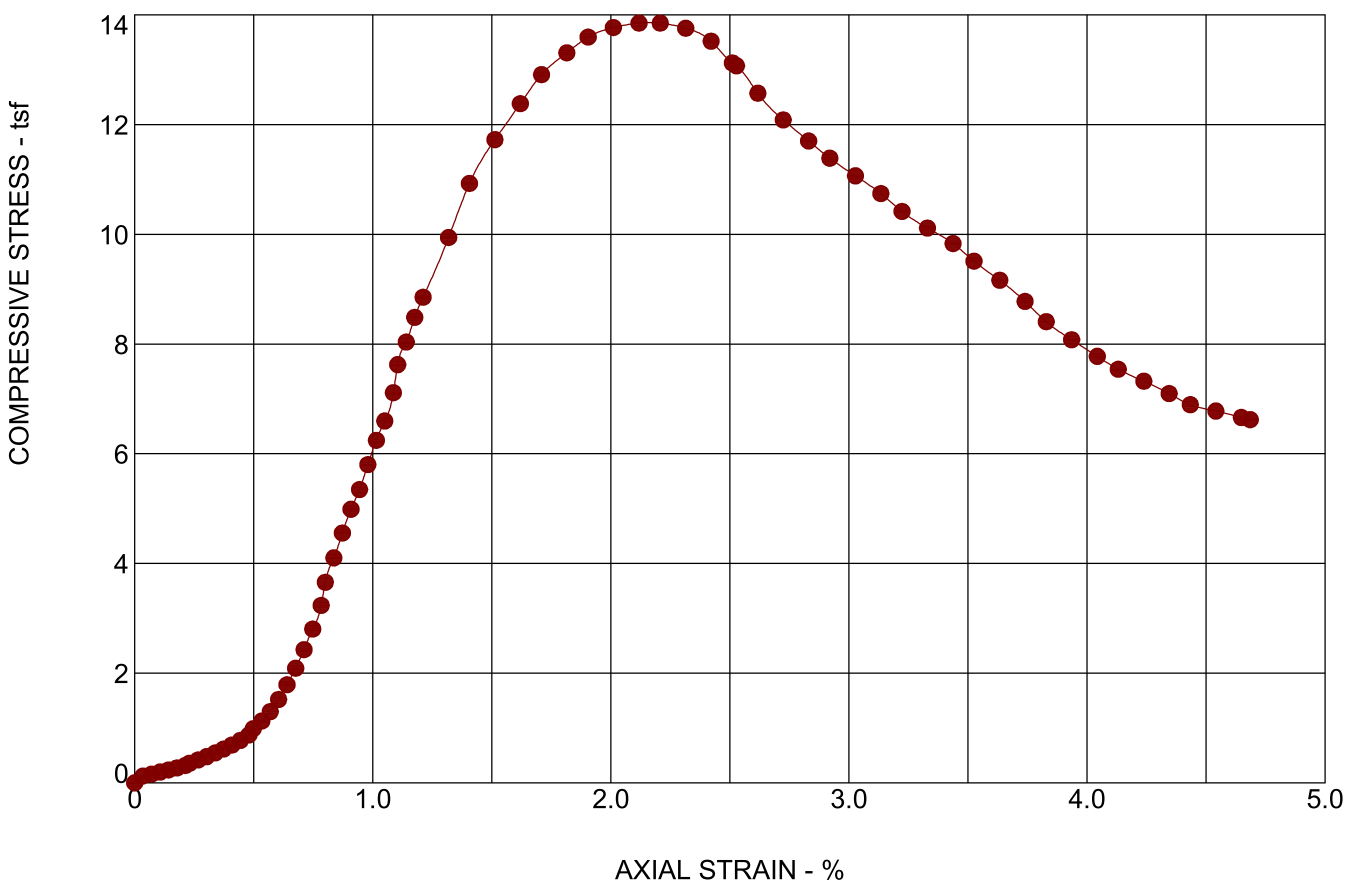


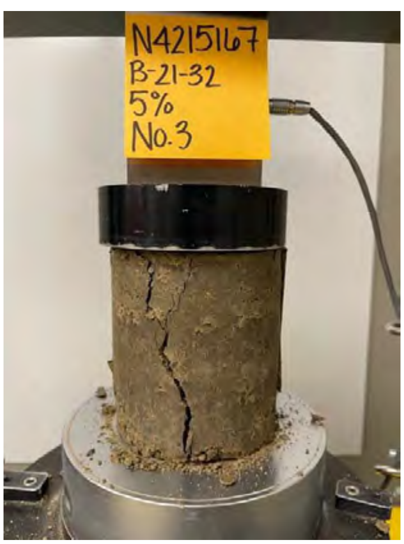
SPECIMEN TEST DATA		
Moisture Content:	%	20
Dry Density:	pcf	104
Diameter:	in.	3.99
Height:	in.	4.58
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	2.08
Unconfined Compressive Strength	(tsf)	13.57
Undrained Shear Strength:	(tsf)	6.79
Strain Rate:	in/min	0.0917
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

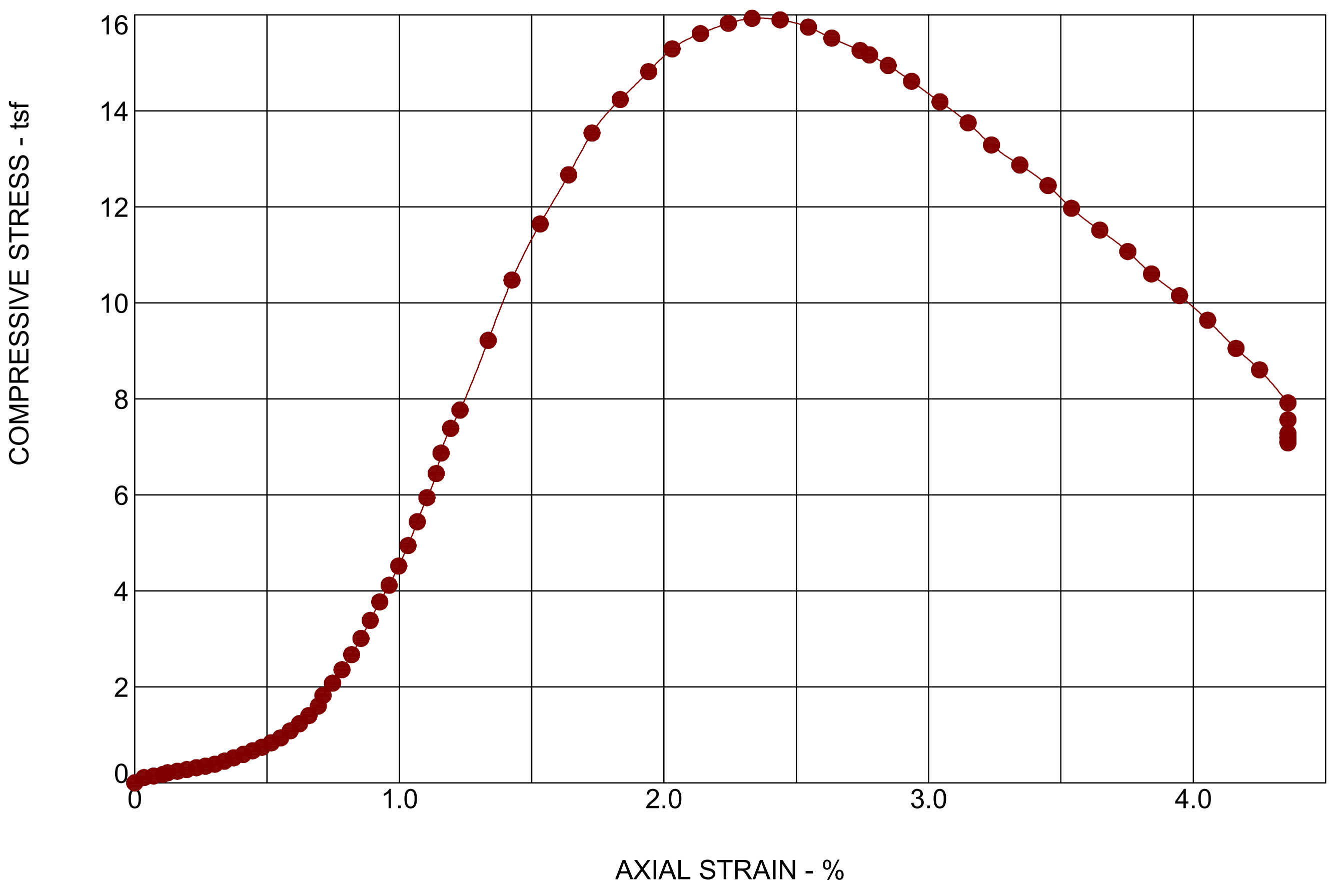


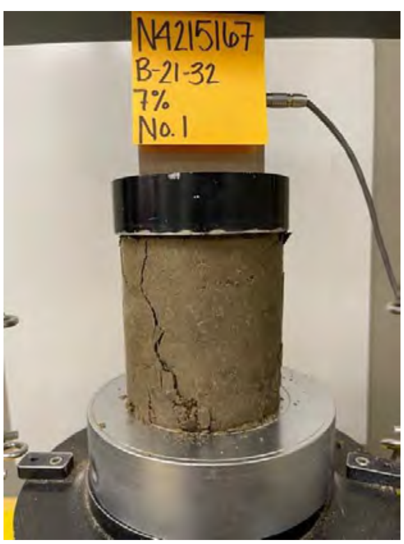
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.21
	Unconfined Compressive Strength	(tsf)	13.85
	Undrained Shear Strength:	(tsf)	6.92
	Strain Rate:	in/min	0.0920
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

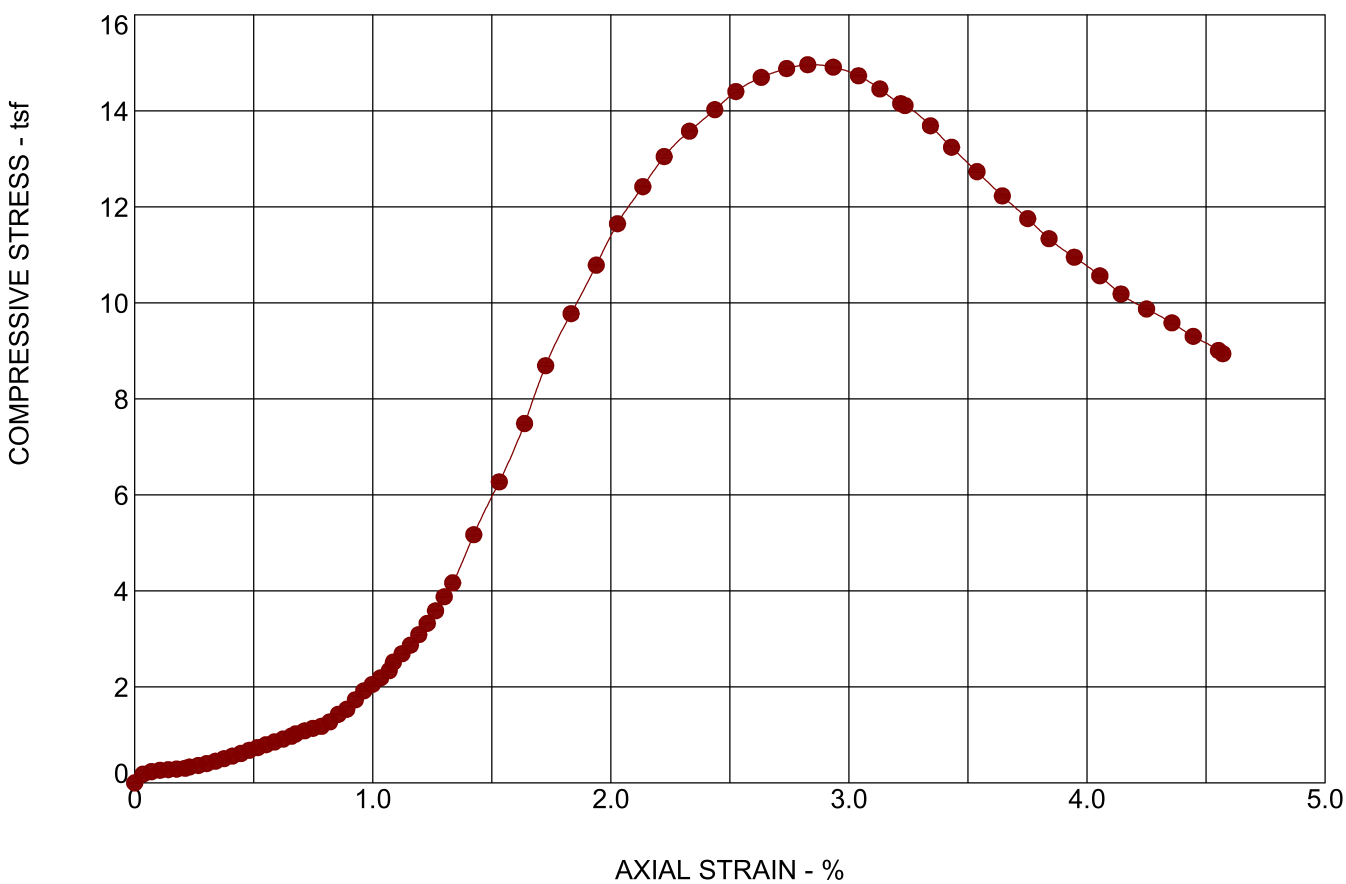


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.33
	Unconfined Compressive Strength	(tsf)	15.93
	Undrained Shear Strength:	(tsf)	7.96
	Strain Rate:	in/min	0.0837
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

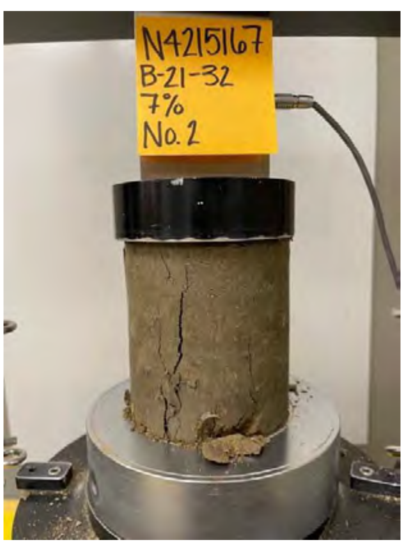
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

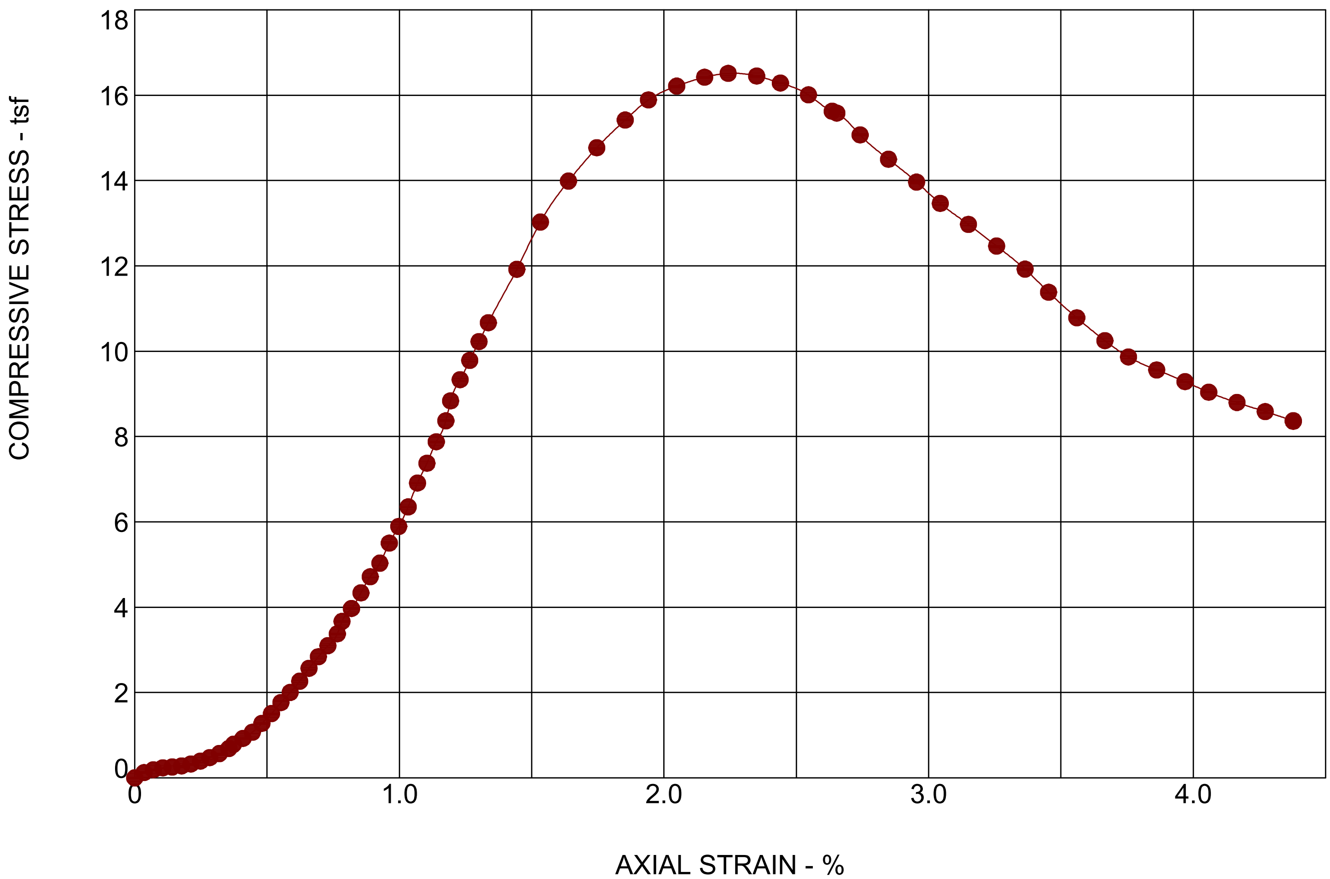


SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.99
Height:	in.	4.60
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	2.83
Unconfined Compressive Strength	(tsf)	14.96
Undrained Shear Strength:	(tsf)	7.48
Strain Rate:	in/min	0.0921
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

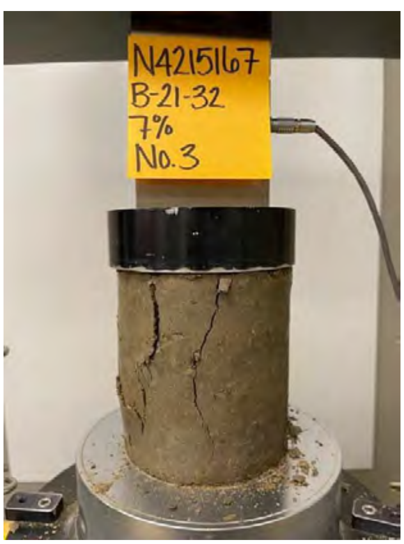
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

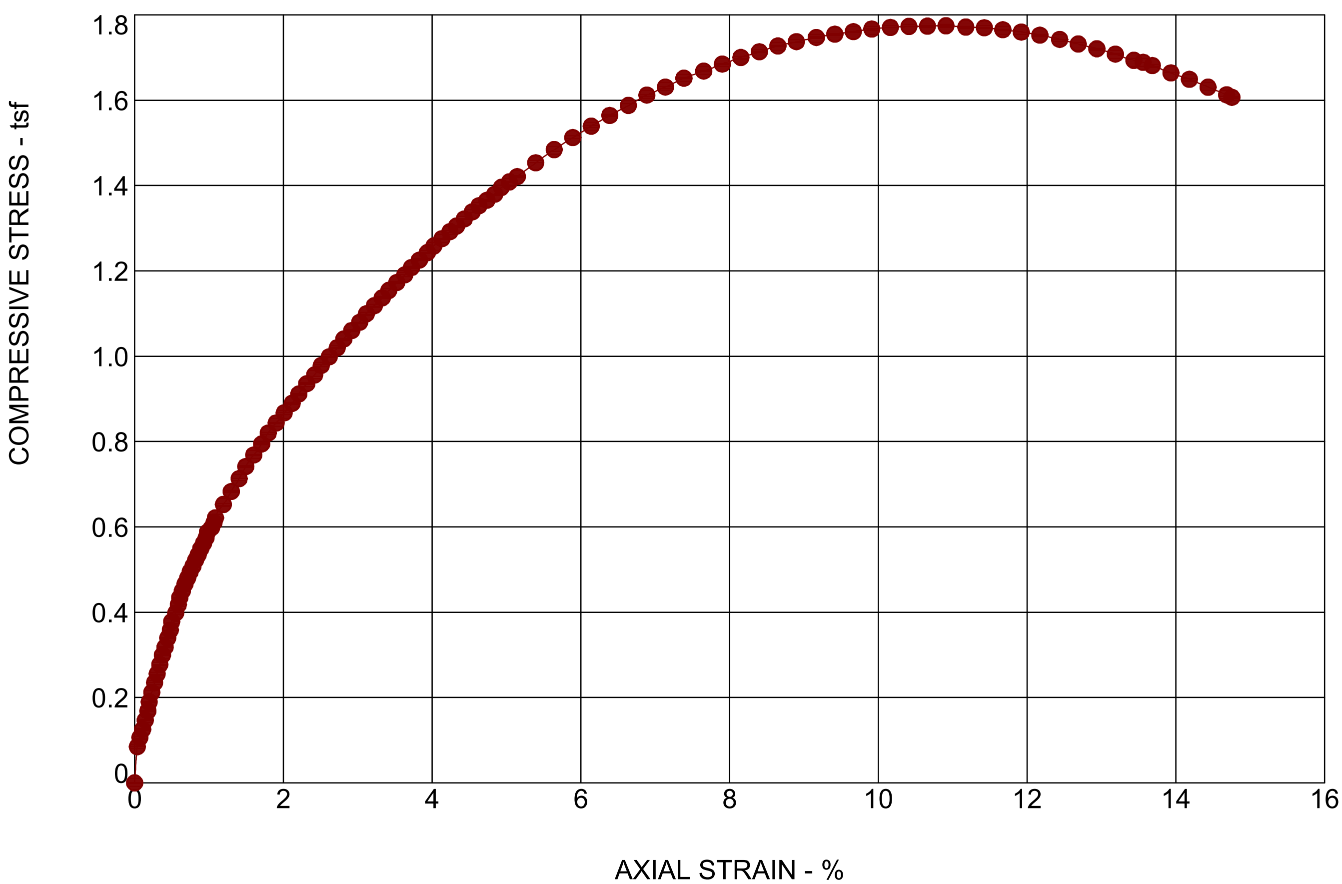


SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.99
Height:	in.	4.60
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	2.24
Unconfined Compressive Strength	(tsf)	16.51
Undrained Shear Strength:	(tsf)	8.26
Strain Rate:	in/min	0.0922
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

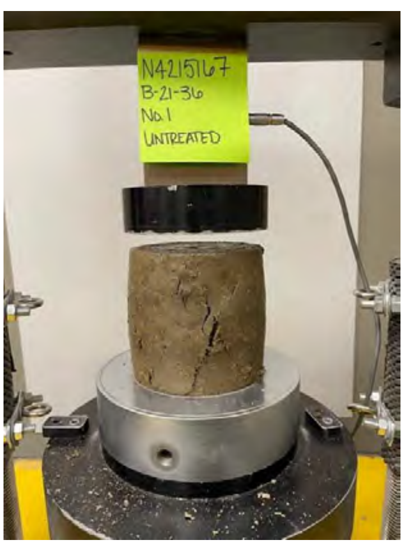
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-32 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

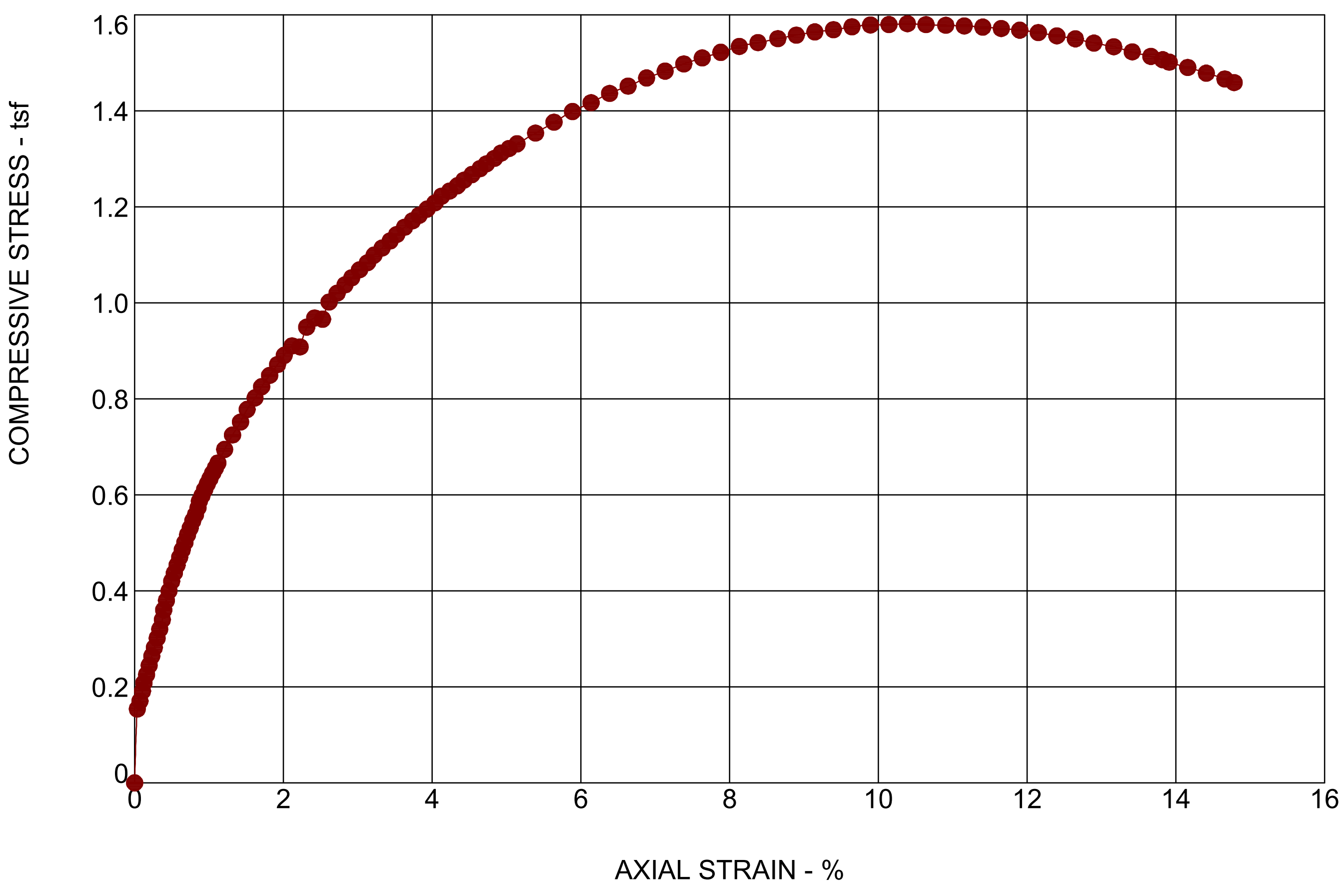


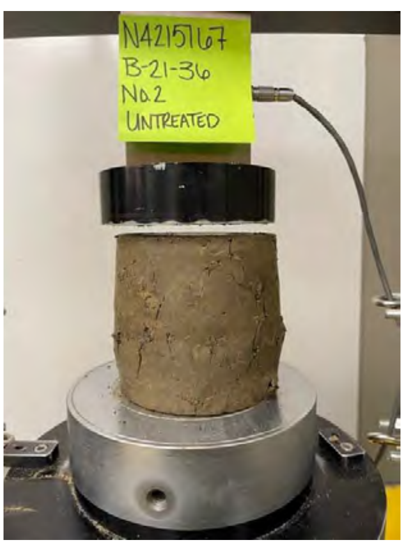
SPECIMEN TEST DATA		
Moisture Content:	%	20
Dry Density:	pcf	103
Diameter:	in.	3.98
Height:	in.	4.58
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	10.91
Unconfined Compressive Strength	(tsf)	1.77
Undrained Shear Strength:	(tsf)	0.89
Strain Rate:	in/min	0.0915
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

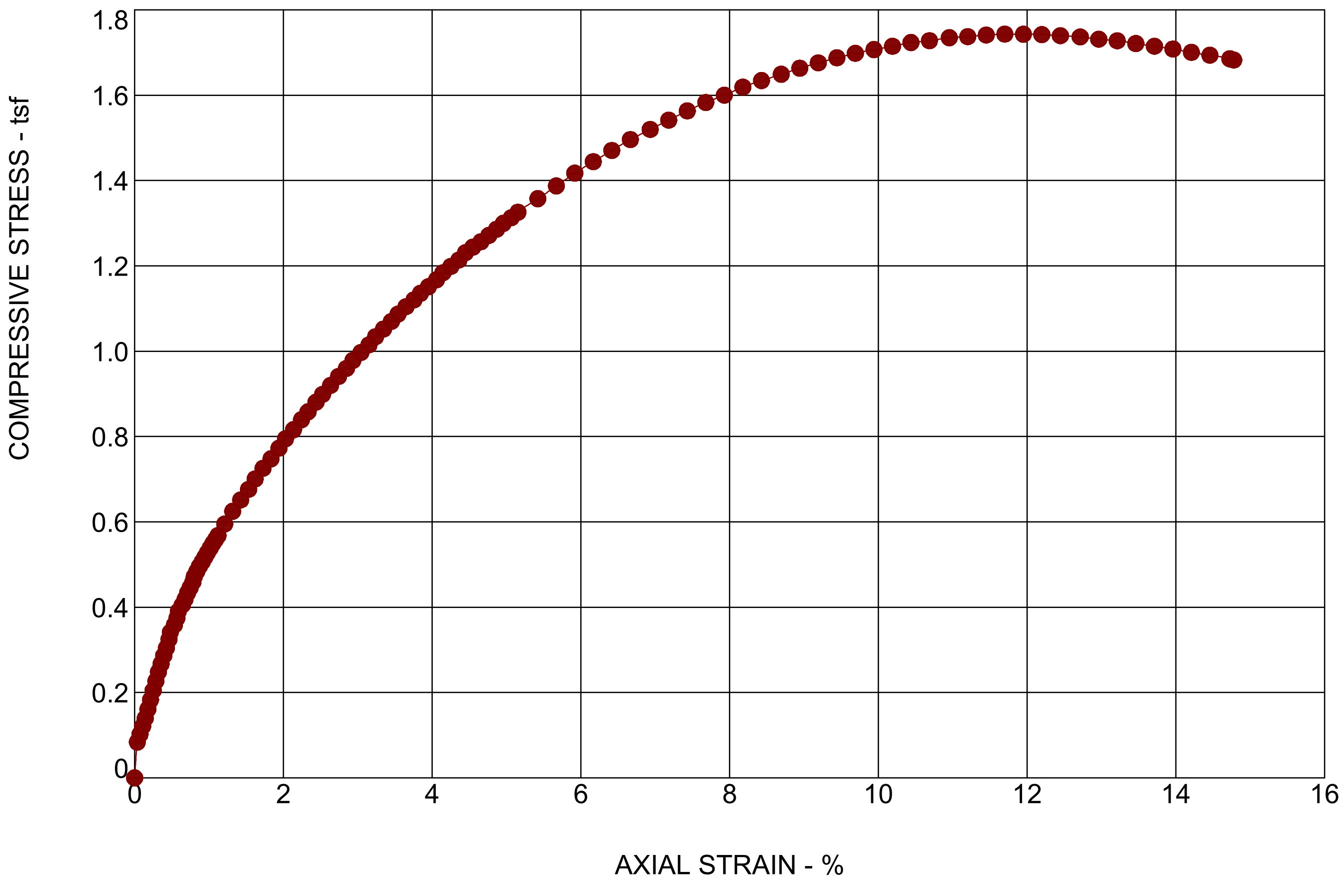


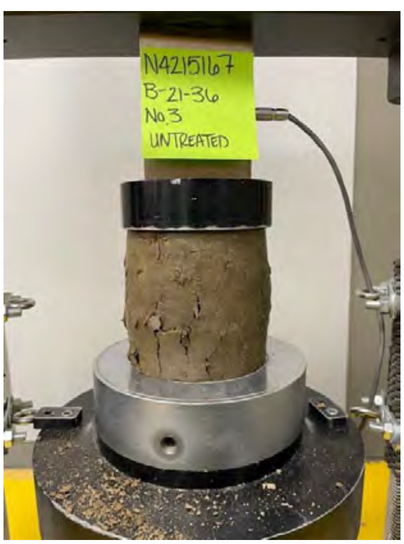
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	10.39
	Unconfined Compressive Strength	(tsf)	1.58
	Undrained Shear Strength:	(tsf)	0.79
	Strain Rate:	in/min	0.0919
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

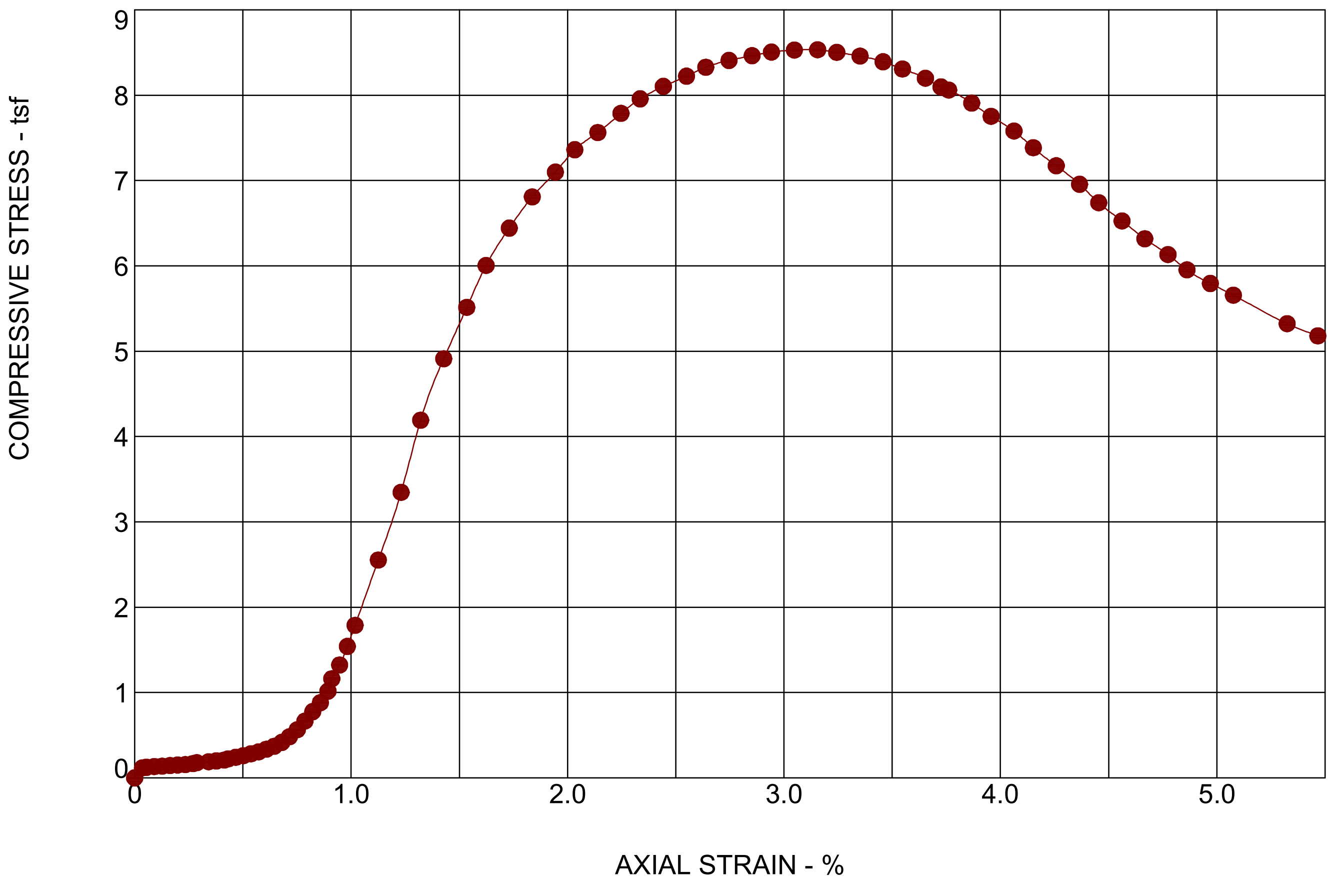


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	104
	Diameter:	in.	3.97
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	11.70
	Unconfined Compressive Strength	(tsf)	1.74
	Undrained Shear Strength:	(tsf)	0.87
	Strain Rate:	in/min	0.0917
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

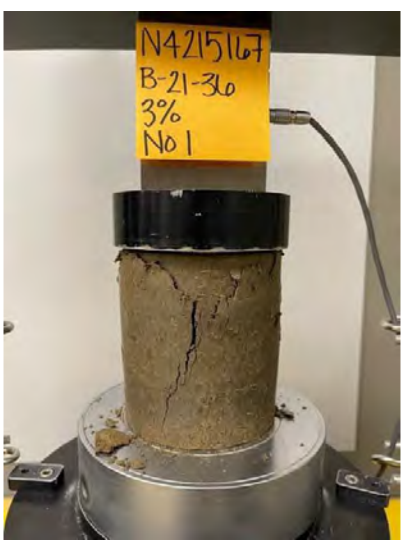
SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH

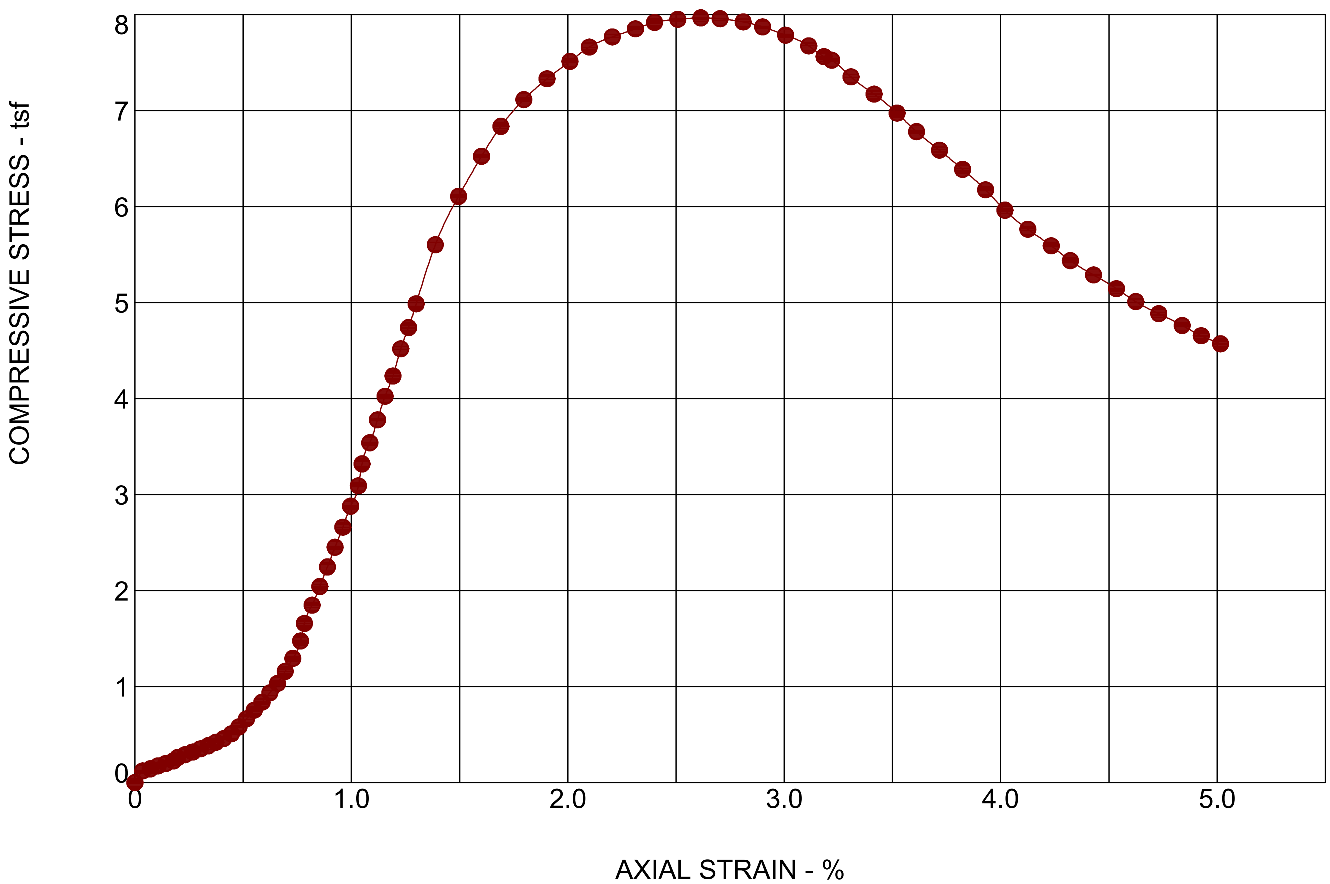


SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.99
Height:	in.	4.59
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	3.16
Unconfined Compressive Strength	(tsf)	8.53
Undrained Shear Strength:	(tsf)	4.27
Strain Rate:	in/min	0.0918
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



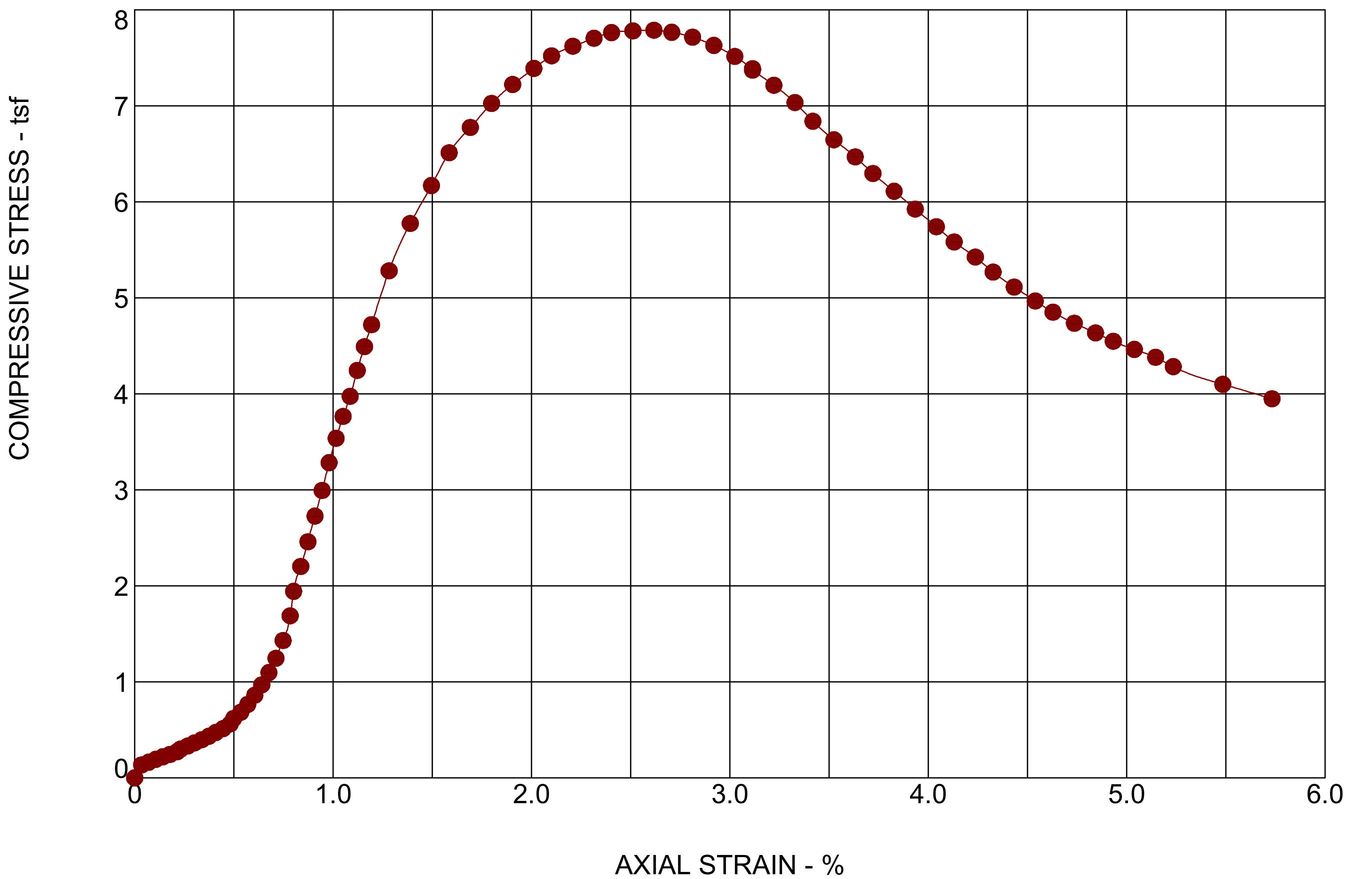
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.61
	Unconfined Compressive Strength	(tsf)	7.97
	Undrained Shear Strength:	(tsf)	3.98
	Strain Rate:	in/min	0.0921
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION:	B-21-36 @ 0 - 4 feet		
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS N4215167 WILD GRAINS SOLAR_RECOVERED.GPJ TERRACON_DATATEMPLATE.GDT 8/5/21

UNCONFINED COMPRESSION TEST



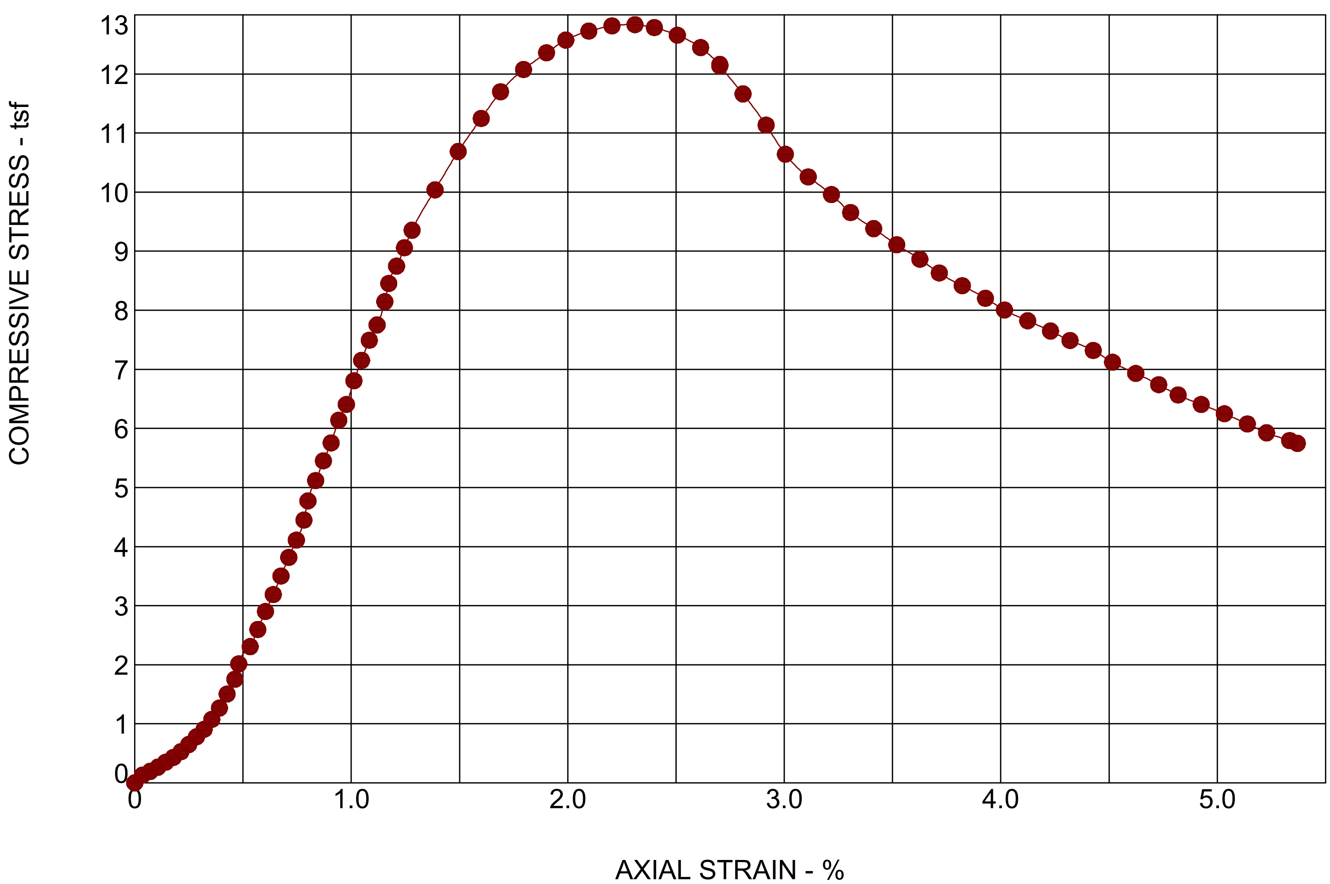
SPECIMEN FAILURE PHOTOGRAPH

SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.99
Height:	in.	4.59
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	2.62
Unconfined Compressive Strength	(tsf)	7.79
Undrained Shear Strength:	(tsf)	3.89
Strain Rate:	in/min	0.0918
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

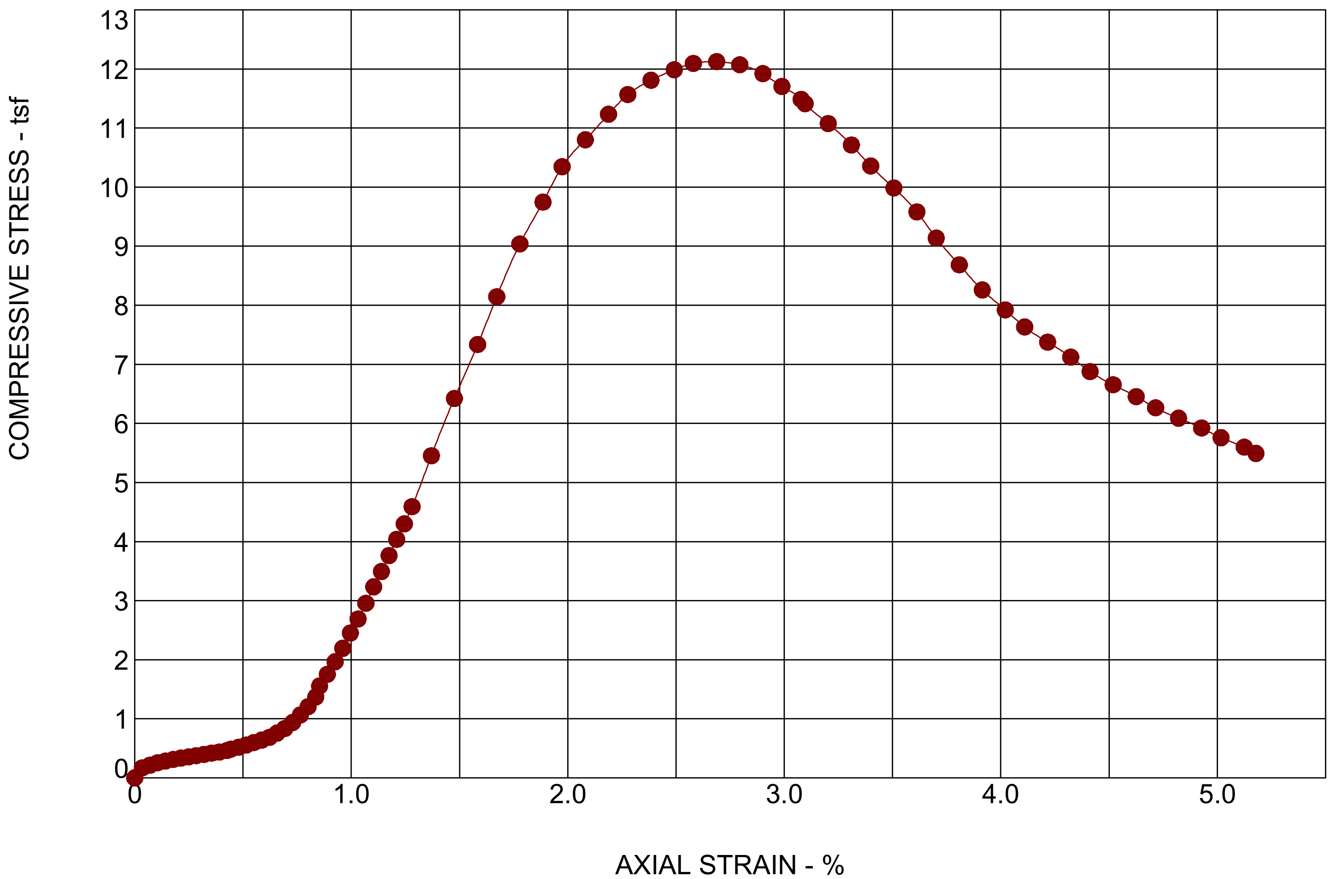


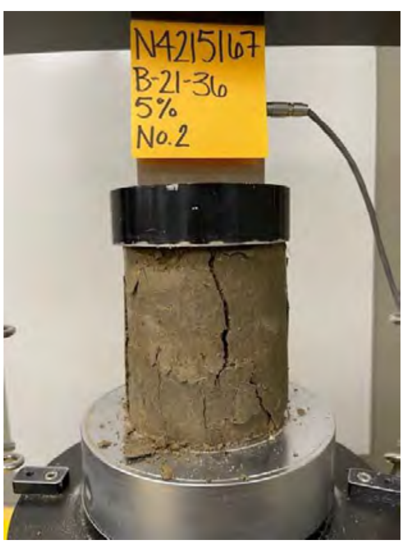
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.99
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.31
	Unconfined Compressive Strength	(tsf)	12.83
	Undrained Shear Strength:	(tsf)	6.42
	Strain Rate:	in/min	0.0924
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

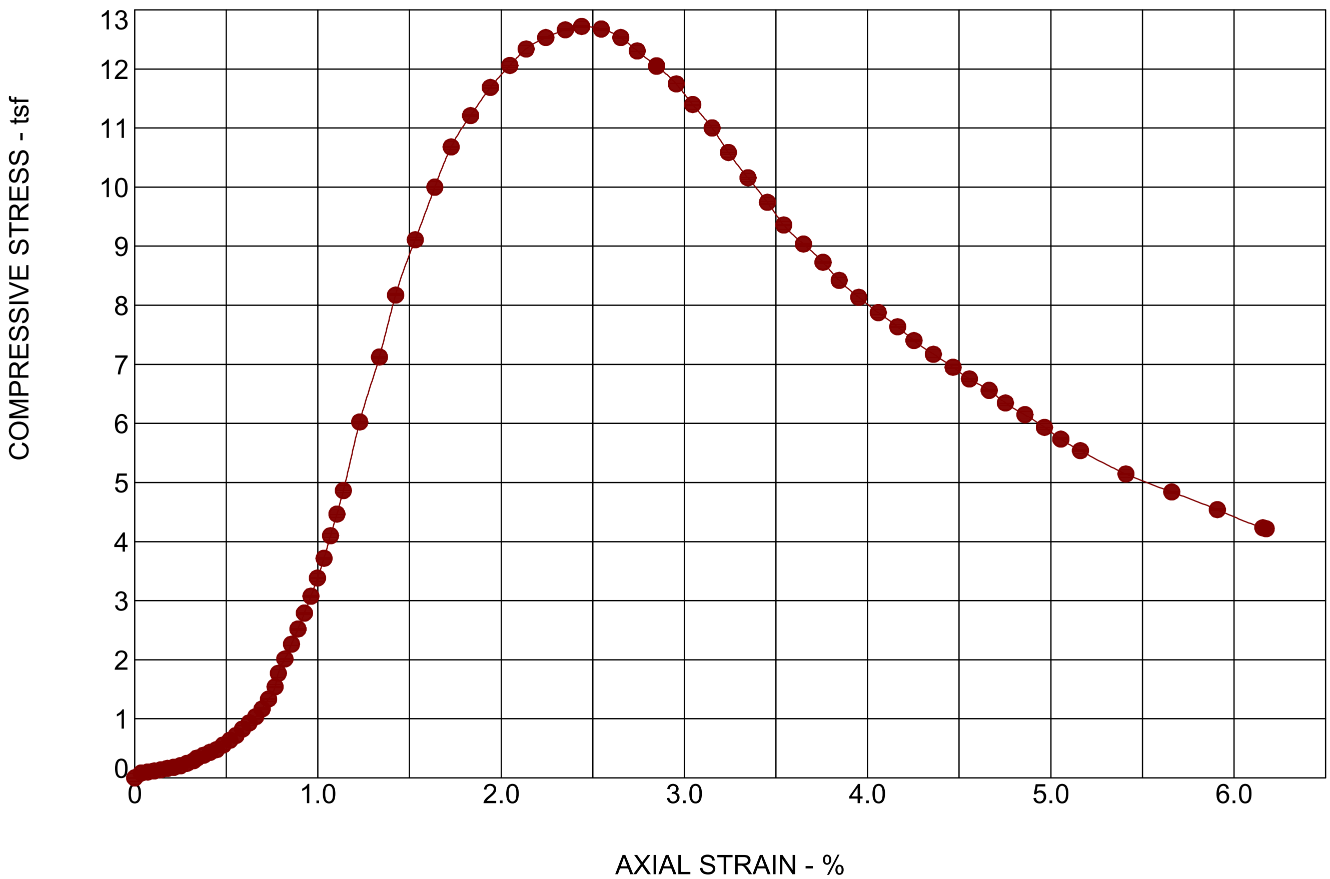


SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	19
	Dry Density:	pcf	105
	Diameter:	in.	3.98
	Height:	in.	4.59
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.69
	Unconfined Compressive Strength	(tsf)	12.12
	Undrained Shear Strength:	(tsf)	6.06
	Strain Rate:	in/min	0.0914
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



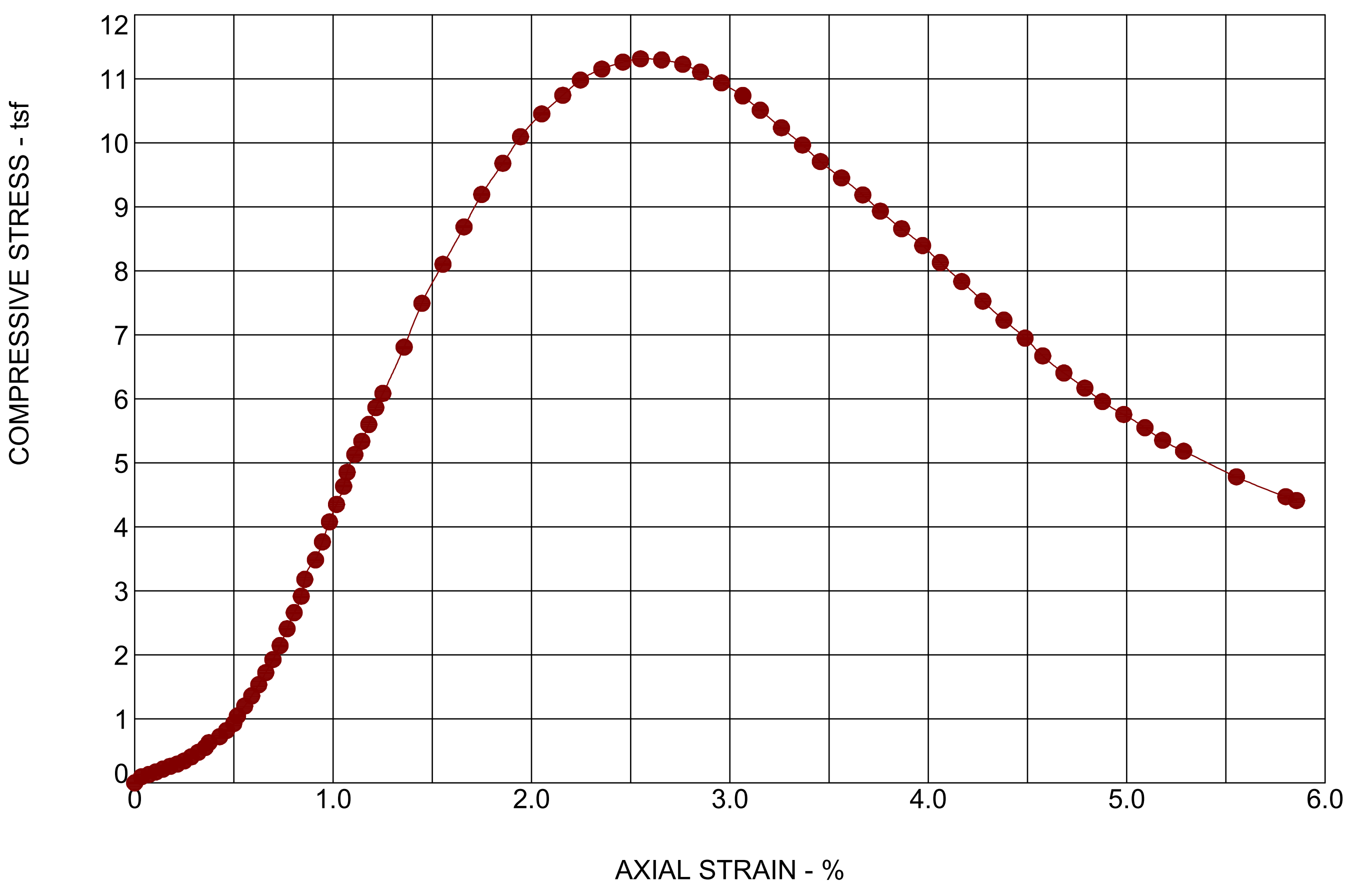
SPECIMEN FAILURE PHOTOGRAPH

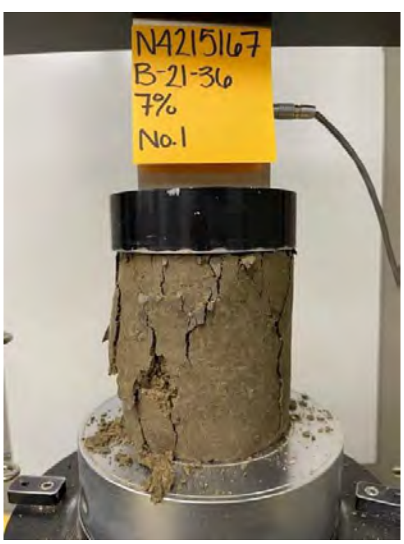
SPECIMEN TEST DATA		
Moisture Content:	%	19
Dry Density:	pcf	105
Diameter:	in.	3.99
Height:	in.	4.58
Height / Diameter Ratio:		1.15
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	2.44
Unconfined Compressive Strength	(tsf)	12.72
Undrained Shear Strength:	(tsf)	6.36
Strain Rate:	in/min	0.0912
Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet				
DESCRIPTION: LEAN CLAY		LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

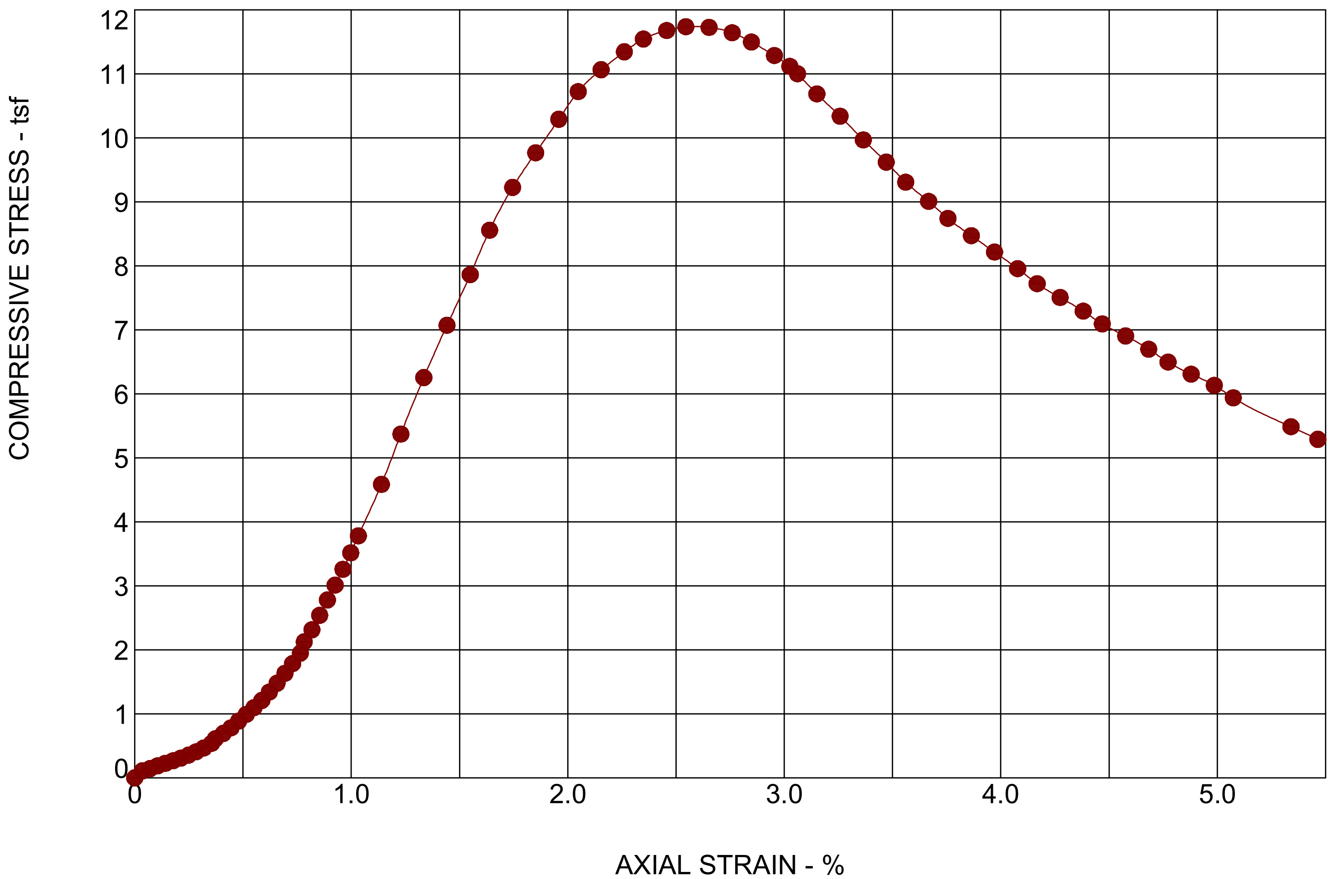


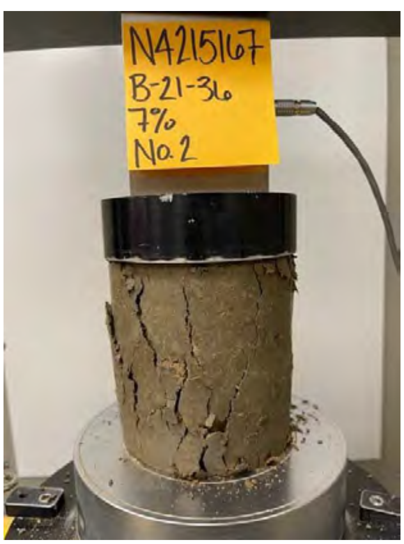
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.98
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.55
	Unconfined Compressive Strength	(tsf)	11.31
	Undrained Shear Strength:	(tsf)	5.66
	Strain Rate:	in/min	0.0914
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST

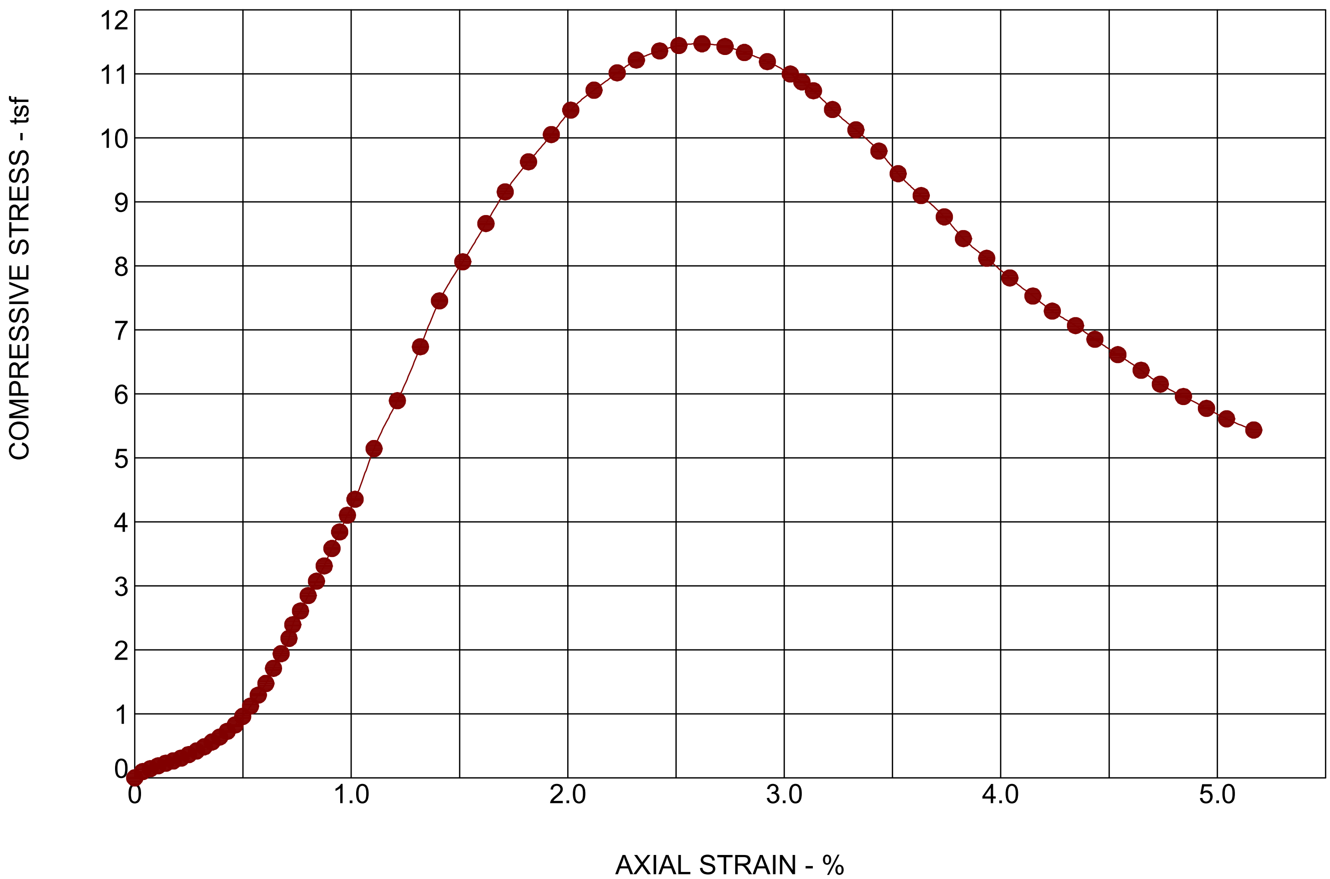


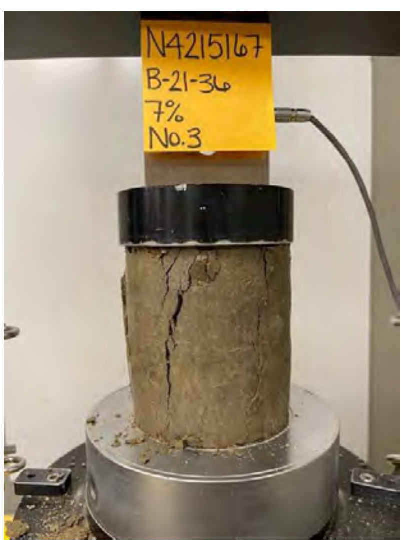
SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.55
	Unconfined Compressive Strength	(tsf)	11.74
	Undrained Shear Strength:	(tsf)	5.87
	Strain Rate:	in/min	0.0916
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

UNCONFINED COMPRESSION TEST



SPECIMEN FAILURE PHOTOGRAPH	SPECIMEN TEST DATA		
	Moisture Content:	%	20
	Dry Density:	pcf	103
	Diameter:	in.	3.99
	Height:	in.	4.58
	Height / Diameter Ratio:		1.15
	Calculated Saturation:	%	
	Calculated Void Ratio:		
	Assumed Specific Gravity:		
	Failure Strain:	%	2.62
	Unconfined Compressive Strength	(tsf)	11.47
	Undrained Shear Strength:	(tsf)	5.74
	Strain Rate:	in/min	0.0922
	Remarks: One Point MDD/OM%: 104.7 @ 19.2		

SAMPLE TYPE: GRAB	SAMPLE LOCATION: B-21-36 @ 0 - 4 feet			
DESCRIPTION: LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Wild Grains Solar	Terracon	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

SUMMARY OF SOIL-Cement UNCONFINED COMPRESSIVE STRENGTH DATA

Client: Avangrid Renewables

Project: Wild Grains Solar

Report Date: 8/6/2021

Project No.: N4215167

Sample: B-21-4

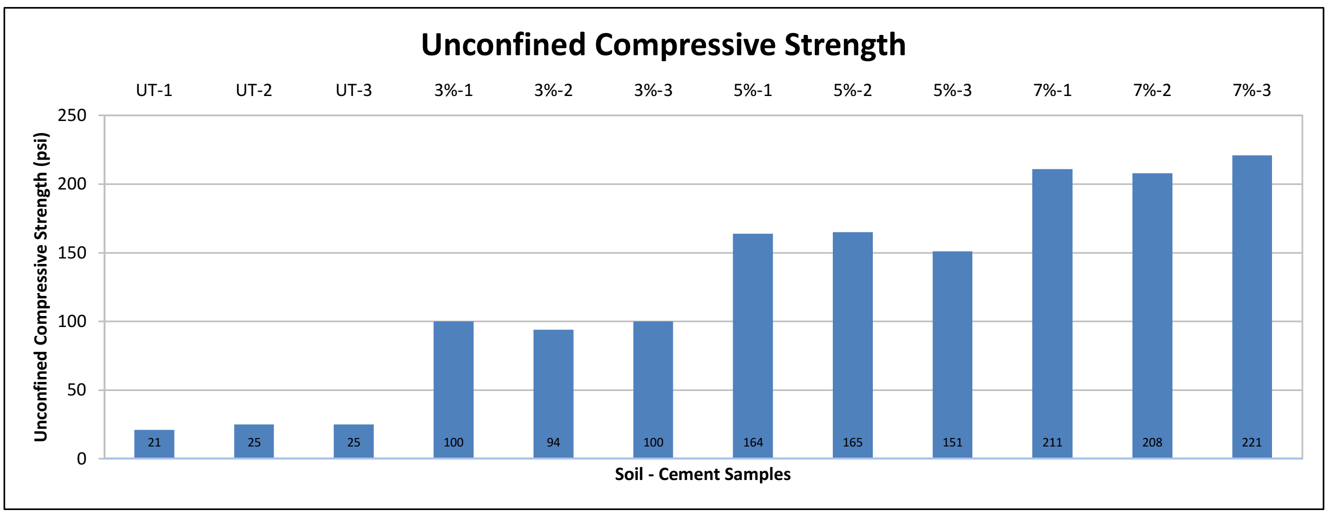
Cement ID: Lafarge Type I

ODOT Typical Density Curve: **UT - "Q"** **Cement -"Q"**

Max Dry Density (pcf): 102.4

Optimum Moisture Content (%): 20.3

Chemical Content (%)	Strength Test Age (days)	Average Diameter (in)	Average Height (in)	Area (in^2)	Avg. Moist Cured Diameter (in)	Avg. Moist Cured Height (in)	Moist Cured Area (in^2)	Percent Expansion (%)	Avg. Percent Expansion (%)	Dry Unit Weight (lbs/ft^3)	Water Content (%)	Maximum Load (lbf)	Percent Compaction (%)	Unconfined Compressive Strength (psi)	Avg. Unconfined Compressive Strength (psi)
UT-1	0	3.890	4.600	11.88	n/a	n/a	n/a	n/a	_	102.1	19.7	250	100	21	**24**
UT-2	0	3.970	4.600	12.38	n/a	n/a	n/a	n/a		102.2	19.9	309	100	25	
UT-3	0	3.990	4.580	12.50	n/a	n/a	n/a	n/a		102.2	19.1	313	100	25	
3%-1	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a	_	102.7	20.2	1250	100	100	**98**
3%-2	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		102.9	20.2	1169	100	94	
3%-3	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		102.8	20.5	1250	100	100	
5%-1	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a	_	102.9	19.7	2040	100	164	**165**
5%-2	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		102.9	19.7	2053	100	165	
5%-3	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		102.5	19.7	1888	100	151	
7%-1	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a	_	102.7	19.9	2638	100	211	**213**
7%-2	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a		102.6	19.9	2601	100	208	
7%-3	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a		102.7	19.9	2763	100	221	



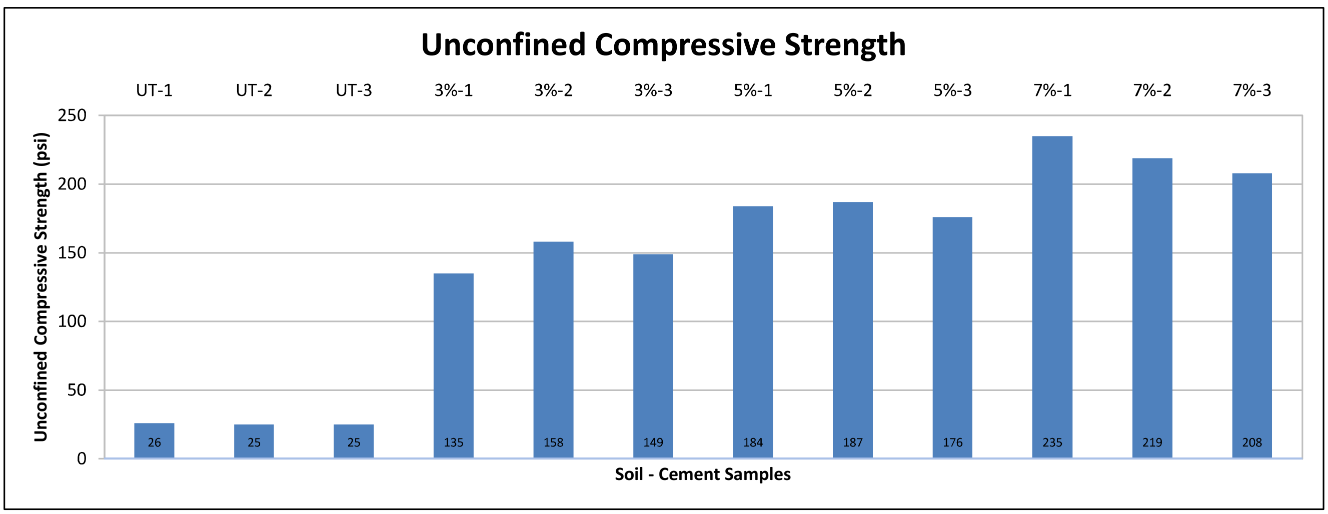
SUMMARY OF SOIL-Cement UNCONFINED COMPRESSIVE STRENGTH DATA

Client: Avangrid Renewables **Project:** Wild Grains Solar

Report Date: 8/6/2021 **Project No.:** N4215167

Sample: B-21-8
Cement ID: Lafarge Type I
ODOT Typical Density Curve: UT - "P" Cement -"P"
Max Dry Density (pcf): 104.7
Optimum Moisture Content (%): 19.2

Chemical Content (%)	Strength Test Age (days)	Average Diameter (in)	Average Height (in)	Area (in²)	Avg. Moist Cured Diameter (in)	Avg. Moist Cured Height (in)	Moist Cured Area (in²)	Percent Expansion (%)	Avg. Percent Expansion (%)	Dry Unit Weight (lbs/ft³)	Water Content (%)	Maximum Load (lbf)	Percent Compaction (%)	Unconfined Compressive Strength (psi)	Avg. Unconfined Compressive Strength (psi)
UT-1	0	3.980	4.570	12.44	n/a	n/a	n/a	n/a	_	104.8	19.8	323	100	26	**25**
UT-2	0	3.980	4.580	12.44	n/a	n/a	n/a	n/a		104.7	19.3	311	100	25	
UT-3	0	3.990	4.570	12.50	n/a	n/a	n/a	n/a		104.6	19.4	313	100	25	
3%-1	7	4.000	4.590	12.57	n/a	n/a	n/a	n/a	_	102.4	19.6	1696	98	135	**147**
3%-2	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		103.6	19.7	1976	99	158	
3%-3	7	4.000	4.590	12.57	n/a	n/a	n/a	n/a		103.6	19.2	1872	99	149	
5%-1	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a	_	104.7	19.3	2289	100	184	**186**
5%-2	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		104.3	19	2338	100	187	
5%-3	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		103.5	19.5	2201	99	176	
7%-1	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a	_	103.6	19.8	2938	99	235	**221**
7%-2	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a		103.6	19.5	2738	99	219	
7%-3	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		103.7	19.2	2601	99	208	



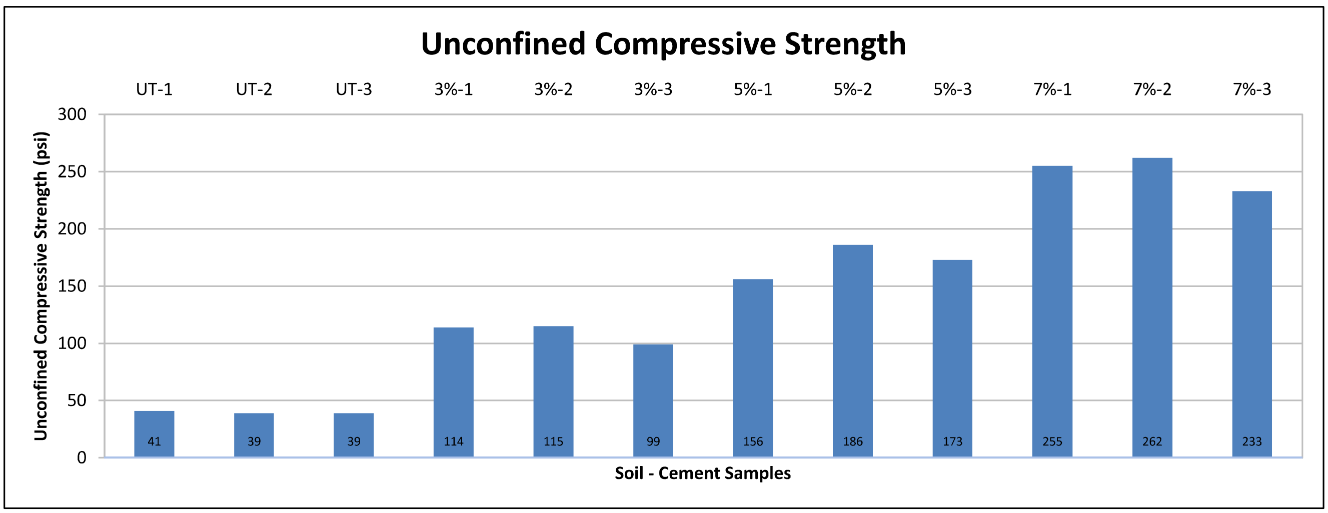
SUMMARY OF SOIL-Cement UNCONFINED COMPRESSIVE STRENGTH DATA

Client: Avangrid Renewables | **Project:** Wild Grains Solar

Report Date: 8/6/2021 | **Project No.:** N4215167

Sample: B-21-20
Cement ID: Lafarge Type I
ODOT Typical Density Curve: UT - "P" Cement -"P"
Max Dry Density (pcf): 104.7
Optimum Moisture Content (%): 19.2

Chemical Content (%)	Strength Test Age (days)	Average Diameter (in)	Average Height (in)	Area (in^2)	Avg. Moist Cured Diameter (in)	Avg. Moist Cured Height (in)	Moist Cured Area (in^2)	Percent Expansion (%)	Avg. Percent Expansion (%)	Dry Unit Weight (lbs/ft^3)	Water Content (%)	Maximum Load (lbf)	Percent Compaction (%)	Unconfined Compressive Strength (psi)	Avg. Unconfined Compressive Strength (psi)
UT-1	0	3.990	4.570	12.50	n/a	n/a	n/a	n/a		104.9	19.3	513	100	41	
UT-2	0	3.980	4.580	12.44	n/a	n/a	n/a	n/a	_	105.7	19.3	485	101	39	**40**
UT-3	0	3.990	4.580	12.50	n/a	n/a	n/a	n/a		104.4	19.2	488	100	39	
3%-1	7	3.980	4.570	12.44	n/a	n/a	n/a	n/a		104.0	17.9	1418	99	114	
3%-2	7	3.970	4.570	12.38	n/a	n/a	n/a	n/a	_	104.0	18.3	1424	99	115	**109**
3%-3	7	3.980	4.580	12.44	n/a	n/a	n/a	n/a		102.0	17.8	1232	97	99	
5%-1	7	3.980	4.580	12.44	n/a	n/a	n/a	n/a		103.7	17.7	1941	99	156	
5%-2	7	3.980	4.580	12.44	n/a	n/a	n/a	n/a	_	104.1	18.2	2314	99	186	**171**
5%-3	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		103.5	18	2163	99	173	
7%-1	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		104.8	17.5	3172	100	255	
7%-2	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a	_	104.5	17.8	3276	100	262	**250**
7%-3	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		104.6	17.4	2913	100	233	



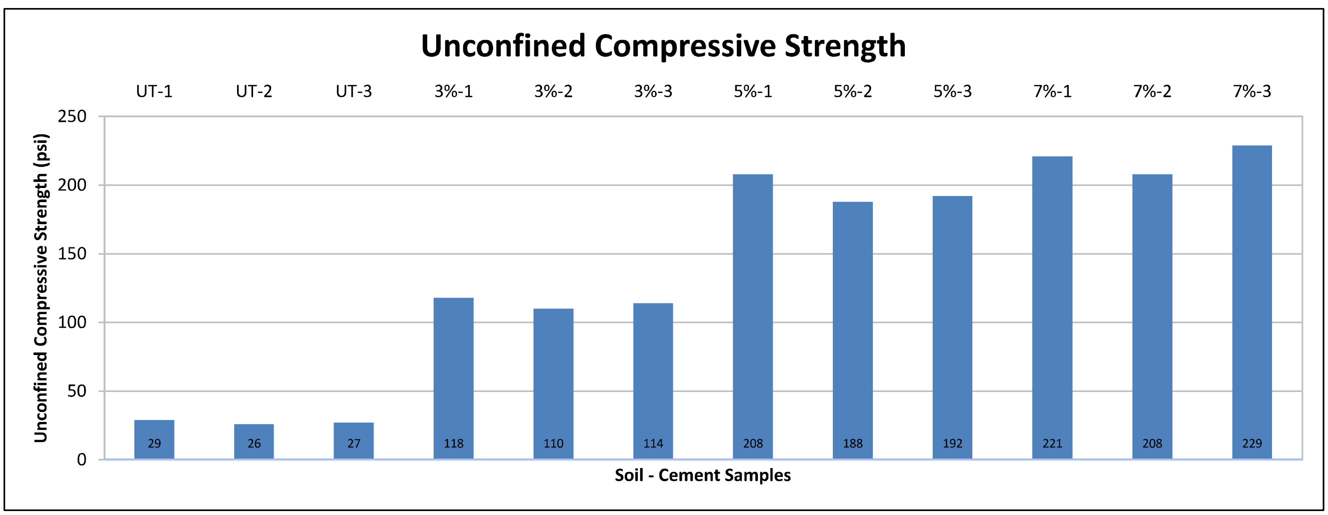
SUMMARY OF SOIL-Cement UNCONFINED COMPRESSIVE STRENGTH DATA

Client: Avangrid Renewables **Project:** Wild Grains Solar

Report Date: 8/6/2021 **Project No.:** N4215167

Sample: B-21-32
Cement ID: Lafarge Type I
ODOT Typical Density Curve: **UT - "P"** **Cement -"P"**
Max Dry Density (pcf): 104.7
Optimum Moisture Content (%): 19.2

Chemical Content (%)	Strength Test Age (days)	Average Diameter (in)	Average Height (in)	Area (in²)	Avg. Moist Cured Diameter (in)	Avg. Moist Cured Height (in)	Moist Cured Area (in²)	Percent Expansion (%)	Avg. Percent Expansion (%)	Dry Unit Weight (lbs/ft³)	Water Content (%)	Maximum Load (lbf)	Percent Compaction (%)	Unconfined Compressive Strength (psi)	Avg. Unconfined Compressive Strength (psi)
UT-1	0	3.980	4.570	12.44	n/a	n/a	n/a	n/a	_	103.4	20.1	361	99	29	**27**
UT-2	0	3.970	4.570	12.38	n/a	n/a	n/a	n/a		103.7	20.1	322	99	26	
UT-3	0	3.980	4.570	12.44	n/a	n/a	n/a	n/a		103.6	20.1	336	99	27	
3%-1	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a	_	103.8	18.7	1475	99	118	**114**
3%-2	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		103.7	18.7	1369	99	110	
3%-3	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		103.8	18.7	1418	99	114	
5%-1	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a	_	104.5	19.9	2588	100	208	**198**
5%-2	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		104	19.9	2351	99	188	
5%-3	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		103.8	19.9	2401	99	192	
7%-1	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a	_	104.8	19.2	2763	100	221	**219**
7%-2	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a		104.6	19.2	2601	100	208	
7%-3	7	3.990	4.600	12.50	n/a	n/a	n/a	n/a		104.7	19.2	2863	100	229	



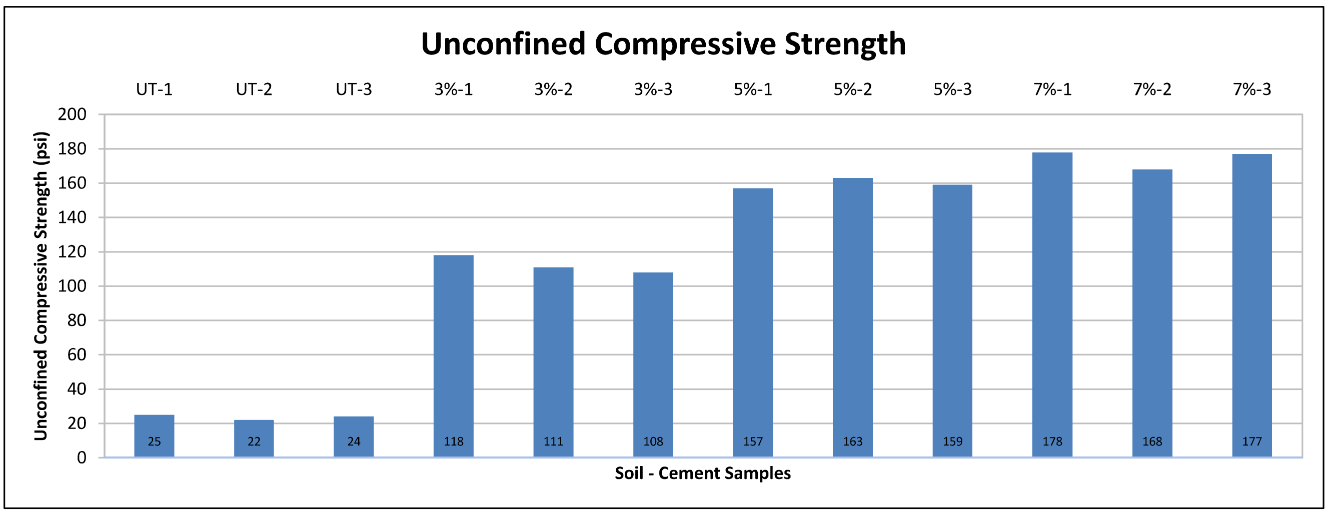
SUMMARY OF SOIL-Cement UNCONFINED COMPRESSIVE STRENGTH DATA

Client: Avangrid Renewables **Project:** Wild Grains Solar

Report Date: 8/6/2021 **Project No.:** N4215167

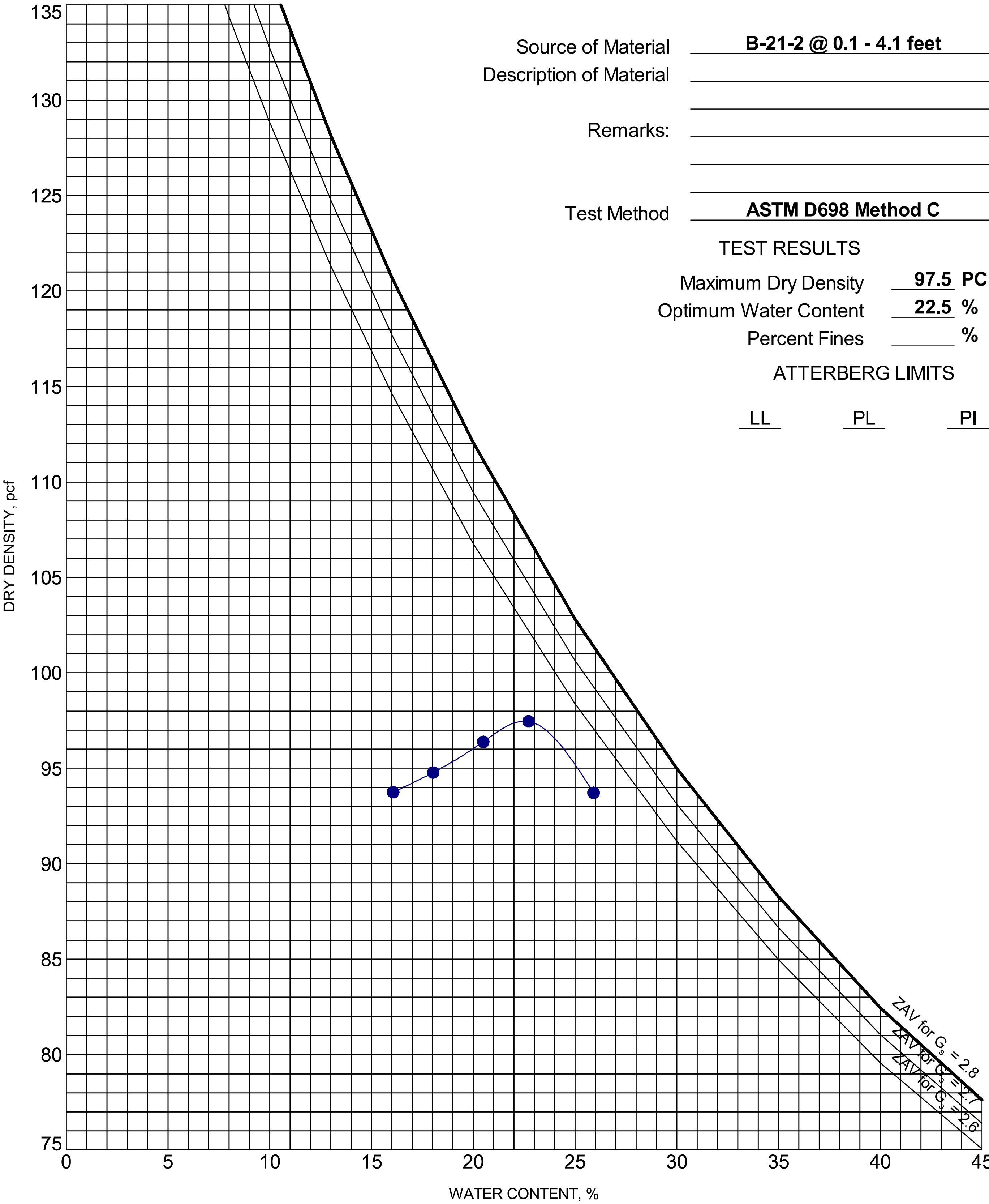
Sample: B-21-36
Cement ID: Lafarge Type I
ODOT Typical Density Curve: **UT - "P"** **Cement -"P"**
Max Dry Density (pcf): 104.7
Optimum Moisture Content (%): 19.2

Chemical Content (%)	Strength Test Age (days)	Average Diameter (in)	Average Height (in)	Area (in²)	Avg. Moist Cured Diameter (in)	Avg. Moist Cured Height (in)	Moist Cured Area (in²)	Percent Expansion (%)	Avg. Percent Expansion (%)	Dry Unit Weight (lbs/ft³)	Water Content (%)	Maximum Load (lbf)	Percent Compaction (%)	Unconfined Compressive Strength (psi)	Avg. Unconfined Compressive Strength (psi)
UT-1	0	3.980	4.580	12.44	n/a	n/a	n/a	n/a	_	103.5	19.8	311	99	25	**24**
UT-2	0	3.980	4.590	12.44	n/a	n/a	n/a	n/a		103.1	19.5	274	98	22	
UT-3	0	3.970	4.580	12.38	n/a	n/a	n/a	n/a		104.3	19.4	297	100	24	
3%-1	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a	_	104.8	19.4	1475	100	118	**112**
3%-2	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		104.9	19.4	1381	100	111	
3%-3	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a		104.6	19.4	1350	100	108	
5%-1	7	3.980	4.580	12.44	n/a	n/a	n/a	n/a	_	103.1	19.9	1953	98	157	**160**
5%-2	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		103.1	19.9	2038	98	163	
5%-3	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		103.2	19.9	1988	99	159	
7%-1	7	3.990	4.590	12.50	n/a	n/a	n/a	n/a	_	104.9	19.1	2226	100	178	**174**
7%-2	7	3.980	4.590	12.44	n/a	n/a	n/a	n/a		104.9	19.1	2090	100	168	
7%-3	7	3.990	4.580	12.50	n/a	n/a	n/a	n/a		104.6	19.1	2213	100	177	



MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-21-2 @ 0.1 - 4.1 feet**
Description of Material	
Remarks:	
Test Method	**ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density	**97.5 PCF**
Optimum Water Content	**22.5 %**
Percent Fines	**%**

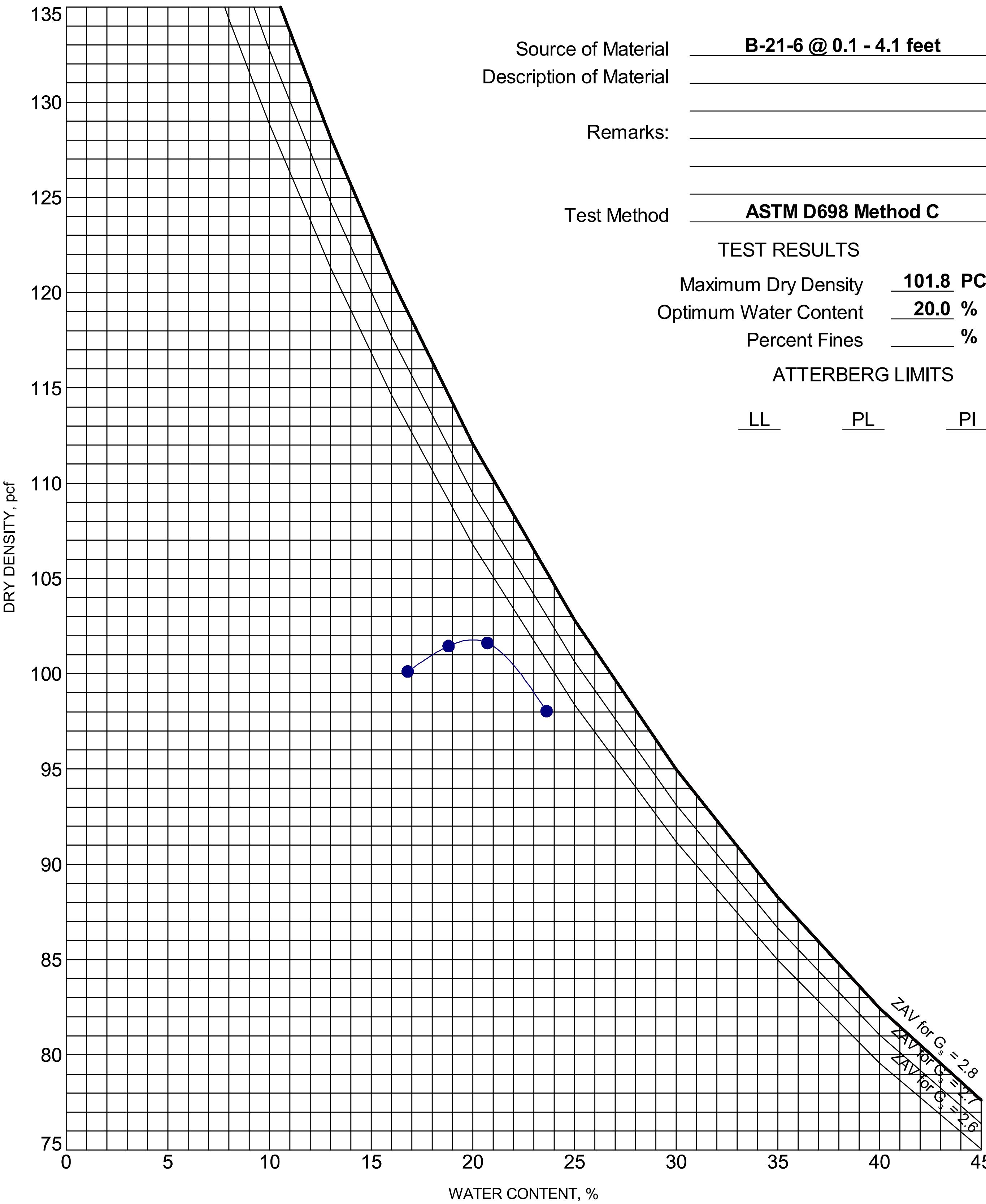
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-21-6 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **101.8** **PCF**

Optimum Water Content **20.0** **%**

Percent Fines **%**

ATTERBERG LIMITS

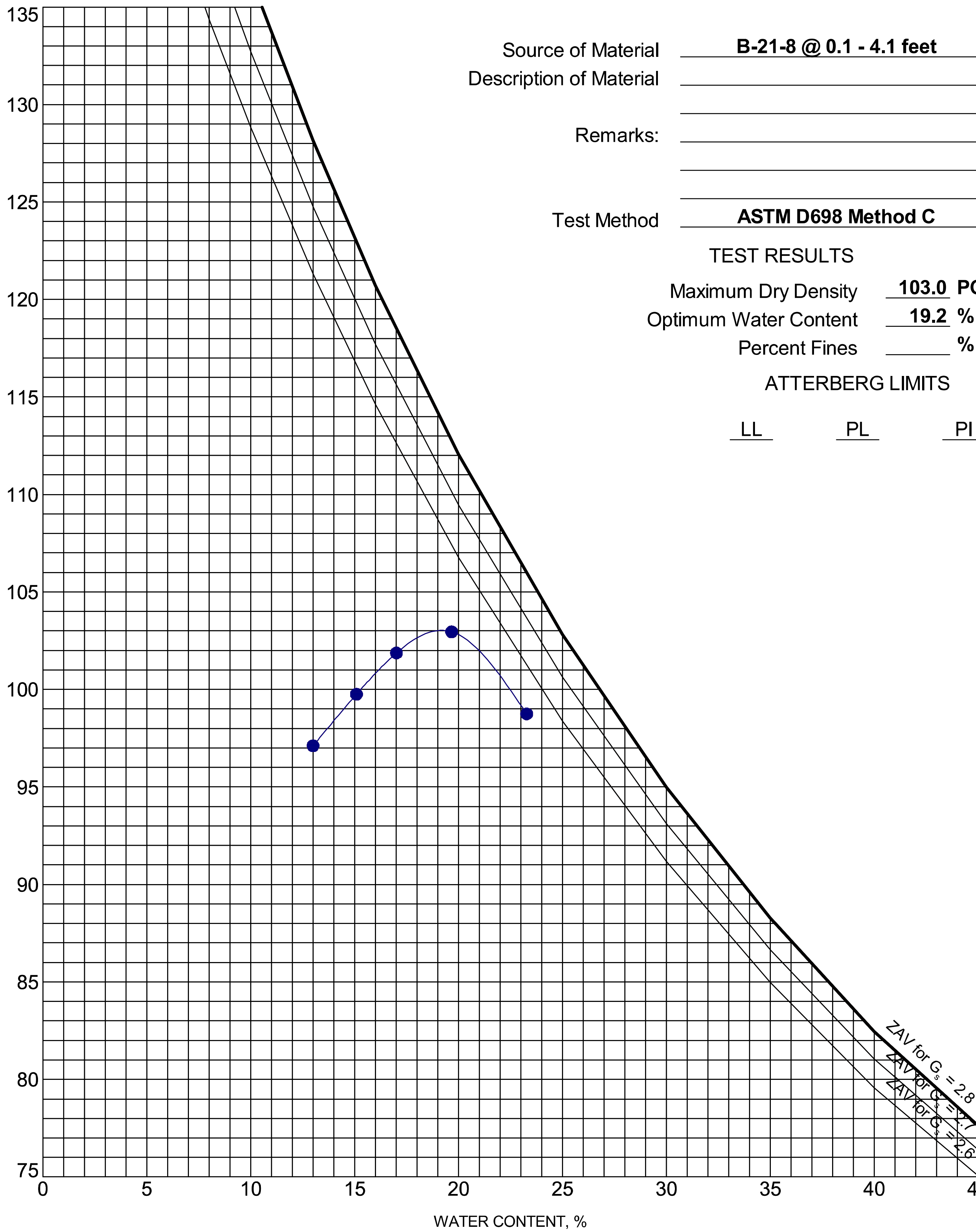
LL	PL	PI

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/28/21

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-21-8 @ 0.1 - 4.1 feet**

Description of Material

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **103.0 PCF**

Optimum Water Content **19.2 %**

Percent Fines %

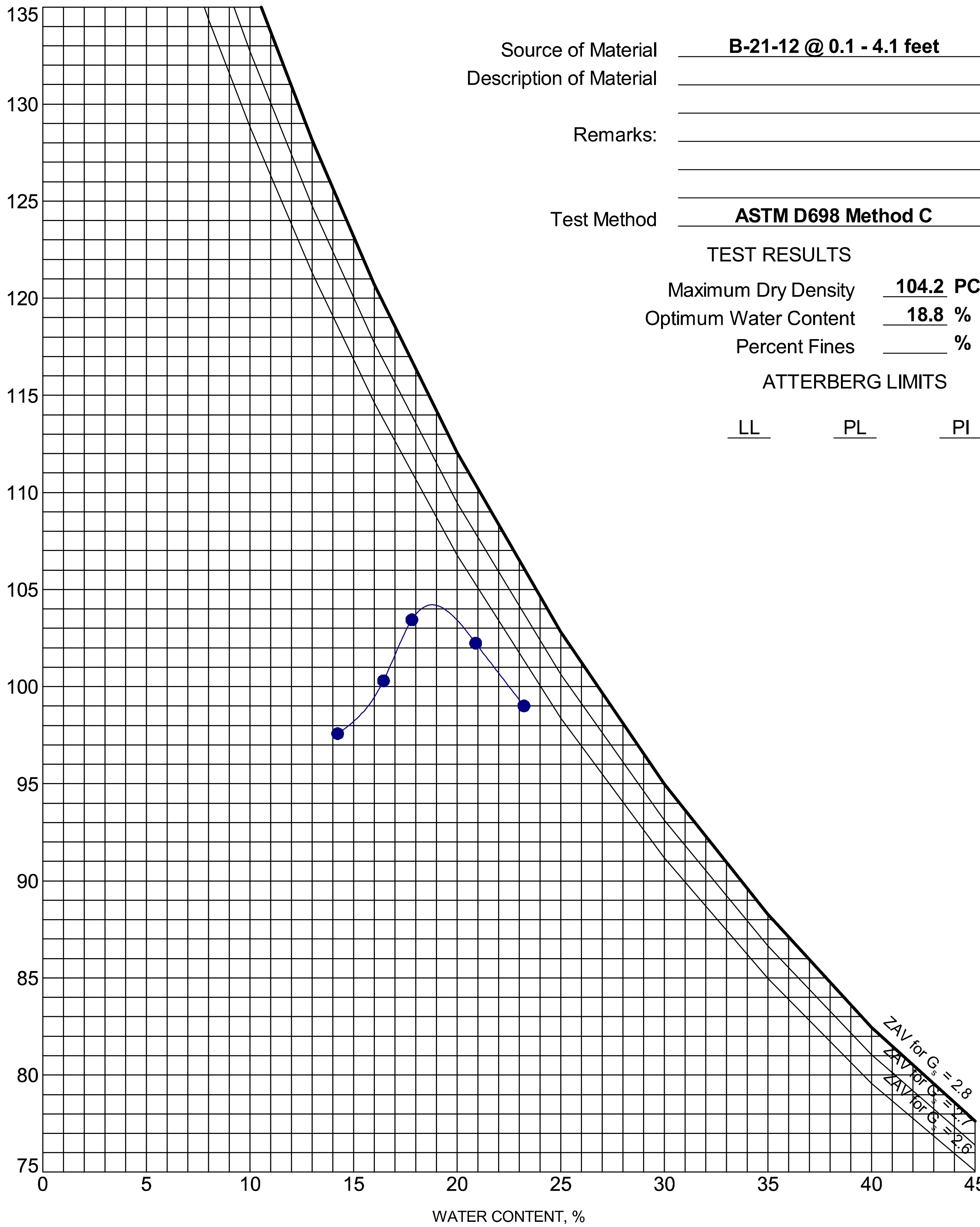
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-21-12 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **104.2 PCF**

Optimum Water Content **18.8 %**

Percent Fines %

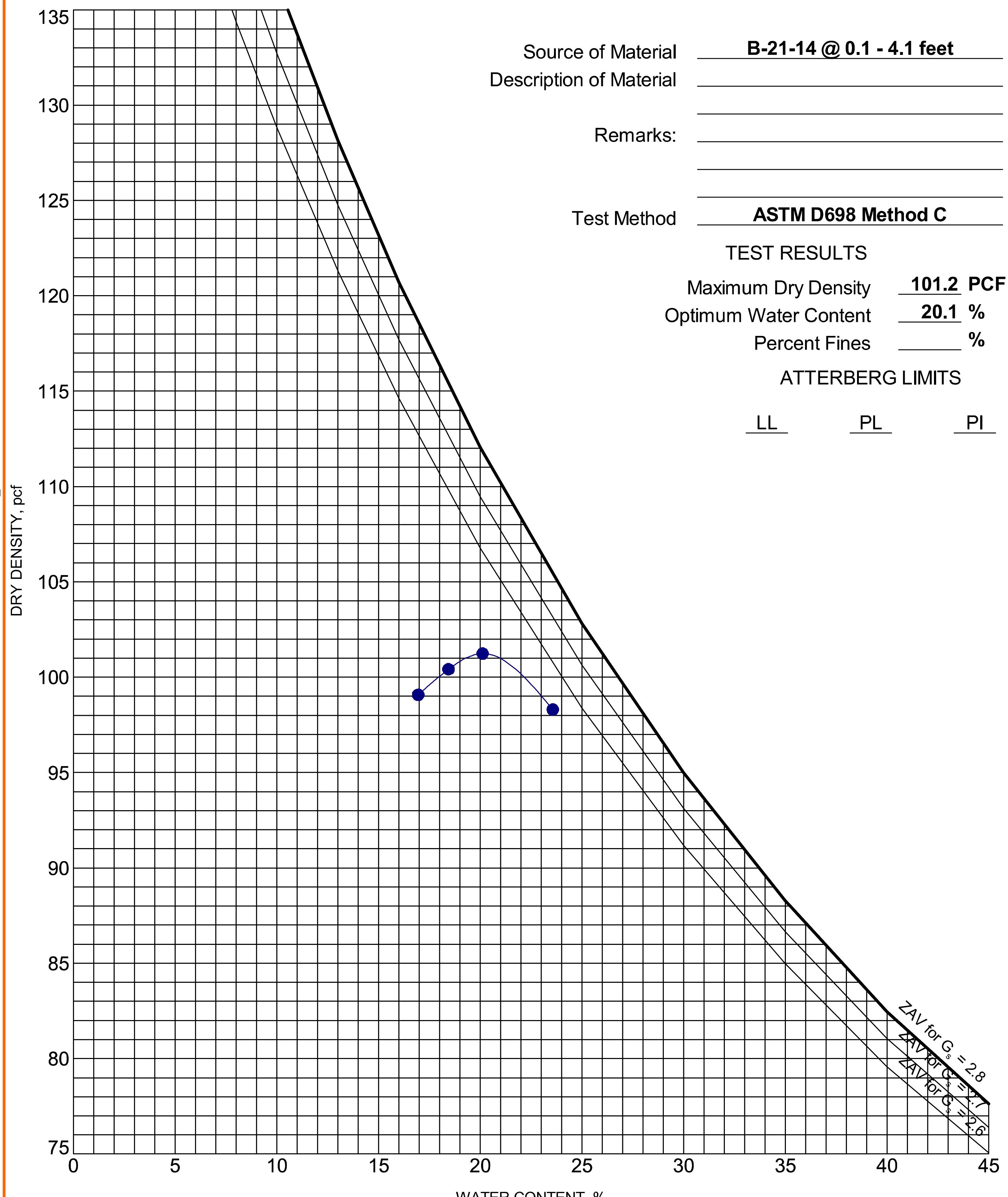
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-21-14 @ 0.1 - 4.1 feet**

Description of Material

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **101.2 PCF**

Optimum Water Content **20.1 %**

Percent Fines **%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar

SITE: US 27
Van Wert, OH

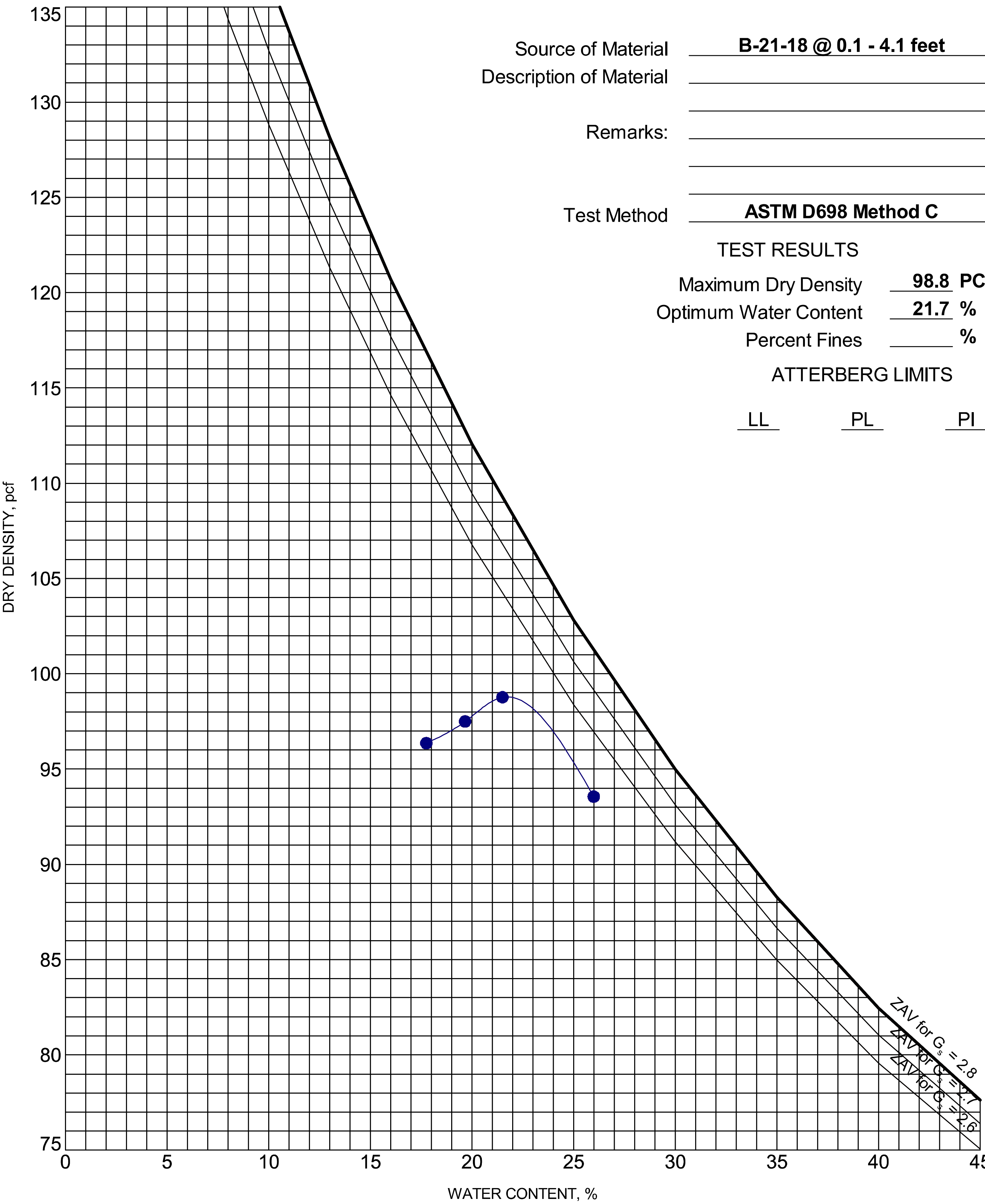
Terracon
800 Morrison Rd
Gahanna, OH

PROJECT NUMBER: N4215167

CLIENT: Avangrid Renewables
Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-21-18 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **98.8** **PCF**

Optimum Water Content **21.7** **%**

Percent Fines **%**

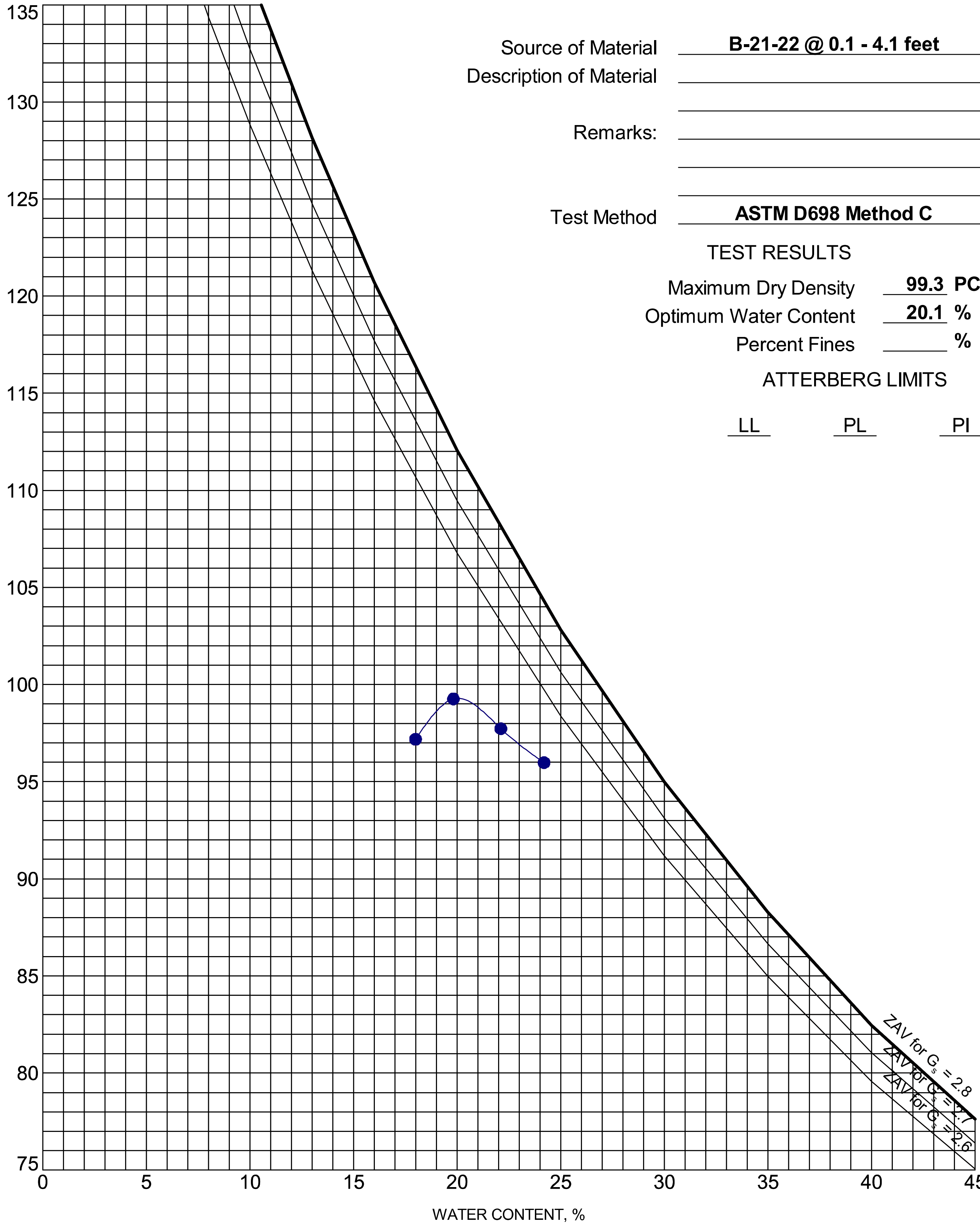
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-21-22 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **99.3** **PCF**

Optimum Water Content **20.1** **%**

Percent Fines **%**

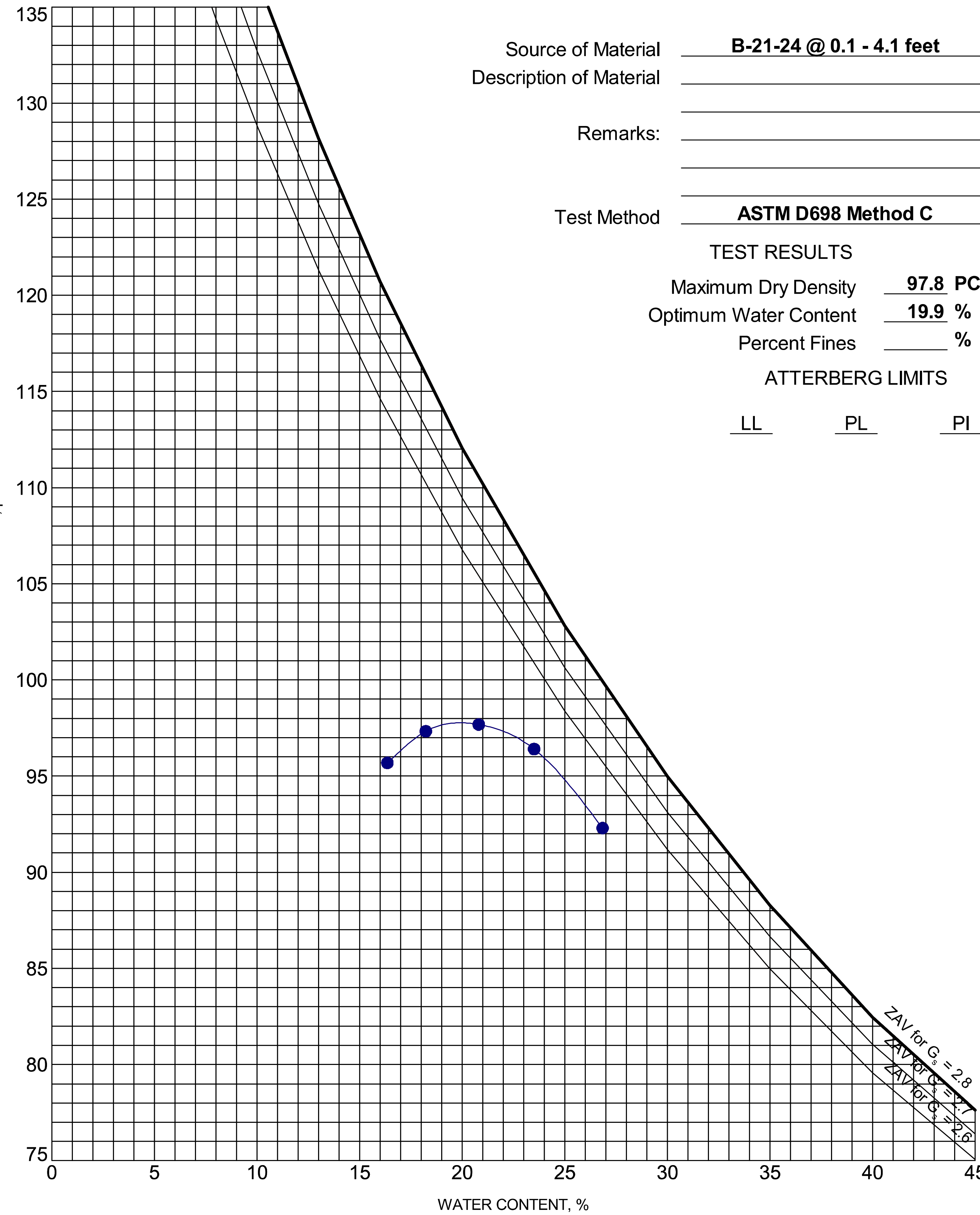
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-21-24 @ 0.1 - 4.1 feet**
Description of Material	
Remarks:	
Test Method	**ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density	**97.8**	**PCF**
Optimum Water Content	**19.9**	**%**
Percent Fines		**%**

ATTERBERG LIMITS

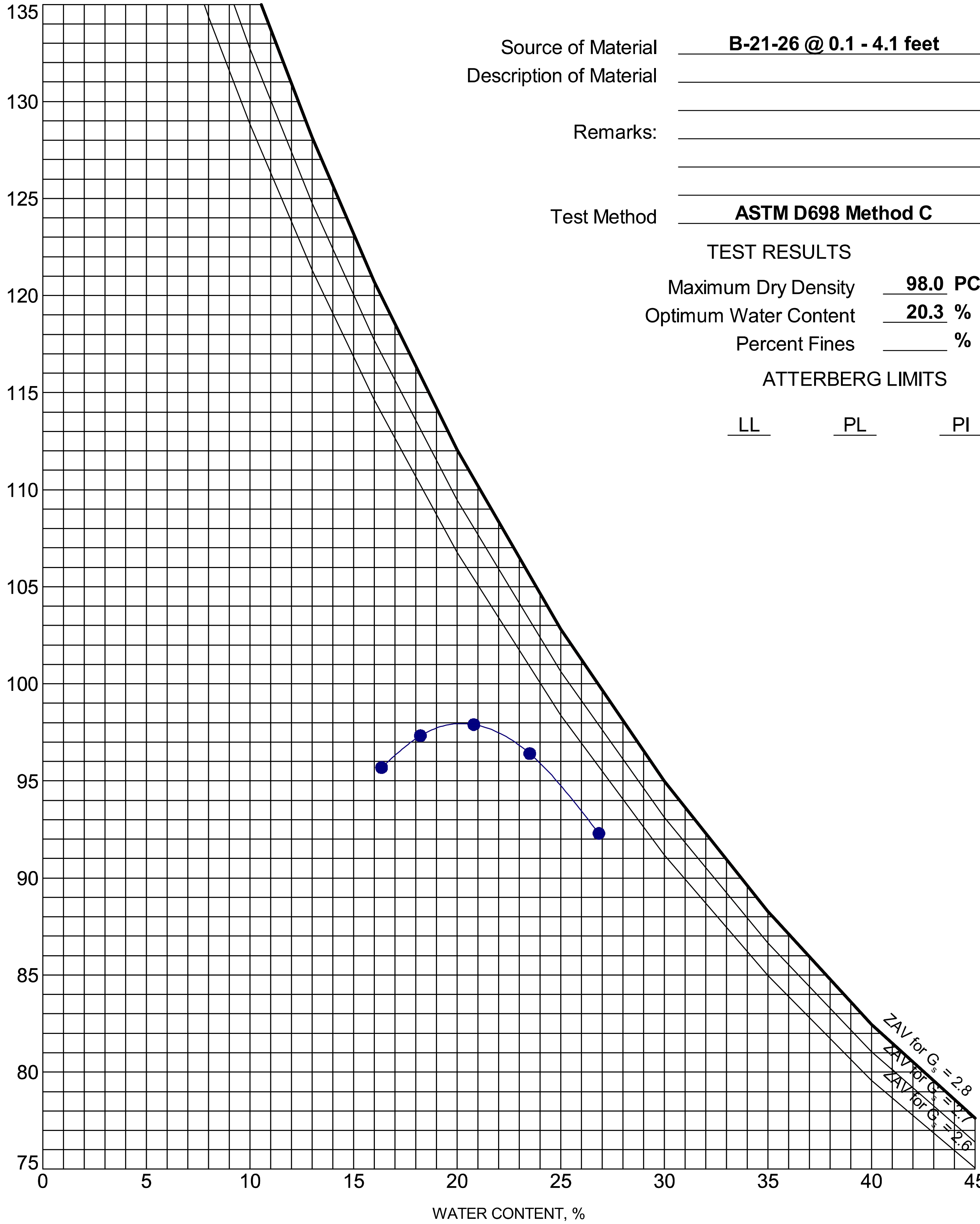
LL	PL	PI

PROJECT: Wild Grains Solar	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH	CLIENT: Avangrid Renewables Portland, OR

Terracon
800 Morrison Rd
Gahanna, OH

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-21-26 @ 0.1 - 4.1 feet**

Description of Material

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **98.0 PCF**

Optimum Water Content **20.3 %**

Percent Fines %

ATTERBERG LIMITS

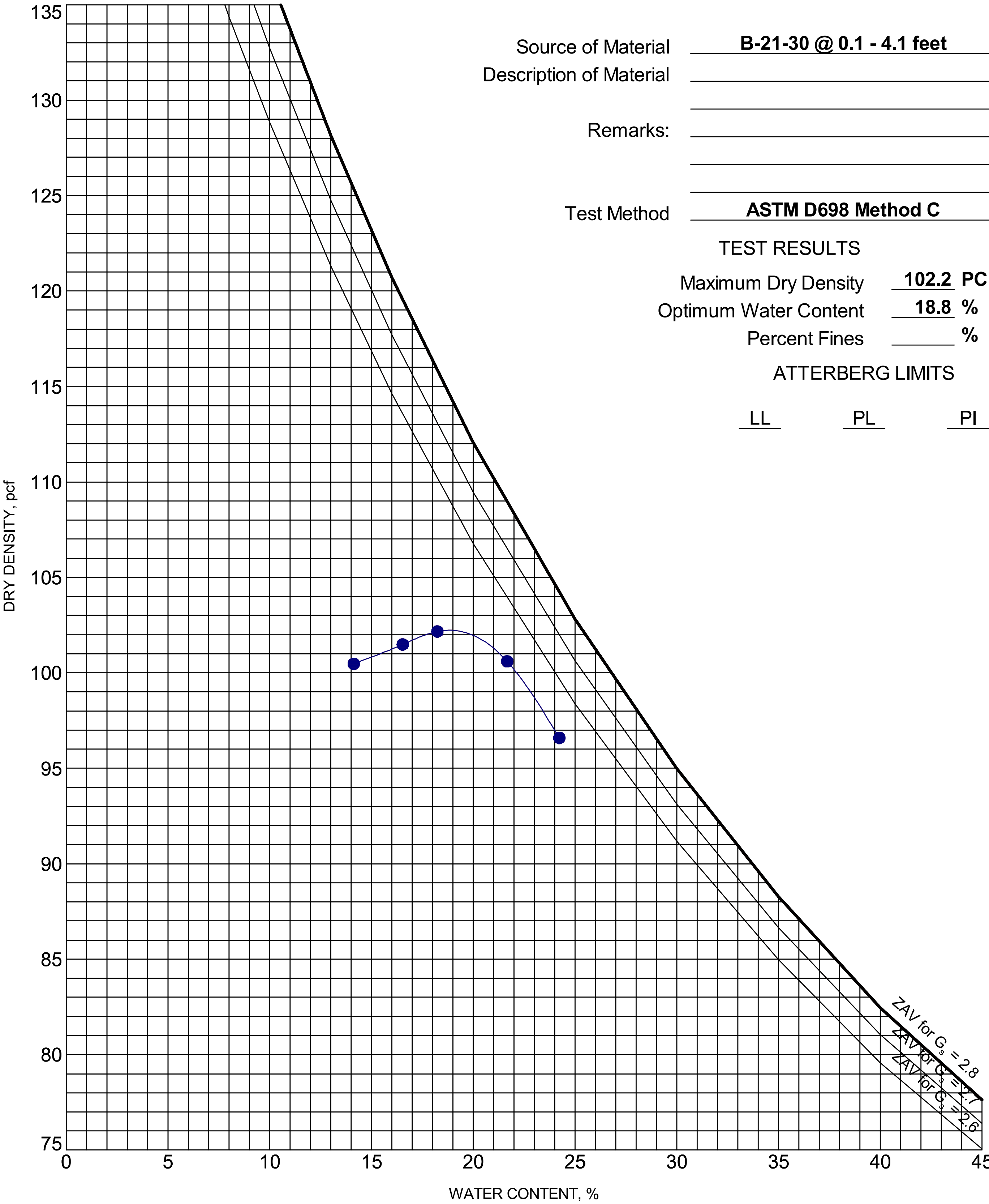
LL	PL	PI

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/28/21

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-21-30 @ 0.1 - 4.1 feet**
Description of Material	
Remarks:	
Test Method	**ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density	**102.2**	**PCF**
Optimum Water Content	**18.8**	**%**
Percent Fines		**%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557

Source of Material: **B-21-34 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

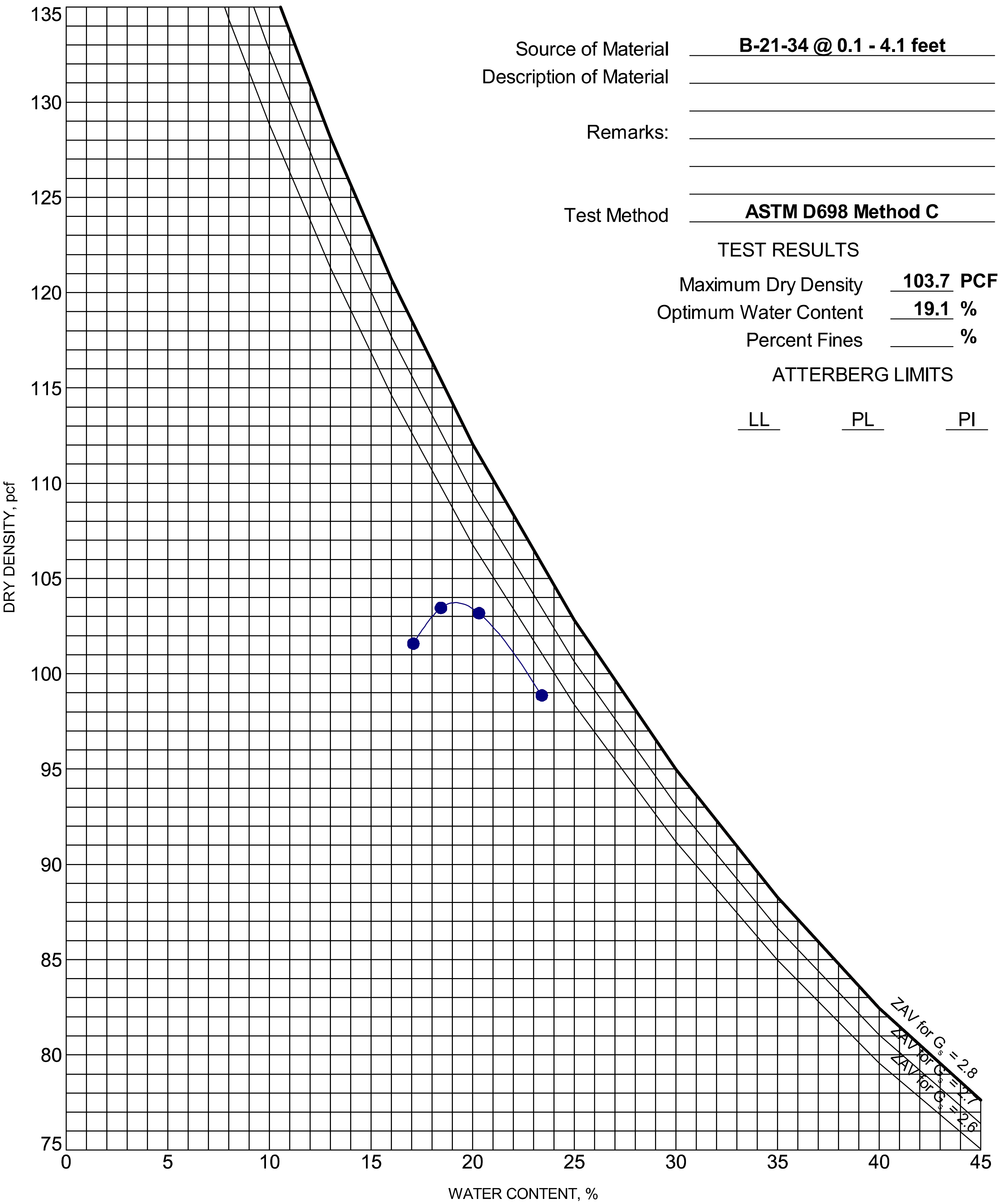
Maximum Dry Density **103.7 PCF**

Optimum Water Content **19.1 %**

Percent Fines %

ATTERBERG LIMITS

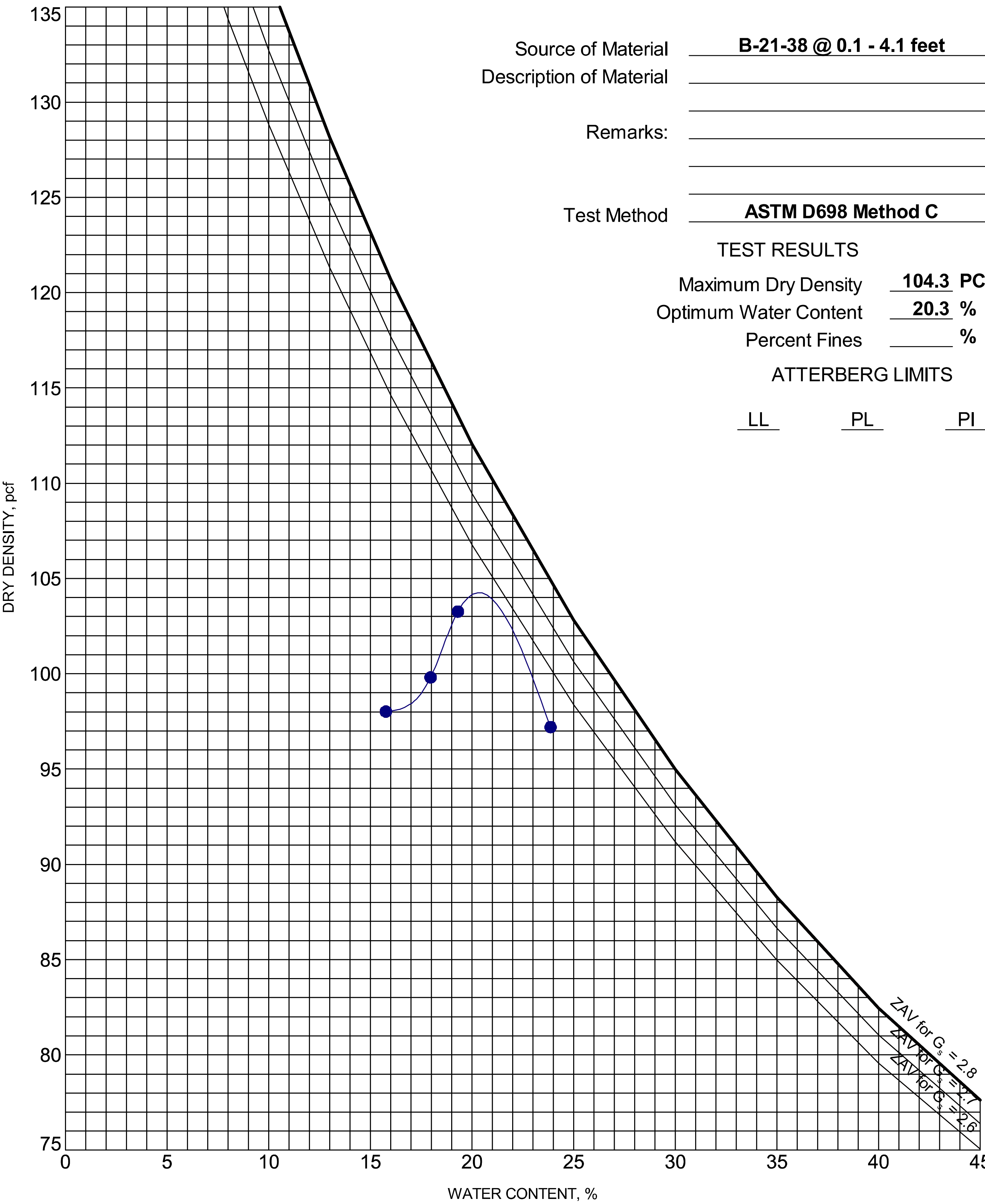
LL	PL	PI



PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-21-38 @ 0.1 - 4.1 feet**

Description of Material:

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **104.3** **PCF**

Optimum Water Content **20.3** **%**

Percent Fines **%**

ATTERBERG LIMITS

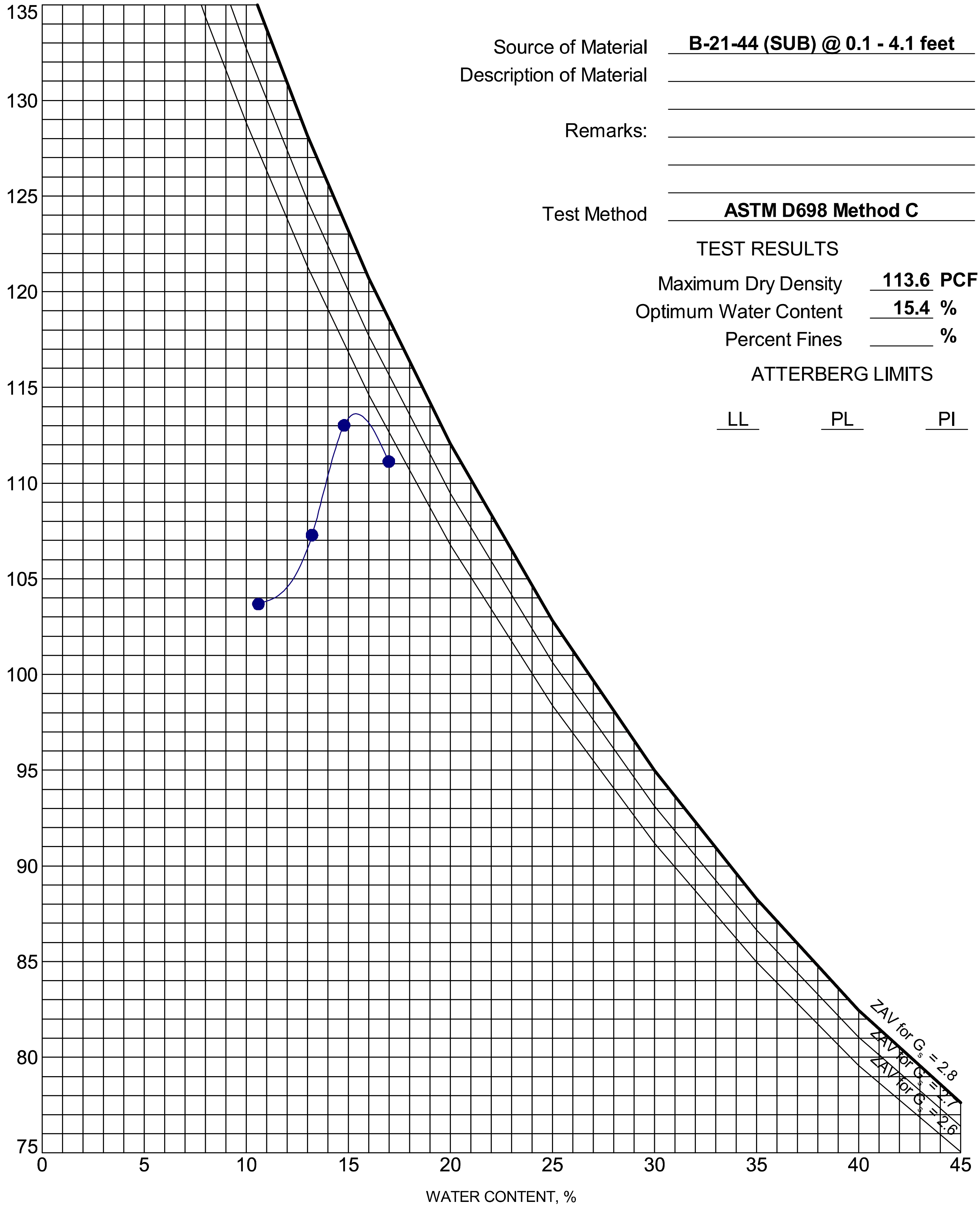
LL	PL	PI

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/28/21

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-21-44 (SUB) @ 0.1 - 4.1 feet**

Description of Material

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **113.6 PCF**

Optimum Water Content **15.4 %**

Percent Fines **%**

ATTERBERG LIMITS

LL	PL	PI

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 N4215167 WILD GRAINS SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 7/28/21

PROJECT: Wild Grains Solar	Terracon 800 Morrison Rd Gahanna, OH	PROJECT NUMBER: N4215167
SITE: US 27 Van Wert, OH		CLIENT: Avangrid Renewables Portland, OR

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

August 2, 2021

Terracon Consultants, Inc.
800 Morrison Road
Columbus, OH 43230
Attn: Rohit Singh

Re: Thermal Analysis of Native Soil Samples
Wild Grains Solar – Portland, OR (PO No. N4215167)

The following is the report of thermal dryout characterization tests conducted on the twelve (12) bulk soil samples and ten (10) undisturbed tube samples from the referenced project sent to our laboratory.

Thermal Resistivity Tests: The undisturbed tube samples were tested 'as is". The bulk samples were tested at 85% and 95% of the standard Proctor density ***provided by Terracon*** and at the moisture content of the tube samples**.** 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 12.**

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

Sample ID	Compaction Effort (%)	Soil Description (Terracon)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
			Wet	Dry		
B-21-2	85% @ 0.1'-4'	Lean clay with sand	109	248	23	83
	95% @ 0.1'-4'		95	195		93
	Tube @ 2.5'-4'		87	172	24	98
B-21-6	85% @ 0.1'-4'	Sandy lean clay	104	215	20	87
	95% @ 0.1'-4'		86	172		96
	Tube @ 3-4'		67	146	23	103
B-21-8	85% @ 0.1'-4'	Sandy lean clay	102	226	20	88
	95% @ 0.1'-4'		87	184		98

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

Sample ID	Compaction Effort (%)	Soil Description (Terracon)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
			Wet	Dry		
B-21-12	85% @ 0.1'-4'	Sandy lean clay	98	217	19	89
	95% @ 0.1'-4'		81	179		99
	Tube @ 2.5'-4'		67	154	20	104
B-21-14	85% @ 0.1'-4'	Lean clay with sand	92	214	20	86
	95% @ 0.1'-4'		79	181		96
	Tube @ 3' – 4'		71	170	24	99
B-21-18	85% @ 0.1'-4'	Lean clay with sand	97	221	22	84
	95% @ 0.1'-4'		84	185		94
	Tube @ 2.5'-4'		69	166	18	121
B-21-22	85% @ 0.1'-4'	Sandy lean clay	119	267	20	84
	95% @ 0.1'-4'		106	211		94
	Tube @ 2.5'-4'		75	165	21	103
B-21-26	85% @ 0.1'-4'	Sandy lean clay	107	234	20	83
	95% @ 0.1'-4'		94	192		93
	Tube @ 2.5'-4'		69	164	25	102
B-21-30	85% @ 0.1'-4'	Sandy lean clay	98	212	19	87
	95% @ 0.1'-4'		83	178		97
	Tube @ 2.5'-4'		67	165	23	101
B-21-34	85% @ 0.1'-4'	Lean clay with sand	104	239	19	88
	95% @ 0.1'-4'		86	192		99
	Tube @ 2.5'-4'		69	174	22	105
B-21-38	85% @ 0.1'-4'	Lean clay with sand	91	218	20	89
	95% @ 0.1'-4'		79	189		99
	Tube @ 2.5'-4'		67	170	22	104
B-21-44	85% @ 0.1'-4'	Sandy lean clay	98	217	15	97
	95% @ 0.1'-4'		86	189		108

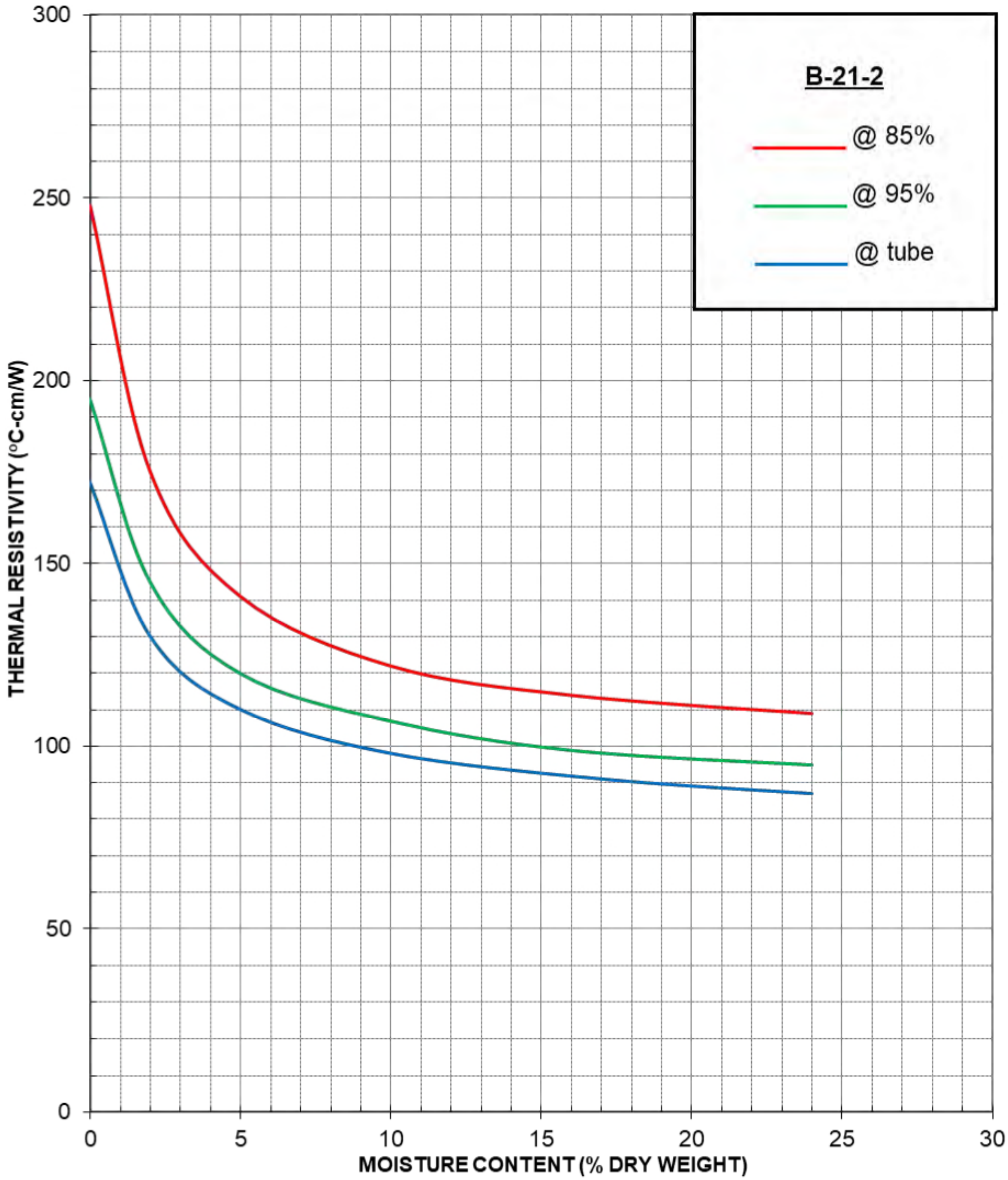
Comments: The thermal characteristic depicted in the dryout curves apply for the soils at their respective test dry density.

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

Geotherm USA

Nimesh Patel

THERMAL DRYOUT CURVES



Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

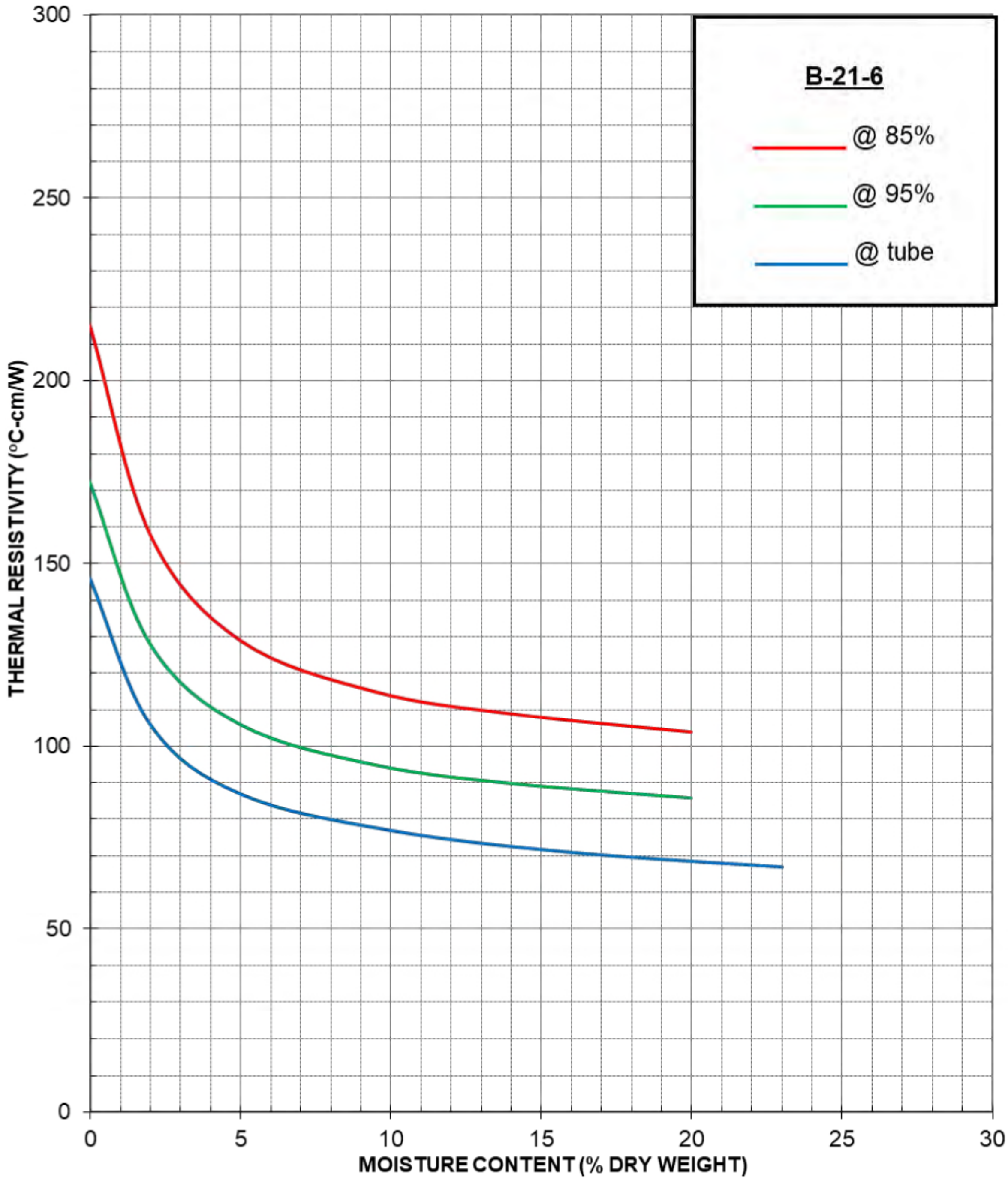
Wild Grains Solar – Portland, OR

August 2021

Figure 1

Geotherm USA

THERMAL DRYOUT CURVES

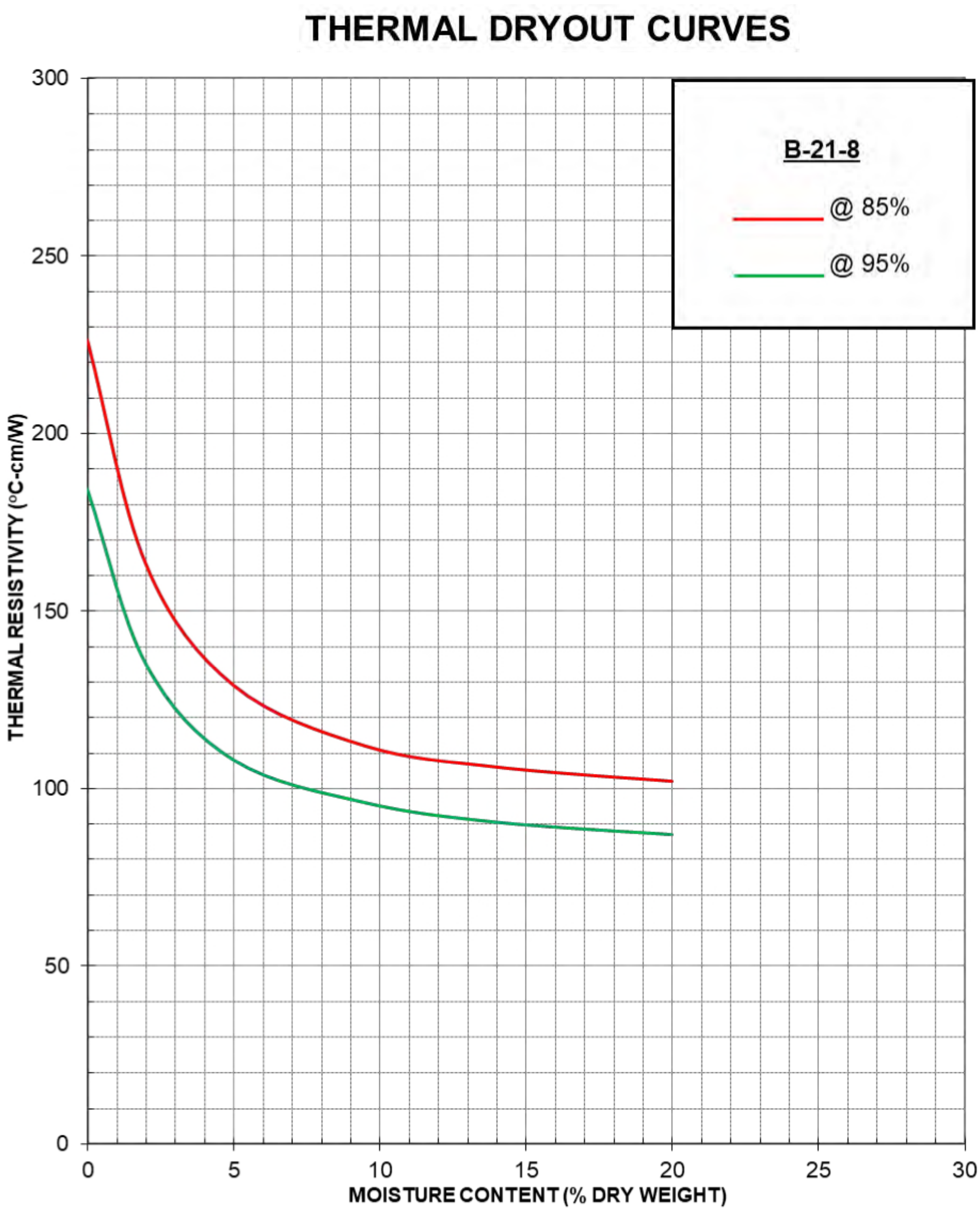


Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021 **Figure 2**



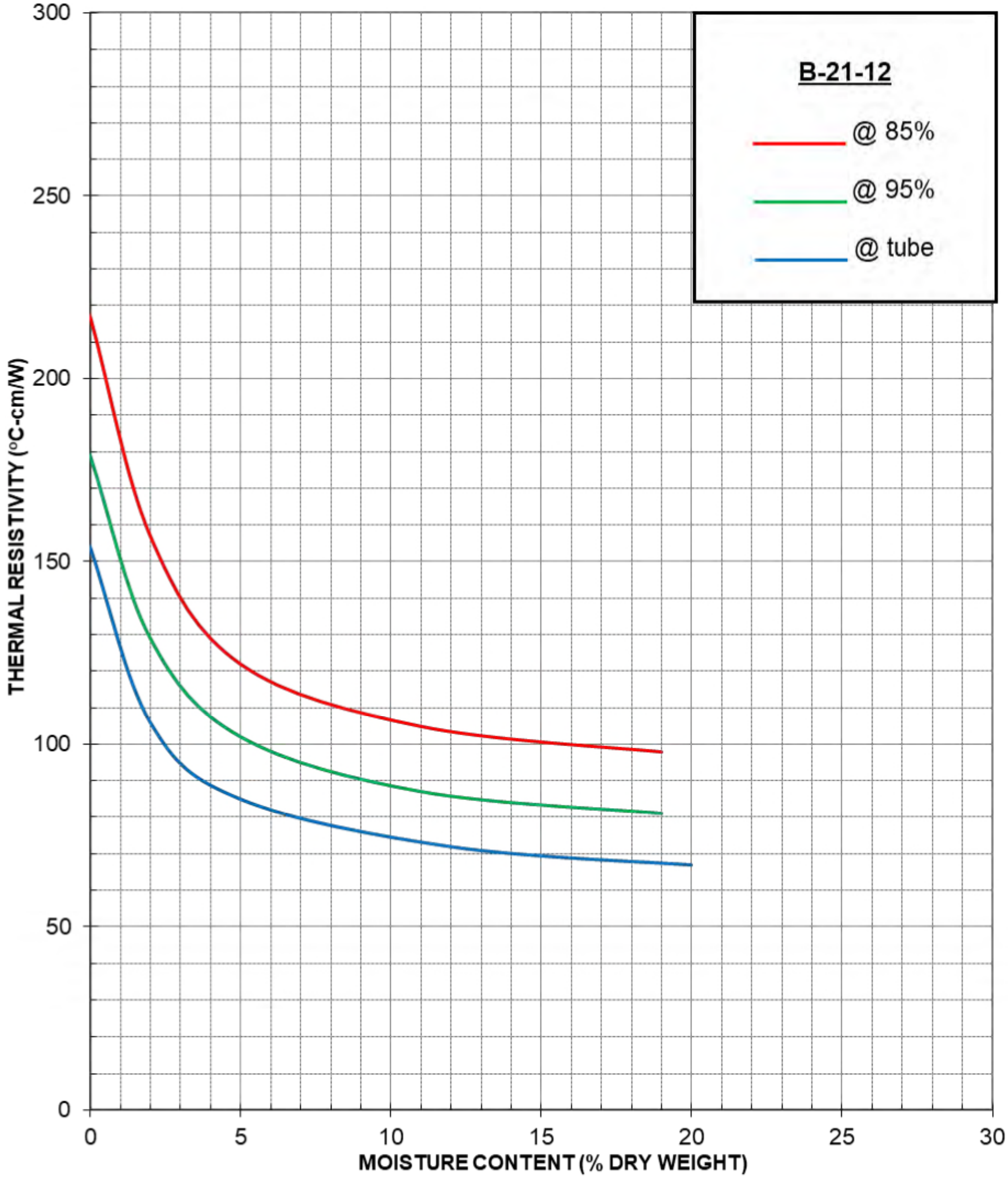
Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021 **Figure 3**

THERMAL DRYOUT CURVES



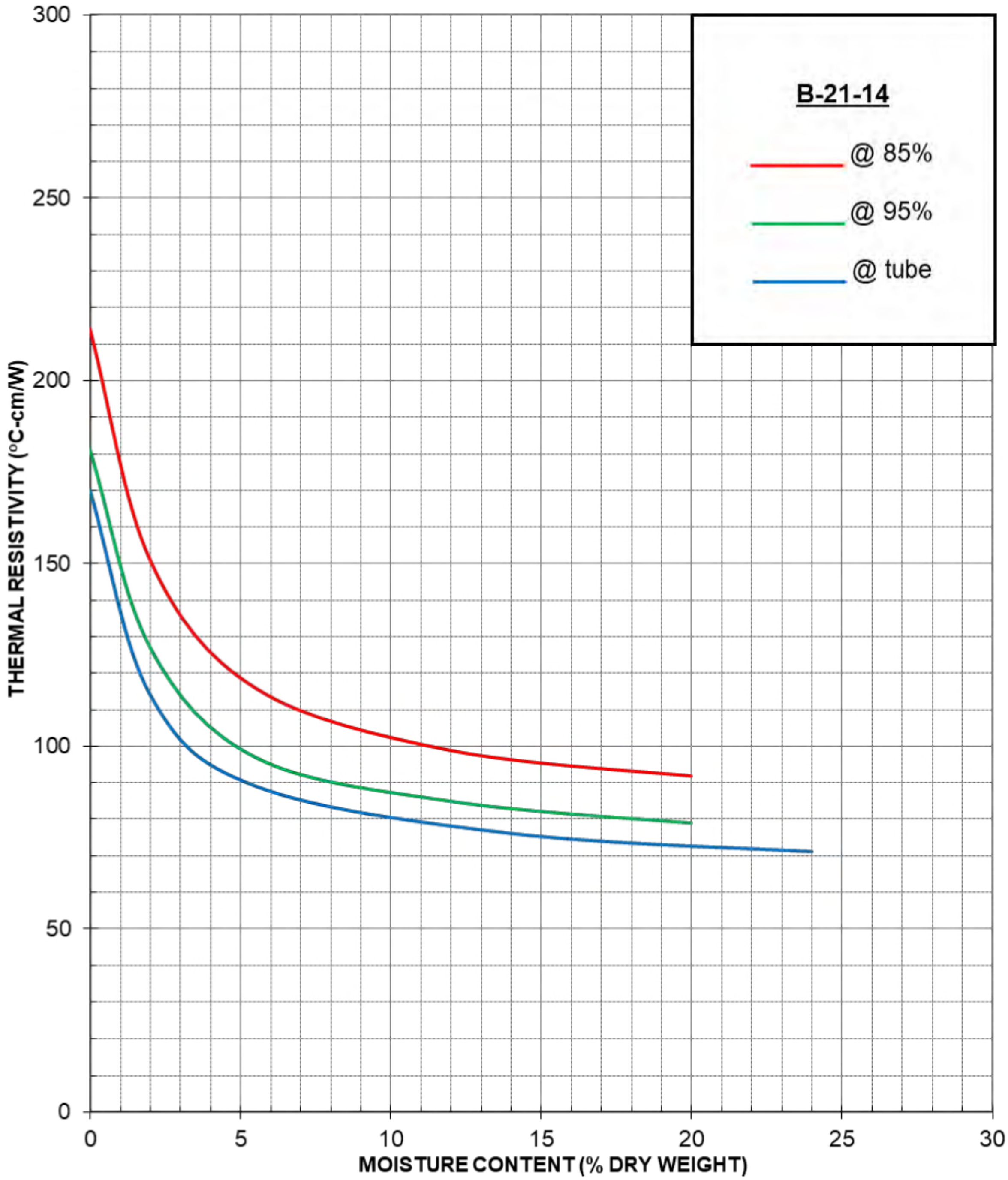
Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021 **Figure 4**

THERMAL DRYOUT CURVES



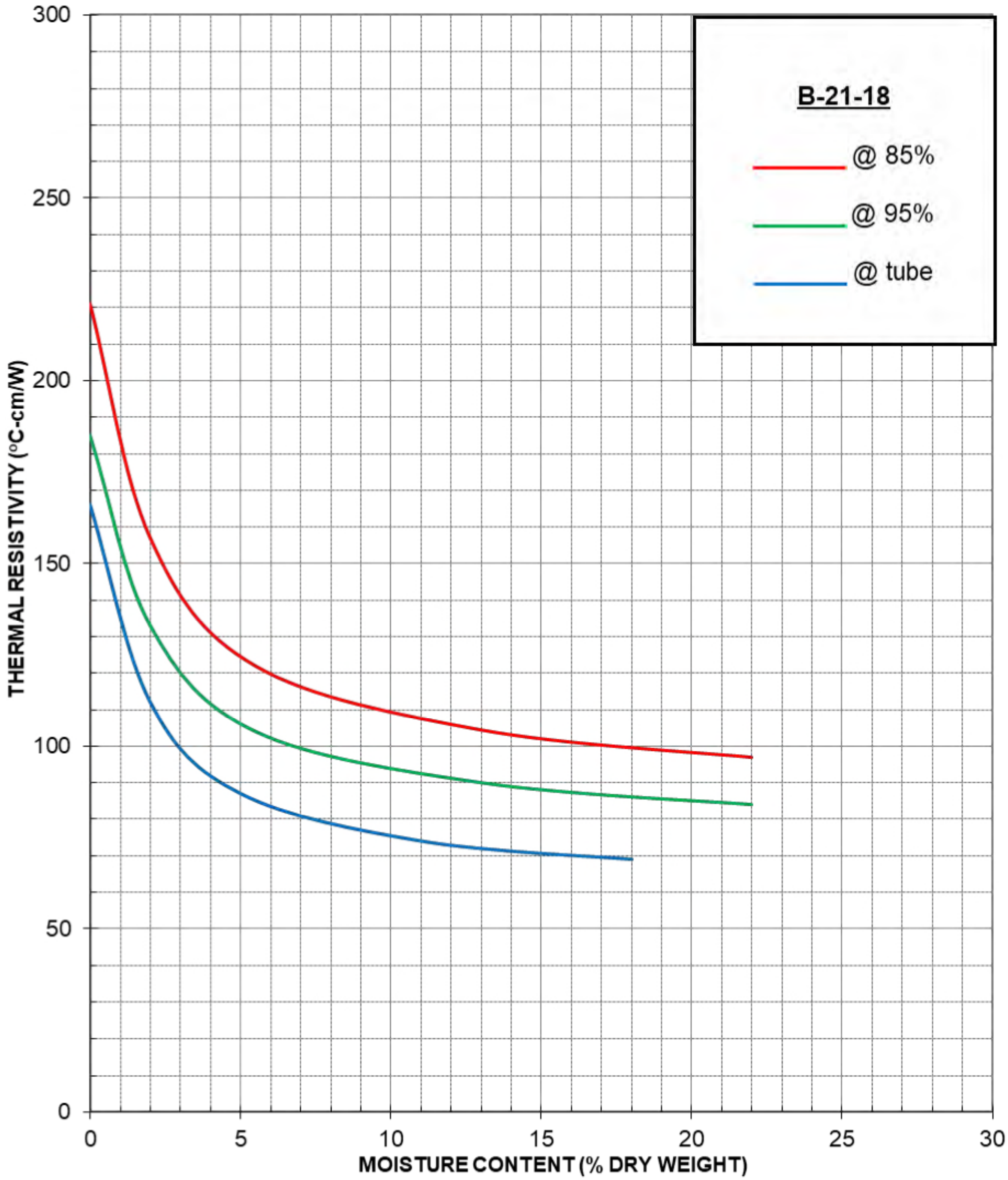
Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021 **Figure 5**

THERMAL DRYOUT CURVES



Terracon Consultants, Inc. (PO No. N4215167)

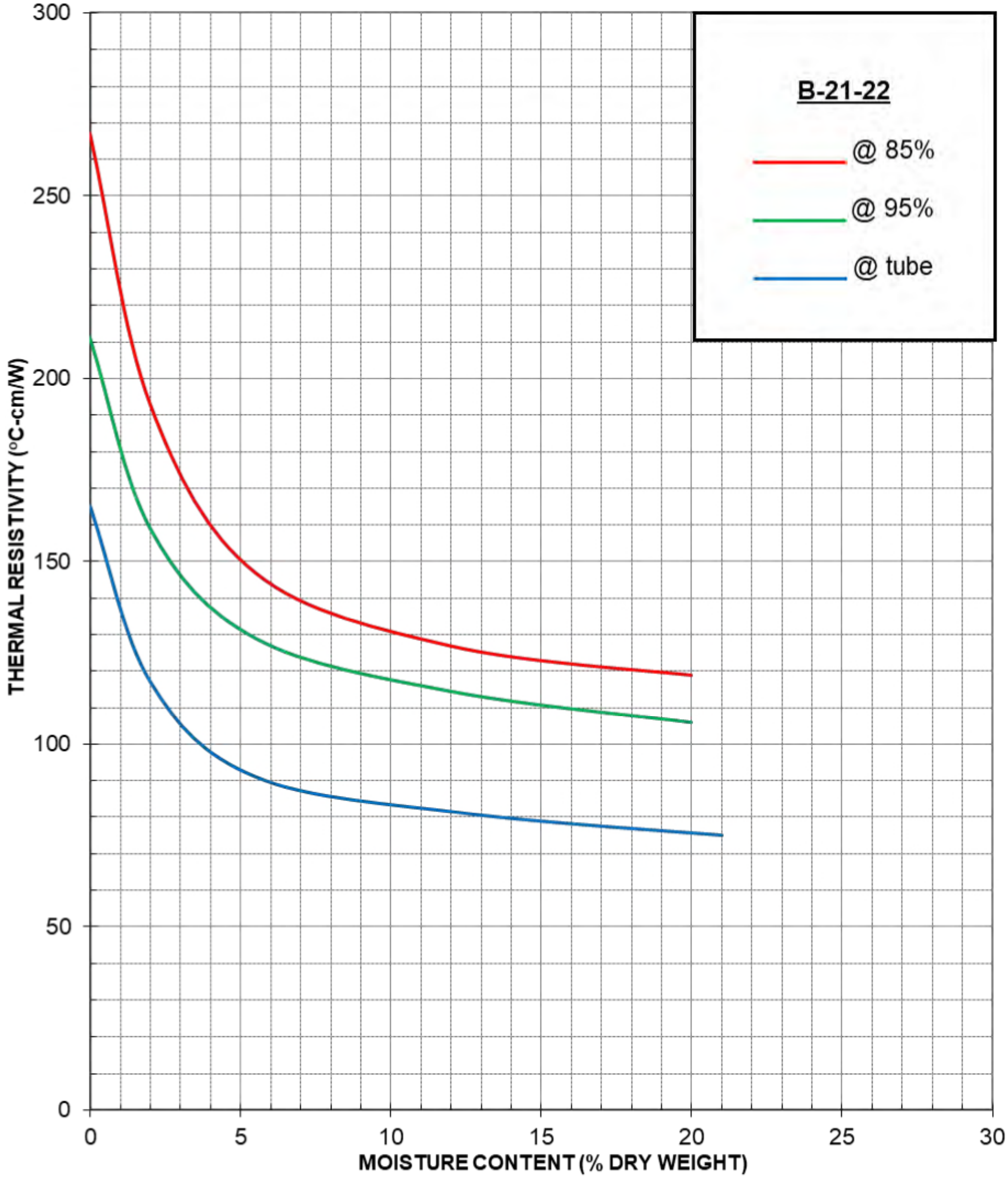
Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021

Figure 6

THERMAL DRYOUT CURVES



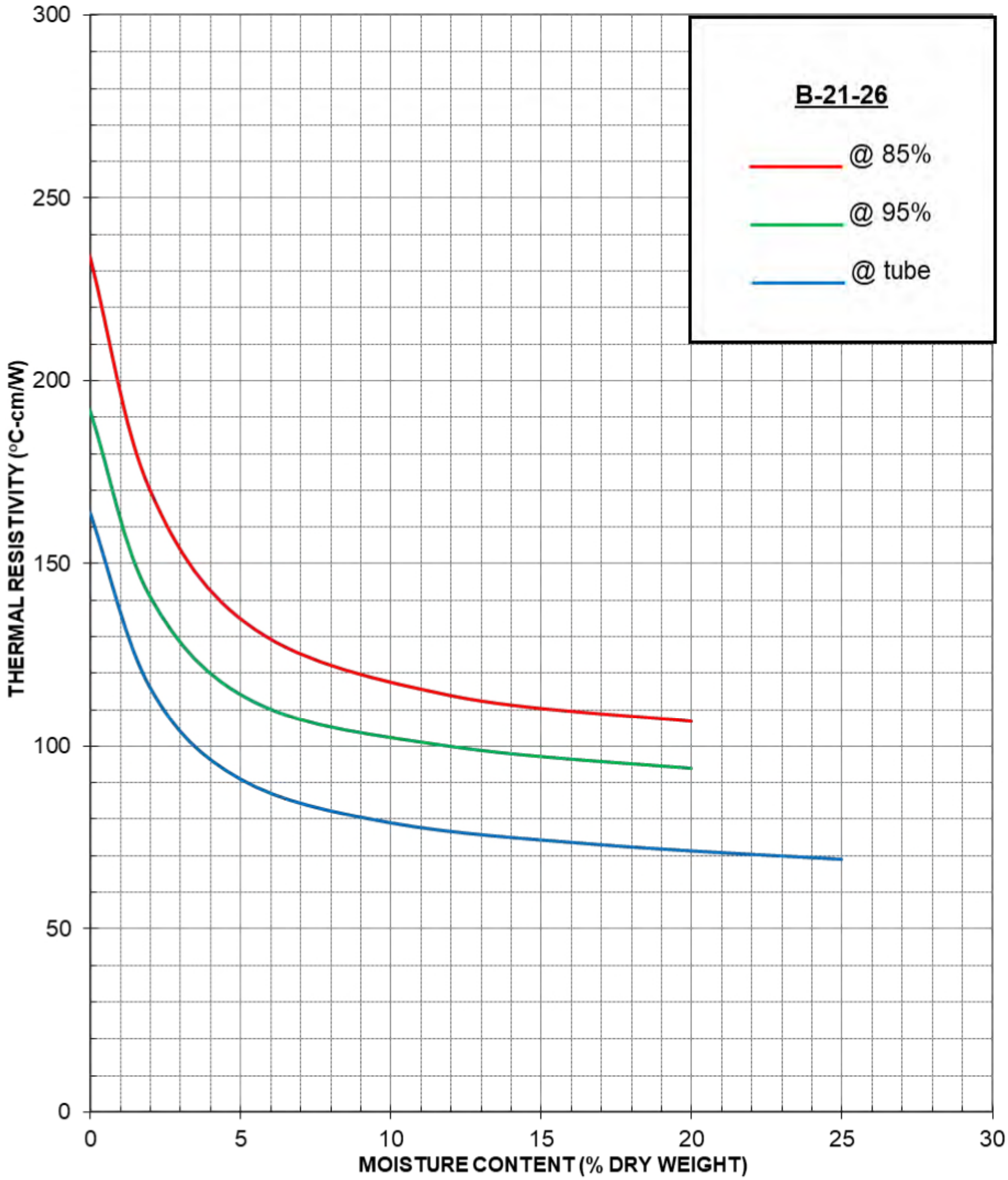
Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021 **Figure 7**

THERMAL DRYOUT CURVES



Terracon Consultants, Inc. (PO No. N4215167)

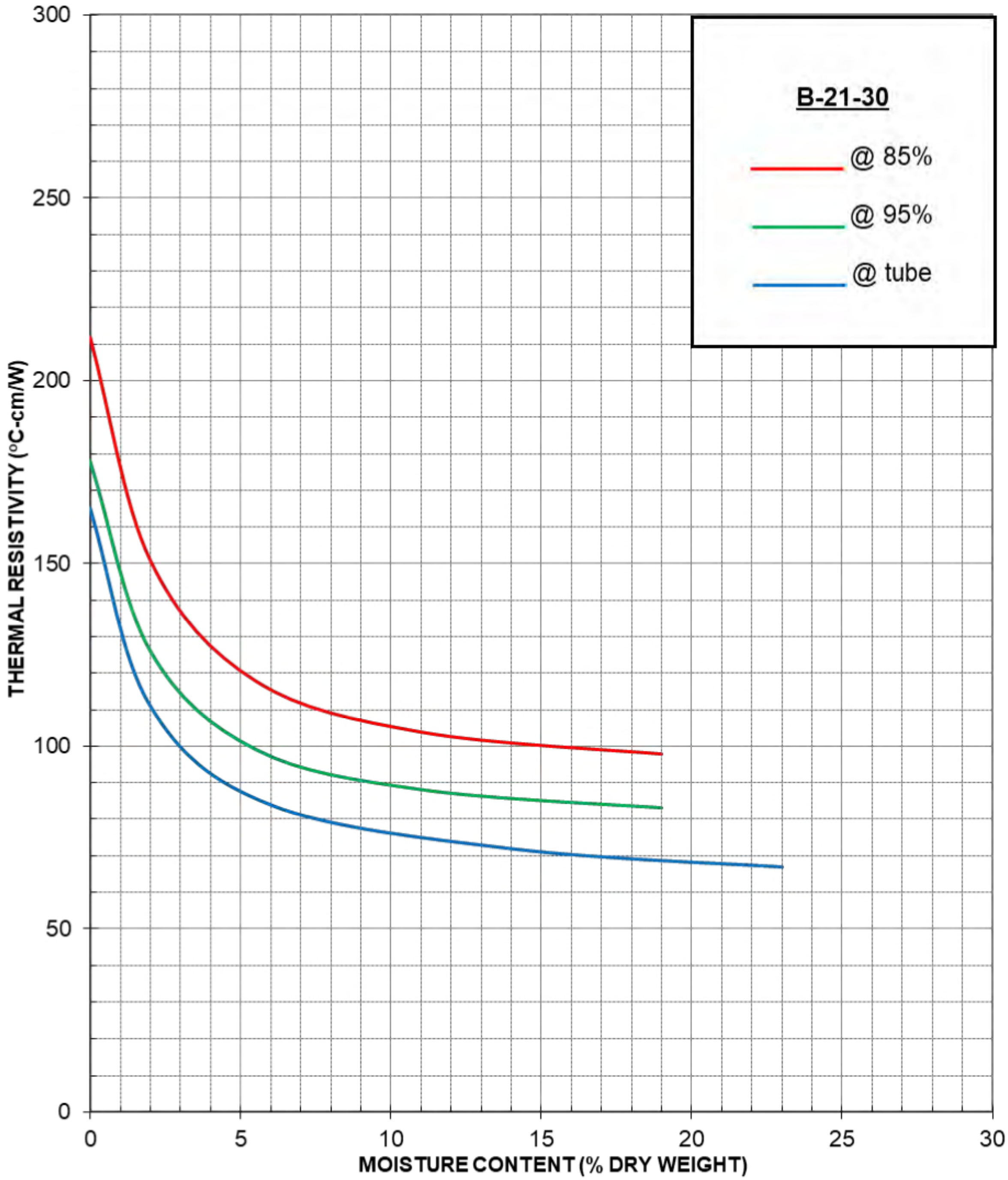
Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021

Figure 8

THERMAL DRYOUT CURVES

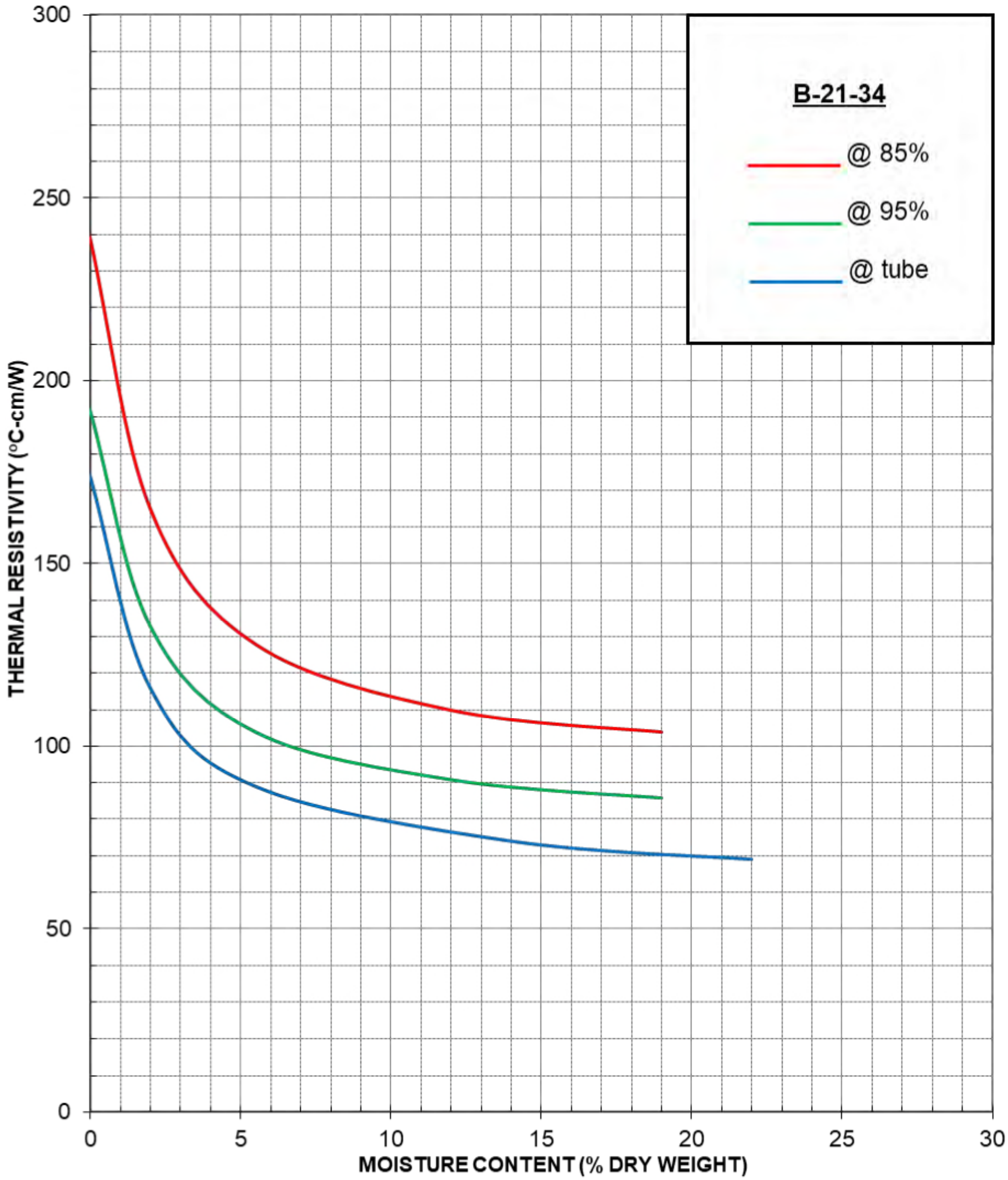


Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples
Wild Grains Solar – Portland, OR

August 2021 **Figure 9**

THERMAL DRYOUT CURVES



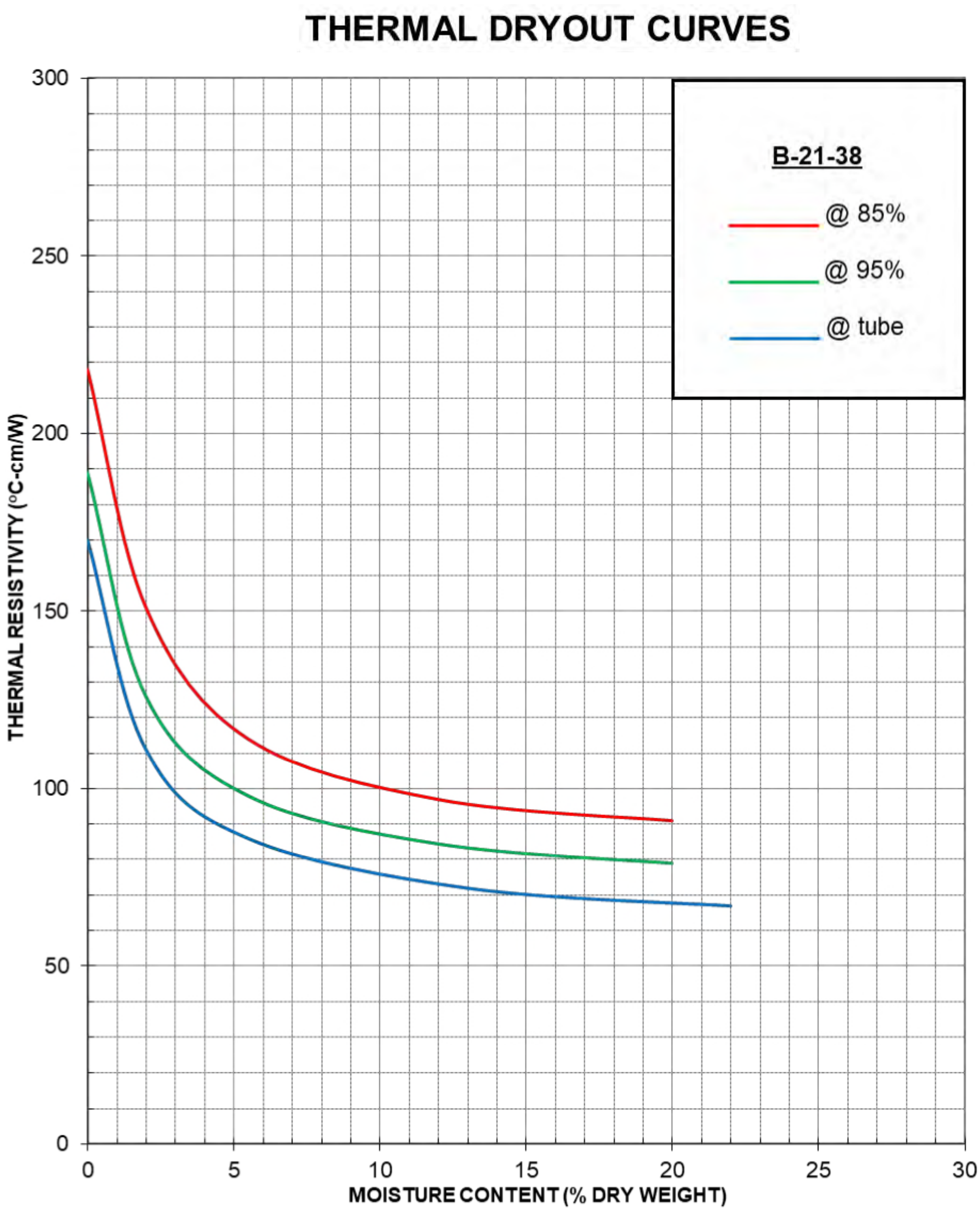
Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021

Figure 10



Terracon Consultants, Inc. (PO No. N4215167)

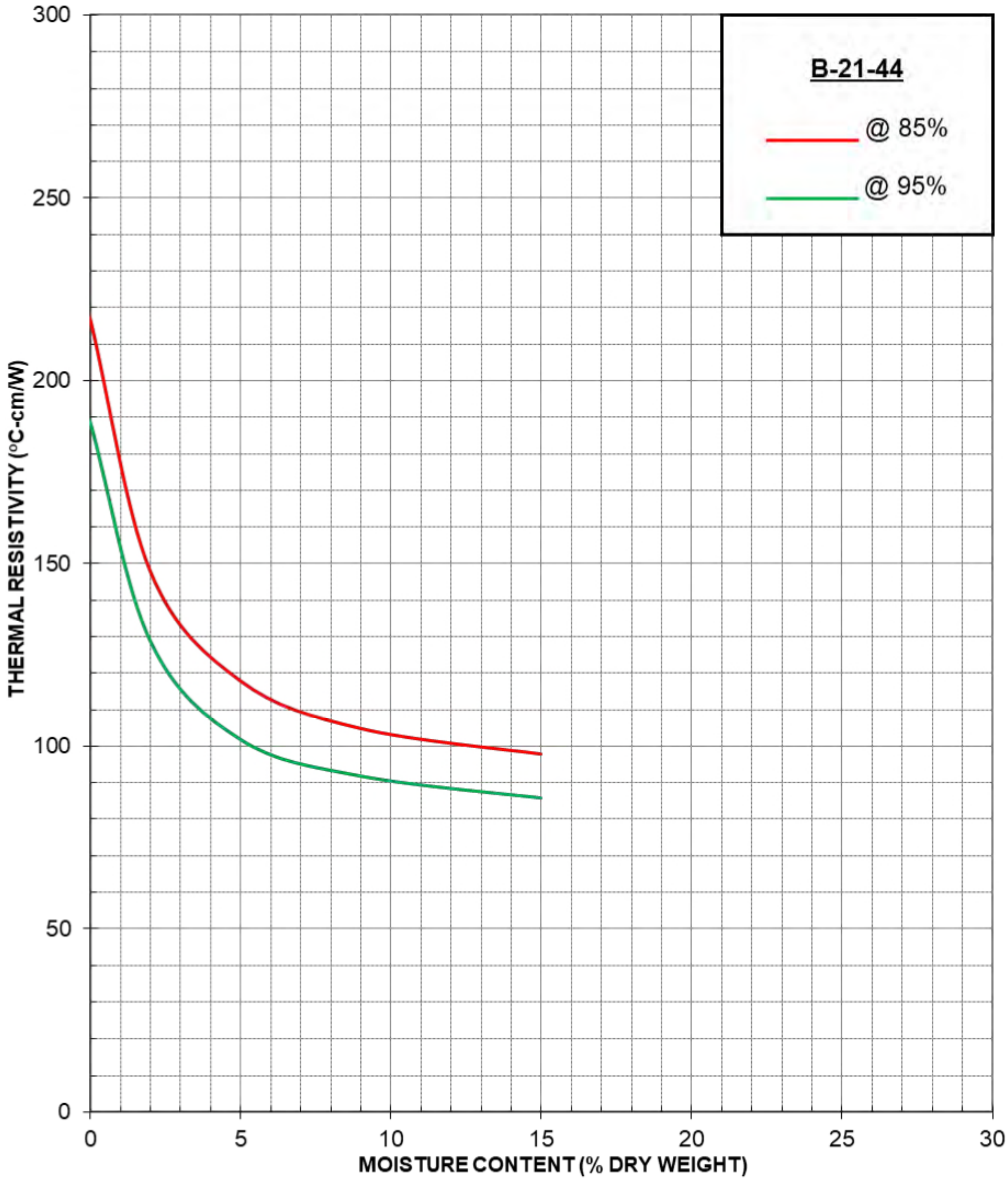
Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021

Figure 11

THERMAL DRYOUT CURVES



Terracon Consultants, Inc. (PO No. N4215167)

Thermal Analysis of Native Soil Samples

Wild Grains Solar – Portland, OR

August 2021

Figure 12

CHEMICAL LABORATORY TEST REPORT

Project Number: N4215167
Service Date: 07/20/21
Report Date: 07/26/21

Terracon
10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Avangrid Renewables
1125 NW Couch St, Suite 700
Portland, OR 97209-4129

Project

Wild Grains Solar
US 27
Van Wert, OH

Sample Location	B-21-2	B-21-4	B-21-6	B-21-8	B-21-10	B-21-12	B-21-14
Sample Depth (ft.)	0-4	0-4	0-4	0-4	0-4	0-4	0-4
pH Analysis, ASTM - G51-18	6.30	6.70	6.90	6.90	7.40	7.00	7.10
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	131	76	104	146	186	173	226
Sulfides, ASTM - D4658-15, (mg/kg)	nil	nil	nil	nil	nil	nil	nil
Chlorides, ASTM D 512 , (mg/kg)	25	13	13	19	19	25	31
RedOx, ASTM D-1498, (mV)	+389	+371	+365	+353	+348	+356	+345
Total Salts, ASTM D1125-14, (mg/kg)	434	1,160	798	711	517	1,160	813
Resistivity, ASTM G187, (ohm-cm)	3,511	1,652	2,478	2,478	2,581	1,652	2,478

Analyzed By: Nohelia Mut

Nohelia Monasterios
Field Engineer

CHEMICAL LABORATORY TEST REPORT

Project Number: N4215167
Service Date: 07/20/21
Report Date: 07/26/21

10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Avangrid Renewables
1125 NW Couch St, Suite 700
Portland, OR 97209-4129

Project

Wild Grains Solar
US 27
Van Wert, OH

Sample Location	B-21-16	B-21-18	B-21-20	B-21-22	B-21-24	B-21-26	B-21-28
Sample Depth (ft.)	0-4	0-4	0-4	0-4	0-4	0-4	0-4
pH Analysis, ASTM - G51-18	7.20	7.60	7.20	7.10	6.80	6.80	6.90
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	74	60	97	72	116	138	174
Sulfides, ASTM - D4658-15, (mg/kg)	nil	nil	nil	nil	nil	nil	nil
Chlorides, ASTM D 512 , (mg/kg)	31	19	31	13	50	44	31
RedOx, ASTM D-1498, (mV)	+337	+339	+339	+372	+343	+345	+339
Total Salts, ASTM D1125-14, (mg/kg)	699	594	1,135	563	704	713	628
Resistivity, ASTM G187, (ohm-cm)	2,581	2,375	1,859	2,478	2,272	2,272	2,375

Analyzed By: Nohelia Mnt

Nohelia Monasterios
Field Engineer

CHEMICAL LABORATORY TEST REPORT

Project Number: N4215167
Service Date: 07/20/21
Report Date: 07/26/21

10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Avangrid Renewables
1125 NW Couch St, Suite 700
Portland, OR 97209-4129

Project

Wild Grains Solar
US 27
Van Wert, OH

Sample Location	B-21-30	B-21-32	B-21-34	B-21-36	B-21-38	B-21-40	B-21-42
Sample Depth (ft.)	0-4	0-4	0-4	0-4	0-4	0-4	0-4
pH Analysis, ASTM - G51-18	6.90	7.10	7.80	7.20	7.40	7.70	7.40
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	108	105	385	171	132	101	124
Sulfides, ASTM - D4658-15, (mg/kg)	nil	nil	nil	nil	nil	nil	nil
Chlorides, ASTM D 512 , (mg/kg)	50	38	28	19	19	31	31
RedOx, ASTM D-1498, (mV)	+353	+354	+333	+344	+339	+332	+344
Total Salts, ASTM D1125-14, (mg/kg)	415	667	1,435	674	686	448	811
Resistivity, ASTM G187, (ohm-cm)	2,891	2,478	1,342	2,581	2,272	3,407	2,478

Analyzed By: Nohelia Monasterios

Nohelia Monasterios
Field Engineer

CHEMICAL LABORATORY TEST REPORT

Project Number: N4215167
Service Date: 07/20/21
Report Date: 07/26/21

Terracon
10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Avangrid Renewables
1125 NW Couch St, Suite 700
Portland, OR 97209-4129

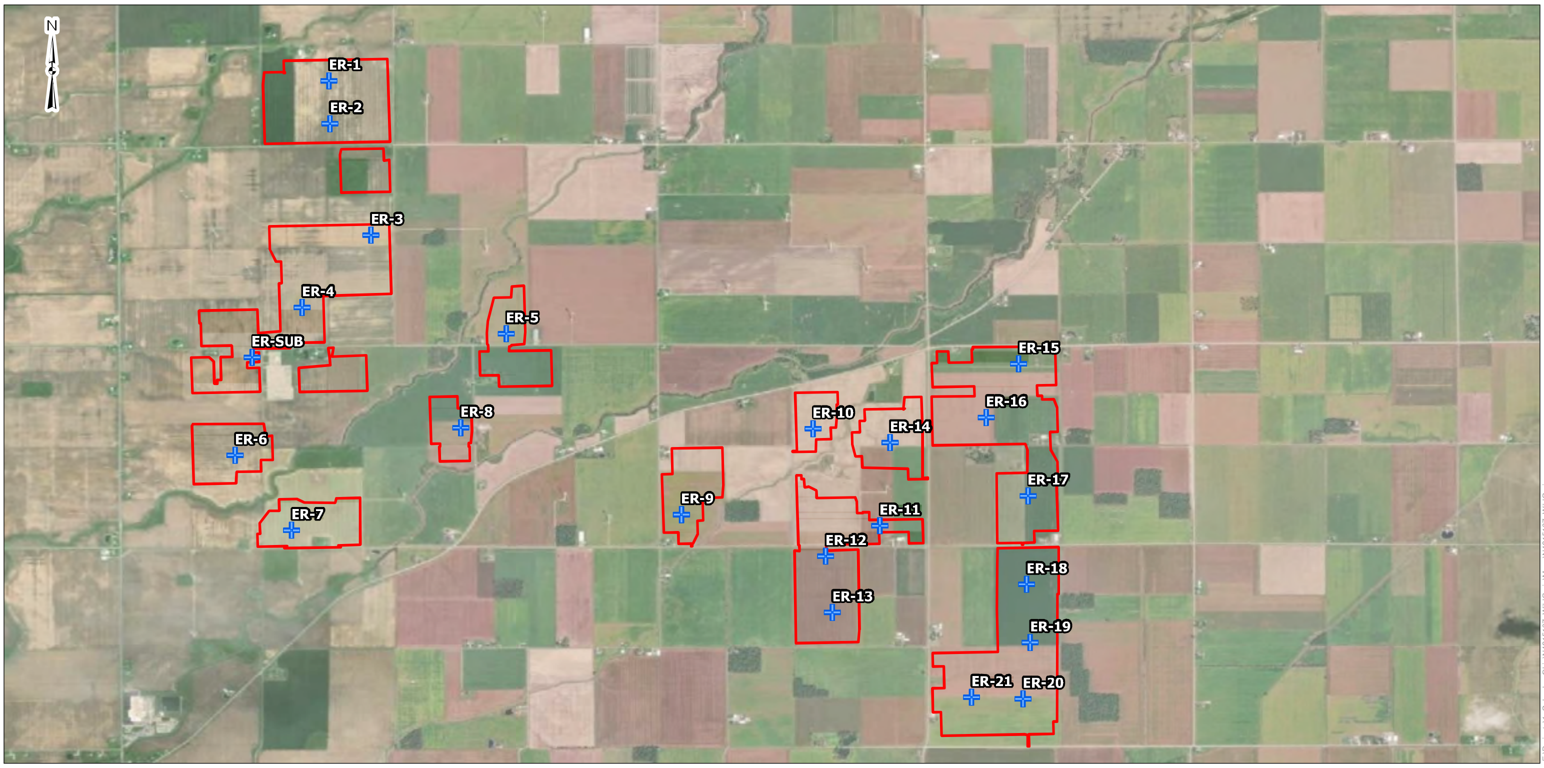
Project

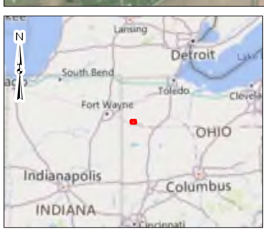
Wild Grains Solar
US 27
Van Wert, OH

Sample Location	B-21-44
Sample Depth (ft.)	0-4
pH Analysis, ASTM - G51-18	7.80
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	155
Sulfides, ASTM - D4658-15, (mg/kg)	nil
Chlorides, ASTM D 512 , (mg/kg)	25
RedOx, ASTM D-1498, (mV)	+331
Total Salts, ASTM D1125-14, (mg/kg)	474
Resistivity, ASTM G187, (ohm-cm)	2,581

Analyzed By: Nohelia Monasterios

Nohelia Monasterios
Field Engineer





Legend

Site Boundary

Electrical Earth Resistivity Location Plan

DATASOURCES:
ESRI World Imagery provided by USDAFSA, NAIP 2019

0 1,250 2,500 5,000 Feet

Project No.:	N4215167
Date:	August 2021
Drawn By:	KT
Reviewed By:	JNT

Terracon

800 Morrison Road Grahanna, Ohio 43230

PH. (614) 328-5150 terracon.com

FIELD ELECTRICAL RESISTIVITY LOCATION PLAN

Wild Grain Solar
Van Wert County, Ohio

Avangrid Renewables
1125 NW Couch St, Ste 700
Portland, Oregon 9720

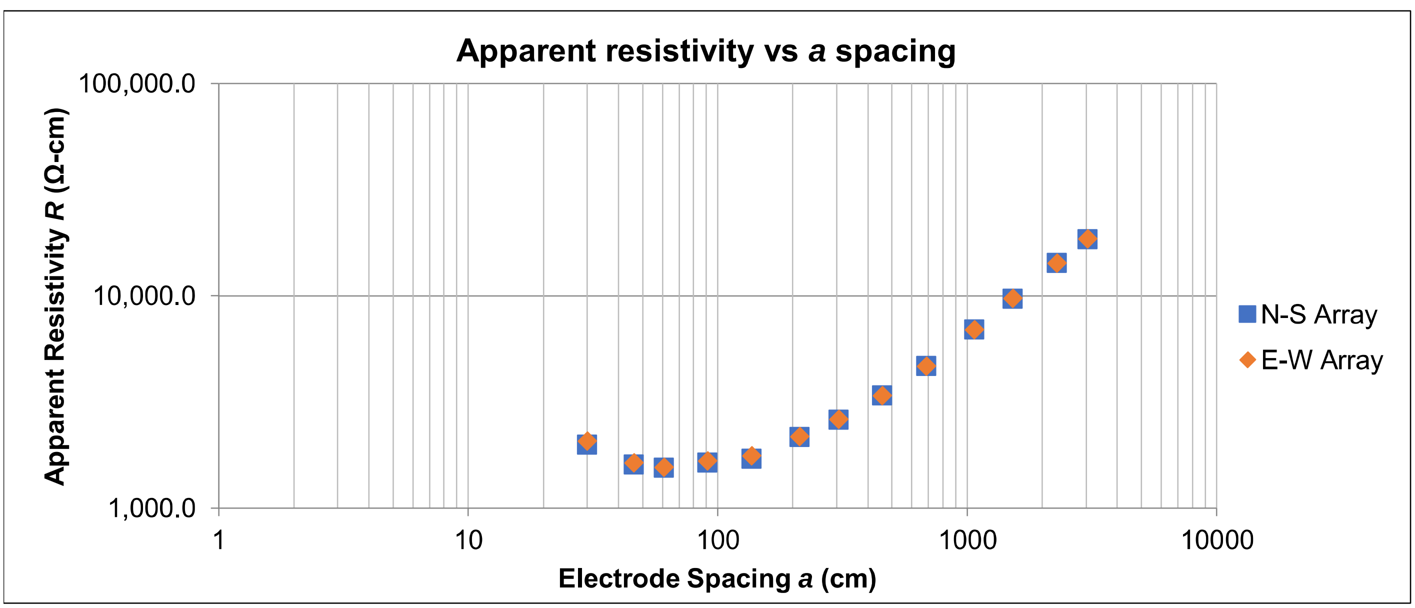
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, OH
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-1 (40.947687, -84.551399)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

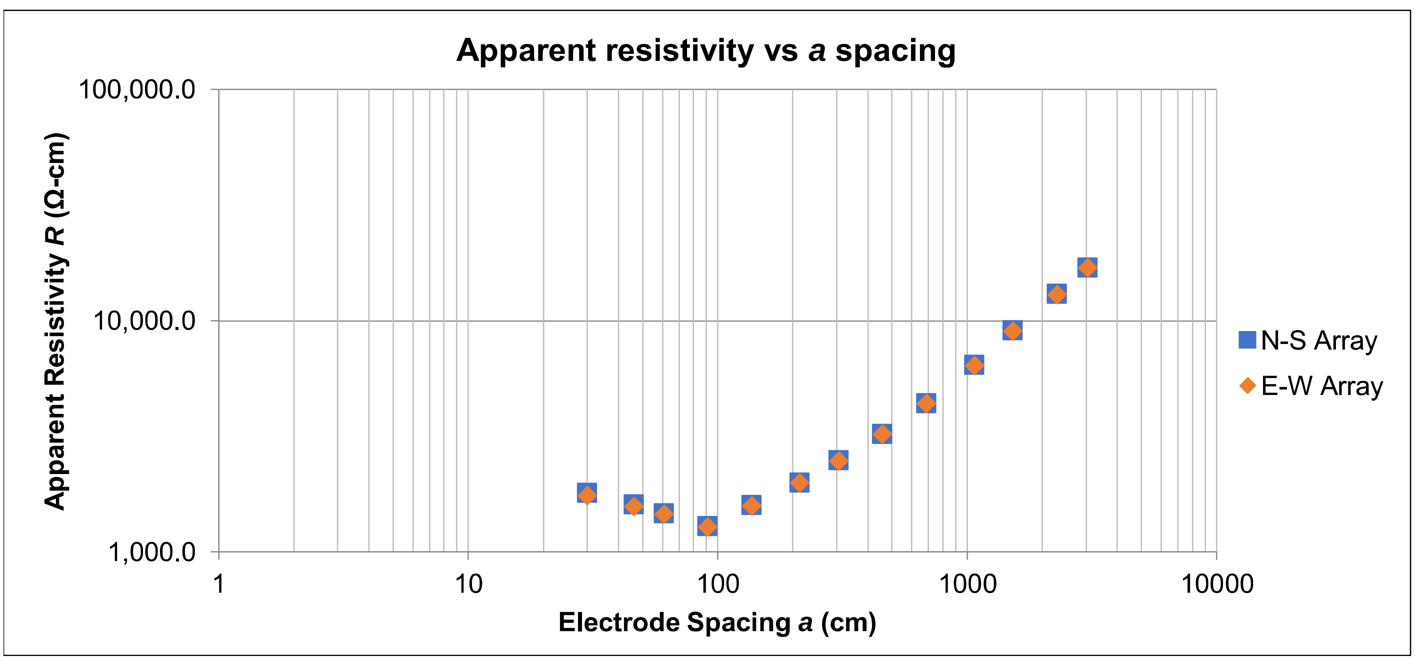
Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	7.99	1980	8.34	2070
1.5	46	6	15	4.78	1600	4.86	1630
2	61	6	15	3.68	1550	3.72	1560
3	91	6	15	2.72	1630	2.80	1670
4.5	137	12	30	1.85	1710	1.90	1760
7	213	12	30	1.57	2160	1.57	2170
10	305	12	30	1.34	2610	1.34	2620
15	457	12	30	1.17	3380	1.17	3390
22.5	686	12	30	1.08	4650	1.08	4650
35	1067	12	30	1.03	6940	1.03	6940
50	1524	12	30	1.01	9690	1.01	9710
75	2286	12	30	0.99	14210	0.99	14210
100	3048	12	30	0.97	18480	0.97	18500



Array Loc.	**ER-2 (40.947687, -84.551399)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	7.27	1800	7.07	1750
1.5	46	6	15	4.78	1600	4.67	1570
2	61	6	15	3.50	1470	3.47	1460
3	91	6	15	2.16	1290	2.14	1280
4.5	137	6	15	1.81	1590	1.80	1580
7	213	12	30	1.44	1990	1.44	1990
10	305	12	30	1.28	2490	1.28	2480
15	457	12	30	1.12	3230	1.12	3230
22.5	686	12	30	1.02	4390	1.02	4390
35	1067	12	30	0.96	6440	0.95	6400
50	1524	12	30	0.95	9080	0.94	9030
75	2286	12	30	0.91	13070	0.90	12970
100	3048	12	30	0.89	16950	0.88	16930



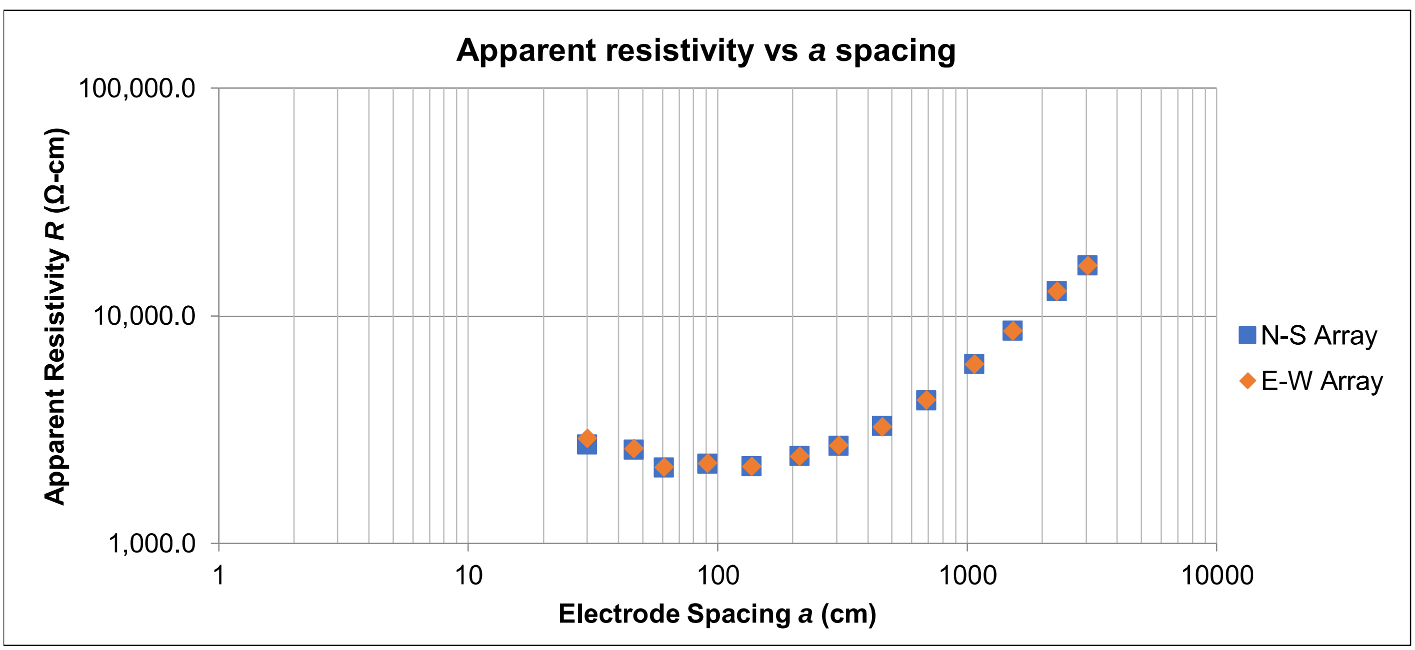
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, OH
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-2 (40.941737, -84.552240)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	10.91	2710	11.68	2900
1.5	46	6	15	7.70	2580	7.80	2610
2	61	6	15	5.12	2150	5.13	2160
3	91	6	15	3.75	2240	3.77	2250
4.5	137	6	15	2.48	2180	2.48	2180
7	213	12	30	1.75	2410	1.75	2420
10	305	12	30	1.37	2680	1.38	2690
15	457	12	30	1.13	3270	1.13	3250
22.5	686	12	30	0.98	4250	0.99	4280
35	1067	12	30	0.91	6130	0.91	6140
50	1524	12	30	0.90	8600	0.90	8610
75	2286	12	30	0.89	12800	0.89	12800
100	3048	12	30	0.87	16590	0.87	16570



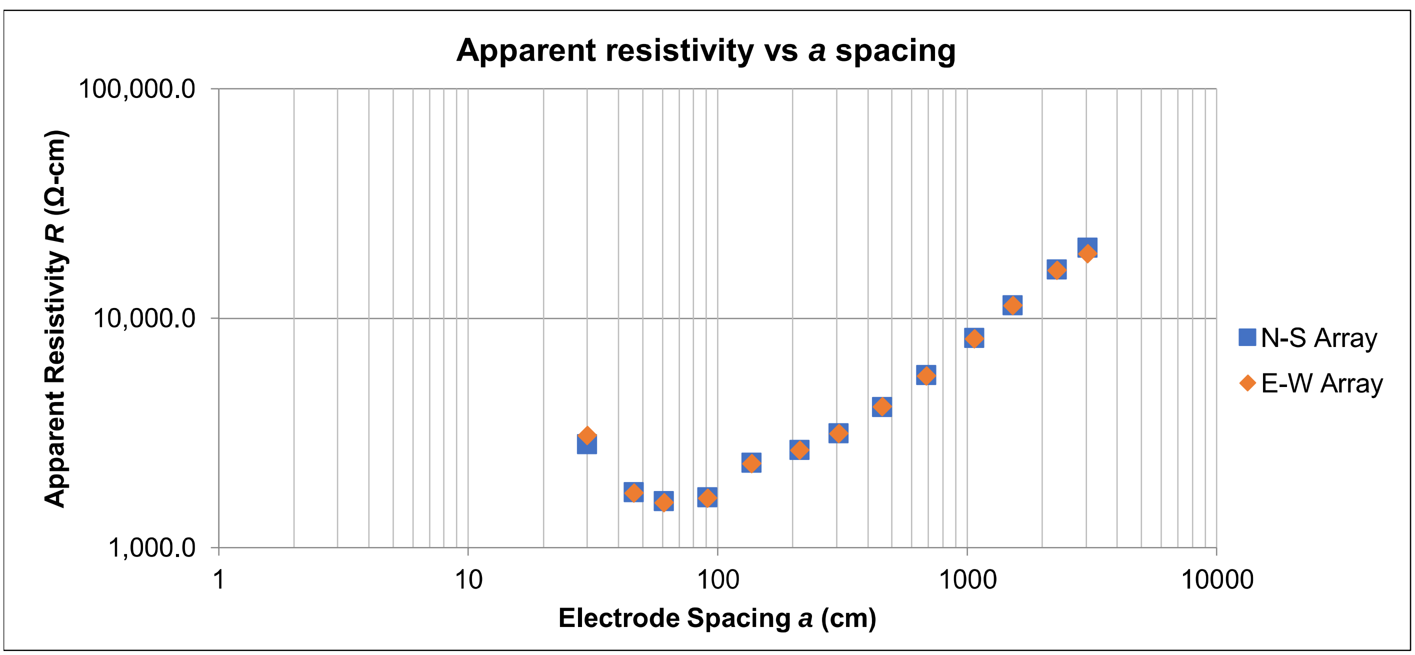
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, OH
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-2 (40.933325, -84.554635)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1+\dfrac{2a}{\sqrt{a^2+4b^2}}-\dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	11.37	2820	12.45	3090
1.5	46	6	15	5.19	1740	5.17	1730
2	61	6	15	3.78	1590	3.74	1570
3	91	6	15	2.76	1650	2.74	1640
4.5	137	6	15	2.66	2340	2.65	2330
7	213	12	30	1.92	2660	1.92	2660
10	305	12	30	1.62	3150	1.62	3150
15	457	12	30	1.41	4080	1.42	4120
22.5	686	12	30	1.31	5650	1.30	5610
35	1067	12	30	1.22	8170	1.21	8130
50	1524	12	30	1.18	11340	1.18	11350
75	2286	12	30	1.13	16290	1.13	16220
100	3048	12	30	1.06	20320	1.00	19100



FIELD ELECTRICAL RESISTIVITY TEST DATA

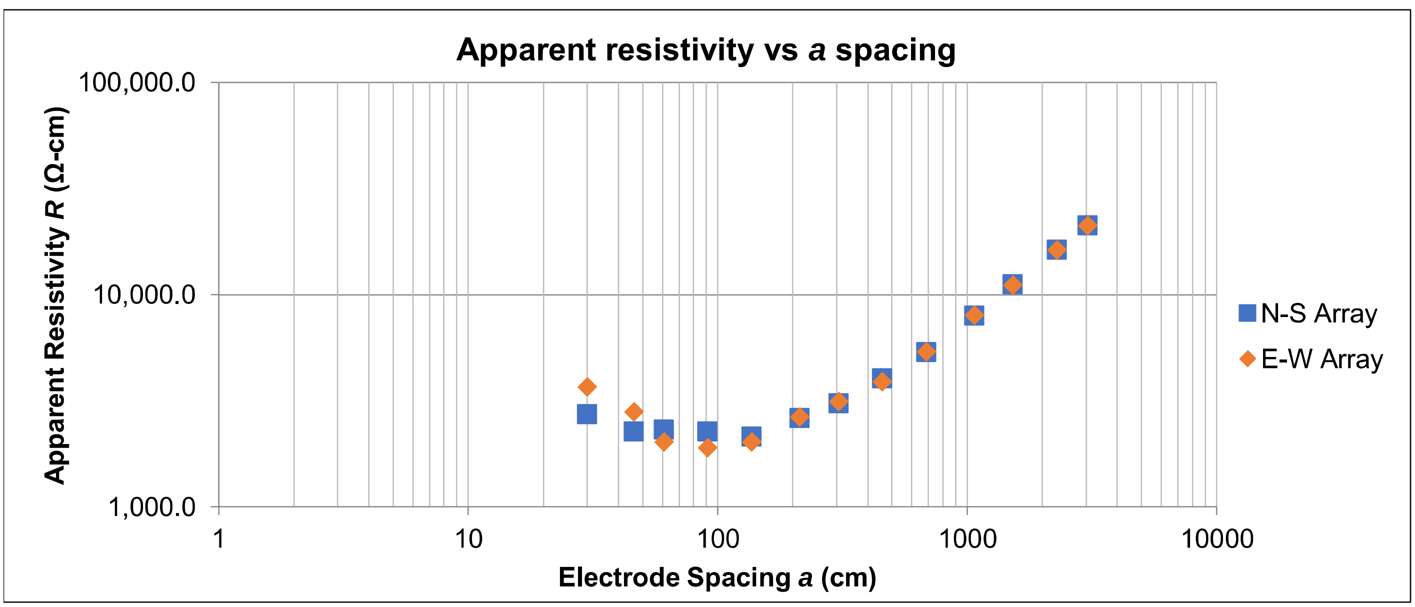
Wild Grains Solar ■ Van Wert, Ohio

June 21, 2021 ■ Terracon Project No. N4215167

Array Loc.	**ER-5 (40.93263, -84.54436)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 21, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

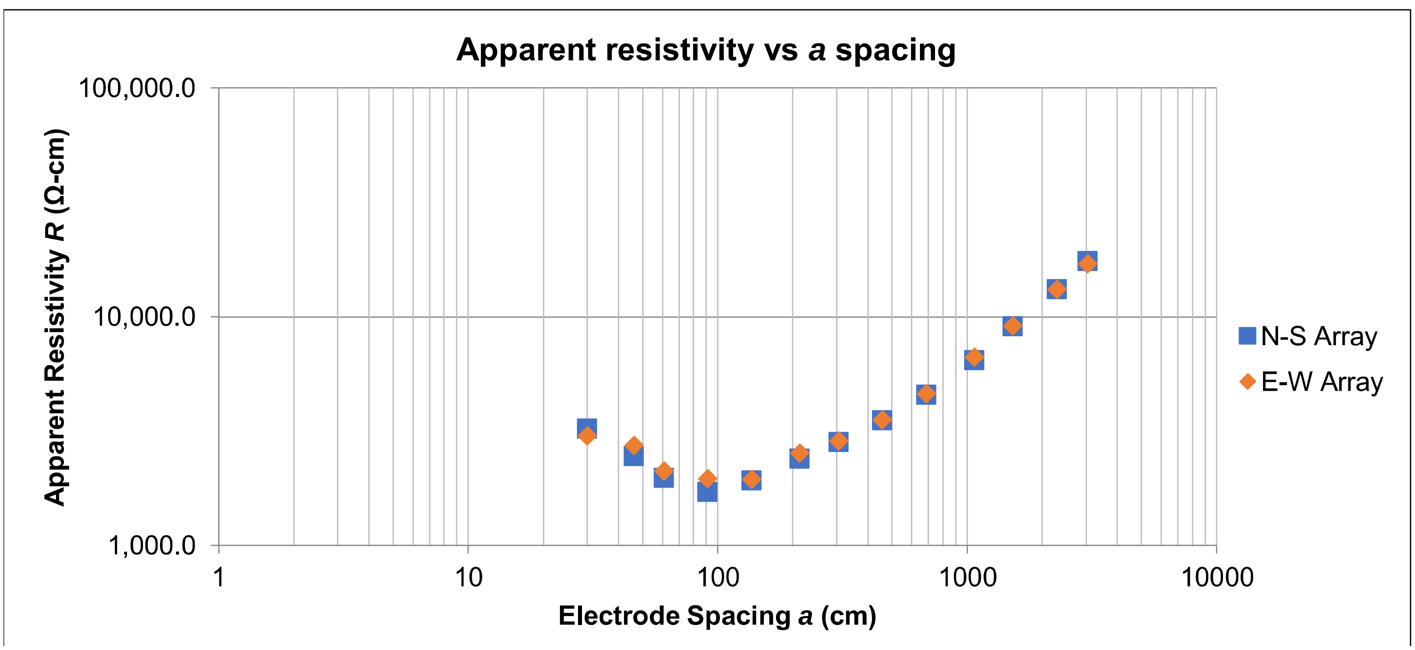
Electrode Spacing a		Electrode Depth b		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance R Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance R Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	11.01	2730	14.87	3690
1.5	46	6	15	6.74	2260	8.34	2800
2	61	6	15	5.50	2310	4.84	2030
3	91	6	15	3.78	2260	3.19	1910
4.5	137	6	15	2.44	2140	2.31	2030
7	213	12	30	1.90	2620	1.91	2650
10	305	12	30	1.58	3070	1.61	3130
15	457	12	30	1.39	4020	1.34	3890
22.5	686	12	30	1.24	5360	1.25	5390
35	1067	12	30	1.19	7980	1.19	8000
50	1524	12	30	1.17	11190	1.16	11130
75	2286	12	30	1.13	16240	1.13	16290
100	3048	12	30	1.11	21220	1.10	21110



Array Loc.	**ER-6 (40.92390, -84.56385)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 21, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

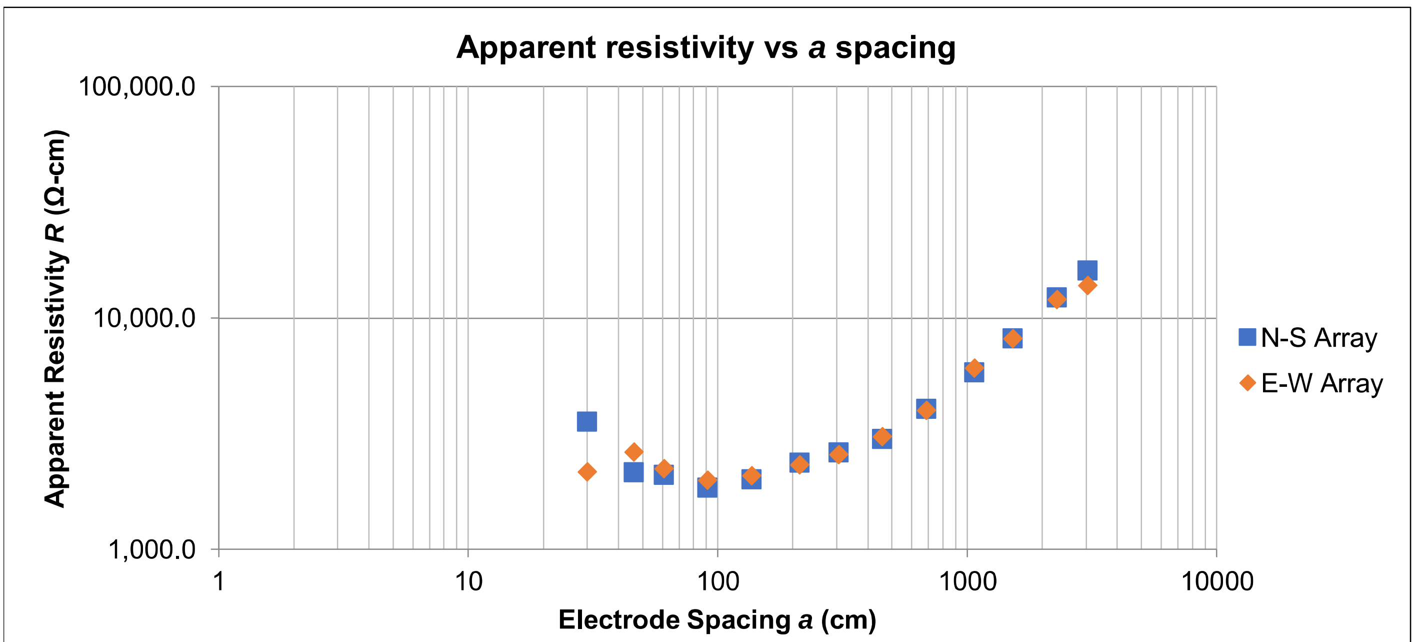
Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	13.02	3230	12.13	3010
1.5	46	6	15	7.32	2450	8.16	2740
2	61	6	15	4.69	1970	5.01	2110
3	91	6	15	2.86	1710	3.28	1960
4.5	137	6	15	2.18	1920	2.22	1950
7	213	12	30	1.73	2390	1.83	2530
10	305	12	30	1.45	2830	1.47	2860
15	457	12	30	1.22	3520	1.23	3550
22.5	686	12	30	1.05	4560	1.06	4600
35	1067	12	30	0.96	6430	0.99	6650
50	1524	12	30	0.94	9050	0.95	9120
75	2286	12	30	0.91	13130	0.92	13160
100	3048	12	30	0.91	17430	0.89	17010



Array Loc.	**ER-7 (40.91850, -84.55979)**		
Instrument	Min Res	**Weather**	75° F, Cloudy
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 21, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	14.32	3550	8.74	2170
1.5	46	6	15	6.41	2150	7.84	2630
2	61	6	15	4.97	2090	5.33	2240
3	91	6	15	3.09	1850	3.33	1990
4.5	137	6	15	2.29	2010	2.37	2080
7	213	12	30	1.71	2370	1.67	2320
10	305	12	30	1.35	2620	1.32	2570
15	457	12	30	1.04	3000	1.06	3070
22.5	686	12	30	0.93	4040	0.93	4000
35	1067	12	30	0.87	5810	0.90	6070
50	1524	12	30	0.85	8140	0.85	8140
75	2286	12	30	0.85	12270	0.83	11980
100	3048	12	30	0.84	16050	0.72	13790



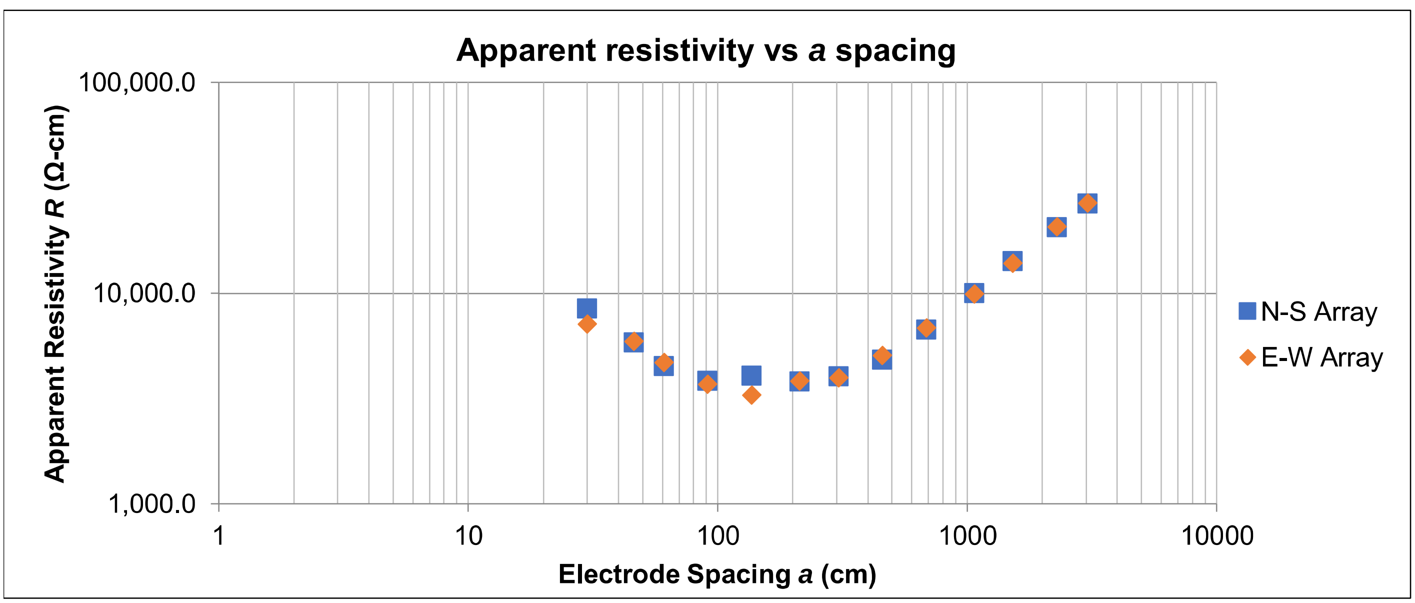
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 18, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-8 (40.92587, -84.54764)**		
Instrument	Min Res	**Weather**	Coudy, Rainy
Serial #		**Ground Cond.**	Wet
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 18, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	34.10	8460	28.80	7140
1.5	46	6	15	17.37	5820	17.61	5900
2	61	6	15	10.70	4500	11.16	4690
3	91	6	15	6.40	3830	6.18	3690
4.5	137	6	15	4.60	4040	3.75	3290
7	213	12	30	2.75	3800	2.76	3820
10	305	12	30	2.06	4010	2.04	3970
15	457	12	30	1.67	4830	1.75	5060
22.5	686	12	30	1.55	6720	1.58	6840
35	1067	12	30	1.48	9960	1.47	9880
50	1524	12	30	1.48	14200	1.45	13860
75	2286	12	30	1.43	20570	1.44	20630
100	3048	12	30	1.38	26510	1.40	26820

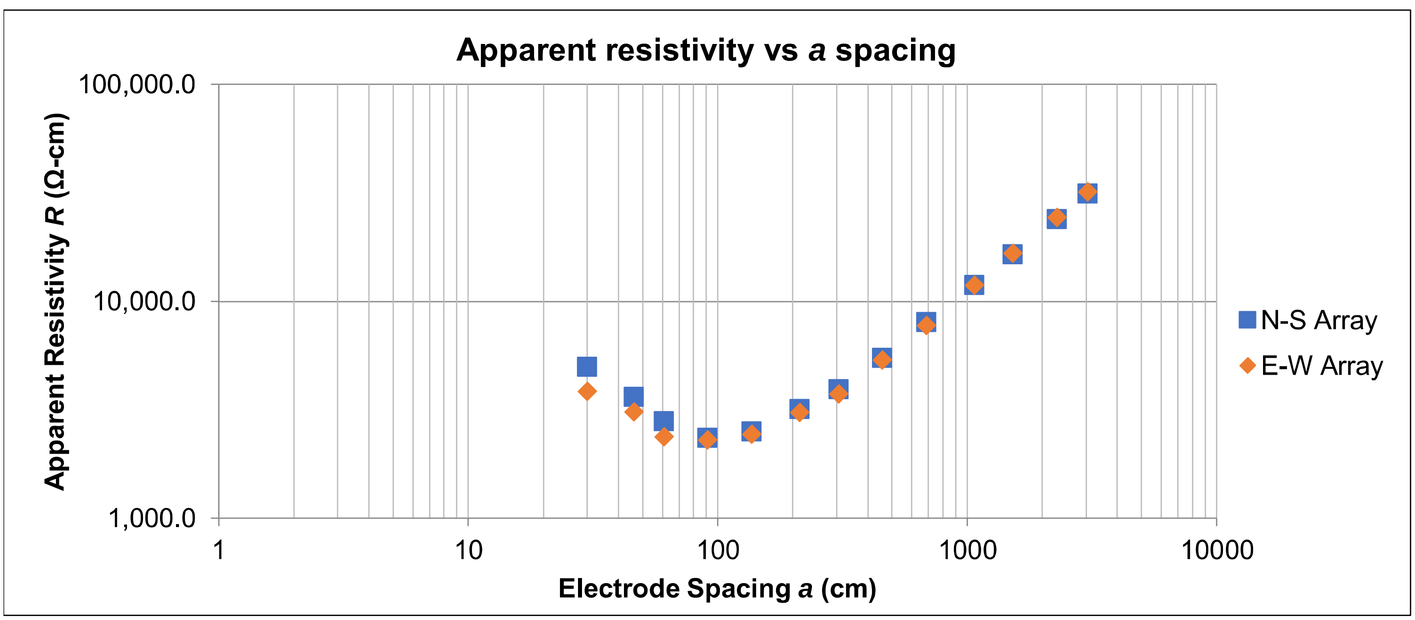


FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 18, 2021 ■ Terracon Project No. N4215167

Array Loc.	EER-20-9(40.91963, -84.53178)		
Instrument	Min Res	**Weather**	Cloudy, Rainy
Serial #		**Ground Cond.**	Wet
Cal. Check		**Tested By**	Ian McGrougan
Test Date	June 18, 2021	**Method**	Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	20.00	4960	15.39	3820
1.5	46	6	15	10.75	3600	9.22	3090
2	61	6	15	6.62	2780	5.62	2360
3	91	6	15	3.91	2340	3.82	2280
4.5	137	6	15	2.85	2500	2.77	2430
7	213	12	30	2.29	3170	2.22	3070
10	305	12	30	2.00	3900	1.92	3740
15	457	12	30	1.89	5470	1.84	5330
22.5	686	12	30	1.84	7960	1.78	7700
35	1067	12	30	1.76	11820	1.76	11790
50	1524	12	30	1.71	16370	1.73	16580
75	2286	12	30	1.65	23760	1.69	24280
100	3048	12	30	1.63	31220	1.66	31800

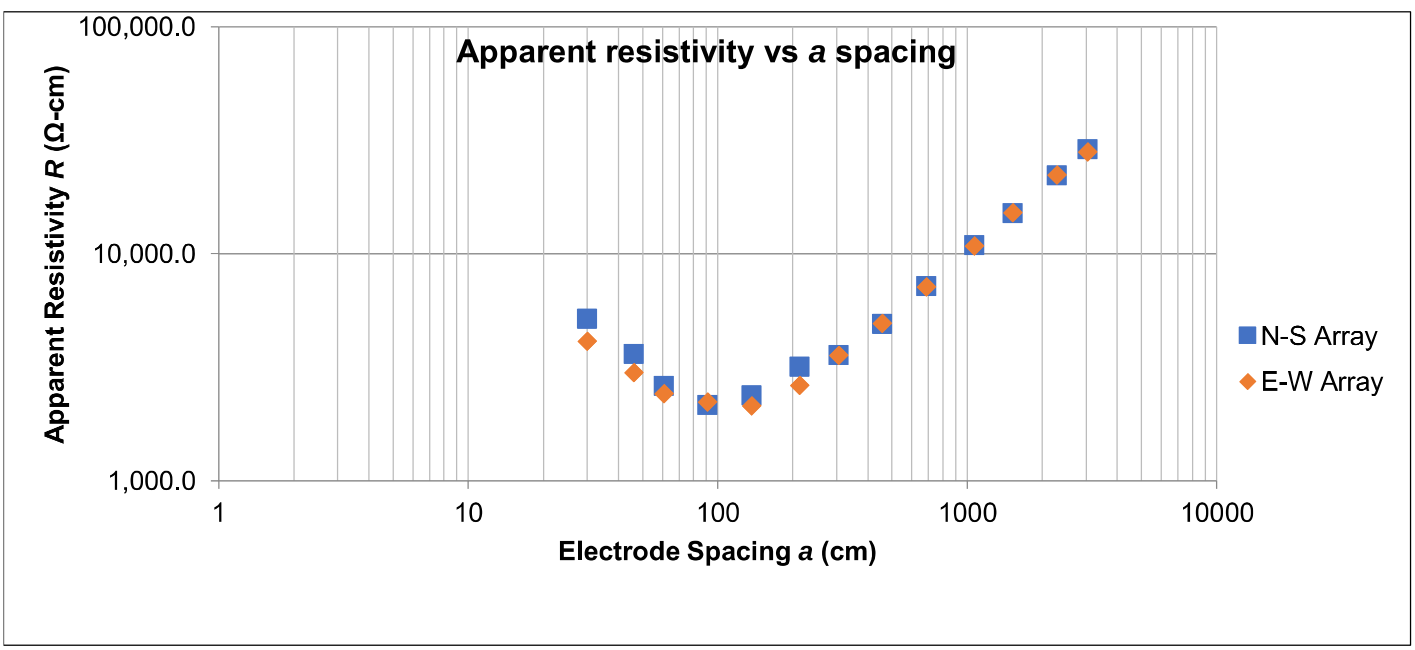


Terracon GeoReport

Array Loc.	**ER-10 (40.92581, -84.52232)**		
Instrument	Min Res	**Weather**	84° F, Sunny
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	20.80	5160	16.63	4130
1.5	46	6	15	10.83	3630	8.94	3000
2	61	6	15	6.23	2620	5.78	2430
3	91	6	15	3.60	2150	3.73	2230
4.5	137	6	15	2.70	2370	2.44	2140
7	213	12	30	2.30	3180	1.90	2630
10	305	12	30	1.83	3570	1.84	3580
15	457	12	30	1.69	4900	1.71	4950
22.5	686	12	30	1.67	7220	1.66	7170
35	1067	12	30	1.62	10890	1.62	10860
50	1524	12	30	1.58	15100	1.59	15220
75	2286	12	30	1.54	22130	1.55	22210
100	3048	12	30	1.51	28850	1.47	28200

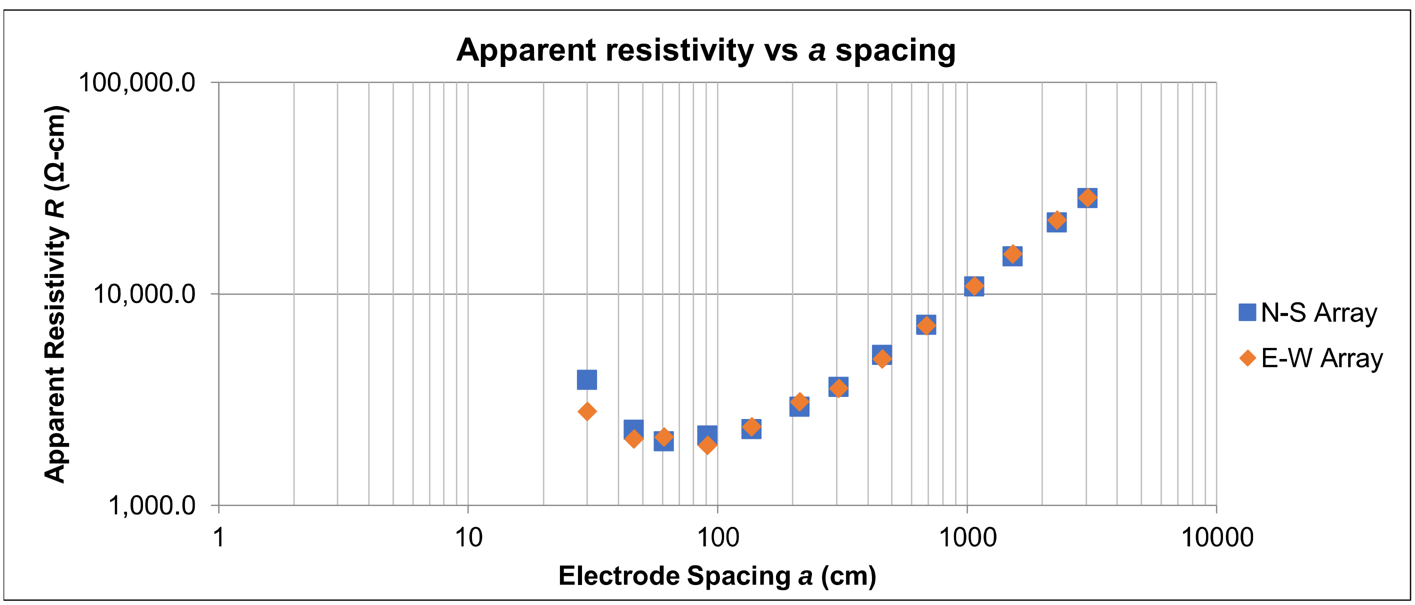


FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 17, 2021 ■ Terracon Project No. N4215167

Array Loc.	**ER-11 (40.91883, -84.51752)**		
Instrument	Min Res	**Weather**	84° F , Sunny
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	15.76	3910	11.22	2780
1.5	46	6	15	6.77	2270	6.14	2060
2	61	6	15	4.76	2000	4.97	2090
3	91	6	15	3.54	2120	3.20	1910
4.5	137	6	15	2.59	2280	2.66	2340
7	213	12	30	2.10	2910	2.23	3080
10	305	12	30	1.86	3620	1.83	3570
15	457	12	30	1.76	5100	1.70	4910
22.5	686	12	30	1.64	7080	1.63	7040
35	1067	12	30	1.61	10810	1.62	10850
50	1524	12	30	1.56	14970	1.60	15350
75	2286	12	30	1.51	21640	1.55	22300
100	3048	12	30	1.47	28120	1.48	28350



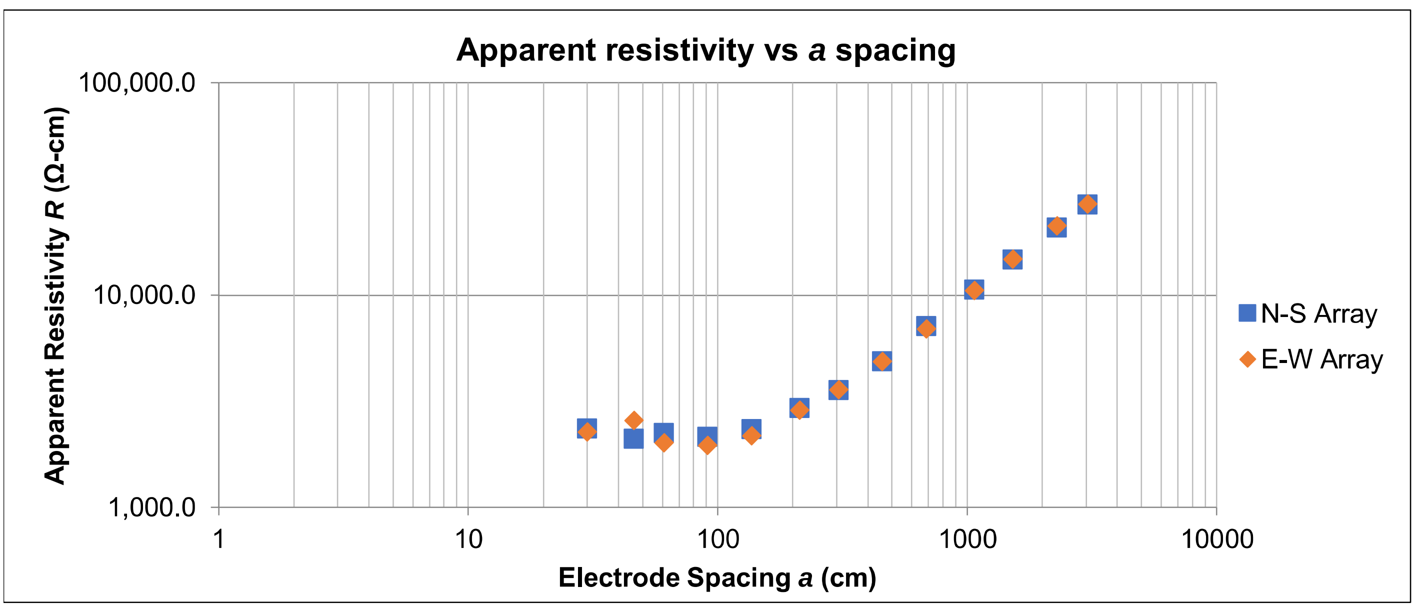
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 18, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**EER-20-12 (40.91664, -84.52141)**		
Instrument	Megger DET 2/2	**Weather**	Cloudy, Rainy
Serial #	RMR002720	**Ground Cond.**	Wet
Cal. Check	9/23/2020	**Tested By**	Ian McGrougan
Test Date	June 18, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	9.40	2330	9.06	2250
1.5	46	6	15	6.24	2090	7.63	2560
2	61	6	15	5.30	2230	4.77	2010
3	91	6	15	3.57	2130	3.27	1950
4.5	137	6	15	2.64	2320	2.46	2160
7	213	12	30	2.11	2920	2.06	2850
10	305	12	30	1.82	3540	1.83	3570
15	457	12	30	1.67	4830	1.67	4840
22.5	686	12	30	1.65	7110	1.60	6920
35	1067	12	30	1.57	10570	1.56	10450
50	1524	12	30	1.53	14610	1.53	14660
75	2286	12	30	1.44	20720	1.47	21090
100	3048	12	30	1.38	26510	1.40	26780



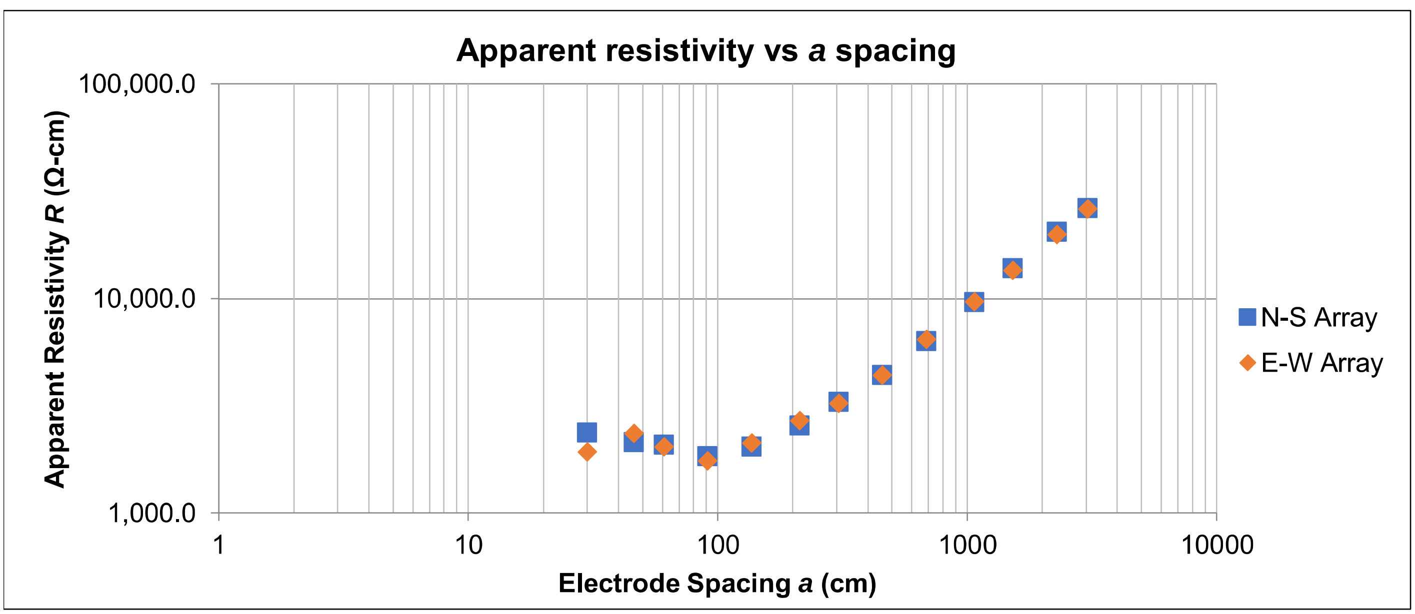
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 18, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-13 (40.91261, -84.52093)**		
Instrument	Min Res	**Weather**	Cloudy, Rainy
Serial #		**Ground Cond.**	Wet
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 18, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	9.55	2370	7.78	1930
1.5	46	6	15	6.41	2150	7.03	2360
2	61	6	15	4.98	2090	4.86	2040
3	91	6	15	3.08	1840	2.95	1760
4.5	137	6	15	2.32	2040	2.43	2130
7	213	12	30	1.85	2560	1.95	2700
10	305	12	30	1.70	3310	1.67	3250
15	457	12	30	1.53	4410	1.52	4400
22.5	686	12	30	1.47	6350	1.49	6460
35	1067	12	30	1.44	9650	1.44	9690
50	1524	12	30	1.45	13860	1.42	13570
75	2286	12	30	1.43	20490	1.39	19940
100	3048	12	30	1.38	26510	1.37	26160



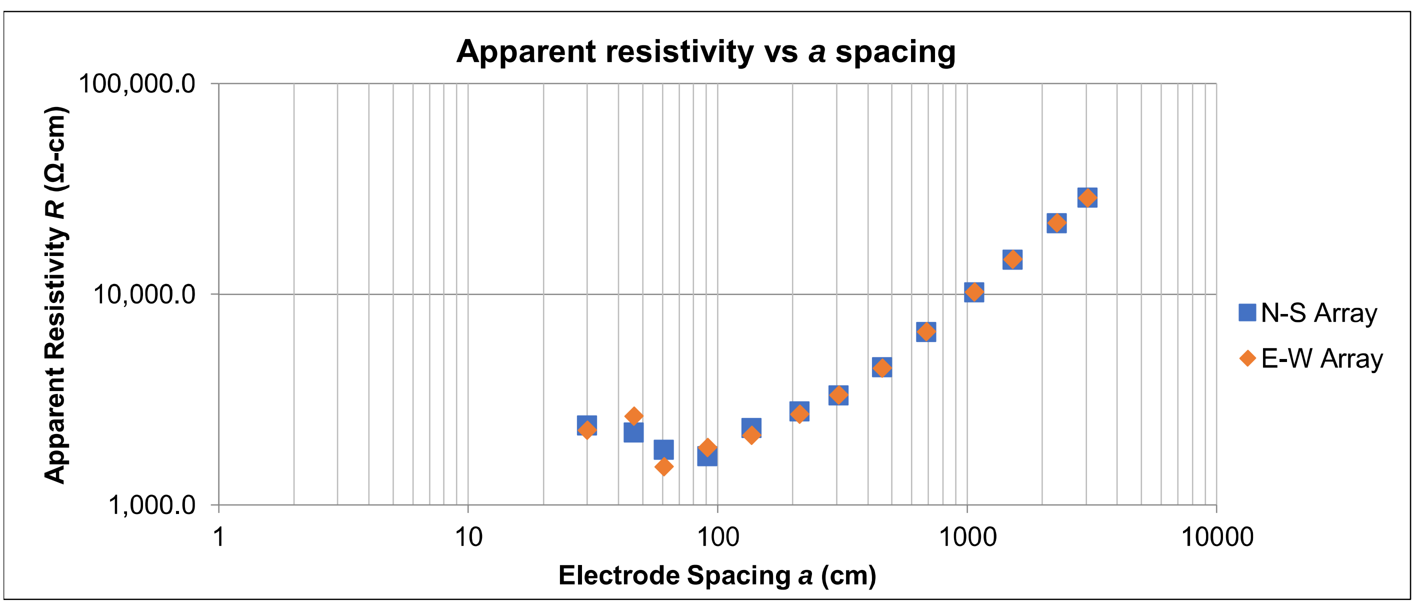
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 17, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-14 (40.92481,-84.51679)**		
Instrument	Min Res	**Weather**	72° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	9.57	2370	9.12	2260
1.5	46	6	15	6.52	2190	7.86	2630
2	61	6	15	4.32	1820	3.60	1510
3	91	6	15	2.83	1690	3.13	1870
4.5	137	6	15	2.63	2310	2.42	2130
7	213	12	30	2.00	2770	1.94	2690
10	305	12	30	1.69	3300	1.70	3320
15	457	12	30	1.54	4470	1.54	4450
22.5	686	12	30	1.52	6570	1.53	6620
35	1067	12	30	1.52	10180	1.53	10240
50	1524	12	30	1.52	14550	1.52	14560
75	2286	12	30	1.50	21610	1.52	21810
100	3048	12	30	1.49	28620	1.49	28580



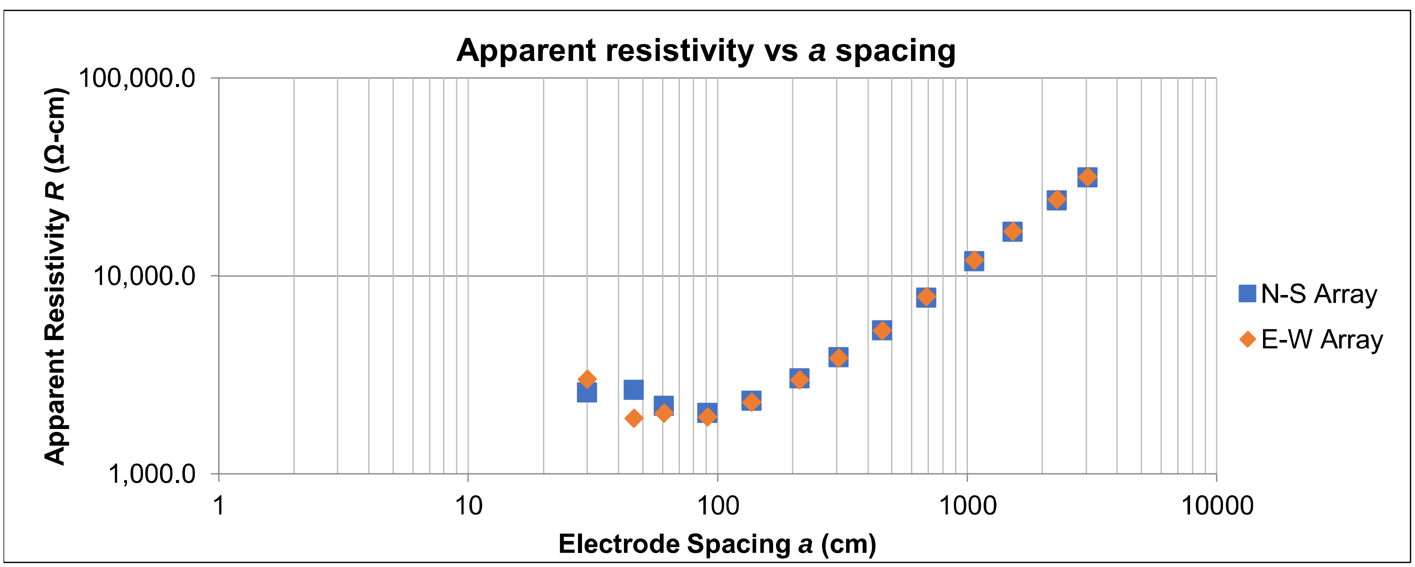
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar, Van Wert, Ohio
June 17, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-15 (40.93046, -84.60755)**		
Instrument	Min Res	**Weather**	72° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	10.45	2590	12.16	3020
1.5	46	6	15	7.93	2660	5.71	1910
2	61	6	15	5.24	2200	4.85	2040
3	91	6	15	3.40	2030	3.24	1940
4.5	137	6	15	2.67	2350	2.62	2300
7	213	12	30	2.19	3030	2.16	2990
10	305	12	30	2.00	3900	1.97	3850
15	457	12	30	1.84	5310	1.84	5310
22.5	686	12	30	1.80	7780	1.83	7910
35	1067	12	30	1.77	11910	1.80	12100
50	1524	12	30	1.74	16710	1.75	16810
75	2286	12	30	1.67	24050	1.71	24510
100	3048	12	30	1.64	31450	1.66	31800

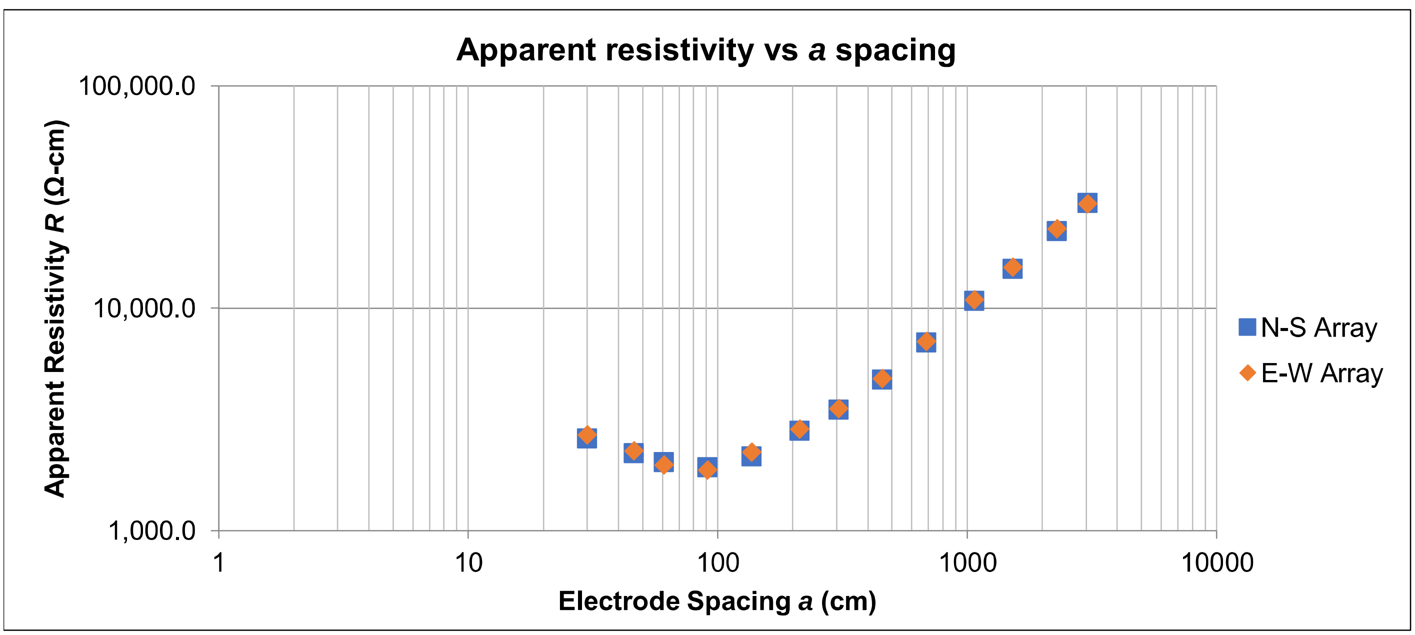


FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grain Solar ■ Van Wert, Ohio
April 21, 2021 ■ Terracon Project No. N4205387

Array Loc.	ER-16 (40.92661, -84.50988)		
Instrument	Min Res	**Weather**	72° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	10.48	2600	10.89	2700
1.5	46	6	15	6.65	2230	6.83	2290
2	61	6	15	4.84	2030	4.69	1970
3	91	6	15	3.22	1930	3.15	1880
4.5	137	6	15	2.45	2150	2.57	2260
7	213	12	30	2.03	2810	2.07	2860
10	305	12	30	1.79	3500	1.82	3540
15	457	12	30	1.65	4760	1.67	4830
22.5	686	12	30	1.62	7010	1.64	7110
35	1067	12	30	1.60	10760	1.63	10930
50	1524	12	30	1.56	14970	1.60	15310
75	2286	12	30	1.55	22270	1.59	22840
100	3048	12	30	1.55	29650	1.55	29610



FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 17, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

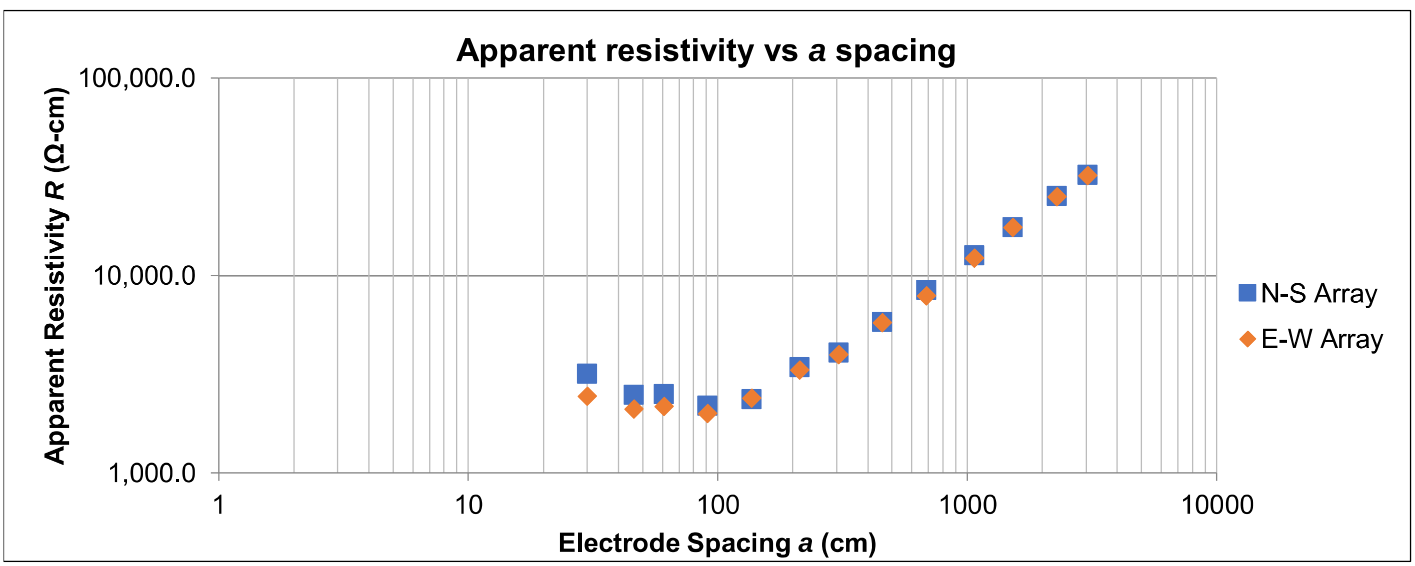
Array Loc. ER-17 (40.92098, -84.50687)

Instrument Min Res | **Weather** 72° F, Clear
Serial # | **Ground Cond.** Dry
Cal. Check | **Tested By** Ian McGougan
Test Date June 17, 2021 | **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

Notes & Conflicts

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	12.92	3200	9.87	2450
1.5	46	6	15	7.47	2500	6.32	2120
2	61	6	15	6.00	2520	5.18	2180
3	91	6	15	3.67	2190	3.37	2010
4.5	137	6	15	2.70	2370	2.74	2410
7	213	12	30	2.48	3430	2.41	3330
10	305	12	30	2.09	4070	2.05	3990
15	457	12	30	2.02	5840	2.00	5780
22.5	686	12	30	1.96	8460	1.83	7920
35	1067	12	30	1.89	12690	1.83	12290
50	1524	12	30	1.84	17590	1.83	17540
75	2286	12	30	1.77	25430	1.76	25230
100	3048	12	30	1.69	32410	1.68	32260

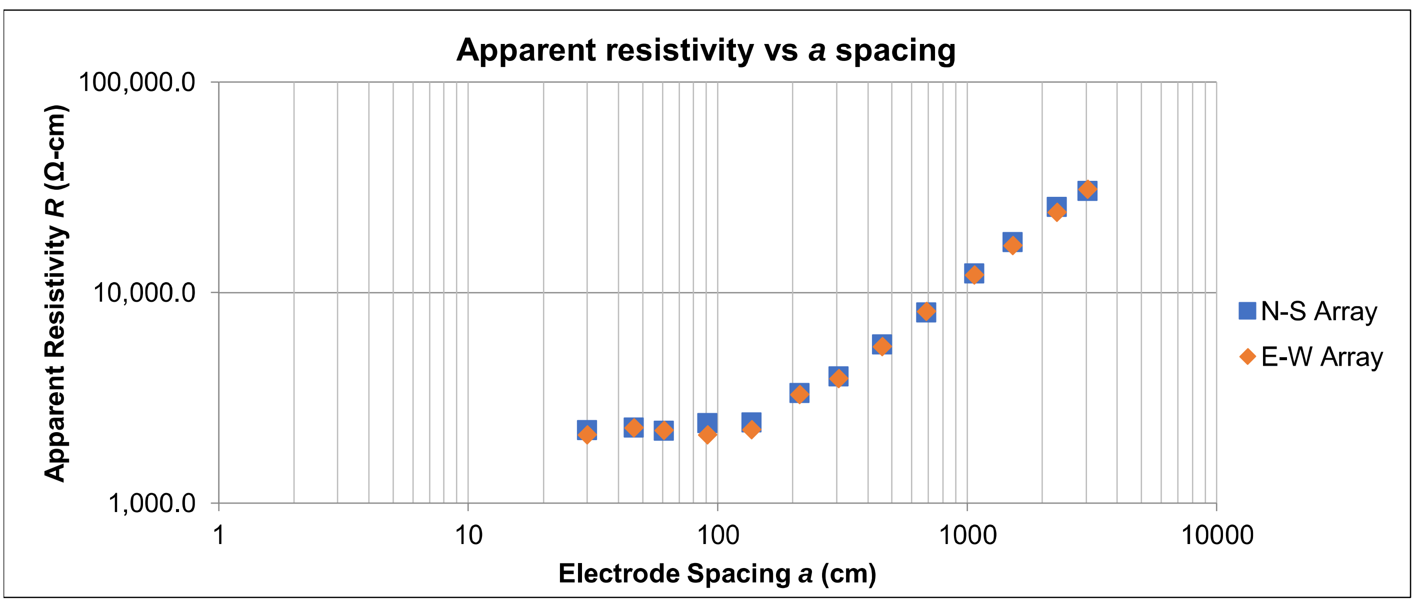


FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 16, 2021 ■ Terracon Project No. N4215167

Array Loc.	**ER-18 (40.91463,-84.50697)**		
Instrument	Min Res	**Weather**	77° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	8.91	2210	8.46	2100
1.5	46	6	15	6.81	2280	6.76	2270
2	61	6	15	5.21	2190	5.25	2210
3	91	6	15	3.98	2380	3.51	2100
4.5	137	6	15	2.73	2400	2.54	2230
7	213	12	30	2.39	3310	2.36	3260
10	305	12	30	2.05	3990	2.00	3900
15	457	12	30	1.95	5640	1.91	5530
22.5	686	12	30	1.86	8030	1.88	8120
35	1067	12	30	1.83	12250	1.80	12110
50	1524	12	30	1.80	17250	1.74	16670
75	2286	12	30	1.77	25370	1.67	23990
100	3048	12	30	1.58	30170	1.61	30840



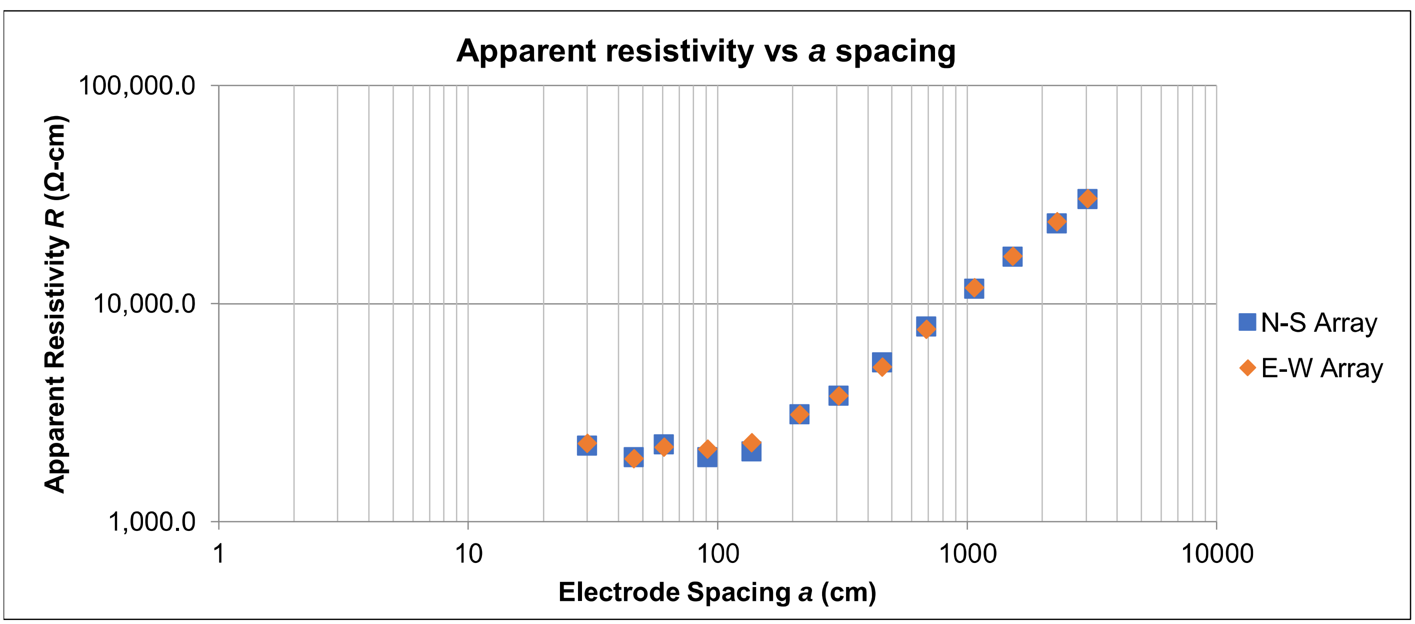
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert Ohio
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	ER-19 (40.91045, -84.50672)		
Instrument	Min Res	**Weather**	77° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	8.99	2230	9.22	2290
1.5	46	6	15	5.88	1970	5.78	1940
2	61	6	15	5.37	2260	5.21	2190
3	91	6	15	3.30	1970	3.60	2150
4.5	137	6	15	2.38	2090	2.62	2300
7	213	12	30	2.25	3110	2.24	3100
10	305	12	30	1.93	3760	1.94	3780
15	457	12	30	1.86	5380	1.77	5110
22.5	686	12	30	1.81	7840	1.76	7620
35	1067	12	30	1.74	11680	1.76	11820
50	1524	12	30	1.71	16350	1.72	16500
75	2286	12	30	1.62	23280	1.66	23790
100	3048	12	30	1.57	30150	1.58	30260



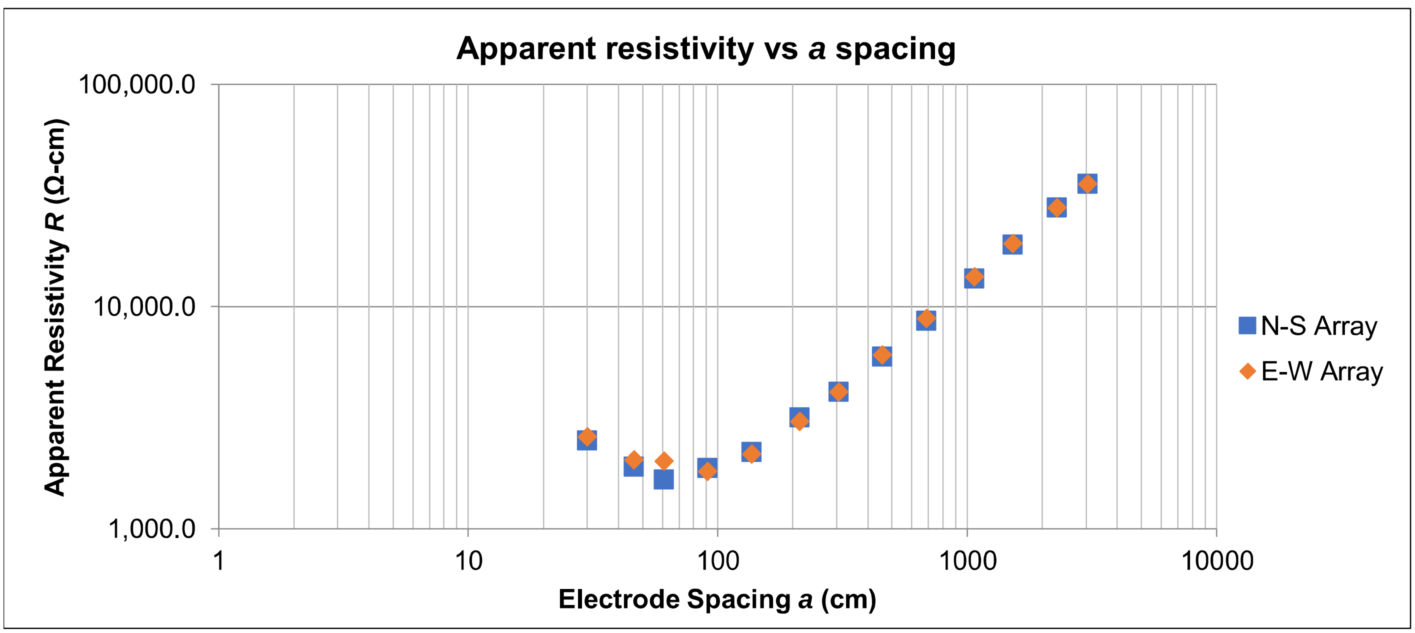
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-20 (40.90639, -8450723)**		
Instrument	Min Res	**Weather**	77° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	10.06	2500	10.51	2610
1.5	46	6	15	5.70	1910	6.11	2050
2	61	6	15	3.97	1670	4.81	2020
3	91	6	15	3.14	1880	3.04	1820
4.5	137	6	15	2.53	2220	2.48	2180
7	213	12	30	2.30	3180	2.21	3060
10	305	12	30	2.12	4130	2.12	4130
15	457	12	30	2.06	5960	2.11	6100
22.5	686	12	30	2.00	8630	2.05	8870
35	1067	12	30	1.99	13380	2.03	13630
50	1524	12	30	1.99	19070	2.01	19260
75	2286	12	30	1.94	27900	1.94	27900
100	3048	12	30	1.87	35740	1.87	35860



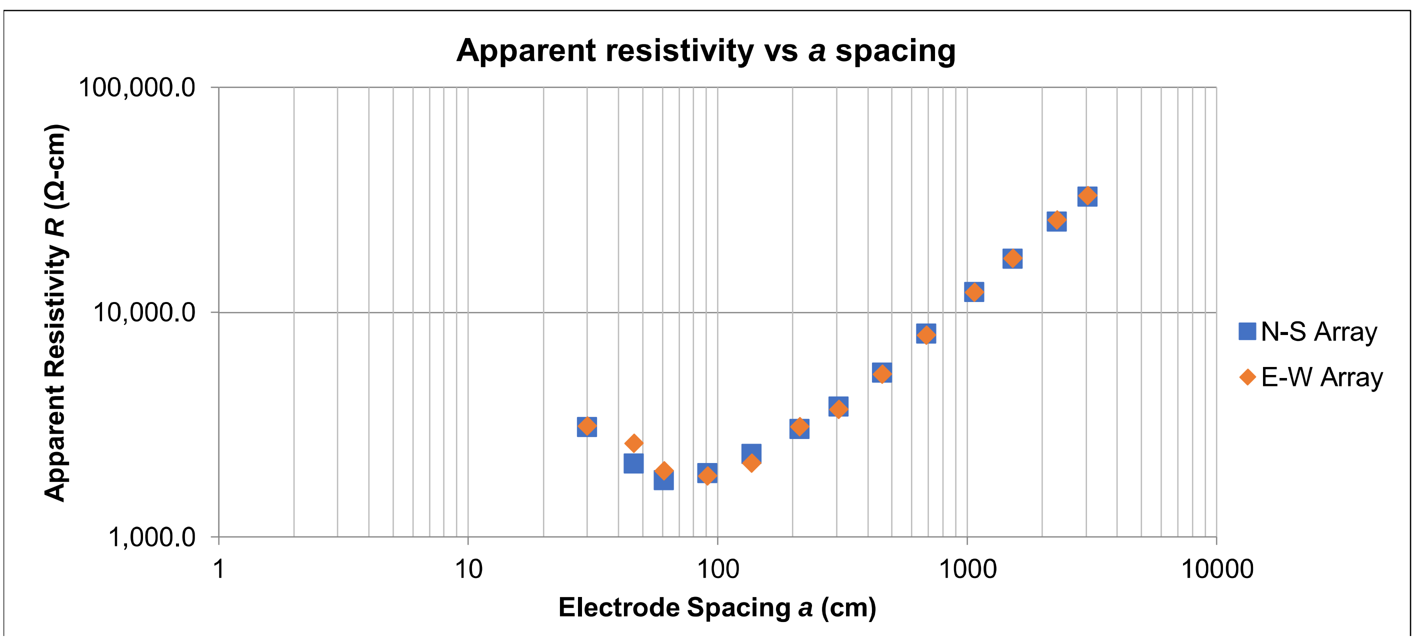
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 16, 2021 ■ Terracon Project No. N4215167

Terracon GeoReport

Array Loc.	**ER-20 (40.90650, -84.51093)**		
Instrument	Min Res	**Weather**	77° F, Clear
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 16, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
1	30	6	15	12.46	3090	12.61	3130
1.5	46	6	15	6.36	2130	7.82	2620
2	61	6	15	4.27	1790	4.71	1980
3	91	6	15	3.23	1930	3.15	1880
4.5	137	6	15	2.67	2350	2.44	2140
7	213	12	30	2.18	3020	2.24	3100
10	305	12	30	1.95	3800	1.90	3700
15	457	12	30	1.86	5380	1.84	5330
22.5	686	12	30	1.86	8040	1.84	7960
35	1067	12	30	1.83	12290	1.84	12330
50	1524	12	30	1.81	17320	1.82	17420
75	2286	12	30	1.77	25400	1.80	25800
100	3048	12	30	1.71	32750	1.73	33100



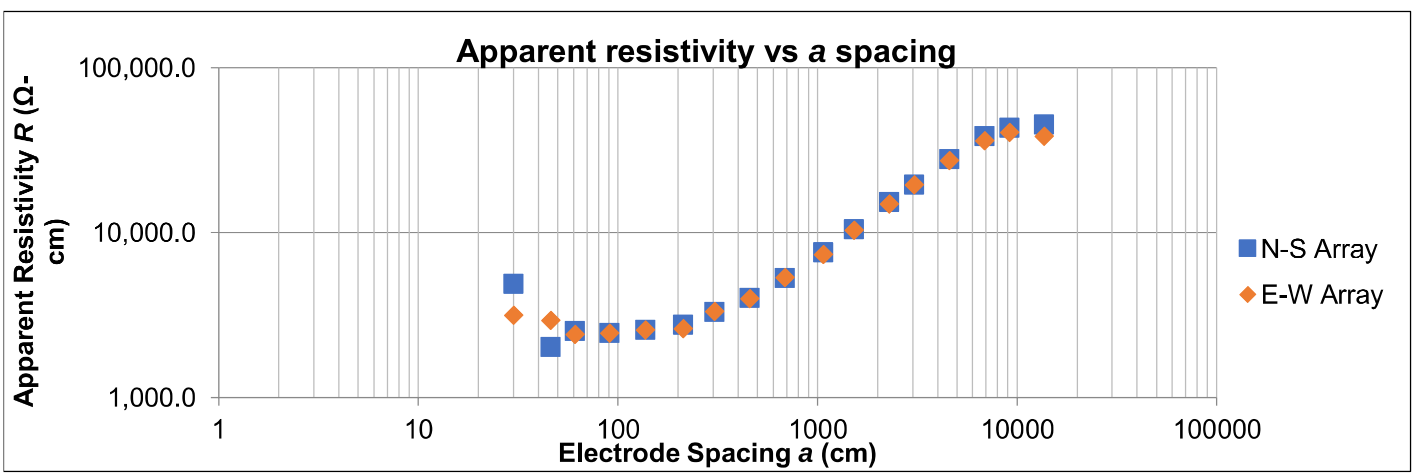
FIELD ELECTRICAL RESISTIVITY TEST DATA
Wild Grains Solar ■ Van Wert, Ohio
June 17, 2021 ■ Terracon Project No. N4215167

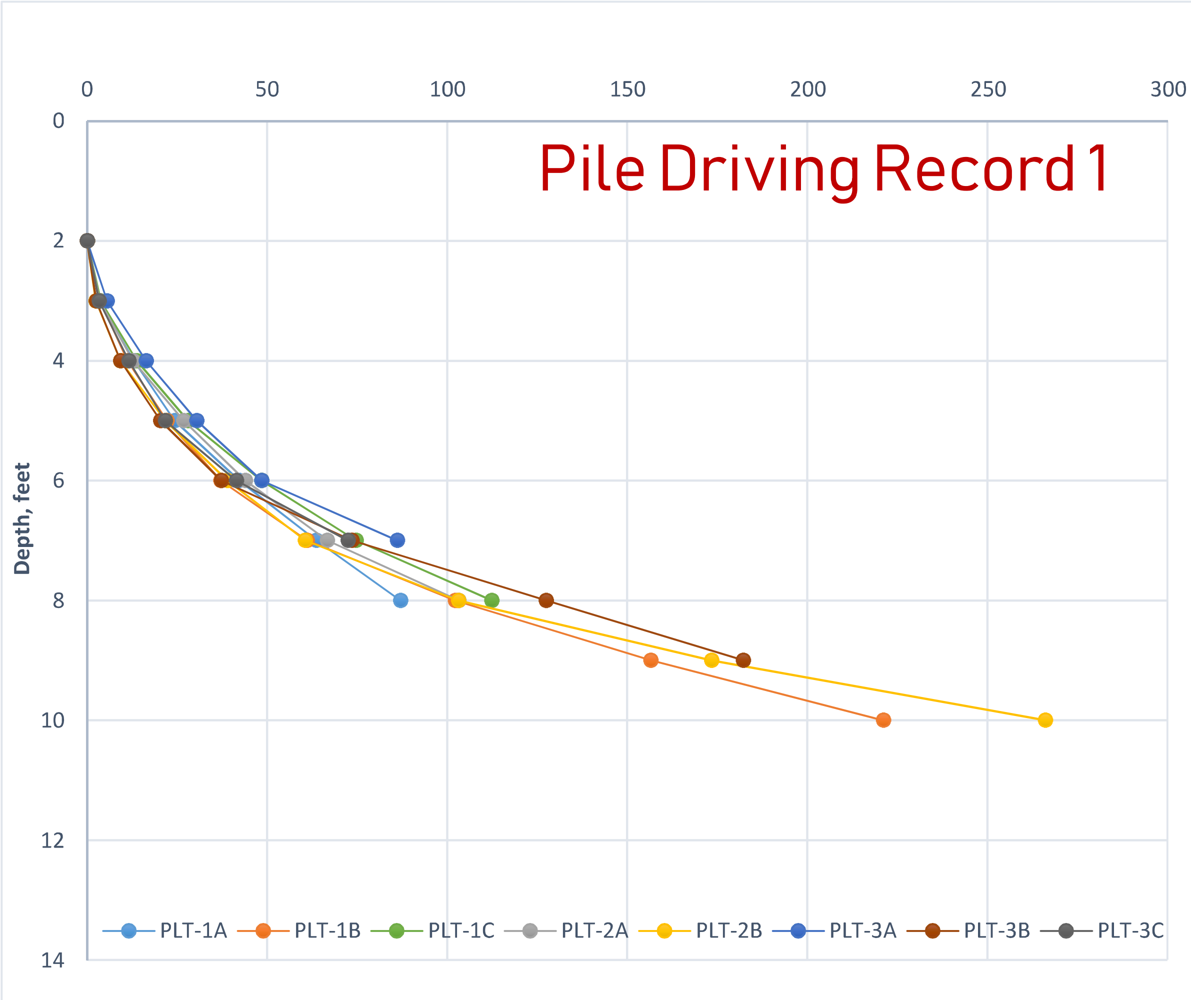
Terracon GeoReport

Array Loc.	EER- 21 SUB (40.90651, -84.51093)		
Instrument	Min Res	**Weather**	84° F, sunny
Serial #		**Ground Cond.**	Dry
Cal. Check		**Tested By**	Ian McGougan
Test Date	June 17, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
1	30	6	15	19.63	4870	12.69	3150
1.5	46	6	15	6.00	2010	8.77	2940
2	61	6	15	5.96	2510	5.72	2400
3	91	6	15	4.09	2450	4.08	2440
4.5	137	6	15	2.93	2570	2.91	2560
7	213	12	30	2.00	2760	1.88	2600
10	305	12	30	1.68	3280	1.71	3330
15	457	12	30	1.38	4000	1.37	3950
22.5	686	12	30	1.22	5260	1.23	5310
35	1067	12	30	1.12	7530	1.09	7330
50	1524	12	30	1.09	10430	1.08	10330
75	2286	12	30	1.06	15290	1.04	14940
100	3048	12	30	1.02	19440	1.01	19380
150	4572	12	30	0.97	27750	0.95	27230
225	6858	12	30	0.89	38180	0.84	36020
300	9144	12	30	0.75	43030	0.70	40450
450	13716	12	30	0.52	45160	0.44	38260

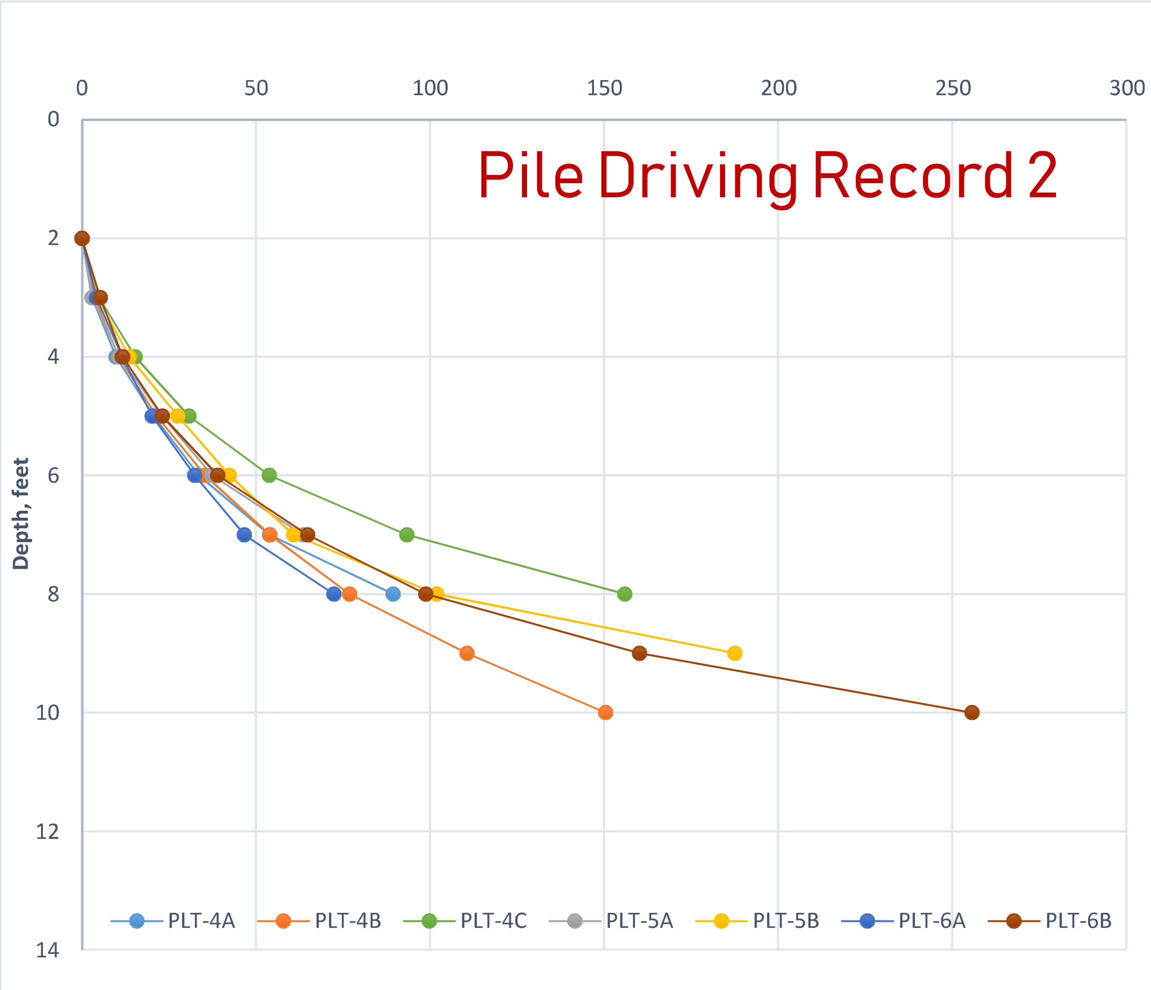




Depth (feet)	Cumulative Driving Time, seconds							
	PLT-1A	PLT-1B	PLT-1C	PLT-2A	PLT-2B	PLT-3A	PLT-3B	PLT-3C
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.4	3.6	3.8	3.5	2.5	5.6	2.5	3.3
4	13.0	11.3	13.8	12.8	9.3	16.4	9.3	11.6
5	24.3	22.1	28.0	26.8	21.7	30.4	20.4	21.7
6	42.2	37.1	48.5	44.0	39.0	48.5	37.3	41.4
7	63.7	61.1	74.7	66.7	60.5	86.2	73.6	72.5
8	87.1	102.3	112.4	103.2	103.1		127.5	
9		156.5			173.4		182.3	
10		221.1			266.1			
Embedment Depth, ft	8	10	8	8	10	7	9	7
Total Drive Time, sec	87.1	221.1	112.4	103.2	266.1	86.2	182.3	72.45
Average, sec/ft	14.5	27.6	18.7	17.2	33.3	17.2	26.0	14.49

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram.
Installation depth started at 24 inches below ground surface

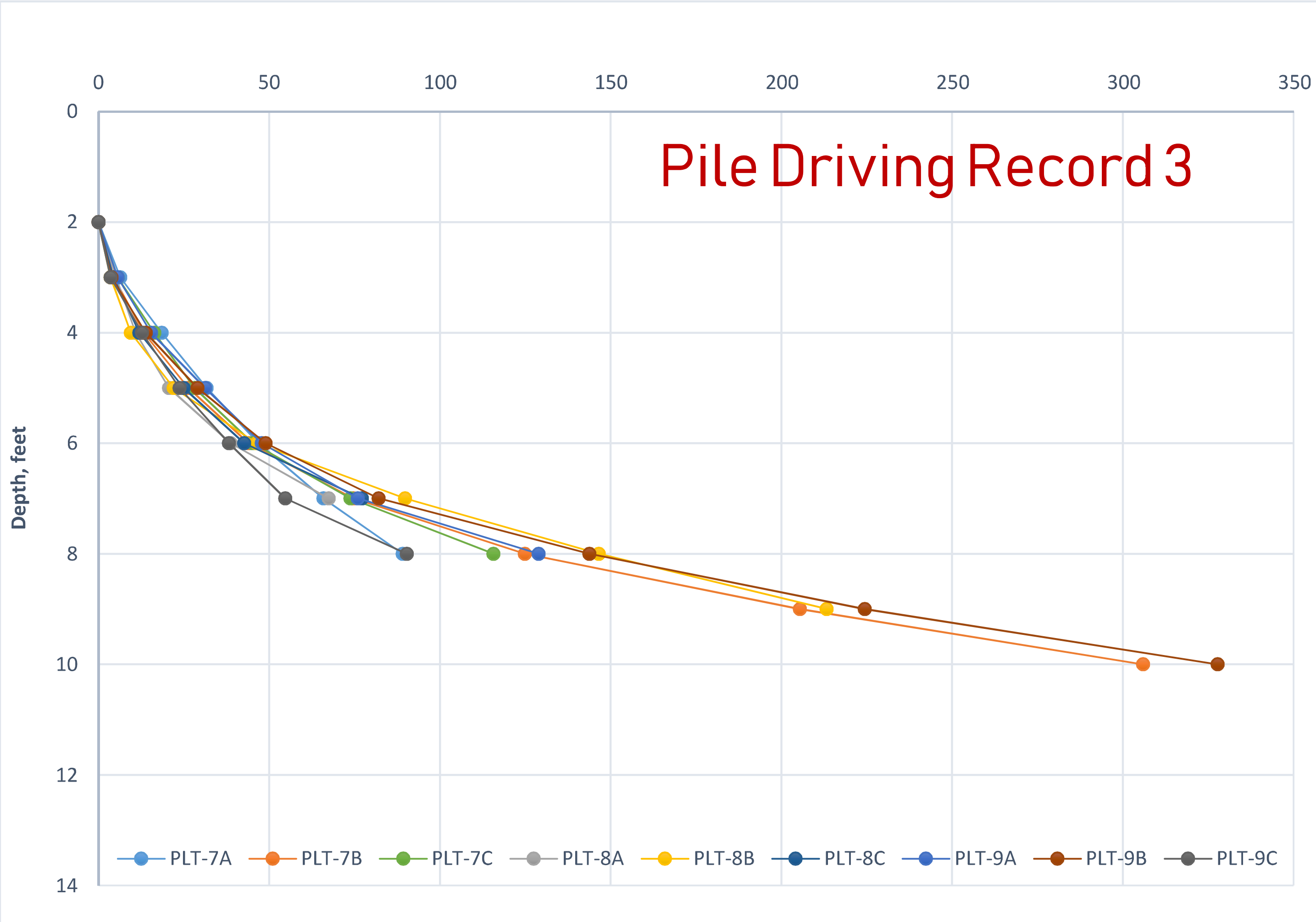


Depth (feet)	Cumulative Driving Time, seconds						
	PLT-4A	PLT-4B	PLT-4C	PLT-5A	PLT-5B	PLT-6A	PLT-6B
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.9	3.8	4.9	3.0	4.5	4.2	5.3
4	9.8	10.5	15.3	10.7	13.6	11.6	11.7
5	20.6	21.4	30.7	23.0	27.6	20.2	23.1
6	33.6	35.3	53.9	37.4	42.4	32.4	39.1
7	53.9	54.0	93.3	63.6	60.8	46.6	64.8
8	89.4	76.9	155.9		101.9	72.4	98.8
9		110.7			187.6		160.2
10		150.4					255.7
Embedment Depth, ft	8	10	8	7	9	8	10
Total Drive Time, sec	89.4	150.4	155.9	63.6	187.6	72.4	255.7
Average, sec/ft	14.9	18.8	26.0	12.7	26.8	12.1	32.0

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

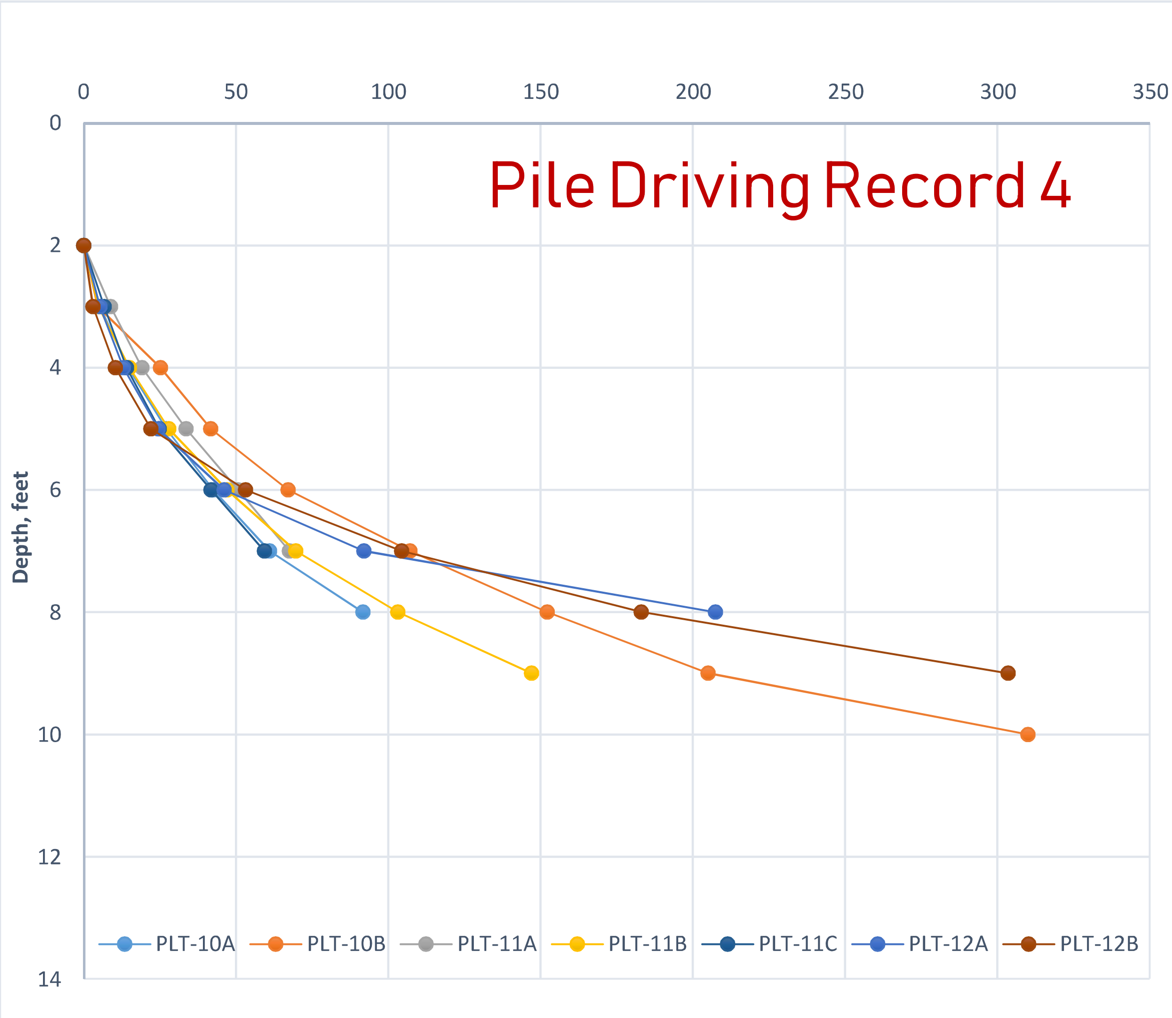


Depth (feet)	Cumulative Driving Time, seconds								
	PLT-7A	PLT-7B	PLT-7C	PLT-8A	PLT-8B	PLT-8C	PLT-9A	PLT-9B	PLT-9C
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
3	6.3	4.5	5.6	5.2	3.5	4.4	5.6	3.8	3.56
4	18.5	13.2	16.4	10.9	9.5	11.9	15.4	13.9	12.77
5	31.6	26.3	28.1	20.7	22.0	24.9	31.3	29.0	23.7
6	46.9	43.9	45.1	38.7	46.3	42.7	47.8	48.9	38.19
7	65.9	74.6	73.8	67.4	89.8	77.2	75.9	82.0	54.68
8	89.1	124.9	115.7		146.5		128.9	143.8	90.26
9		205.5			213.3			224.4	
10		306.0						327.8	
Embedment Depth, ft	8	10	8	7	9	7	8	10	8
Total Drive Time, sec	89.1	306.0	115.7	67.4	213.3	77.2	128.9	327.8	90.26
Average, sec/ft	14.9	38.2	19.3	13.5	30.5	15.4	21.5	41.0	15.04

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

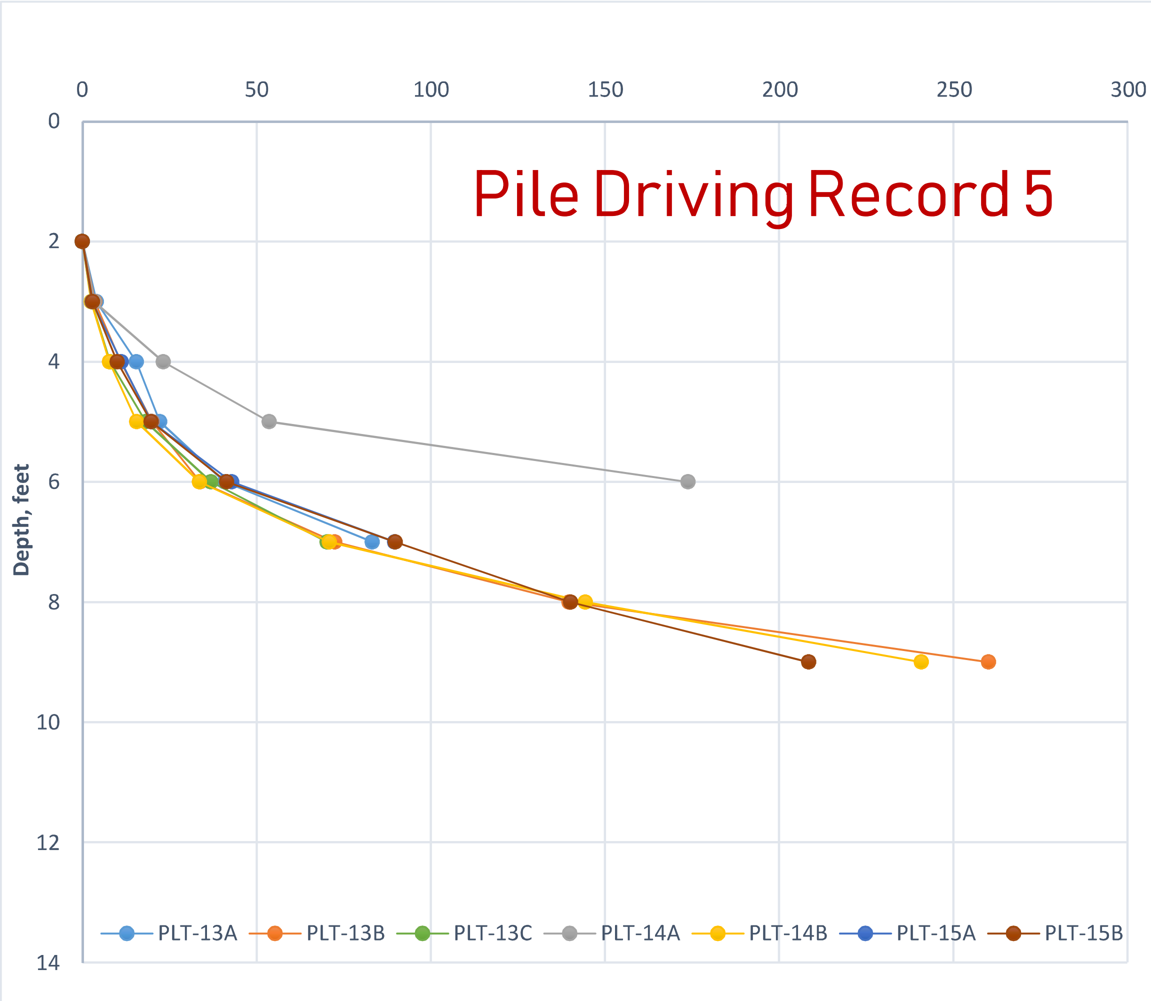


Depth (feet)	Cumulative Driving Time, seconds						
	PLT-10A	PLT-10B	PLT-11A	PLT-11B	PLT-11C	PLT-12A	PLT-12B
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5.3	4.6	8.8	4.8	6.7	5.4	3.0
4	14.6	25.2	19.1	15.0	14.0	13.0	10.4
5	27.1	41.7	33.6	27.9	24.8	24.5	22.0
6	42.6	67.1	50.6	47.0	41.8	46.1	53.1
7	61.0	107.2	67.6	69.6	59.3	92.0	104.4
8	91.7	152.2		103.1		207.5	183.1
9		205.0		147.1			303.6
10		310.1					
Embedment Depth, ft	8	10	7	9	7	8	8.5
Total Drive Time, sec	91.7	310.1	67.6	147.1	59.3	207.5	303.6
Average, sec/ft	15.3	38.8	13.5	21.0	11.9	34.6	46.7

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

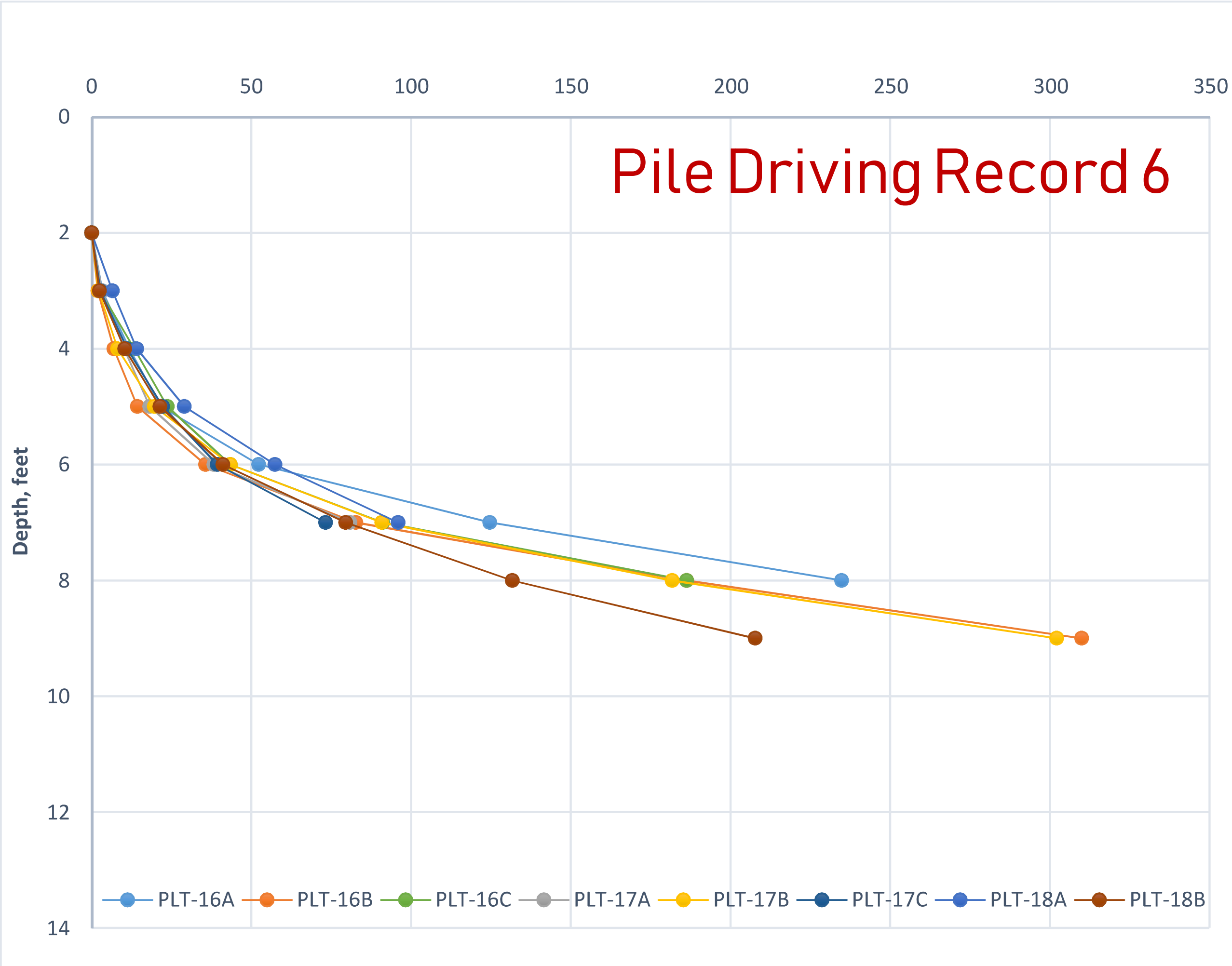


Depth (feet)	Cumulative Driving Time, seconds						
	PLT-13A	PLT-13B	PLT-13C	PLT-14A	PLT-14B	PLT-15A	PLT-15B
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.0	3.5	2.6	3.3	2.6	2.9	2.9
4	15.5	11.0	8.0	23.2	7.7	11.2	10.0
5	22.2	20.0	18.2	53.6	15.6	19.8	19.7
6	40.8	33.8	36.9	173.8	33.6	42.9	41.4
7	83.2	72.5	70.2		70.9	89.6	89.8
8		139.7			144.4		140.2
9		260.2			240.9		208.5
10							
Embedment Depth, ft	7	8.5	7	5.5	9	7	9
Total Drive Time, sec	83.2	260.2	70.2	173.8	240.9	89.6	208.5
Average, sec/ft	16.6	40.0	14.0	49.7	34.4	17.9	29.8

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

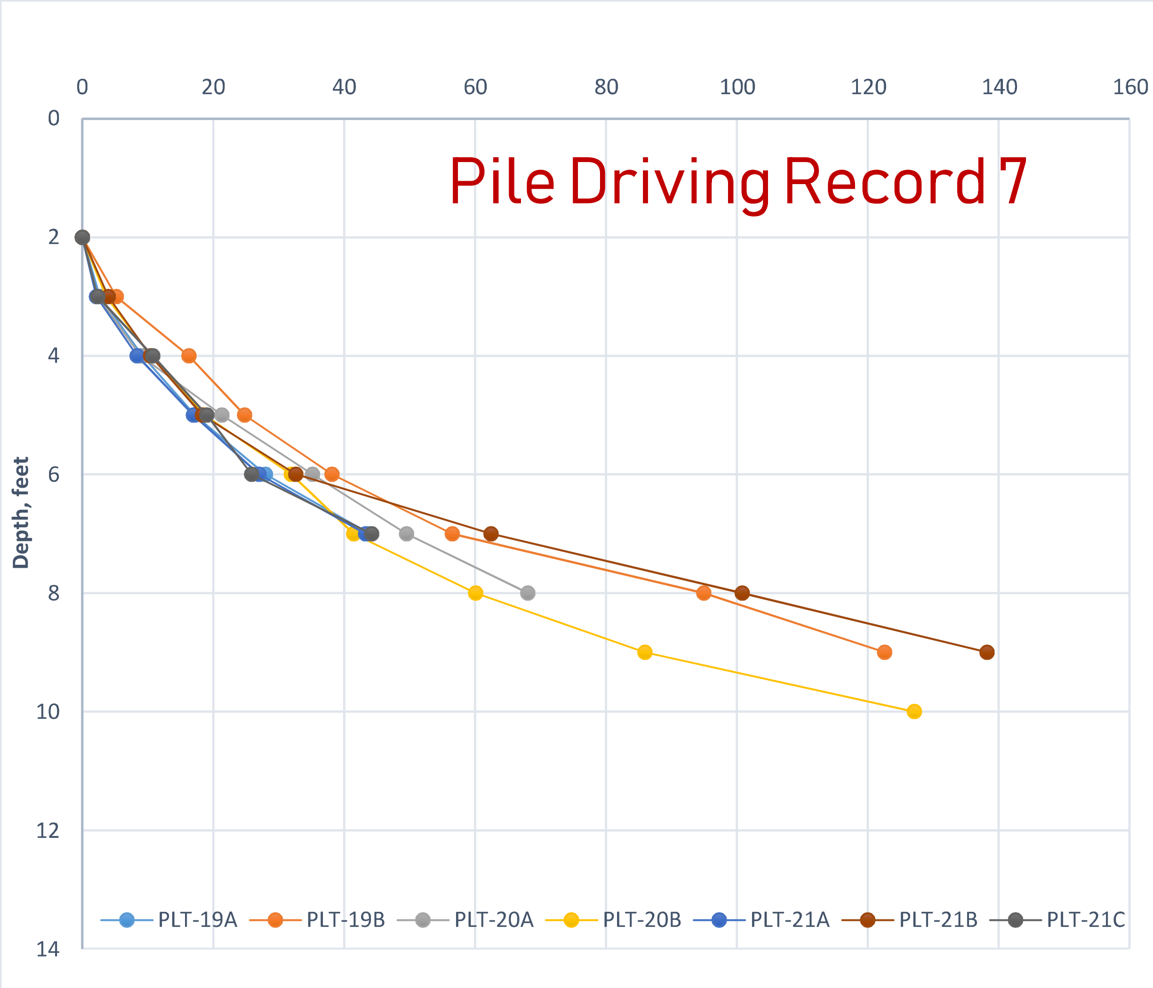


Depth (feet)	Cumulative Driving Time, seconds							
	PLT-16A	PLT-16B	PLT-16C	PLT-17A	PLT-17B	PLT-17C	PLT-18A	PLT-18B
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.3	2.0	2.6	3.2	2.1	2.7	6.5	2.4
4	11.8	7.0	13.3	10.2	8.1	11.1	14.1	10.4
5	21.6	14.3	23.7	18.2	19.6	22.2	29.0	21.4
6	52.3	35.7	43.4	38.3	43.4	39.3	57.4	41.1
7	124.7	82.7	91.1	80.9	90.9	73.2	95.9	79.5
8	234.8	186.3	186.3		181.8			131.7
9		310.0			302.2			207.7
10								
Embedment Depth, ft	8	9	8	7	8.5	7	7	9
Total Drive Time, sec	234.8	310.0	186.3	80.9	302.2	73.2	95.9	207.7
Average, sec/ft	39.1	44.3	31.0	16.2	46.5	14.6	19.2	29.7

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon



Depth (feet)	Cumulative Driving Time, seconds						
	PLT-19A	PLT-19B	PLT-20A	PLT-20B	PLT-21A	PLT-21B	PLT-21C
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.7	5.2	2.3	3.7	2.2	4.0	2.4
4	9.2	16.3	8.9	10.5	8.4	10.4	10.8
5	17.2	24.8	21.4	18.7	17.0	18.4	19.0
6	28.0	38.2	35.2	32.0	27.0	32.6	25.9
7	43.9	56.6	49.5	41.5	43.3	62.5	44.2
8		95.0	68.1	60.1		100.8	
9		122.6		86.0		138.2	
10				127.2			
Embedment Depth, ft	7	9	8	10	7	9	7
Total Drive Time, sec	43.9	122.6	68.1	127.2	43.3	138.2	44.20
Average, sec/ft	8.8	17.5	11.3	15.9	8.7	19.7	8.84

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Lateral Load Test Result for PLT-1A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

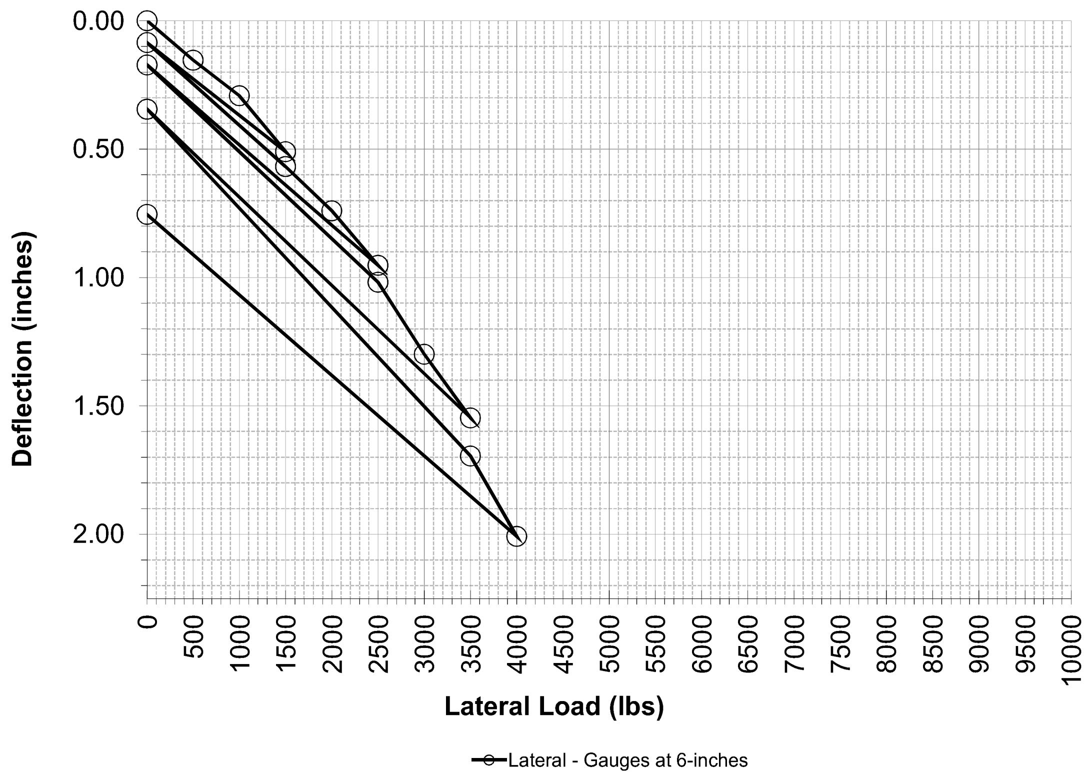
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-1A
Latitude:	40.95067
Longitude:	-84.55509
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	87.1

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.154	
14%	1000	0.292	
21%	1500	0.510	
0%	0	0.086	
21%	1500	0.568	
29%	2000	0.740	
36%	2500	0.953	
0%	0	0.173	
36%	2500	1.019	
43%	3000	1.299	
50%	3500	1.547	
0%	0	0.345	
50%	3500	1.696	
57%	4000	2.008	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.754	



Lateral Load Test Result for PL-1B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

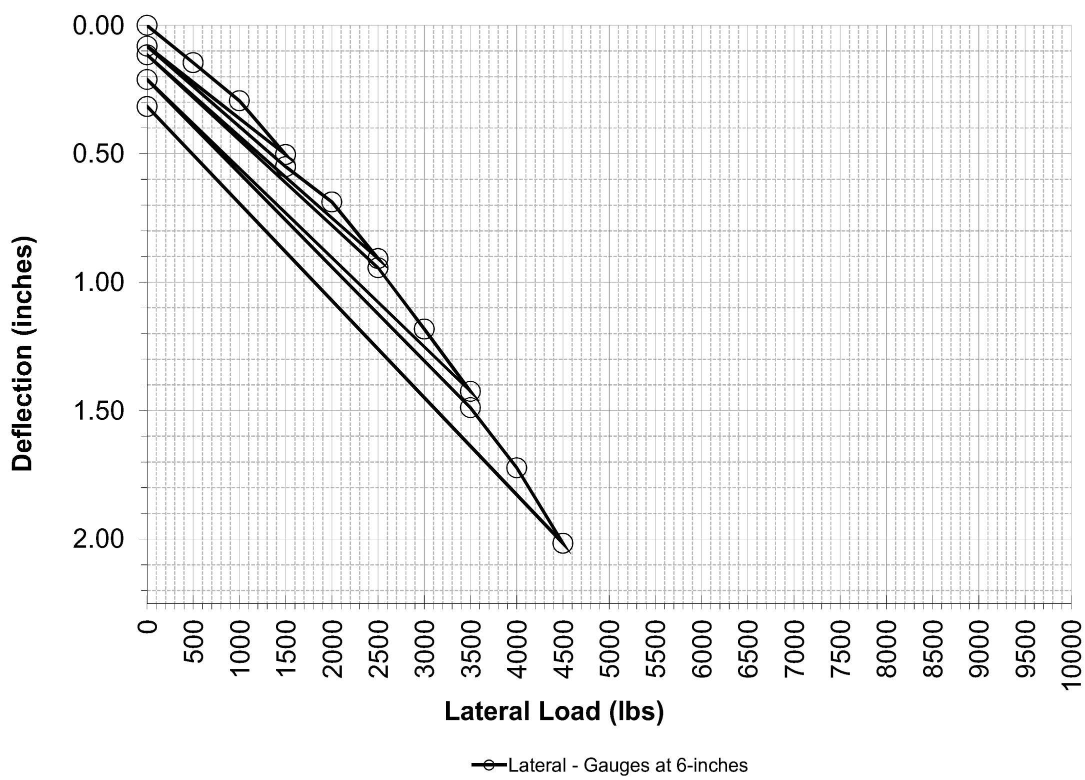
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PL-1B
Latitude:	40.95067
Longitude:	-84.55509
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	221.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.146	
14%	1000	0.294	
21%	1500	0.503	
0%	0	0.081	
21%	1500	0.550	
29%	2000	0.688	
36%	2500	0.908	
0%	0	0.115	
36%	2500	0.944	
43%	3000	1.182	
50%	3500	1.425	
0%	0	0.212	
50%	3500	1.488	
57%	4000	1.723	
64%	4500	2.017	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.316	



Lateral Load Test Result for PLT-2A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

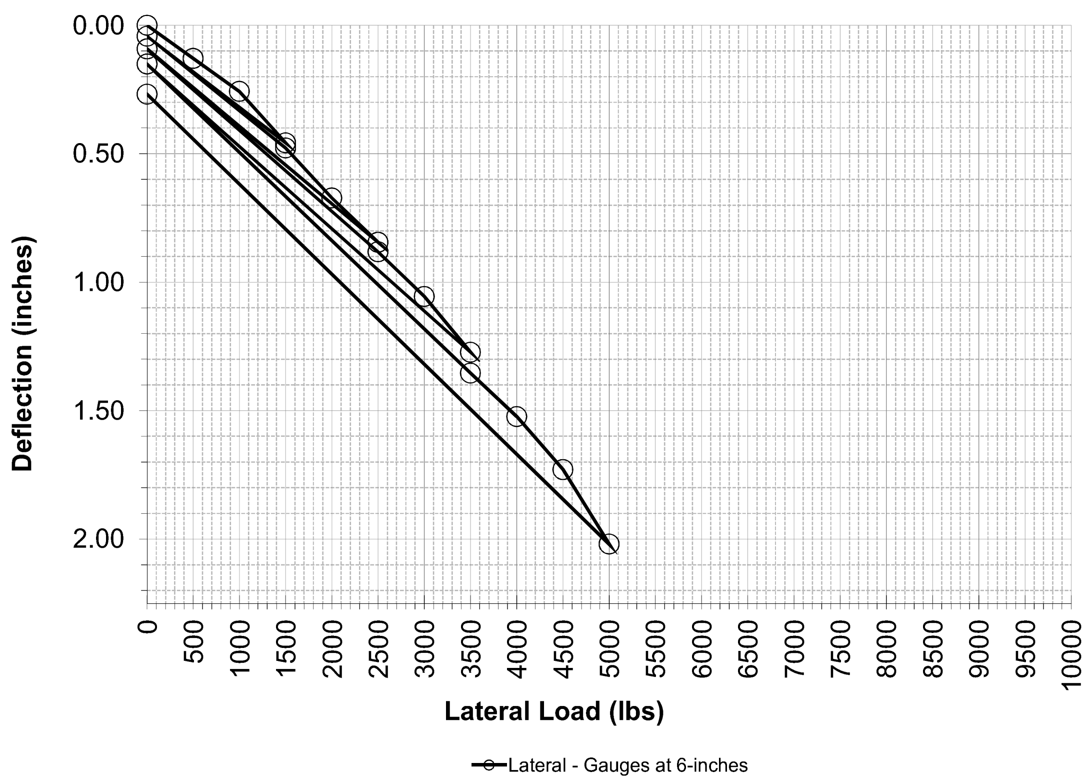
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-2A
Latitude:	40.94464
Longitude:	-84.55396
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	103.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.129	
14%	1000	0.258	
21%	1500	0.458	
0%	0	0.043	
21%	1500	0.478	
29%	2000	0.673	
36%	2500	0.845	
0%	0	0.092	
36%	2500	0.882	
43%	3000	1.056	
50%	3500	1.273	
0%	0	0.151	
50%	3500	1.354	
57%	4000	1.524	
64%	4500	1.730	
71%	5000	2.020	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.269	



Lateral Load Test Result for PLT-2B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

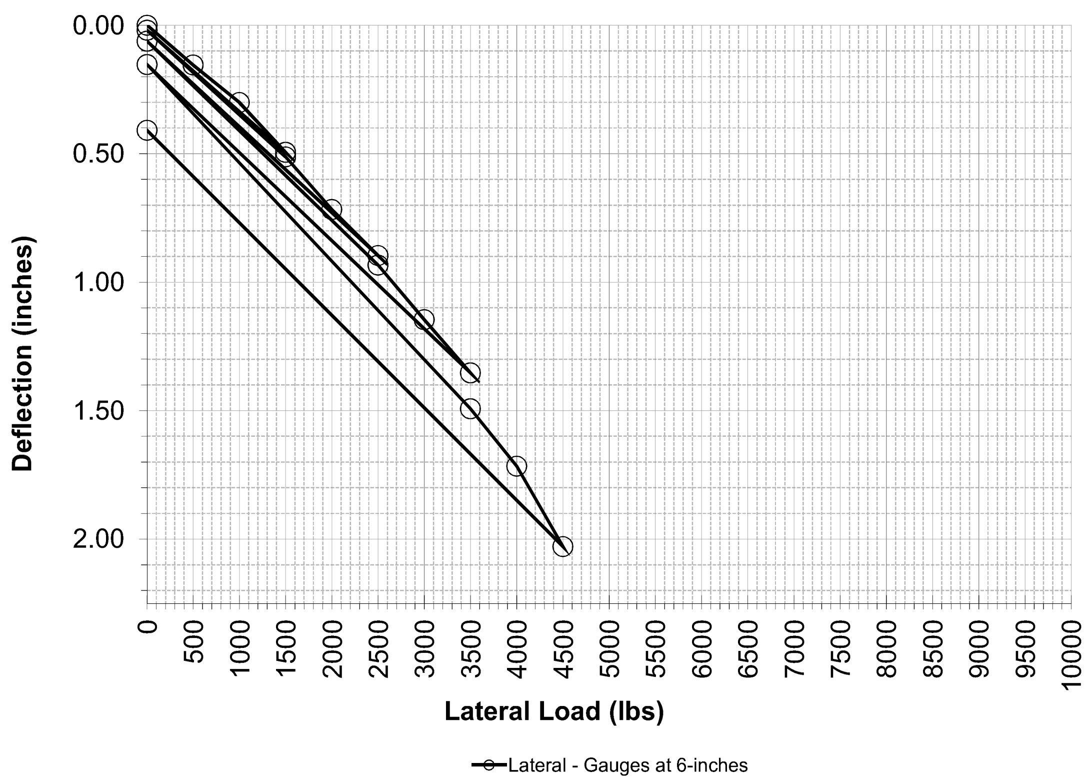
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-2B
Latitude:	40.94464
Longitude:	-84.55396
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	266.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.155	
14%	1000	0.301	
21%	1500	0.495	
0%	0	0.020	
21%	1500	0.513	
29%	2000	0.718	
36%	2500	0.896	
0%	0	0.062	
36%	2500	0.934	
43%	3000	1.146	
50%	3500	1.353	
0%	0	0.153	
50%	3500	1.493	
57%	4000	1.716	
64%	4500	2.029	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.409	



Lateral Load Test Result for PLT-3A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

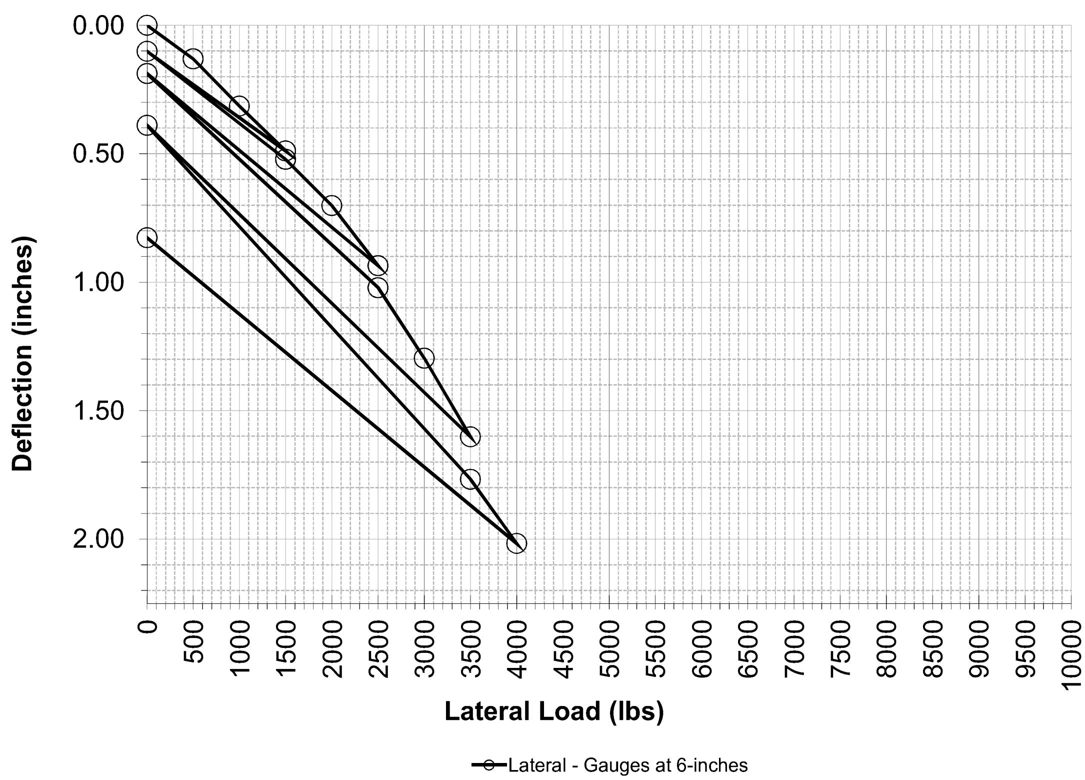
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-3A
Latitude:	40.93652
Longitude:	-84.55731
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	86.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.131	
14%	1000	0.315	
21%	1500	0.490	
0%	0	0.102	
21%	1500	0.522	
29%	2000	0.702	
36%	2500	0.936	
0%	0	0.188	
36%	2500	1.022	
43%	3000	1.296	
50%	3500	1.602	
0%	0	0.390	
50%	3500	1.767	
57%	4000	2.017	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.827	



Lateral Load Test Result for PLT-3B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

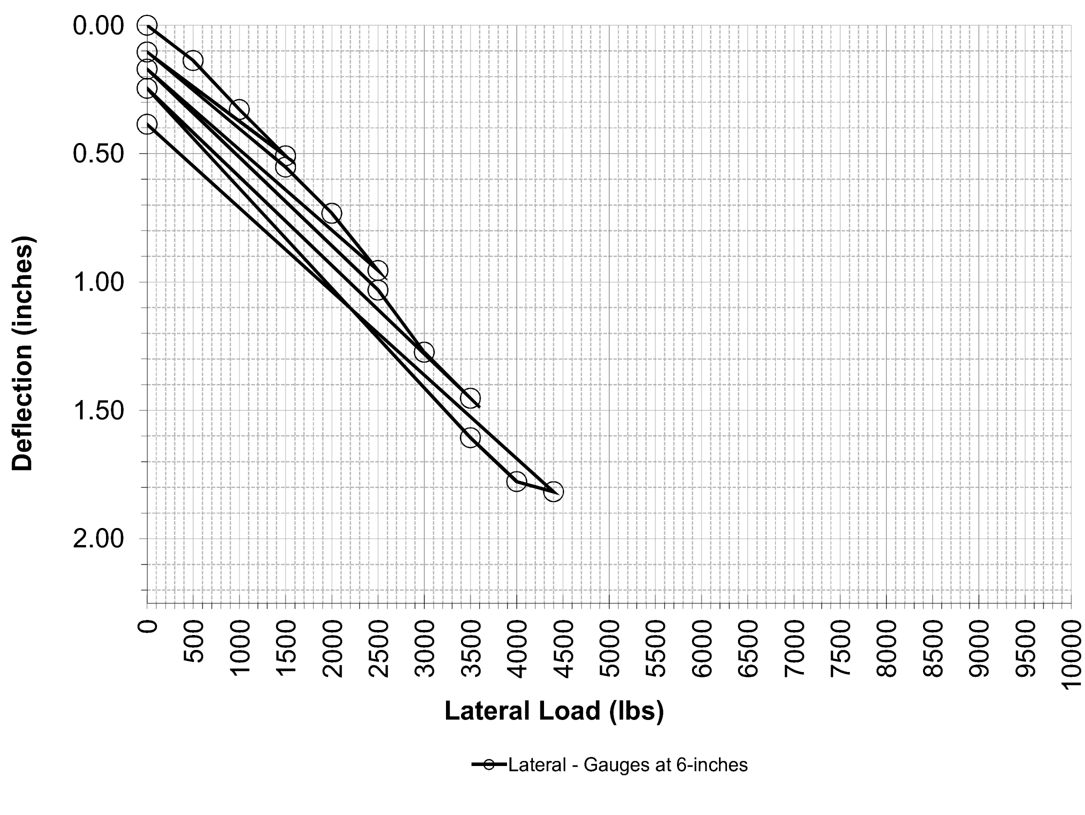
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-3B
Latitude:	40.93652
Longitude:	-84.55731
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	182.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.138	
14%	1000	0.329	
21%	1500	0.509	
0%	0	0.105	
21%	1500	0.553	
29%	2000	0.733	
36%	2500	0.956	
0%	0	0.171	
36%	2500	1.032	
43%	3000	1.274	
50%	3500	1.453	
0%	0	0.246	
50%	3500	1.606	
57%	4000	1.778	
63%	4400	1.817	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.386	



Lateral Load Test Result for PLT-4A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

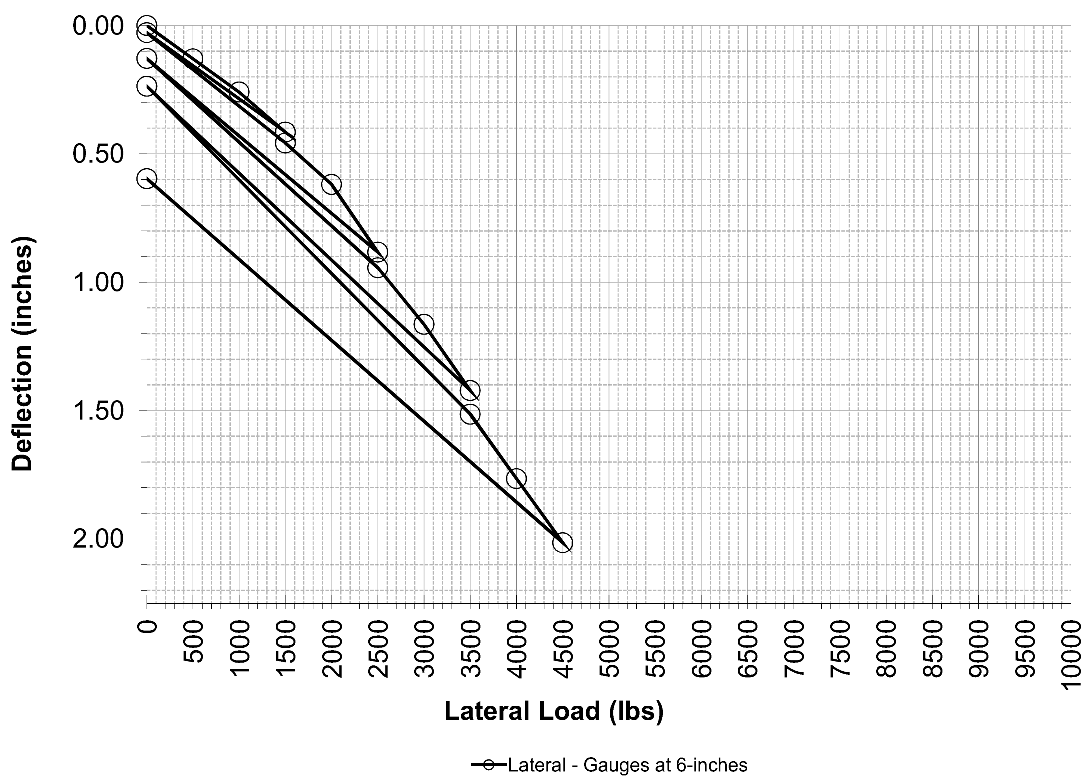
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-4A
Latitude:	40.93294
Longitude:	-84.56423
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	89.4

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.130	
14%	1000	0.259	
21%	1500	0.415	
0%	0	0.028	
21%	1500	0.458	
29%	2000	0.620	
36%	2500	0.883	
0%	0	0.129	
36%	2500	0.944	
43%	3000	1.164	
50%	3500	1.422	
0%	0	0.237	
50%	3500	1.514	
57%	4000	1.765	
64%	4500	2.014	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.597	



Lateral Load Test Result for PLT-4B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

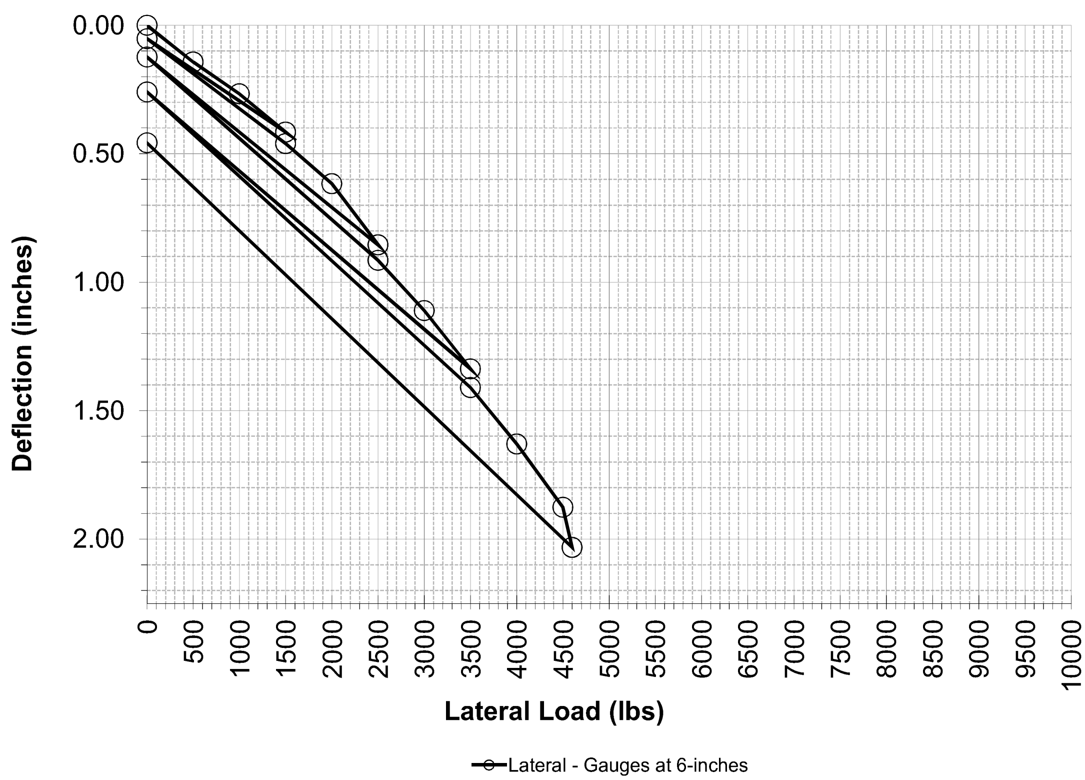
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-4B
Latitude:	40.93294
Longitude:	-84.56423
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	150.4

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.143	
14%	1000	0.267	
21%	1500	0.416	
0%	0	0.053	
21%	1500	0.461	
29%	2000	0.617	
36%	2500	0.855	
0%	0	0.124	
36%	2500	0.915	
43%	3000	1.110	
50%	3500	1.338	
0%	0	0.260	
50%	3500	1.410	
57%	4000	1.630	
64%	4500	1.876	
66%	4600	2.032	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.458	



Lateral Load Test Result for PLT-5A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

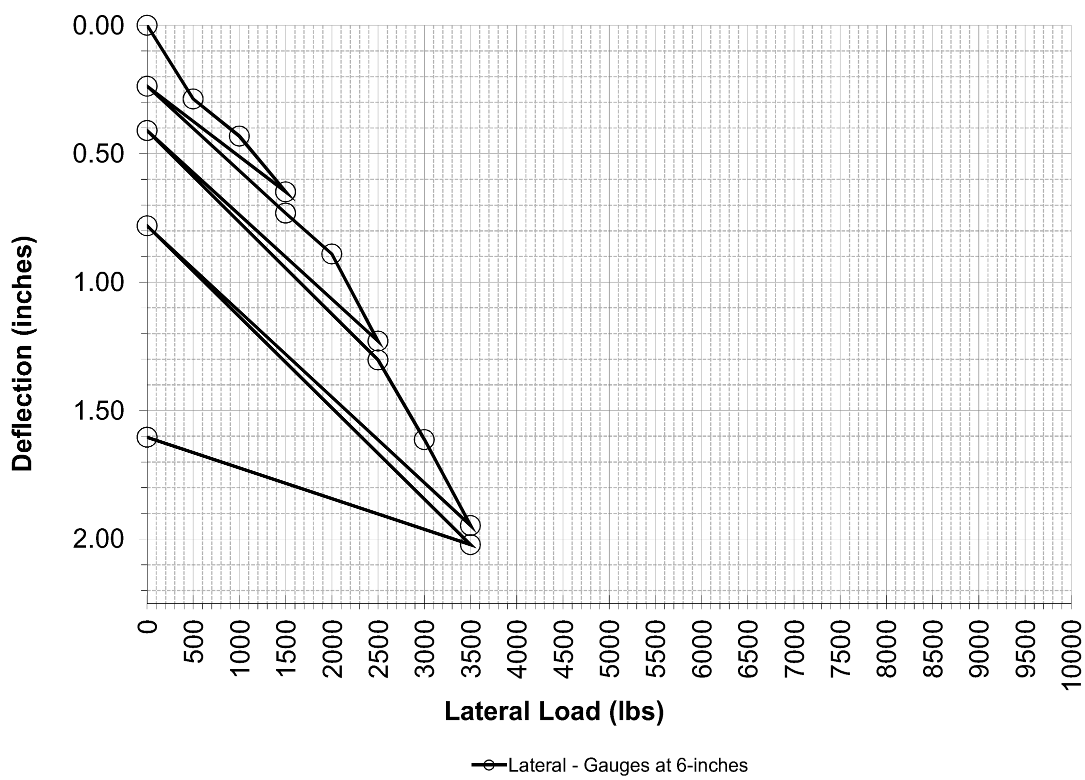
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-5A
Latitude:	40.92949
Longitude:	-84.55639
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	63.6

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.287	
14%	1000	0.432	
21%	1500	0.649	
0%	0	0.238	
21%	1500	0.731	
29%	2000	0.891	
36%	2500	1.230	
0%	0	0.410	
36%	2500	1.303	
43%	3000	1.613	
50%	3500	1.948	
0%	0	0.781	
50%	3500	2.022	
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.604	



Lateral Load Test Result for PLT-5B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

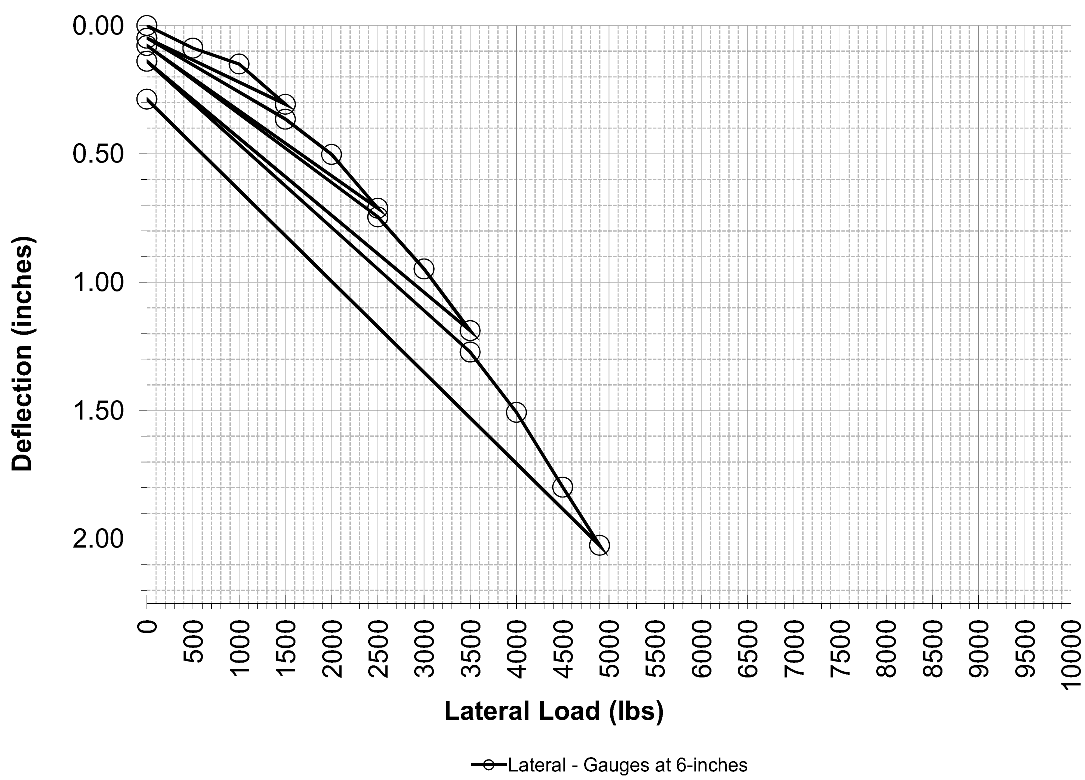
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-5B
Latitude:	40.92949
Longitude:	-84.55639
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	187.6

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.089	
14%	1000	0.151	
21%	1500	0.307	
0%	0	0.050	
21%	1500	0.365	
29%	2000	0.503	
36%	2500	0.712	
0%	0	0.078	
36%	2500	0.746	
43%	3000	0.948	
50%	3500	1.189	
0%	0	0.139	
50%	3500	1.272	
57%	4000	1.507	
64%	4500	1.798	
70%	4900	2.025	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.287	



Lateral Load Test Result for PLT-6A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

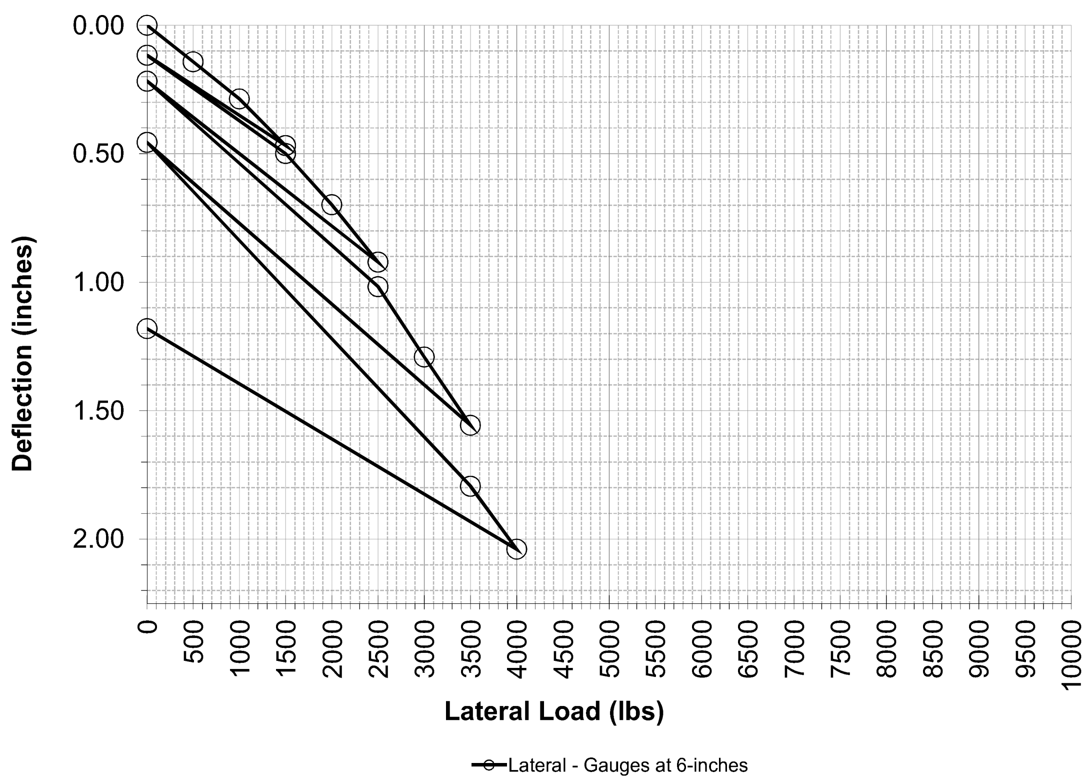
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-6A
Latitude:	40.92456
Longitude:	-84.56269
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	72.4

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.142	
14%	1000	0.287	
21%	1500	0.469	
0%	0	0.117	
21%	1500	0.499	
29%	2000	0.699	
36%	2500	0.922	
0%	0	0.218	
36%	2500	1.018	
43%	3000	1.291	
50%	3500	1.557	
0%	0	0.456	
50%	3500	1.794	
57%	4000	2.040	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.181	



Lateral Load Test Result for PLT-6B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

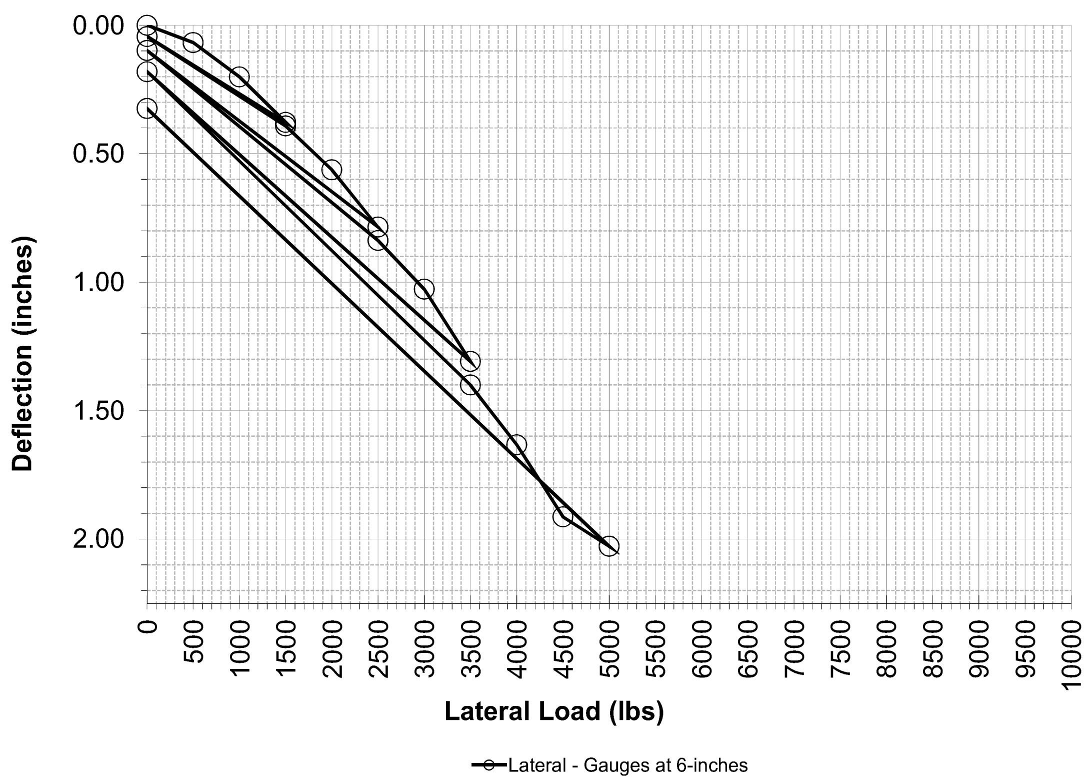
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-6B
Latitude:	40.92456
Longitude:	-84.56269
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	255.7

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.068	
14%	1000	0.202	
21%	1500	0.378	
0%	0	0.045	
21%	1500	0.392	
29%	2000	0.563	
36%	2500	0.786	
0%	0	0.099	
36%	2500	0.838	
43%	3000	1.027	
50%	3500	1.308	
0%	0	0.181	
50%	3500	1.400	
57%	4000	1.633	
64%	4500	1.914	
71%	5000	2.028	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.324	



Lateral Load Test Result for PLT-7A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

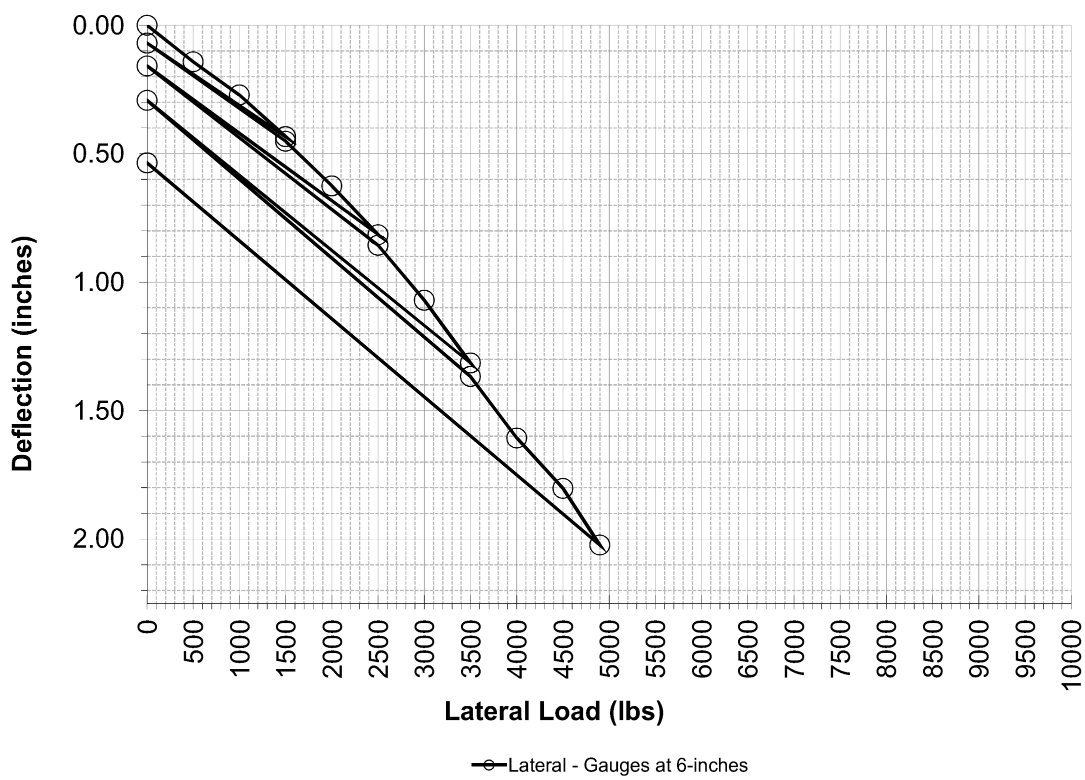
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-7A
Latitude:	40.92604
Longitude:	-84.54827
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	89.1

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.142	
14%	1000	0.272	
21%	1500	0.434	
0%	0	0.070	
21%	1500	0.451	
29%	2000	0.625	
36%	2500	0.815	
0%	0	0.159	
36%	2500	0.857	
43%	3000	1.071	
50%	3500	1.315	
0%	0	0.292	
50%	3500	1.367	
57%	4000	1.606	
64%	4500	1.803	
70%	4900	2.023	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.536	



Lateral Load Test Result for PLT-7B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

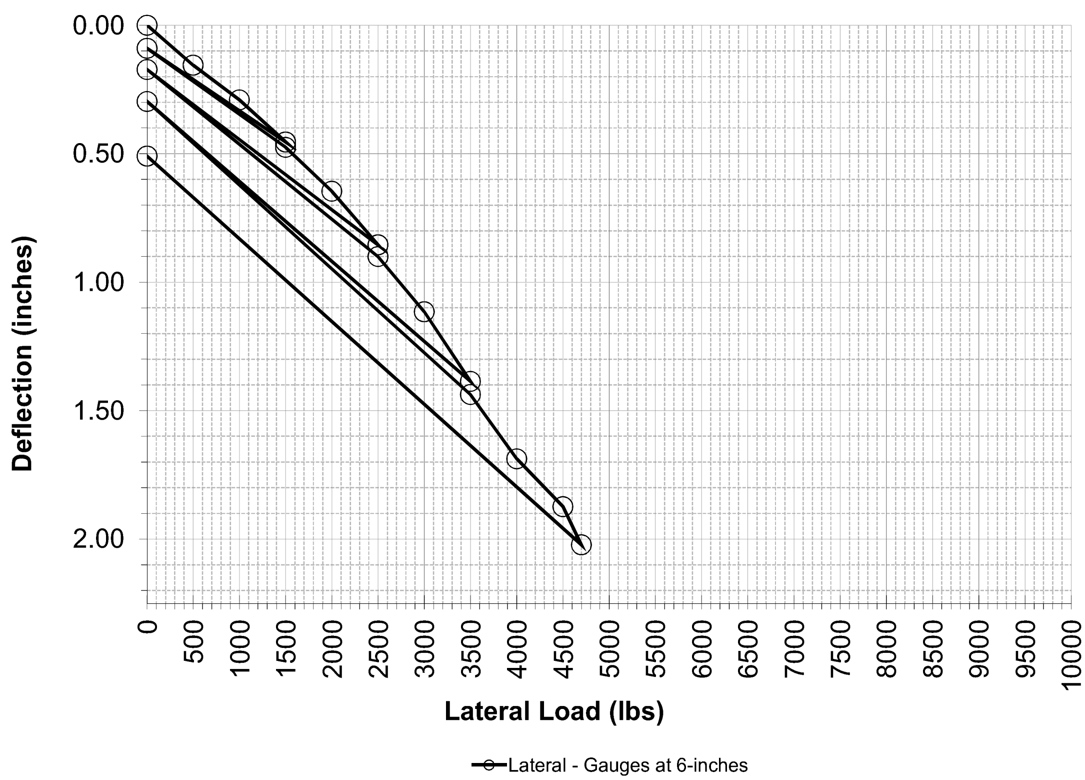
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-7B
Latitude:	40.92604
Longitude:	-84.54827
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	306

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.156	
14%	1000	0.291	
21%	1500	0.455	
0%	0	0.090	
21%	1500	0.475	
29%	2000	0.646	
36%	2500	0.855	
0%	0	0.173	
36%	2500	0.901	
43%	3000	1.115	
50%	3500	1.386	
0%	0	0.297	
50%	3500	1.438	
57%	4000	1.688	
64%	4500	1.874	
67%	4700	2.022	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.510	



Lateral Load Test Result for PLT-8A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

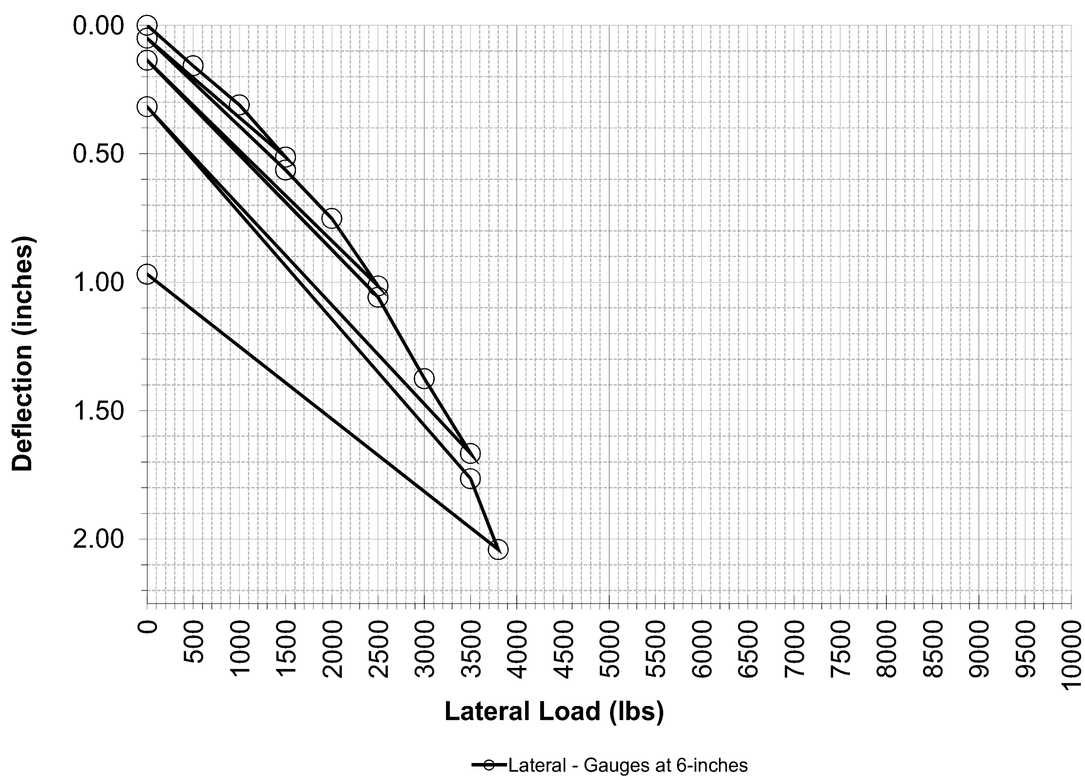
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-8A
Latitude:	40.93348
Longitude:	-84.54428
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	67.4

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.158	
14%	1000	0.310	
21%	1500	0.514	
0%	0	0.051	
21%	1500	0.563	
29%	2000	0.752	
36%	2500	1.015	
0%	0	0.137	
36%	2500	1.059	
43%	3000	1.376	
50%	3500	1.667	
0%	0	0.317	
50%	3500	1.765	
54%	3800	2.041	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.970	



Lateral Load Test Result for PLT-8B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

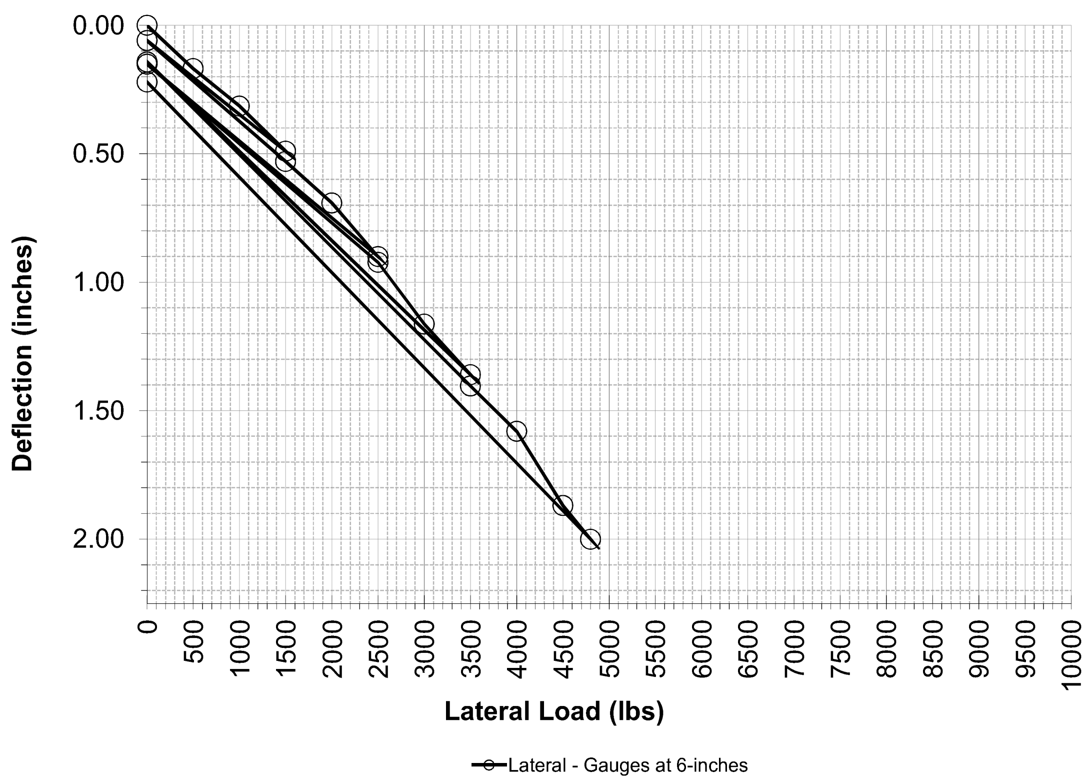
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-8B
Latitude:	40.93348
Longitude:	-84.54428
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	213.3

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.169	
14%	1000	0.315	
21%	1500	0.490	
0%	0	0.060	
21%	1500	0.530	
29%	2000	0.692	
36%	2500	0.901	
0%	0	0.152	
36%	2500	0.923	
43%	3000	1.163	
50%	3500	1.360	
0%	0	0.143	
50%	3500	1.404	
57%	4000	1.581	
64%	4500	1.869	
69%	4800	2.001	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.222	



Lateral Load Test Result for PLT-9A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

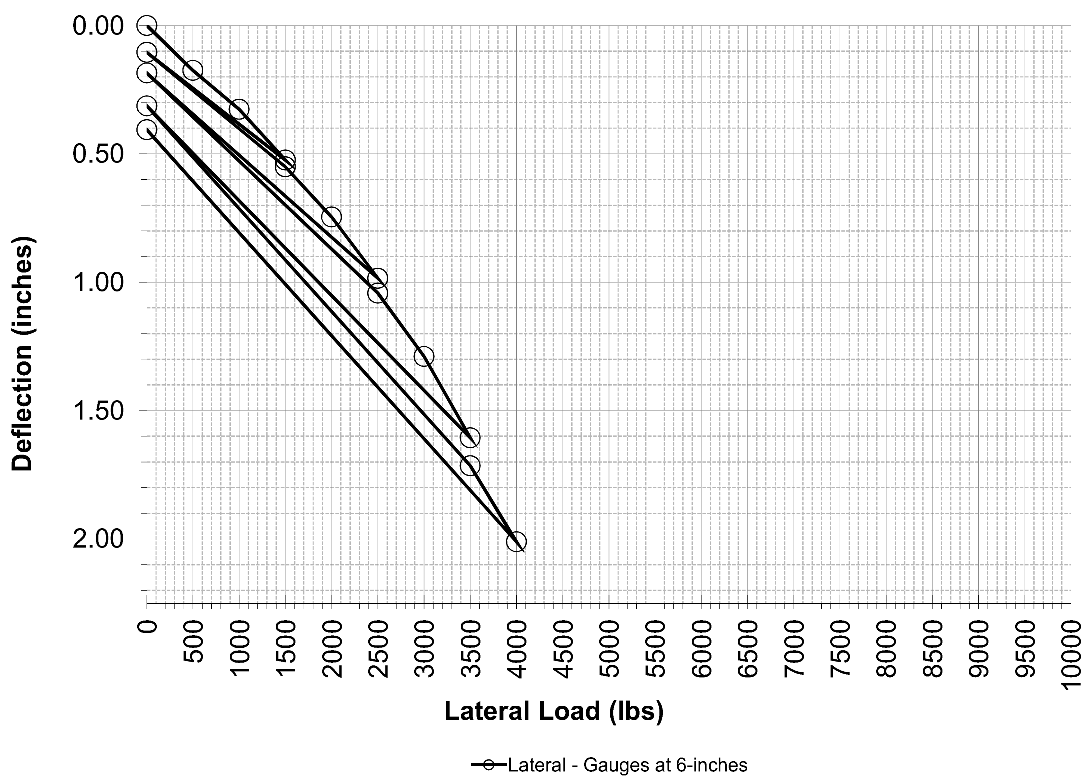
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-9A
Latitude:	40.91886
Longitude:	-84.56024
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	128.9

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.175	
14%	1000	0.327	
21%	1500	0.524	
0%	0	0.105	
21%	1500	0.551	
29%	2000	0.746	
36%	2500	0.985	
0%	0	0.185	
36%	2500	1.043	
43%	3000	1.289	
50%	3500	1.606	
0%	0	0.313	
50%	3500	1.715	
57%	4000	2.011	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.406	



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Lateral Load Test Result for PLT-9B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

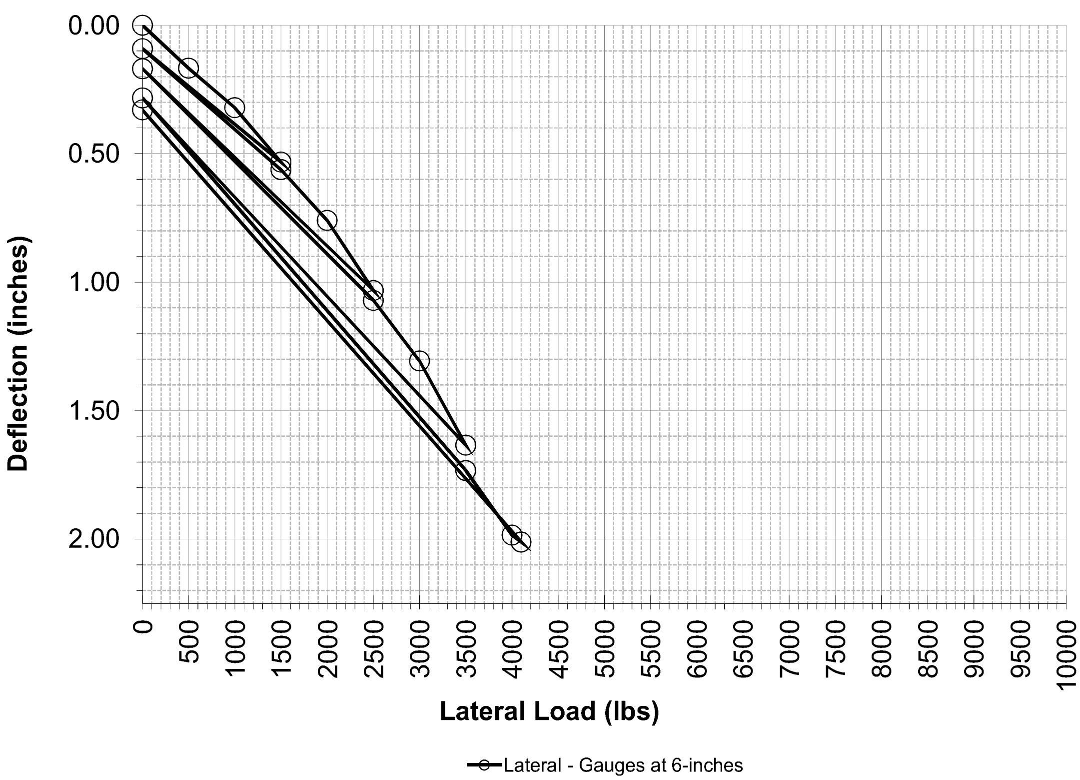
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-9B
Latitude:	40.91886
Longitude:	-84.56024
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	327.9

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.167	
14%	1000	0.321	
21%	1500	0.532	
0%	0	0.092	
21%	1500	0.562	
29%	2000	0.760	
36%	2500	1.033	
0%	0	0.170	
36%	2500	1.071	
43%	3000	1.307	
50%	3500	1.634	
0%	0	0.283	
50%	3500	1.733	
57%	4000	1.984	
59%	4100	2.011	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.330	



Lateral Load Test Result for PLT-10A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

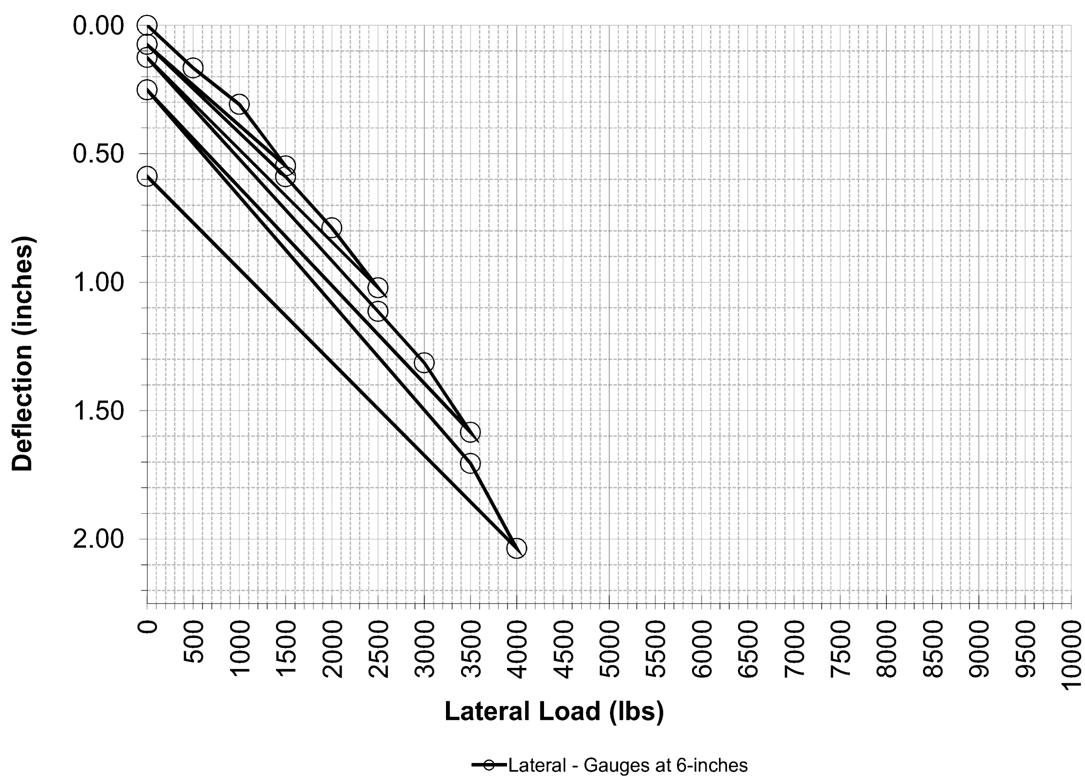
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-10A
Latitude:	40.91946
Longitude:	-84.53181
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	91.7

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.166	
14%	1000	0.308	
21%	1500	0.547	
0%	0	0.075	
21%	1500	0.590	
29%	2000	0.788	
36%	2500	1.022	
0%	0	0.126	
36%	2500	1.114	
43%	3000	1.314	
50%	3500	1.585	
0%	0	0.251	
50%	3500	1.705	
57%	4000	2.036	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.589	



Terracon

Lateral Load Test Result for PLT-10B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

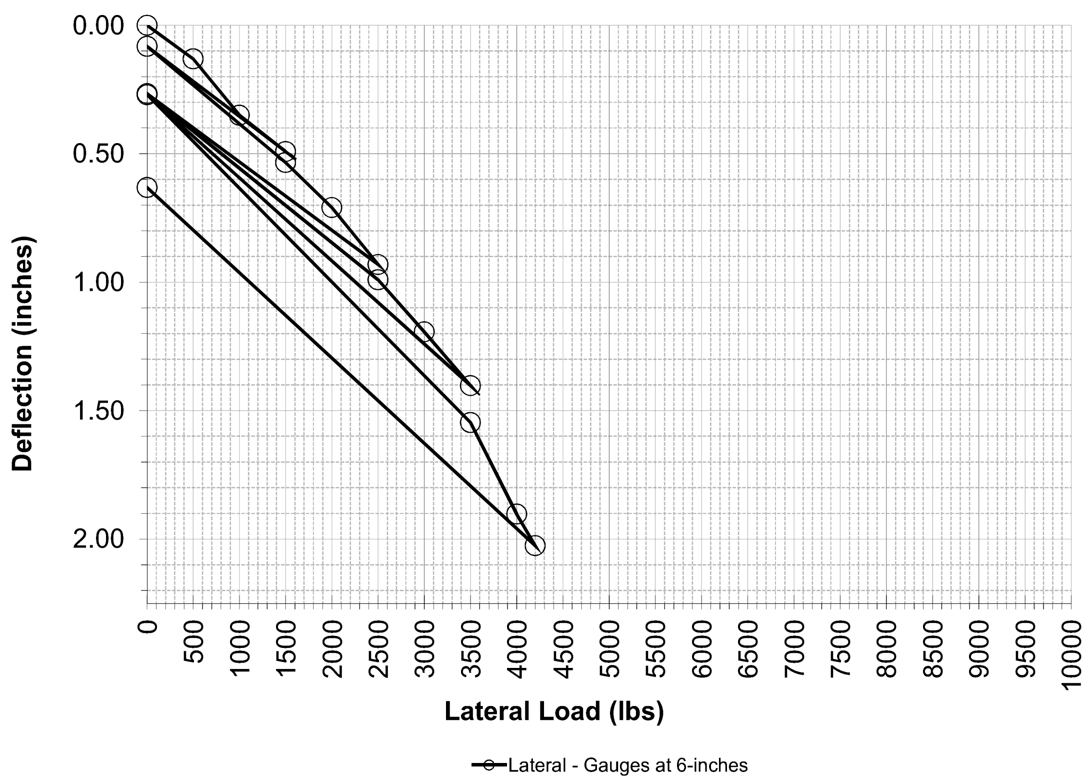
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-10B
Latitude:	40.91946
Longitude:	-84.53181
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	310.1

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.131	
14%	1000	0.351	
21%	1500	0.492	
0%	0	0.083	
21%	1500	0.534	
29%	2000	0.710	
36%	2500	0.931	
0%	0	0.266	
36%	2500	0.991	
43%	3000	1.194	
50%	3500	1.403	
0%	0	0.271	
50%	3500	1.546	
57%	4000	1.902	
60%	4200	2.026	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.632	



Lateral Load Test Result for PLT-11A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

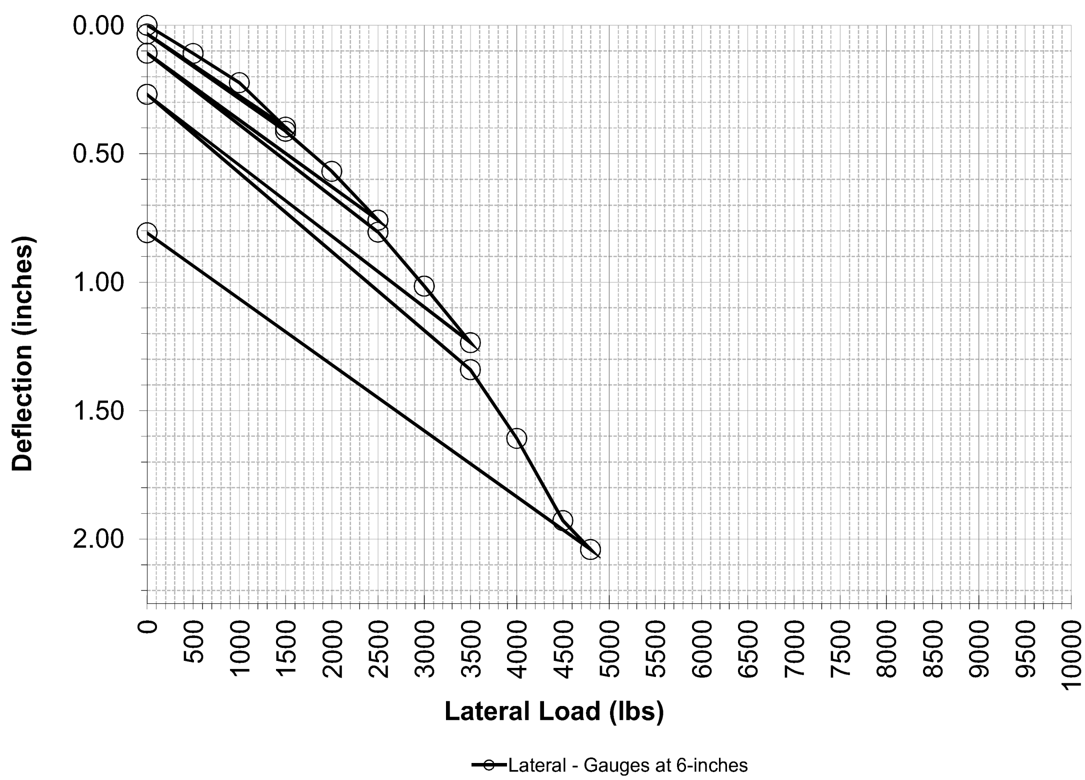
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-11A
Latitude:	40.92657
Longitude:	-84.52215
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	67.6

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.110	
14%	1000	0.224	
21%	1500	0.397	
0%	0	0.035	
21%	1500	0.413	
29%	2000	0.569	
36%	2500	0.759	
0%	0	0.109	
36%	2500	0.806	
43%	3000	1.015	
50%	3500	1.236	
0%	0	0.269	
50%	3500	1.341	
57%	4000	1.609	
64%	4500	1.928	
69%	4800	2.041	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.808	



Lateral Load Test Result for PLT-11B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

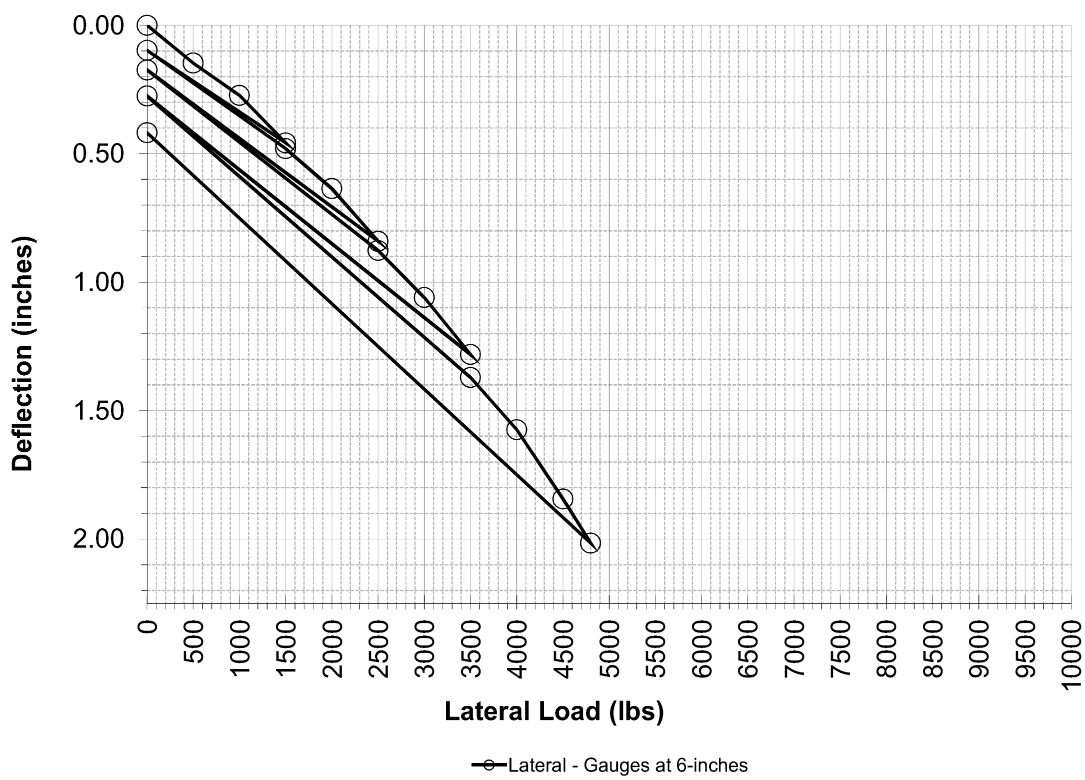
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-11B
Latitude:	40.92657
Longitude:	-84.52215
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	142.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.147	
14%	1000	0.273	
21%	1500	0.458	
0%	0	0.098	
21%	1500	0.480	
29%	2000	0.636	
36%	2500	0.841	
0%	0	0.174	
36%	2500	0.876	
43%	3000	1.060	
50%	3500	1.281	
0%	0	0.275	
50%	3500	1.371	
57%	4000	1.574	
64%	4500	1.844	
69%	4800	2.016	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.418	



Lateral Load Test Result for PLT-12A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

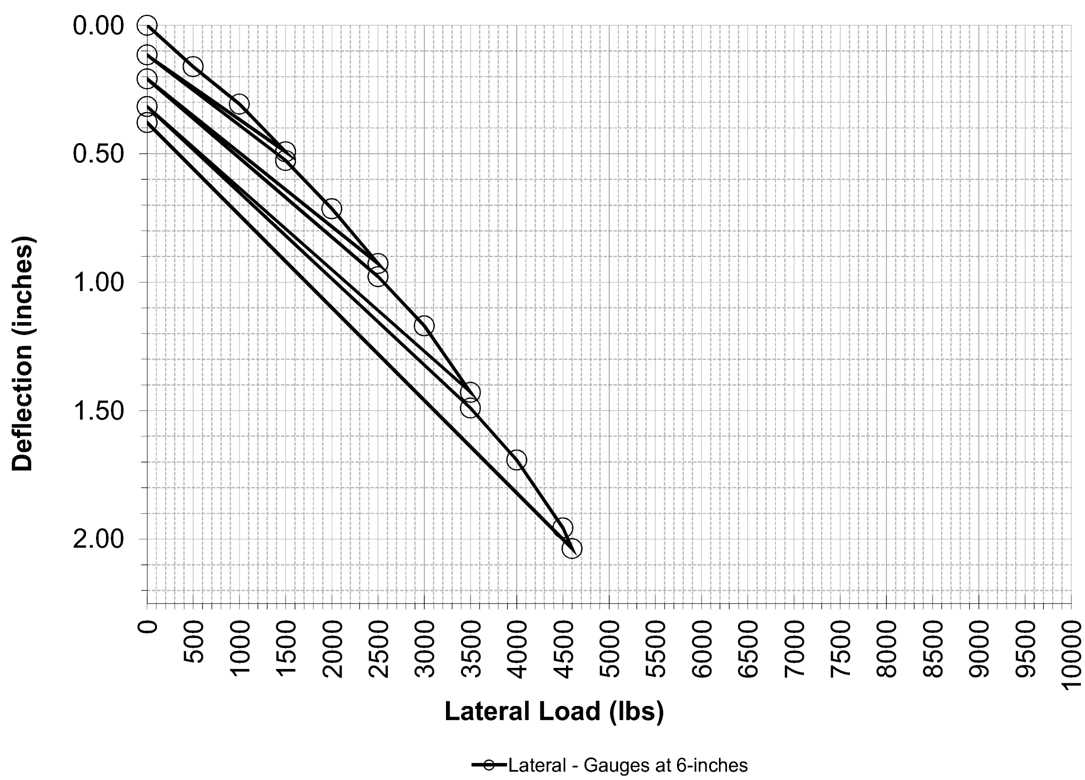
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-12A
Latitude:	40.91884
Longitude:	-84.51665
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	202.4

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.161	
14%	1000	0.307	
21%	1500	0.493	
0%	0	0.115	
21%	1500	0.526	
29%	2000	0.714	
36%	2500	0.927	
0%	0	0.209	
36%	2500	0.978	
43%	3000	1.170	
50%	3500	1.429	
0%	0	0.316	
50%	3500	1.490	
57%	4000	1.693	
64%	4500	1.957	
66%	4600	2.037	
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.379	



Lateral Load Test Result for PLT-12B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

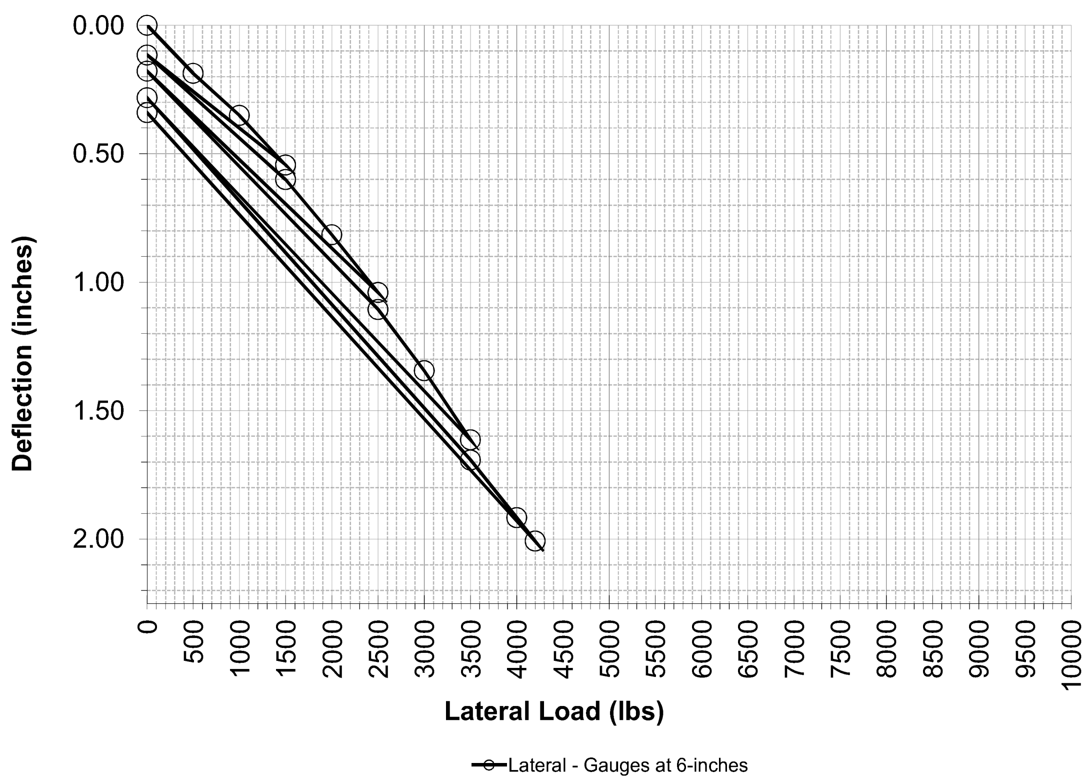
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-12B
Latitude:	40.91884
Longitude:	-84.51665
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	303.61

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.187	
14%	1000	0.351	
21%	1500	0.545	
0%	0	0.116	
21%	1500	0.601	
29%	2000	0.815	
36%	2500	1.040	
0%	0	0.179	
36%	2500	1.107	
43%	3000	1.345	
50%	3500	1.614	
0%	0	0.282	
50%	3500	1.693	
57%	4000	1.916	
60%	4200	2.008	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.340	



Lateral Load Test Result for PLT-13A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

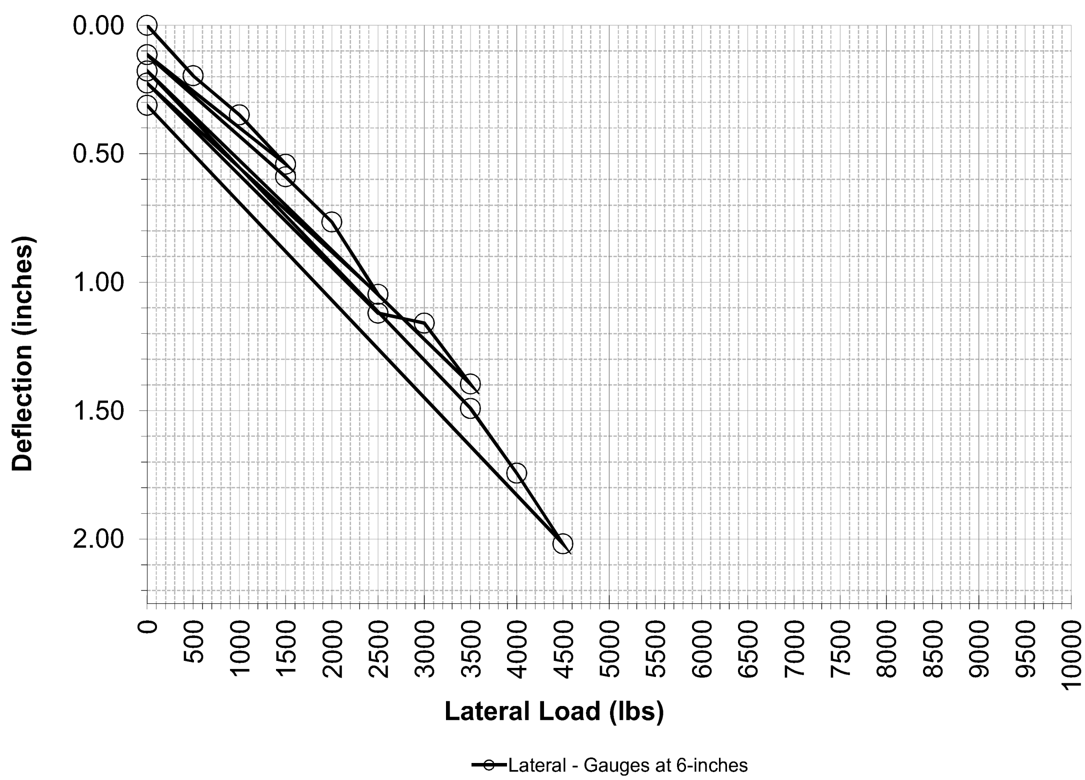
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-13A
Latitude:	40.91516
Longitude:	-84.52141
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	83.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.197	
14%	1000	0.349	
21%	1500	0.542	
0%	0	0.115	
21%	1500	0.590	
29%	2000	0.766	
36%	2500	1.047	
0%	0	0.225	
36%	2500	1.121	
43%	3000	1.159	
50%	3500	1.397	
0%	0	0.178	
50%	3500	1.491	
57%	4000	1.743	
64%	4500	2.019	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.312	



Terracon

Lateral Load Test Result for PLT-13B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

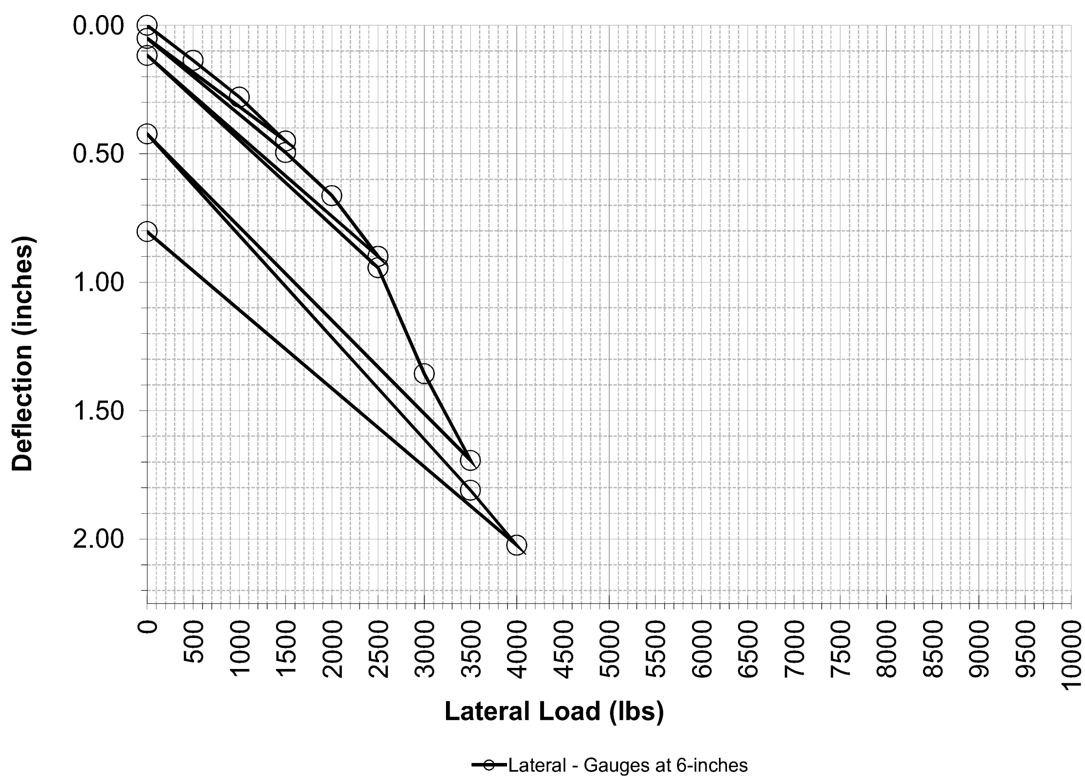
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-13B
Latitude:	40.91516
Longitude:	-84.52141
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	260.15

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.137	
14%	1000	0.280	
21%	1500	0.451	
0%	0	0.051	
21%	1500	0.496	
29%	2000	0.664	
36%	2500	0.900	
0%	0	0.118	
36%	2500	0.944	
43%	3000	1.356	
50%	3500	1.694	
0%	0	0.423	
50%	3500	1.810	
57%	4000	2.024	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.803	



Lateral Load Test Result for PLT-14A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

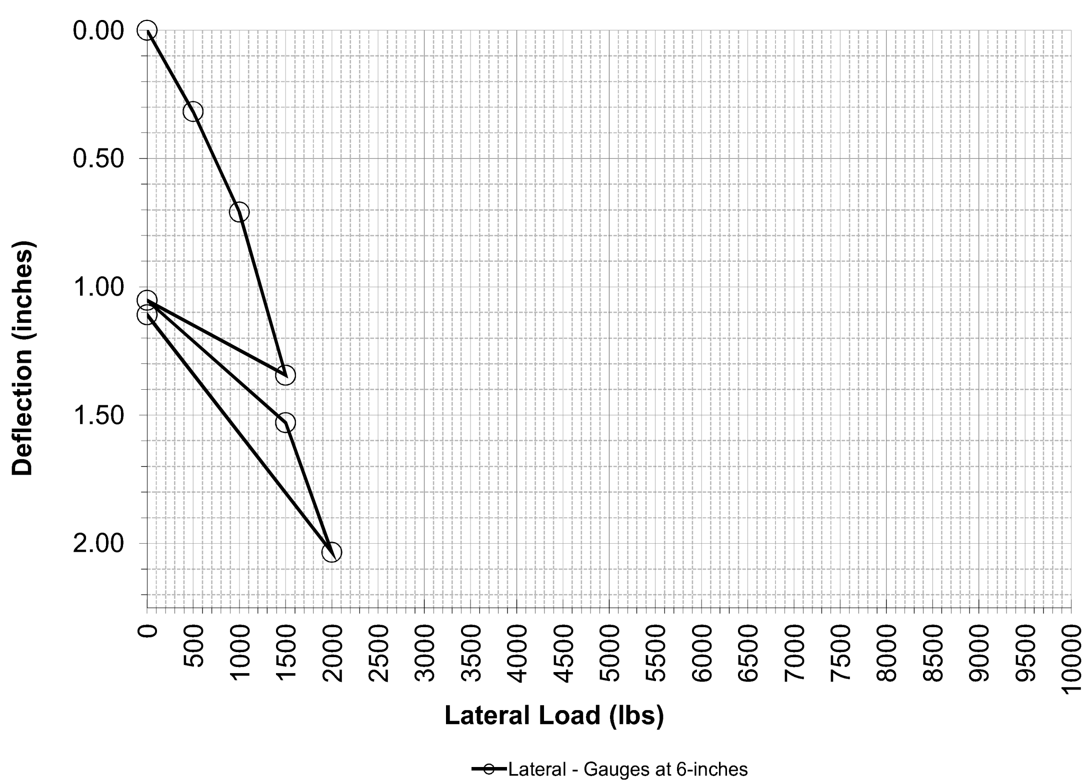
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-14A
Latitude:	40.92404
Longitude:	-84.51687
Pile Type:	W6X9
Pile Embedment Depth [in]:	66
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	173.81

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.317	
14%	1000	0.709	
21%	1500	1.345	
0%	0	1.053	
21%	1500	1.529	
29%	2000	2.035	
36%	2500		
0%	0		
36%	2500		
43%	3000		
50%	3500		
0%	0		
50%	3500		
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.109	



Lateral Load Test Result for PLT-14B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-14B
Latitude:	40.92404
Longitude:	-84.51687
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	240.9

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.177	
14%	1000	0.361	
21%	1500	0.609	
0%	0	0.073	
21%	1500	0.634	
29%	2000	0.852	
36%	2500	1.110	
0%	0	0.151	
36%	2500	1.172	
43%	3000	1.439	
46%	3200	1.541	A pile pulling too much, numbers not rising
0%	0		
50%	3500		
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.188	

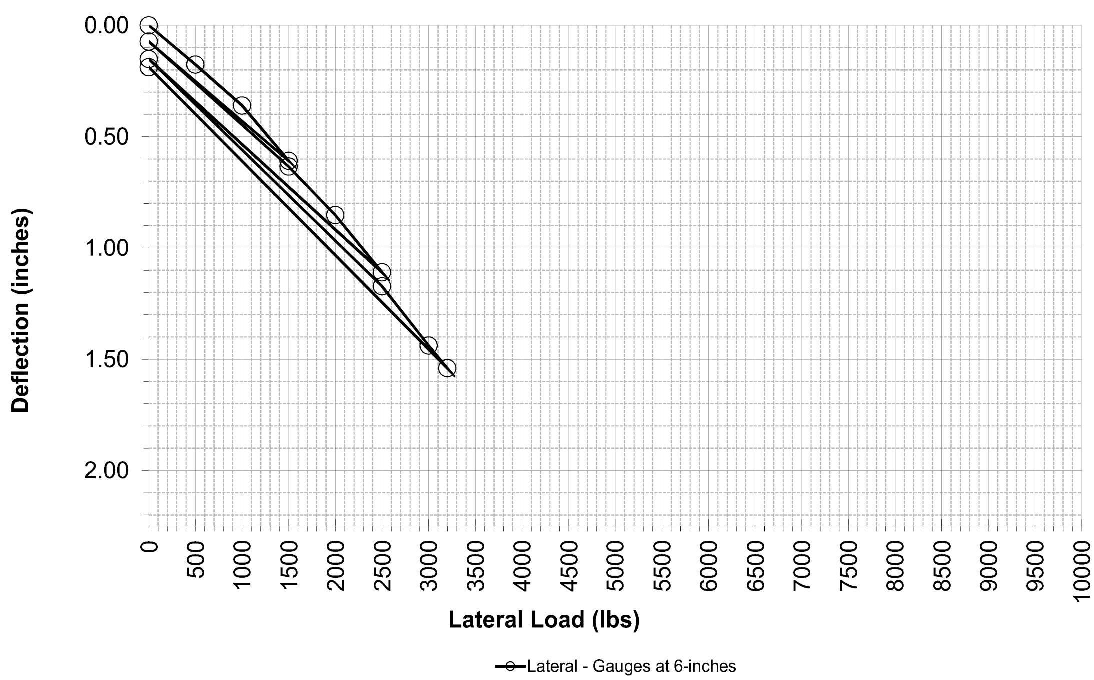


Exhibit C-28

Lateral Load Test Result for PLT-15A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

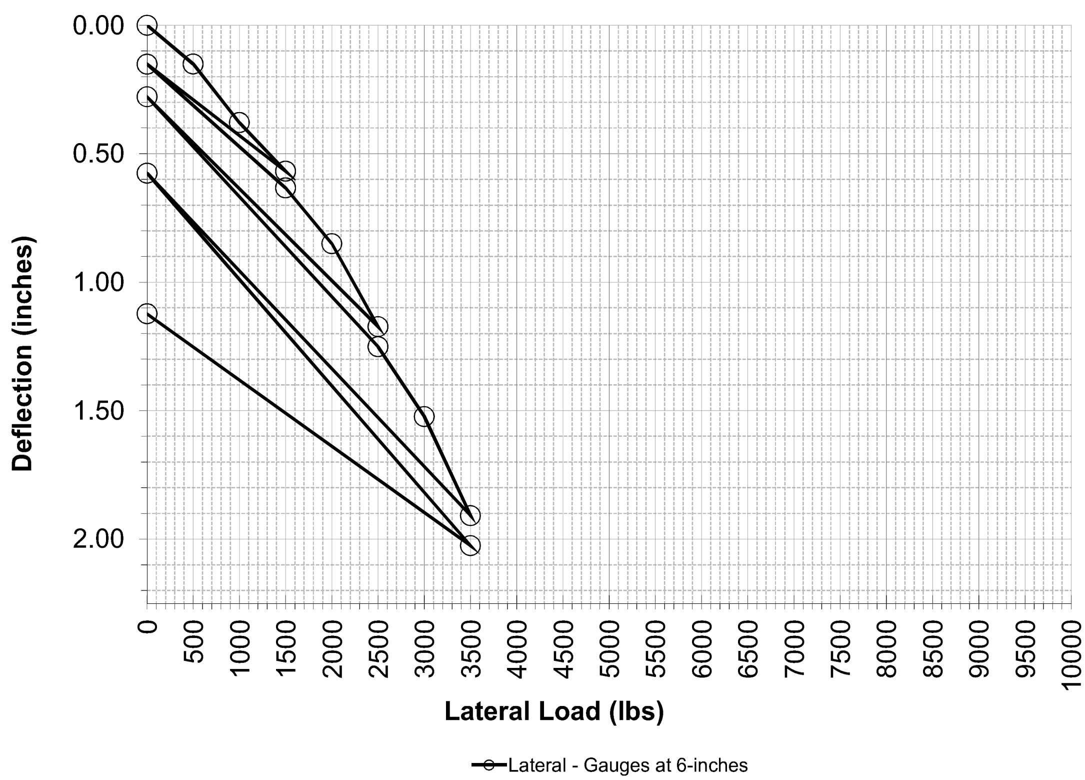
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-15A
Latitude:	40.93018
Longitude:	-84.50753
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	89.6

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.151	
14%	1000	0.379	
21%	1500	0.568	
0%	0	0.152	
21%	1500	0.633	
29%	2000	0.850	
36%	2500	1.173	
0%	0	0.278	
36%	2500	1.251	
43%	3000	1.523	
50%	3500	1.909	
0%	0	0.576	
50%	3500	2.026	
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.123	



Lateral Load Test Result for PLT-15B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

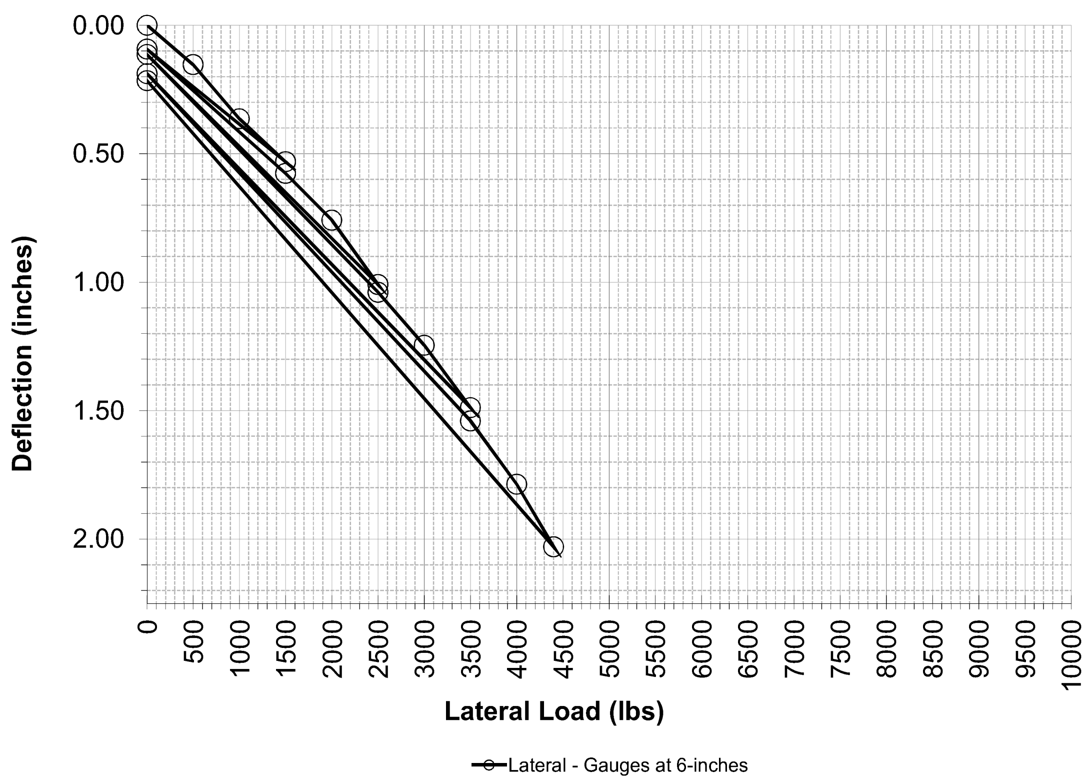
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-15B
Latitude:	40.93018
Longitude:	-84.50753
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	208.5

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.153	
14%	1000	0.365	
21%	1500	0.531	
0%	0	0.093	
21%	1500	0.577	
29%	2000	0.759	
36%	2500	1.010	
0%	0	0.114	
36%	2500	1.040	
43%	3000	1.246	
50%	3500	1.488	
0%	0	0.189	
50%	3500	1.540	
57%	4000	1.787	
63%	4400	2.030	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.216	



Lateral Load Test Result for PLT-16A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

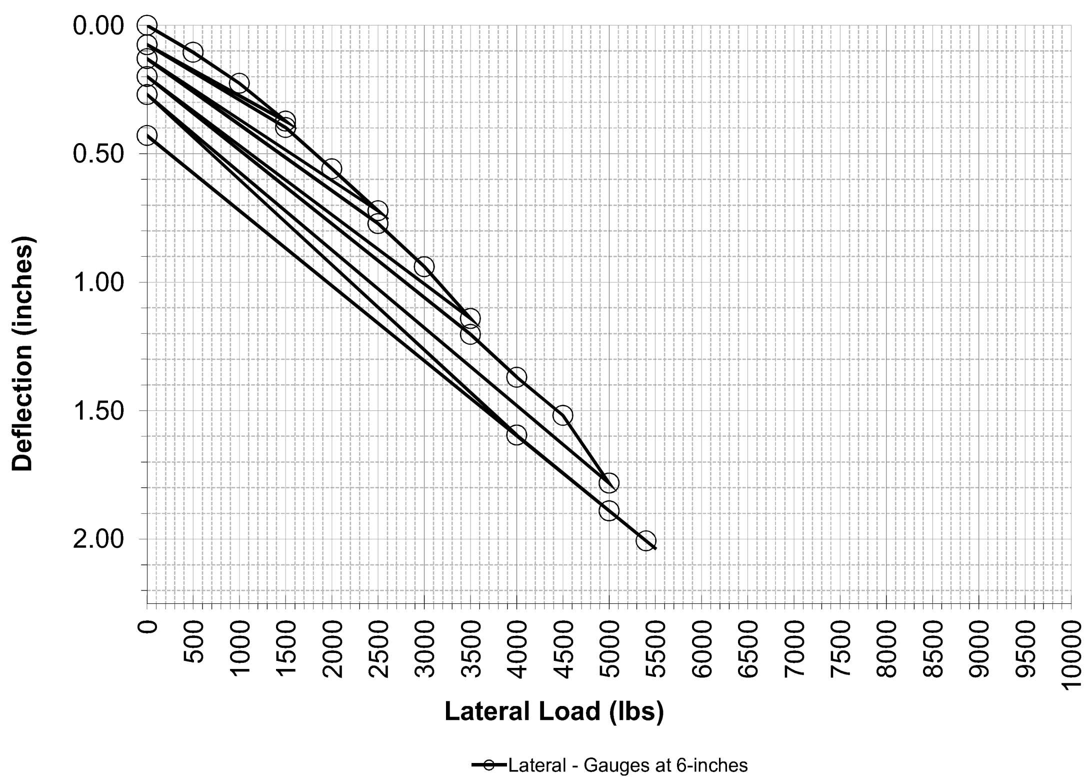
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-16A
Latitude:	40.92677
Longitude:	-84.50774
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	234.8

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.106	
14%	1000	0.226	
21%	1500	0.374	
0%	0	0.076	
21%	1500	0.399	
29%	2000	0.559	
36%	2500	0.722	
0%	0	0.130	
36%	2500	0.772	
43%	3000	0.940	
50%	3500	1.142	
0%	0	0.200	
50%	3500	1.204	
57%	4000	1.370	
64%	4500	1.518	
71%	5000	1.782	
0%	0	0.270	
57%	4000	1.595	
71%	5000	1.890	
77%	5400	2.007	
86%	6000		
93%	6500		
100%	7000		
0%	0	0.429	



Lateral Load Test Result for PLT-16B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

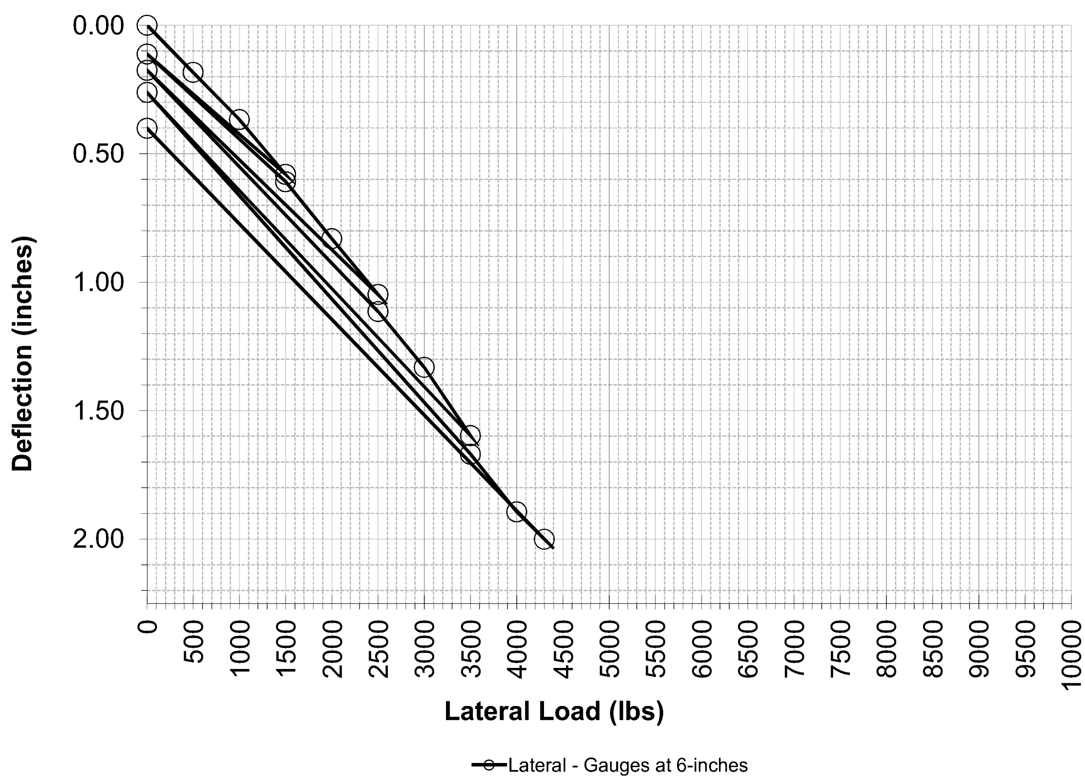
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-16B
Latitude:	40.92677
Longitude:	-84.50774
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	307.1

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.184	
14%	1000	0.368	
21%	1500	0.581	
0%	0	0.112	
21%	1500	0.609	
29%	2000	0.831	
36%	2500	1.048	
0%	0	0.176	
36%	2500	1.115	
43%	3000	1.332	
50%	3500	1.597	
0%	0	0.261	
50%	3500	1.670	
57%	4000	1.894	
61%	4300	2.001	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.401	



Lateral Load Test Result for PLT-17A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

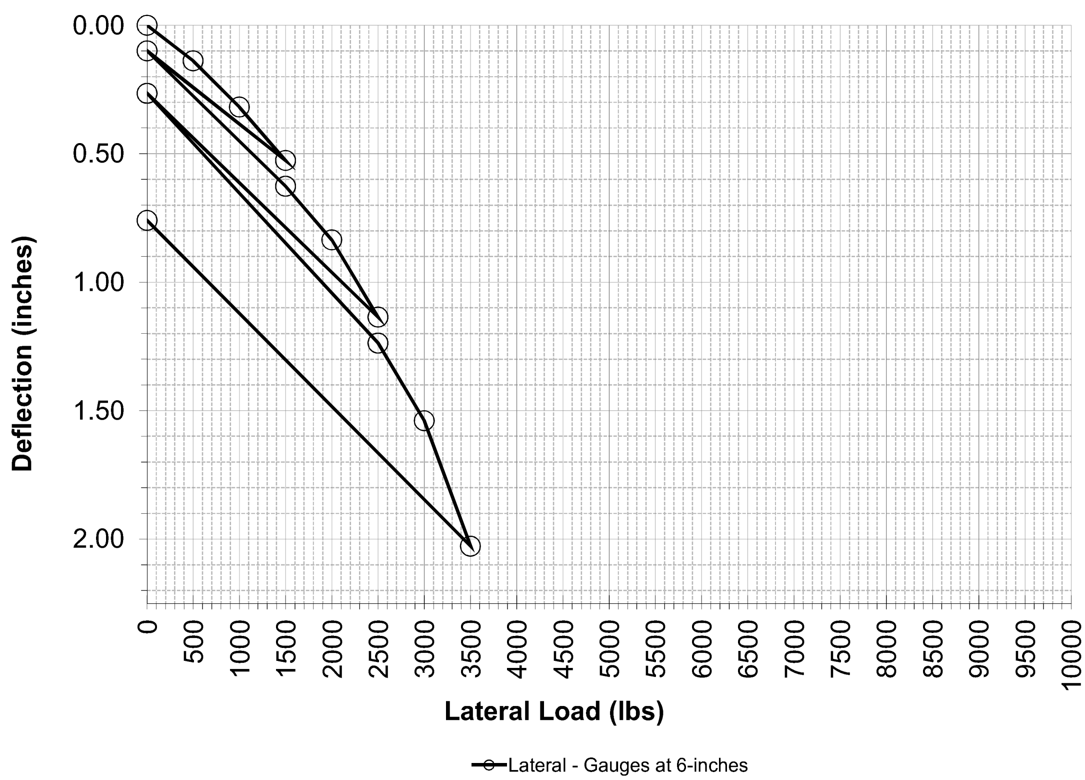
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-17A
Latitude:	40.92063
Longitude:	-84.50807
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	80.9

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.139	
14%	1000	0.319	
21%	1500	0.526	
0%	0	0.100	
21%	1500	0.627	
29%	2000	0.835	
36%	2500	1.136	
0%	0	0.265	
36%	2500	1.237	
43%	3000	1.540	
50%	3500	2.028	
0%	0		
50%	3500		
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.760	



Lateral Load Test Result for PLT-17B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

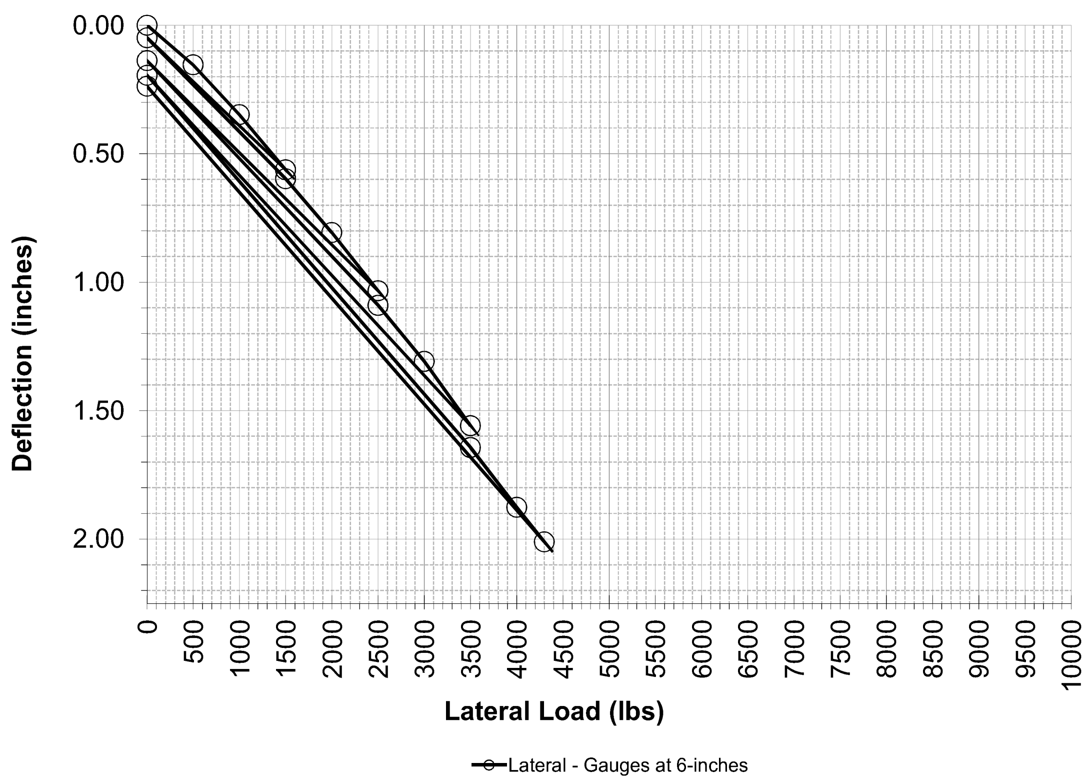
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-17B
Latitude:	40.92063
Longitude:	-84.50807
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	302.21

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.154	
14%	1000	0.348	
21%	1500	0.563	
0%	0	0.049	
21%	1500	0.598	
29%	2000	0.807	
36%	2500	1.033	
0%	0	0.138	
36%	2500	1.091	
43%	3000	1.308	
50%	3500	1.559	
0%	0	0.195	
50%	3500	1.644	
57%	4000	1.877	
61%	4300	2.011	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.238	



Lateral Load Test Result for PLT-18A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

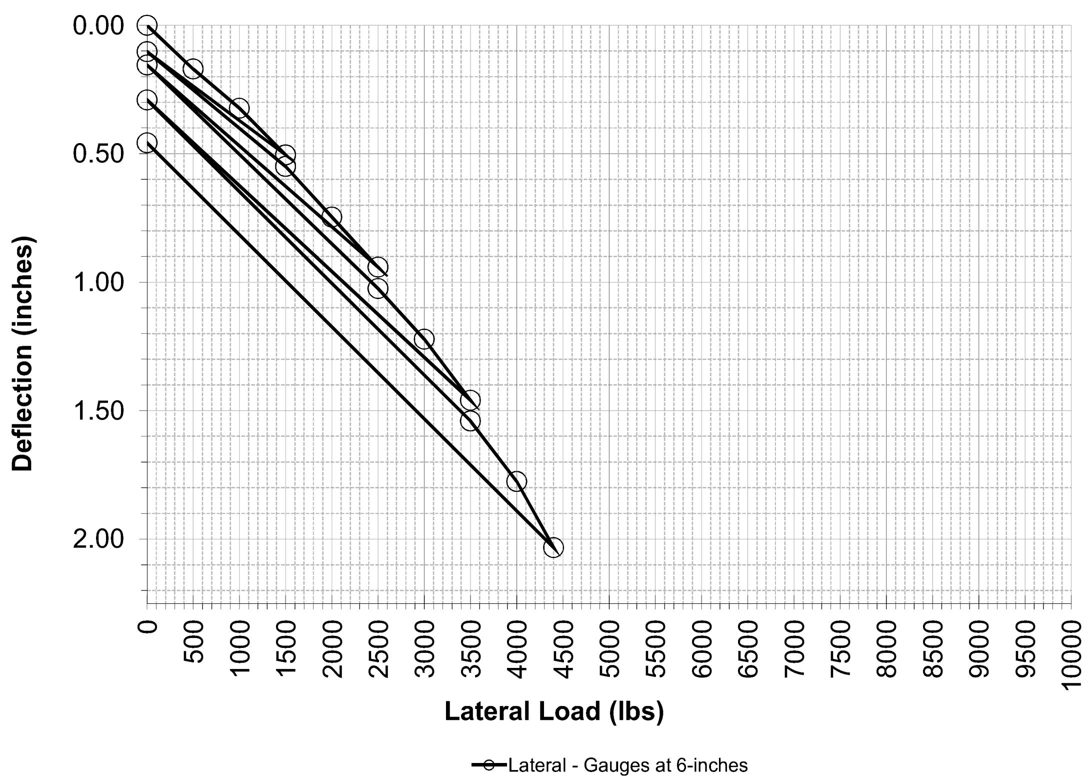
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-18A
Latitude:	40.91561
Longitude:	-84.50802
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	96

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.170	
14%	1000	0.323	
21%	1500	0.505	
0%	0	0.103	
21%	1500	0.550	
29%	2000	0.747	
36%	2500	0.942	
0%	0	0.155	
36%	2500	1.025	
43%	3000	1.222	
50%	3500	1.460	
0%	0	0.291	
50%	3500	1.541	
57%	4000	1.776	
63%	4400	2.033	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.458	



Lateral Load Test Result for PLT-18B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

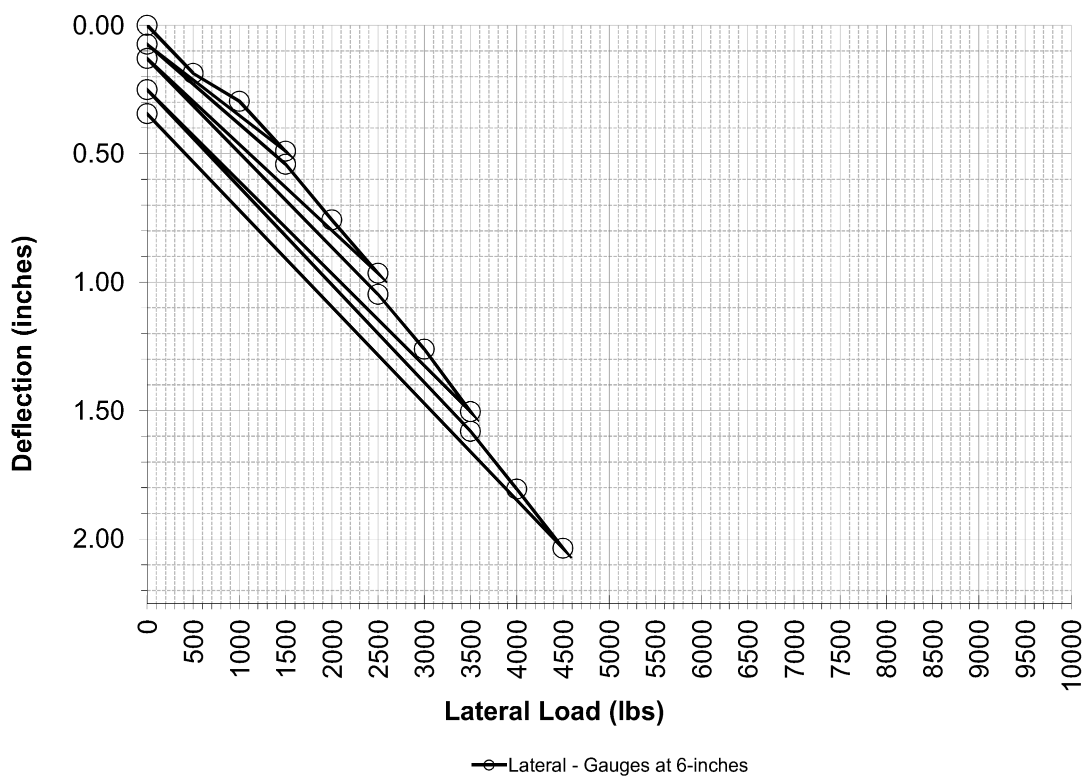
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-18B
Latitude:	40.91561
Longitude:	-84.50802
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	207.8

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.187	
14%	1000	0.297	
21%	1500	0.490	
0%	0	0.074	
21%	1500	0.541	
29%	2000	0.758	
36%	2500	0.965	
0%	0	0.129	
36%	2500	1.047	
43%	3000	1.261	
50%	3500	1.504	
0%	0	0.251	
50%	3500	1.580	
57%	4000	1.805	
64%	4500	2.036	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.344	



Lateral Load Test Result for PLT-19A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

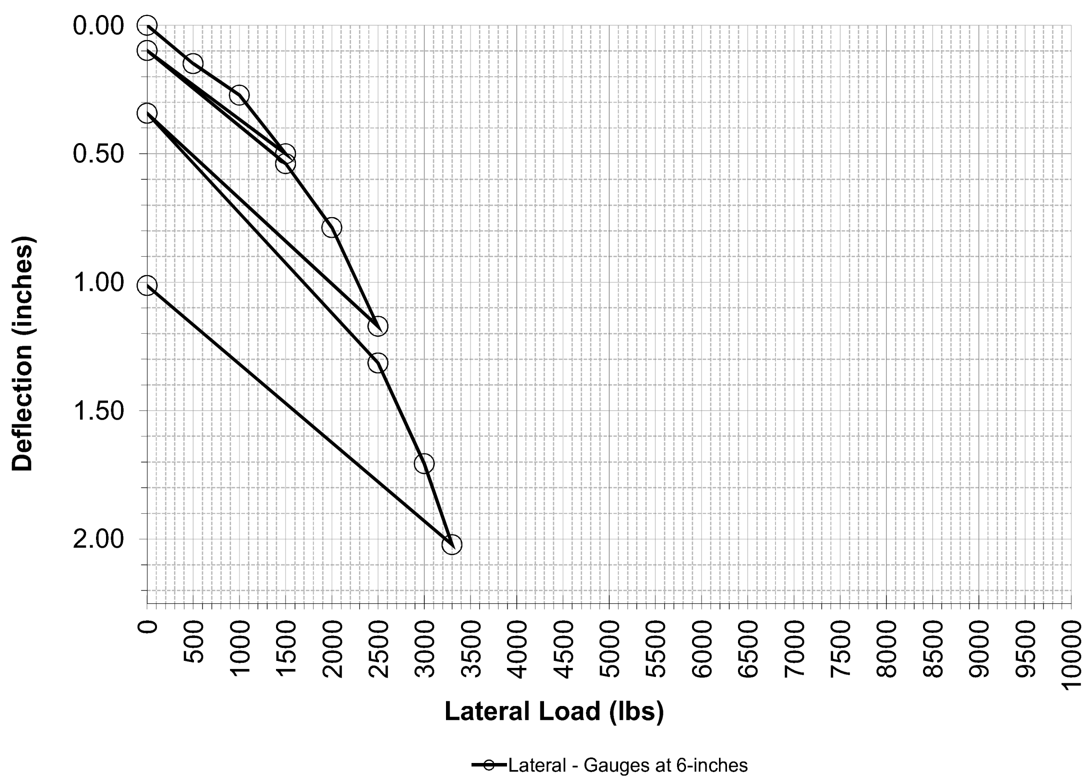
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-19A
Latitude:	40.91050
Longitude:	-84.50779
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	43.92

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.149	
14%	1000	0.272	
21%	1500	0.500	
0%	0	0.099	
21%	1500	0.539	
29%	2000	0.787	
36%	2500	1.172	
0%	0	0.343	
36%	2500	1.315	
43%	3000	1.707	
47%	3300	2.022	
0%	0		
50%	3500		
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.013	



Lateral Load Test Result for PLT-19B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

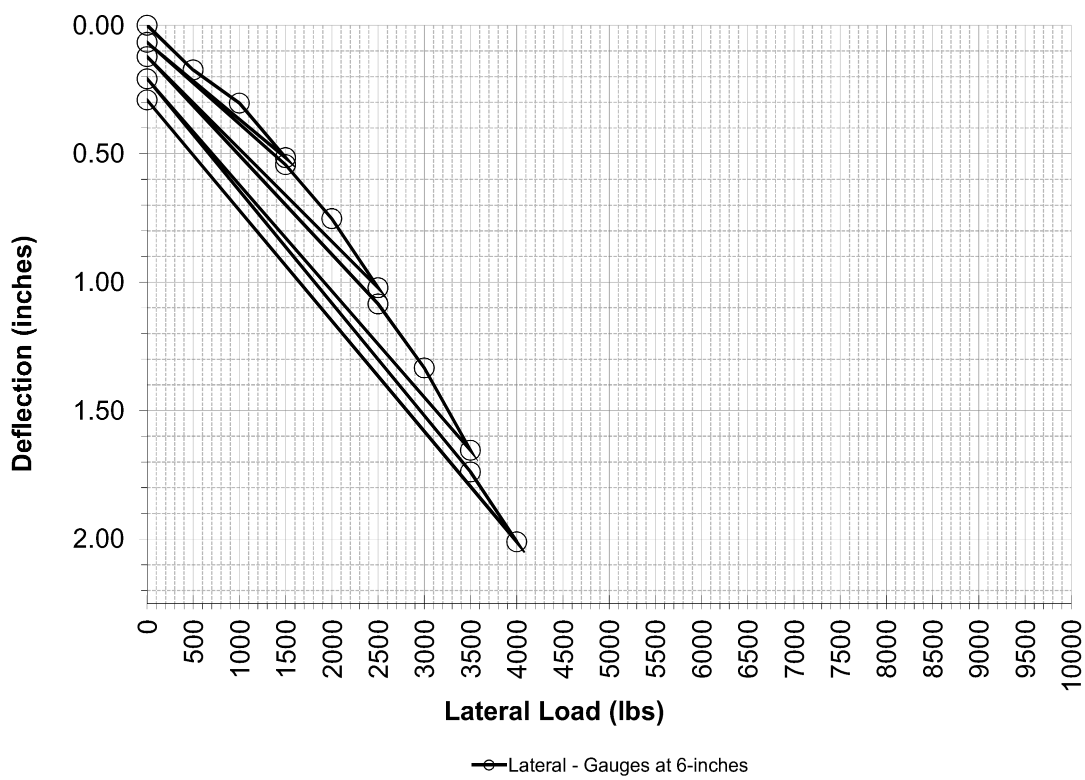
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-19B
Latitude:	40.91050
Longitude:	-84.50779
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	127.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.174	
14%	1000	0.304	
21%	1500	0.516	
0%	0	0.067	
21%	1500	0.543	
29%	2000	0.753	
36%	2500	1.022	
0%	0	0.122	
36%	2500	1.085	
43%	3000	1.334	
50%	3500	1.654	
0%	0	0.209	
50%	3500	1.739	
57%	4000	2.011	
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.291	



Lateral Load Test Result for PLT-20A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

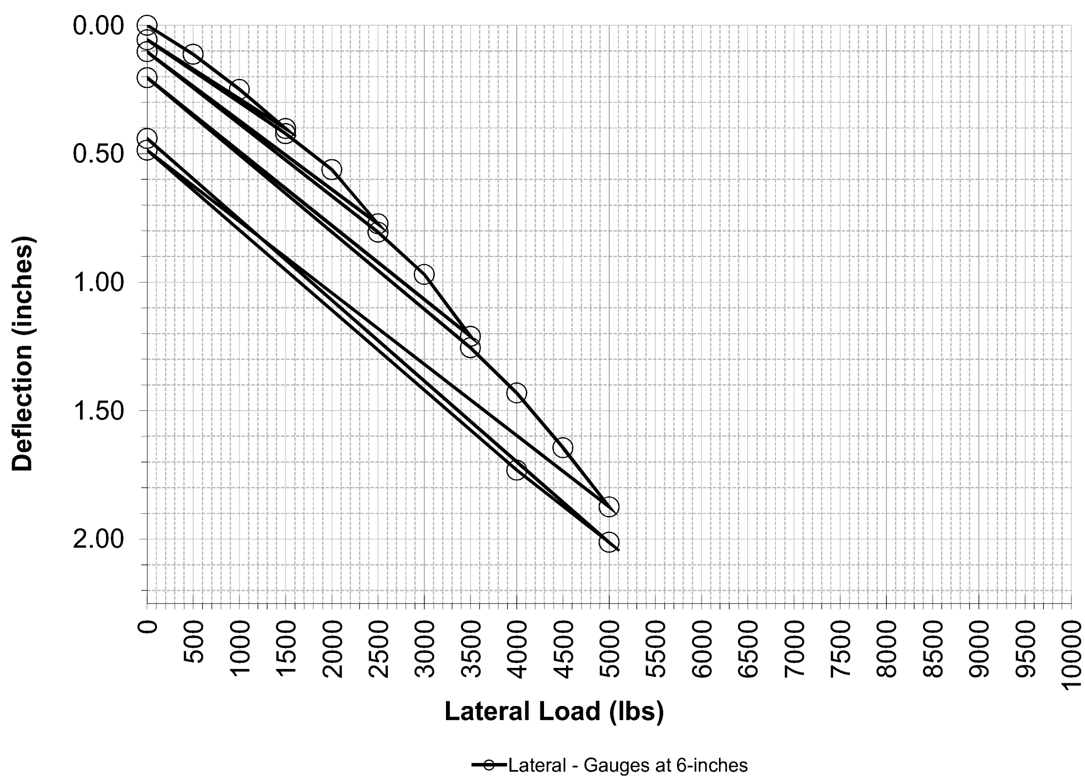
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-20A
Latitude:	40.90807
Longitude:	-84.51120
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	68.1

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.113	
14%	1000	0.250	
21%	1500	0.402	
0%	0	0.057	
21%	1500	0.422	
29%	2000	0.562	
36%	2500	0.773	
0%	0	0.103	
36%	2500	0.806	
43%	3000	0.970	
50%	3500	1.211	
0%	0	0.204	
50%	3500	1.255	
57%	4000	1.431	
64%	4500	1.645	
71%	5000	1.875	
0%	0	0.486	
57%	4000	1.732	
71%	5000	2.013	
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.441	



Lateral Load Test Result for PLT-20B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

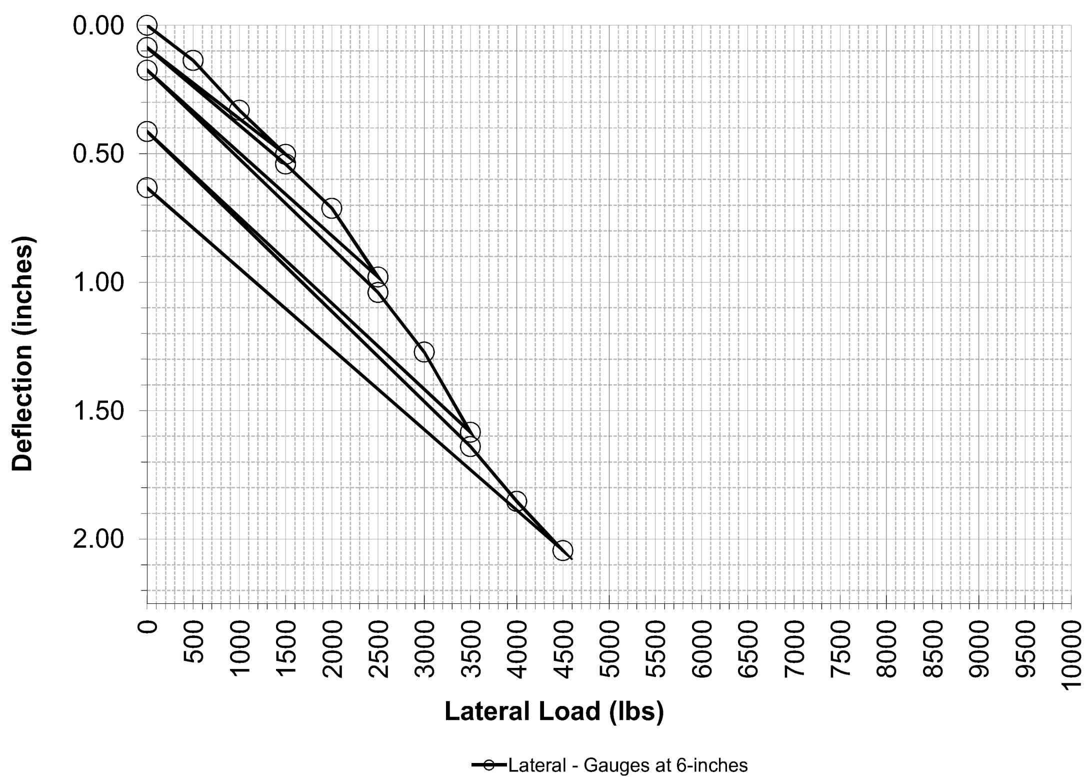
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-20B
Latitude:	40.90807
Longitude:	-84.51120
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	127.2

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.137	
14%	1000	0.331	
21%	1500	0.502	
0%	0	0.087	
21%	1500	0.540	
29%	2000	0.713	
36%	2500	0.980	
0%	0	0.175	
36%	2500	1.040	
43%	3000	1.272	
50%	3500	1.585	
0%	0	0.414	
50%	3500	1.640	
57%	4000	1.853	
64%	4500	2.045	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.632	



Lateral Load Test Result for PLT-21A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-21A
Latitude:	40.90545
Longitude:	-84.50691
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	43.32

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.199	
14%	1000	0.349	
21%	1500	0.595	
0%	0	0.171	
21%	1500	0.665	
29%	2000	0.956	
36%	2500	1.312	
0%	0	0.560	
36%	2500	1.543	
43%	3000	1.976	
50%	3500		
0%	0		
50%	3500		
57%	4000		
64%	4500		
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	1.289	

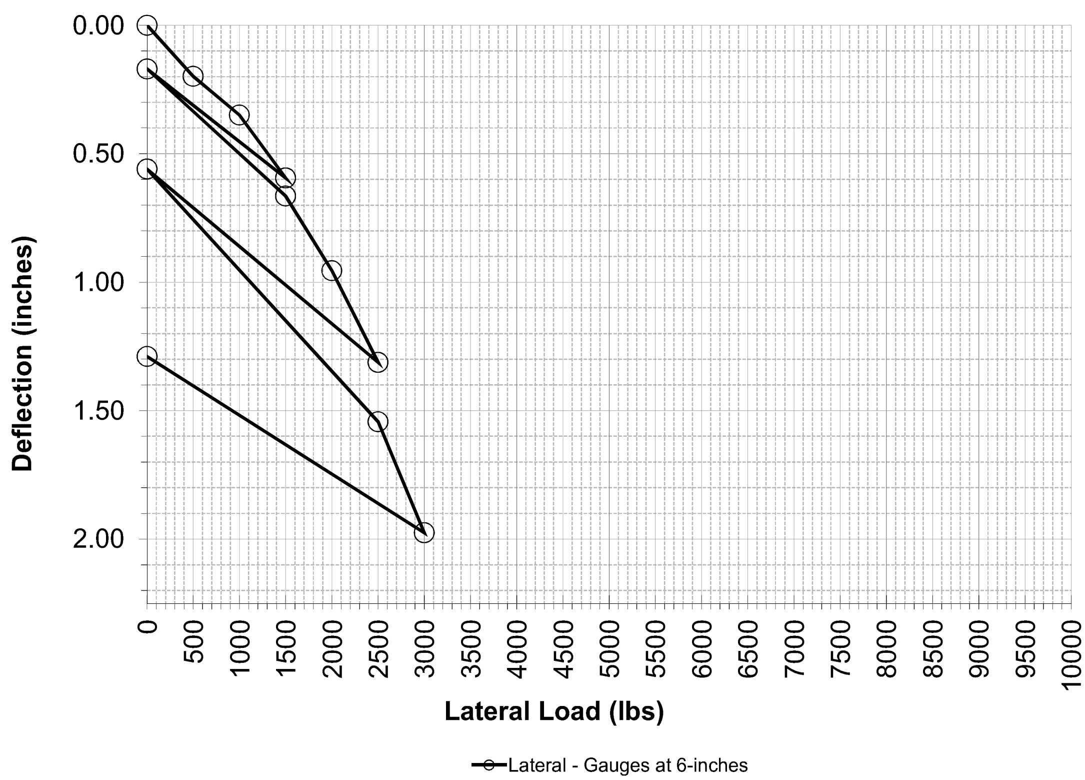


Exhibit C-41

Terracon

Lateral Load Test Result for PLT-21B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N421567

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
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

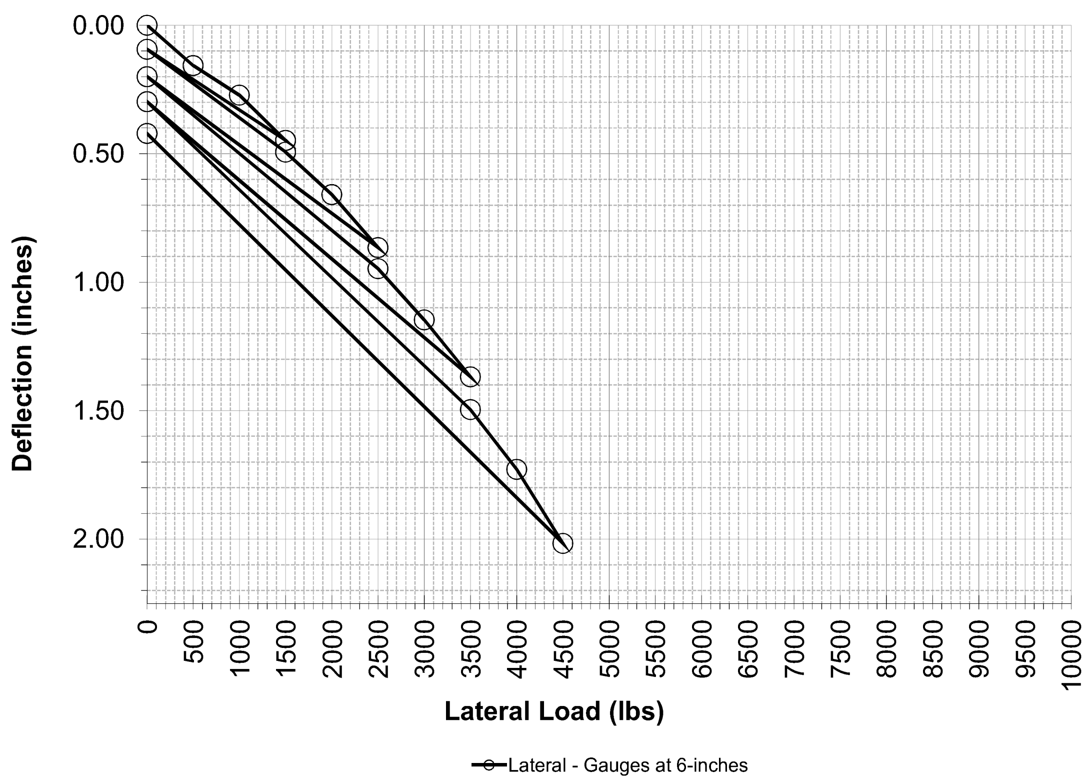
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-21B
Latitude:	40.90545
Longitude:	-84.50691
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	7000
Drive Time [sec]:	138.29

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
7%	500	0.157	
14%	1000	0.272	
21%	1500	0.449	
0%	0	0.094	
21%	1500	0.494	
29%	2000	0.659	
36%	2500	0.865	
0%	0	0.201	
36%	2500	0.947	
43%	3000	1.147	
50%	3500	1.369	
0%	0	0.298	
50%	3500	1.497	
57%	4000	1.729	
64%	4500	2.017	
71%	5000		
0%	0		
57%	4000		
71%	5000		
79%	5500		
86%	6000		
93%	6500		
100%	7000		
0%	0	0.421	



Tension Load Test Result for PLT-1A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

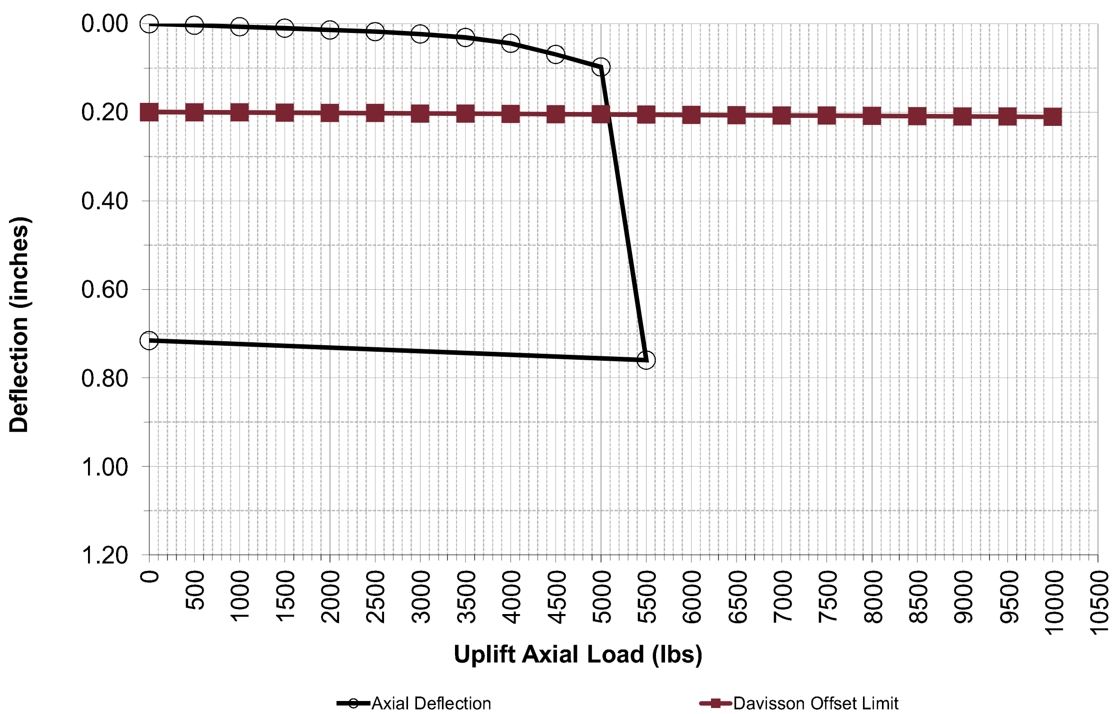
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-1A
Latitude:	40.95067
Longitude:	-84.55509
Pile Type:	W6x9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	87.1

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.007	0.001	0.200	
15%	1500	0.010	0.002	0.201	
20%	2000	0.014	0.002	0.201	
25%	2500	0.018	0.003	0.202	
30%	3000	0.023	0.003	0.203	
35%	3500	0.031	0.004	0.203	
40%	4000	0.044	0.004	0.204	
45%	4500	0.069	0.005	0.204	
50%	5000	0.098	0.006	0.205	
55%	5500	0.760	0.006	0.205	
60%	6000		0.007	0.206	
65%	6500		0.007	0.206	
70%	7000		0.008	0.207	
75%	7500		0.008	0.208	
80%	8000		0.009	0.208	
85%	8500		0.010	0.209	
90%	9000		0.010	0.209	
95%	9500		0.011	0.210	
100%	10000		0.011	0.210	
0%	0	0.716	0.000	0.199	



Tension Load Test Result for PLT-1B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

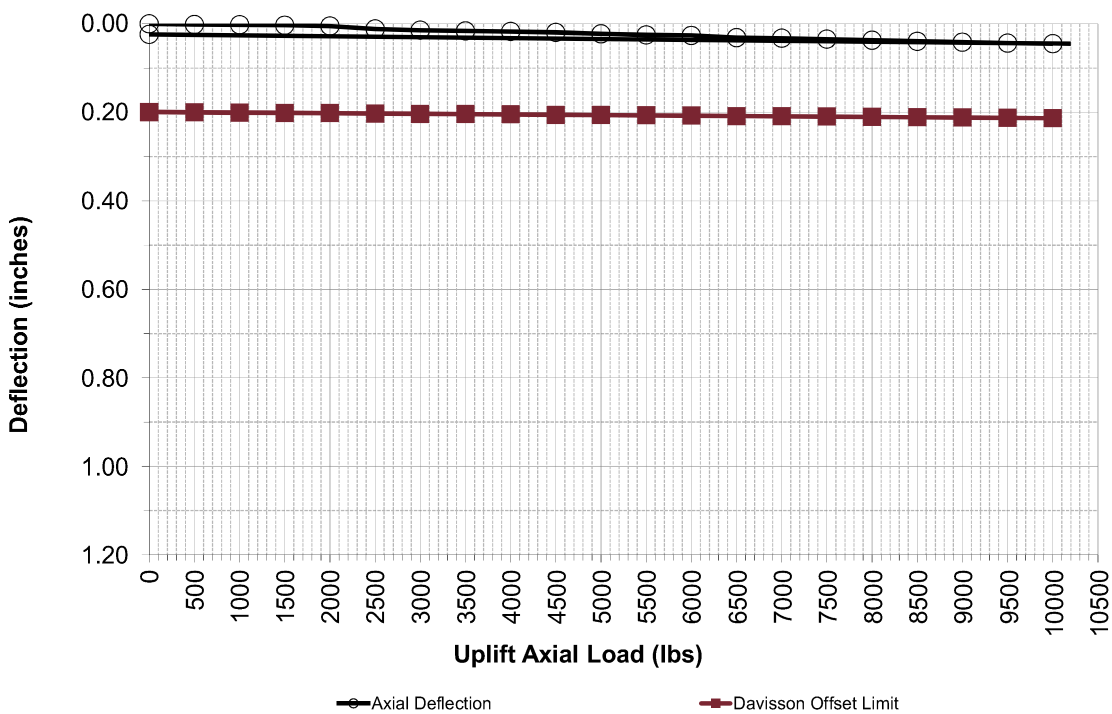
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-1B
Latitude:	40.95067
Longitude:	-84.55509
Pile Type:	W6x9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	221.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offset Limit (in) (0.15+D/120+(PL/AE))	Comments
0%	0	0.000	0.000	0.199	
5%	500	0.002	0.001	0.200	
10%	1000	0.002	0.001	0.201	
15%	1500	0.003	0.002	0.201	
20%	2000	0.005	0.003	0.202	
25%	2500	0.012	0.003	0.203	
30%	3000	0.015	0.004	0.203	
35%	3500	0.016	0.005	0.204	
40%	4000	0.018	0.006	0.205	
45%	4500	0.019	0.006	0.205	
50%	5000	0.023	0.007	0.206	
55%	5500	0.025	0.008	0.207	
60%	6000	0.027	0.008	0.208	
65%	6500	0.031	0.009	0.208	
70%	7000	0.033	0.010	0.209	
75%	7500	0.035	0.010	0.210	
80%	8000	0.037	0.011	0.210	
85%	8500	0.040	0.012	0.211	
90%	9000	0.042	0.013	0.212	
95%	9500	0.044	0.013	0.212	
100%	10000	0.045	0.014	0.213	
0%	0	0.024	0.000	0.199	



Tension Load Test Result for PLT-2A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

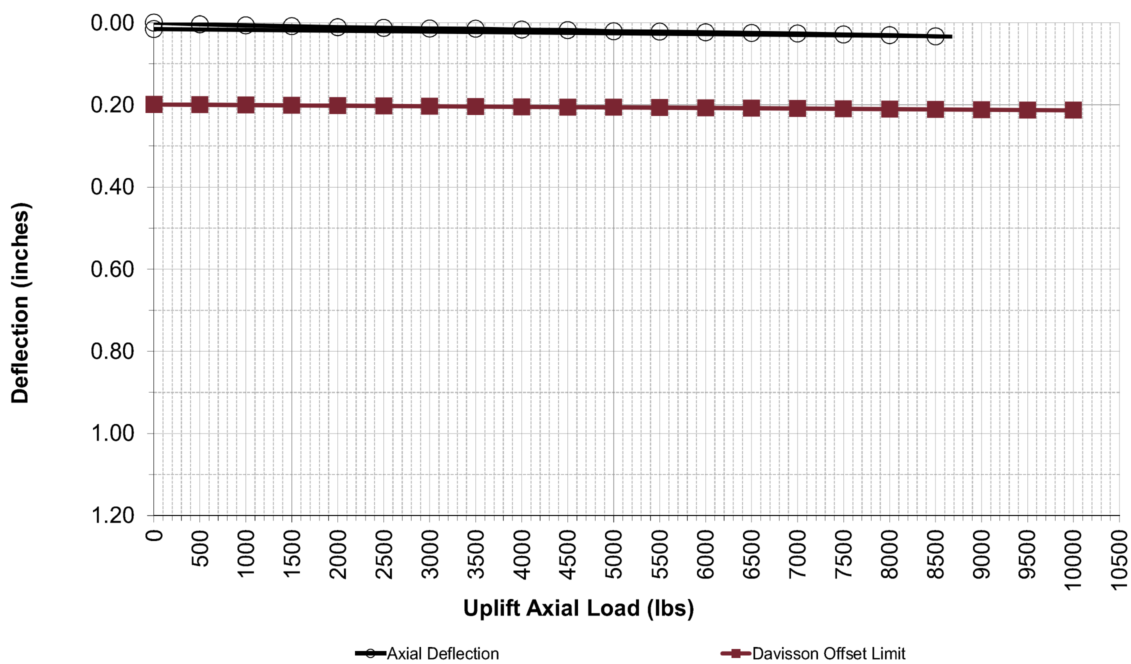
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-2A
Latitude:	40.94464
Longitude:	-84.55396
Pile Type:	W6x9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	103.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.007	0.001	0.201	
15%	1500	0.009	0.002	0.201	
20%	2000	0.011	0.003	0.202	
25%	2500	0.013	0.003	0.203	
30%	3000	0.014	0.004	0.203	
35%	3500	0.015	0.005	0.204	
40%	4000	0.017	0.006	0.205	
45%	4500	0.018	0.006	0.205	
50%	5000	0.021	0.007	0.206	
55%	5500	0.022	0.008	0.207	
60%	6000	0.024	0.008	0.208	
65%	6500	0.025	0.009	0.208	
70%	7000	0.027	0.010	0.209	
75%	7500	0.029	0.010	0.210	
80%	8000	0.031	0.011	0.210	chain shifted, had to restore
85%	8500	0.033	0.012	0.211	
90%	9000		0.013	0.212	
95%	9500		0.013	0.212	
100%	10000		0.014	0.213	
0%	0	0.016	0.000	0.199	



Tension Load Test Result for PLT-2B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

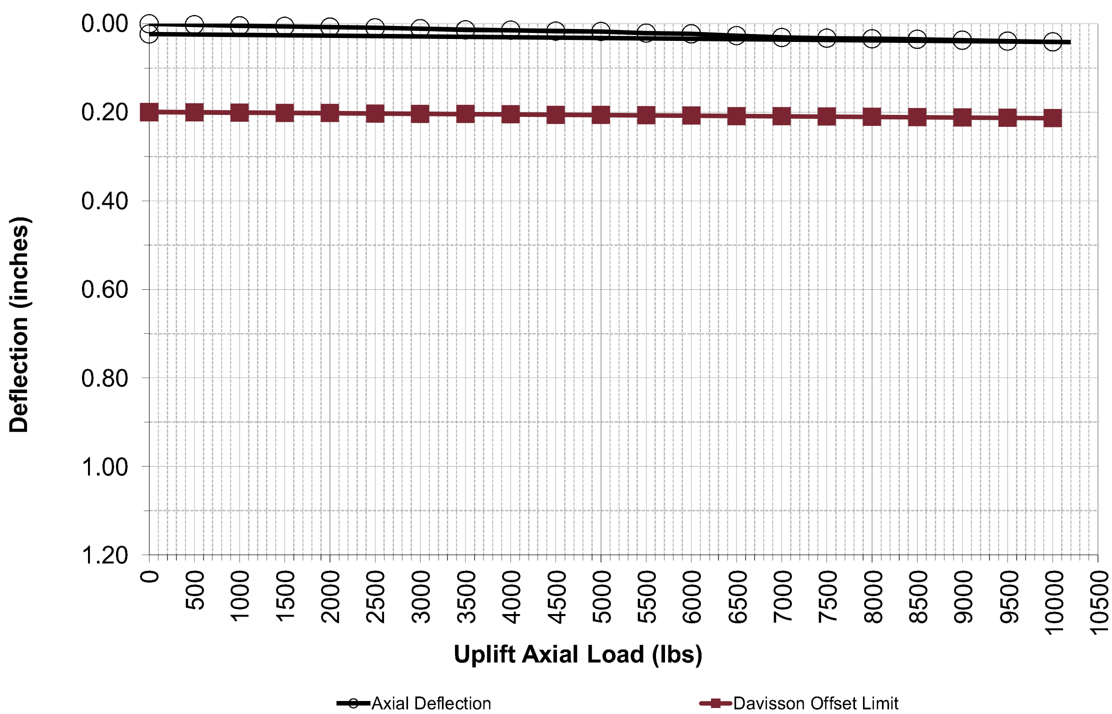
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-2B
Latitude:	40.94464
Longitude:	-84.55396
Pile Type:	W6x9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	266.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.005	0.001	0.201	
15%	1500	0.006	0.002	0.201	
20%	2000	0.008	0.003	0.202	
25%	2500	0.009	0.003	0.203	
30%	3000	0.011	0.004	0.203	
35%	3500	0.014	0.005	0.204	
40%	4000	0.015	0.006	0.205	
45%	4500	0.017	0.006	0.205	
50%	5000	0.017	0.007	0.206	
55%	5500	0.021	0.008	0.207	
60%	6000	0.023	0.008	0.208	
65%	6500	0.027	0.009	0.208	
70%	7000	0.031	0.010	0.209	
75%	7500	0.033	0.010	0.210	
80%	8000	0.034	0.011	0.210	
85%	8500	0.035	0.012	0.211	
90%	9000	0.037	0.013	0.212	
95%	9500	0.039	0.013	0.212	
100%	10000	0.041	0.014	0.213	
0%	0	0.023	0.000	0.199	



Tension Load Test Result for PLT-3A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

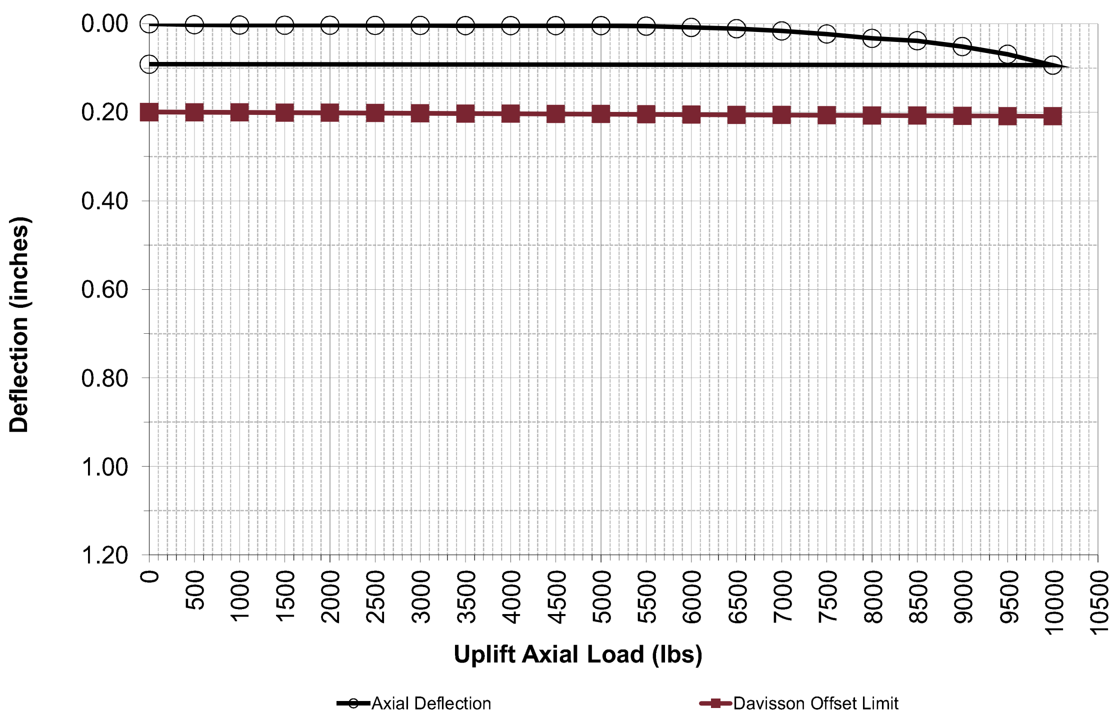
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-3A
Latitude:	40.93652
Longitude:	-84.55731
Pile Type:	W6x9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	86.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.000	0.200	
10%	1000	0.003	0.001	0.200	
15%	1500	0.003	0.001	0.201	
20%	2000	0.003	0.002	0.201	
25%	2500	0.004	0.002	0.202	
30%	3000	0.004	0.003	0.202	
35%	3500	0.004	0.003	0.203	
40%	4000	0.004	0.004	0.203	
45%	4500	0.004	0.004	0.204	
50%	5000	0.004	0.005	0.204	
55%	5500	0.006	0.005	0.205	
60%	6000	0.008	0.006	0.205	
65%	6500	0.011	0.006	0.206	
70%	7000	0.016	0.007	0.206	
75%	7500	0.023	0.007	0.207	
80%	8000	0.033	0.008	0.207	
85%	8500	0.038	0.008	0.207	
90%	9000	0.052	0.009	0.208	
95%	9500	0.069	0.009	0.208	
100%	10000	0.094	0.010	0.209	
0%	0	0.092	0.000	0.199	



Tension Load Test Result for PLT-3B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

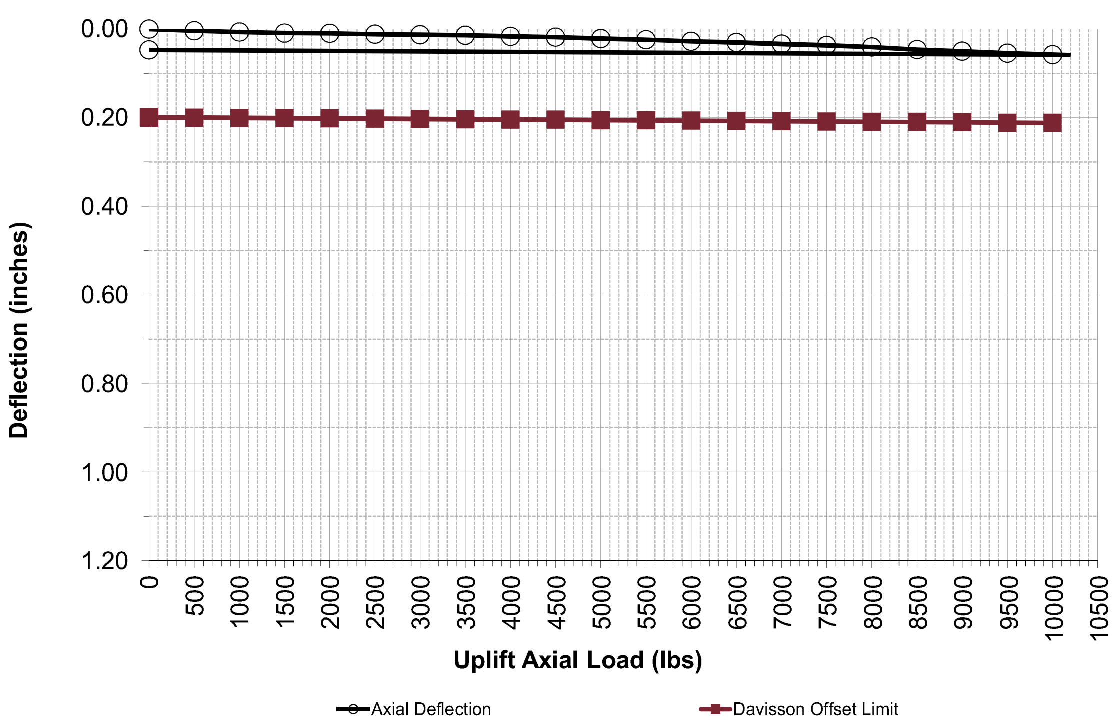
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-3B
Latitude:	40.93652
Longitude:	-84.55731
Pile Type:	W6x9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	182.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.007	0.001	0.200	
15%	1500	0.009	0.002	0.201	
20%	2000	0.010	0.003	0.202	
25%	2500	0.012	0.003	0.202	
30%	3000	0.013	0.004	0.203	
35%	3500	0.014	0.004	0.204	
40%	4000	0.017	0.005	0.204	
45%	4500	0.018	0.006	0.205	
50%	5000	0.022	0.006	0.205	
55%	5500	0.024	0.007	0.206	
60%	6000	0.028	0.008	0.207	
65%	6500	0.030	0.008	0.207	
70%	7000	0.034	0.009	0.208	
75%	7500	0.037	0.009	0.209	
80%	8000	0.040	0.010	0.209	
85%	8500	0.046	0.011	0.210	
90%	9000	0.050	0.011	0.210	
95%	9500	0.055	0.012	0.211	
100%	10000	0.058	0.013	0.212	
0%	0	0.047	0.000	0.199	



Tension Load Test Result for PLT-4A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

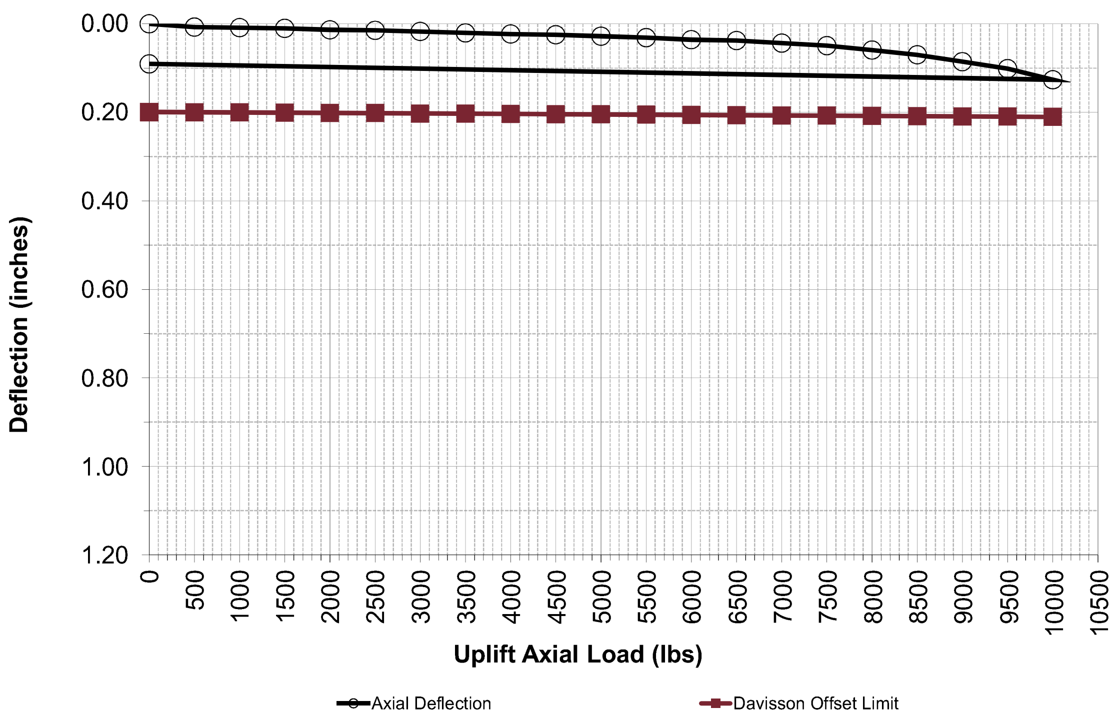
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-4A
Latitude:	40.93294
Longitude:	-84.56423
Pile Type:	W6x9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	89.4

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.007	0.001	0.200	
10%	1000	0.009	0.001	0.200	
15%	1500	0.011	0.002	0.201	
20%	2000	0.014	0.002	0.201	
25%	2500	0.015	0.003	0.202	
30%	3000	0.018	0.003	0.203	
35%	3500	0.021	0.004	0.203	
40%	4000	0.023	0.004	0.204	
45%	4500	0.025	0.005	0.204	
50%	5000	0.028	0.006	0.205	
55%	5500	0.032	0.006	0.205	
60%	6000	0.036	0.007	0.206	
65%	6500	0.038	0.007	0.206	
70%	7000	0.044	0.008	0.207	
75%	7500	0.050	0.008	0.208	
80%	8000	0.059	0.009	0.208	
85%	8500	0.070	0.010	0.209	
90%	9000	0.086	0.010	0.209	
95%	9500	0.101	0.011	0.210	
100%	10000	0.126	0.011	0.210	
0%	0	0.091	0.000	0.199	



Tension Load Test Result for PLT-4B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

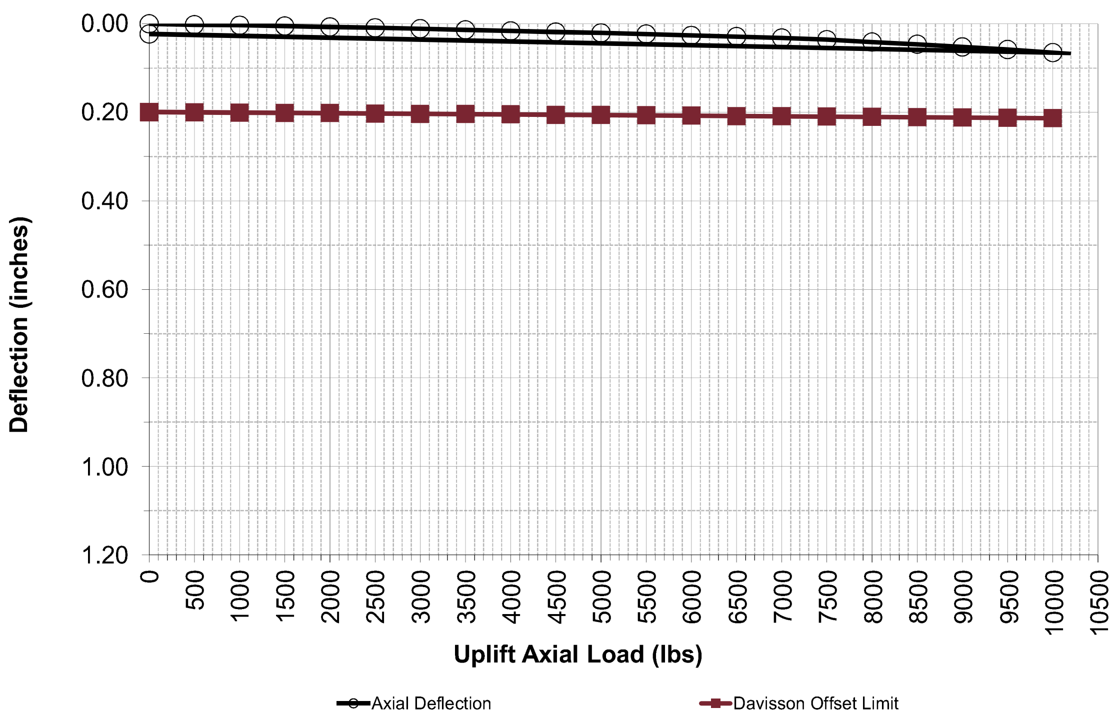
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/26/2021

Pile Information

Pile ID:	PLT-4B
Latitude:	40.93294
Longitude:	-84.56423
Pile Type:	W6x9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	150.4

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.004	0.001	0.201	
15%	1500	0.005	0.002	0.201	
20%	2000	0.007	0.003	0.202	
25%	2500	0.009	0.003	0.203	
30%	3000	0.011	0.004	0.203	
35%	3500	0.014	0.005	0.204	
40%	4000	0.016	0.006	0.205	
45%	4500	0.019	0.006	0.205	
50%	5000	0.021	0.007	0.206	
55%	5500	0.023	0.008	0.207	
60%	6000	0.026	0.008	0.208	
65%	6500	0.029	0.009	0.208	
70%	7000	0.032	0.010	0.209	
75%	7500	0.036	0.010	0.210	
80%	8000	0.041	0.011	0.210	
85%	8500	0.046	0.012	0.211	
90%	9000	0.052	0.013	0.212	
95%	9500	0.058	0.013	0.212	
100%	10000	0.065	0.014	0.213	
0%	0	0.023	0.000	0.199	



Tension Load Test Result for PLT-5A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

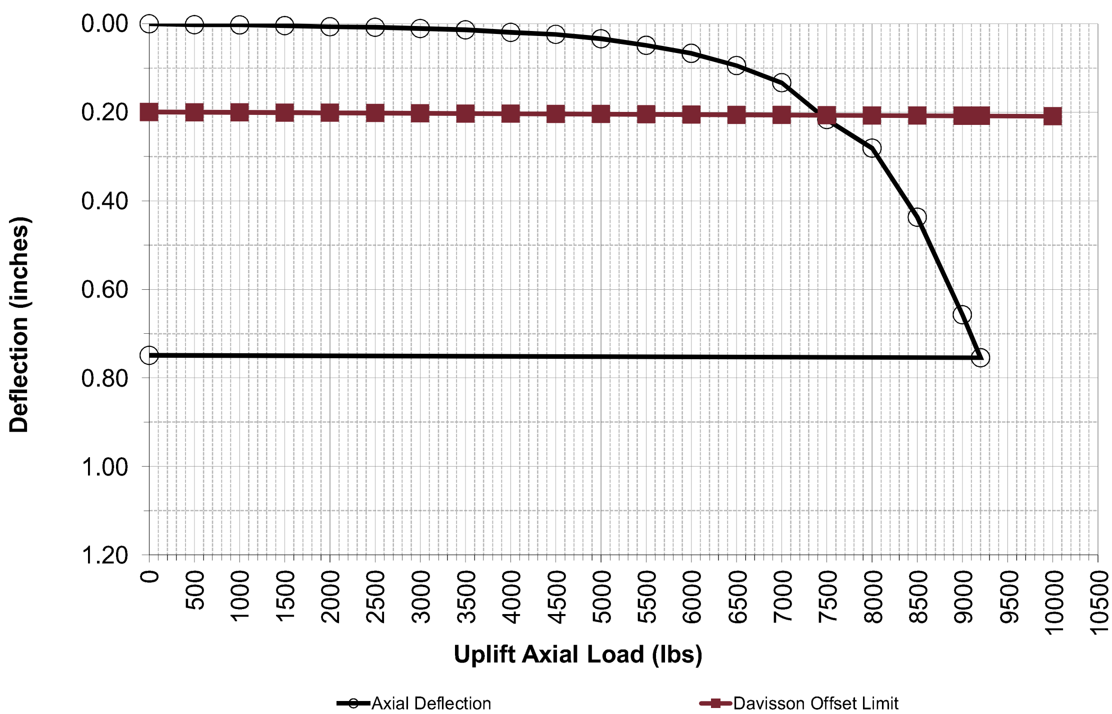
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-5A
Latitude:	40.92949
Longitude:	-84.55639
Pile Type:	W6x9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	63.6

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.000	0.200	
10%	1000	0.003	0.001	0.200	
15%	1500	0.004	0.001	0.201	
20%	2000	0.007	0.002	0.201	
25%	2500	0.008	0.002	0.202	
30%	3000	0.011	0.003	0.202	
35%	3500	0.014	0.003	0.203	
40%	4000	0.019	0.004	0.203	
45%	4500	0.024	0.004	0.204	
50%	5000	0.034	0.005	0.204	
55%	5500	0.049	0.005	0.205	
60%	6000	0.067	0.006	0.205	
65%	6500	0.095	0.006	0.206	
70%	7000	0.133	0.007	0.206	
75%	7500	0.216	0.007	0.207	
80%	8000	0.281	0.008	0.207	
85%	8500	0.437	0.008	0.207	
90%	9000	0.658	0.009	0.208	
92%	9200	0.755	0.009	0.208	
100%	10000		0.010	0.209	
0%	0	0.749	0.000	0.199	



Tension Load Test Result for PLT-5B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

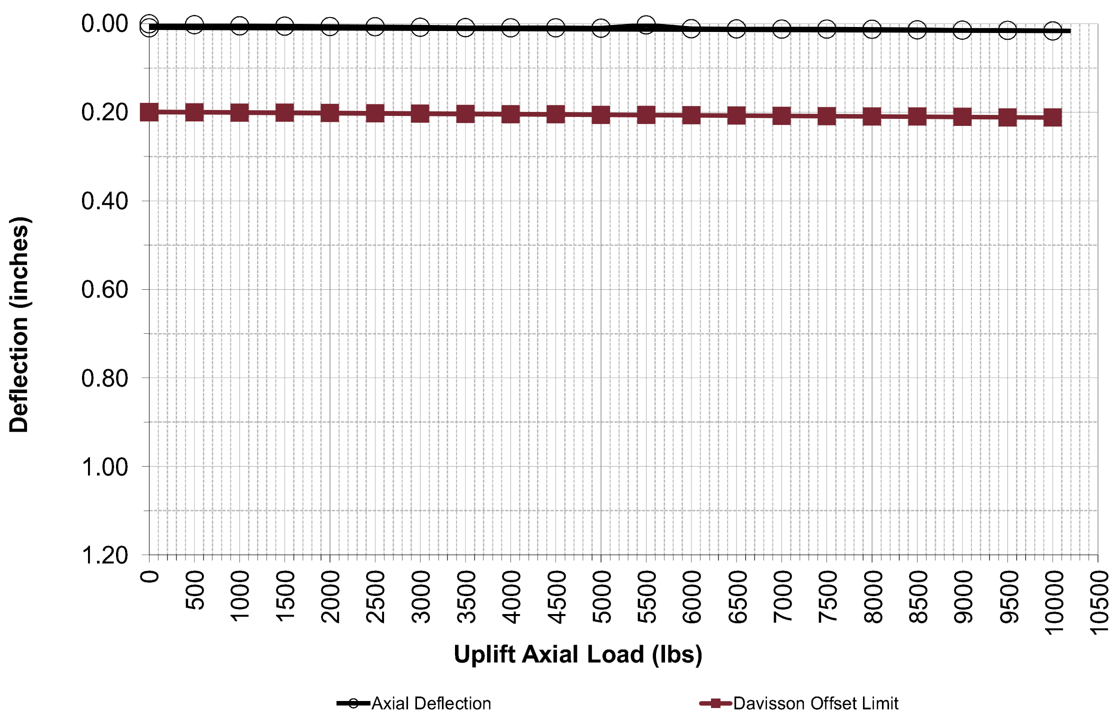
Test Date and Representative

Tested By Terracon Rep:	M.Bishop
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-5B
Latitude:	40.92949
Longitude:	-84.55639
Pile Type:	W6x9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	187.6

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.005	0.002	0.201	
20%	2000	0.006	0.003	0.202	
25%	2500	0.007	0.003	0.202	
30%	3000	0.008	0.004	0.203	
35%	3500	0.009	0.004	0.204	
40%	4000	0.009	0.005	0.204	
45%	4500	0.009	0.006	0.205	
50%	5000	0.010	0.006	0.205	
55%	5500	0.002	0.007	0.206	
60%	6000	0.011	0.008	0.207	
65%	6500	0.012	0.008	0.207	
70%	7000	0.012	0.009	0.208	
75%	7500	0.012	0.009	0.209	
80%	8000	0.013	0.010	0.209	
85%	8500	0.014	0.011	0.210	
90%	9000	0.015	0.011	0.210	
95%	9500	0.015	0.012	0.211	
100%	10000	0.016	0.013	0.212	
0%	0	0.009	0.000	0.199	



Tension Load Test Result for PLT-6A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

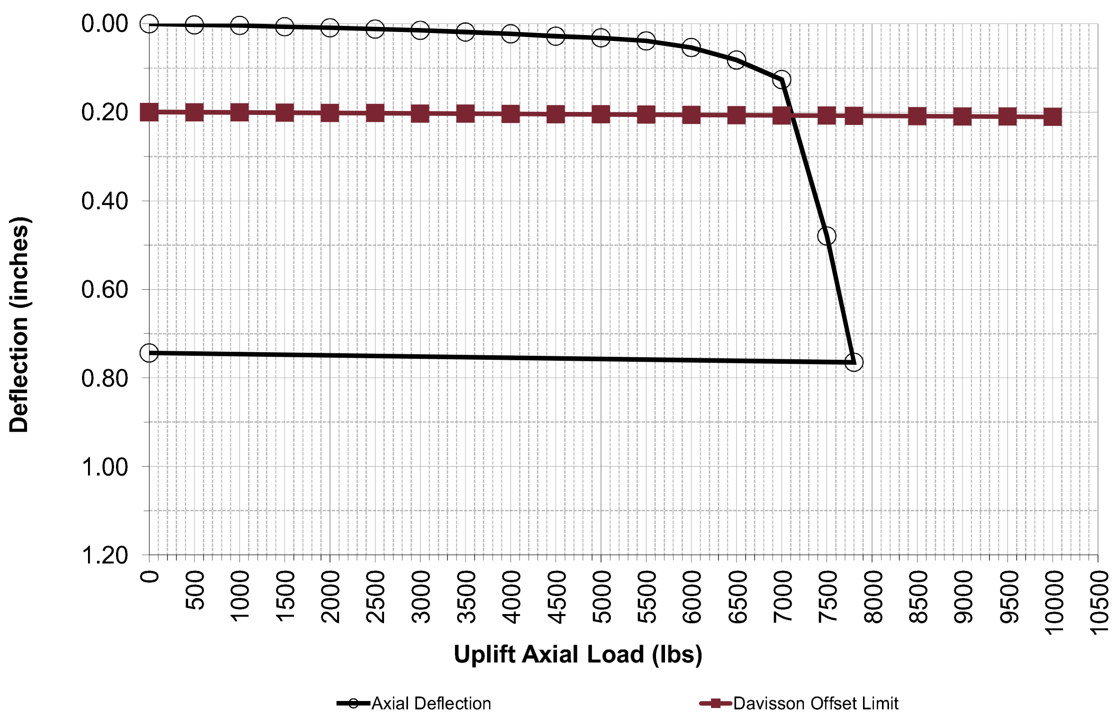
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-6A
Latitude:	40.92456
Longitude:	-169.11908
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	72.4

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.001	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.007	0.002	0.201	
20%	2000	0.009	0.002	0.201	
25%	2500	0.012	0.003	0.202	
30%	3000	0.015	0.003	0.203	
35%	3500	0.019	0.004	0.203	
40%	4000	0.023	0.004	0.204	
45%	4500	0.028	0.005	0.204	
50%	5000	0.032	0.006	0.205	
55%	5500	0.039	0.006	0.205	
60%	6000	0.054	0.007	0.206	
65%	6500	0.082	0.007	0.206	
70%	7000	0.126	0.008	0.207	
75%	7500	0.479	0.008	0.208	
78%	7800	0.765	0.009	0.208	
85%	8500		0.010	0.209	
90%	9000		0.010	0.209	
95%	9500		0.011	0.210	
100%	10000		0.011	0.210	
0%	0	0.744	0.000	0.199	



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Tension Load Test Result for PLT-6B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

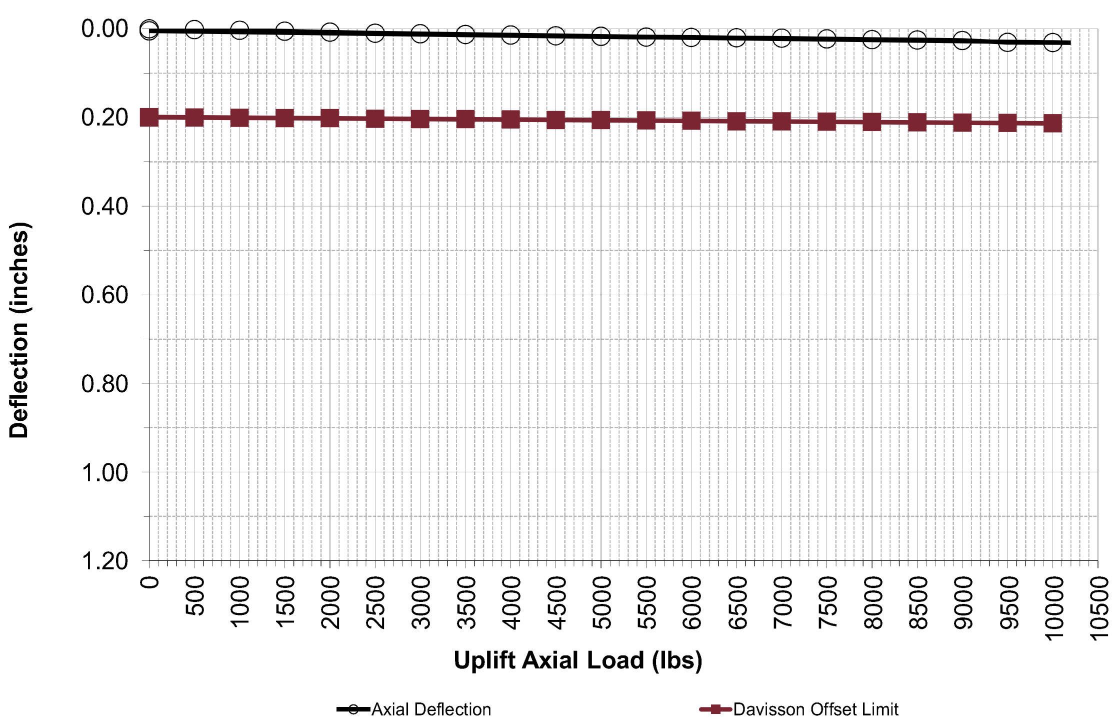
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-6B
Latitude:	40.92456
Longitude:	-169.11908
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	255.7

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.004	0.001	0.201	
15%	1500	0.006	0.002	0.201	
20%	2000	0.007	0.003	0.202	
25%	2500	0.010	0.003	0.203	
30%	3000	0.011	0.004	0.203	
35%	3500	0.013	0.005	0.204	
40%	4000	0.014	0.006	0.205	
45%	4500	0.016	0.006	0.205	
50%	5000	0.017	0.007	0.206	
55%	5500	0.019	0.008	0.207	
60%	6000	0.019	0.008	0.208	
65%	6500	0.020	0.009	0.208	
70%	7000	0.021	0.010	0.209	
75%	7500	0.023	0.010	0.210	
80%	8000	0.024	0.011	0.210	
85%	8500	0.025	0.012	0.211	
90%	9000	0.027	0.013	0.212	
95%	9500	0.031	0.013	0.212	
100%	10000	0.031	0.014	0.213	
0%	0	0.005	0.000	0.199	



Tension Load Test Result for PLT-7A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

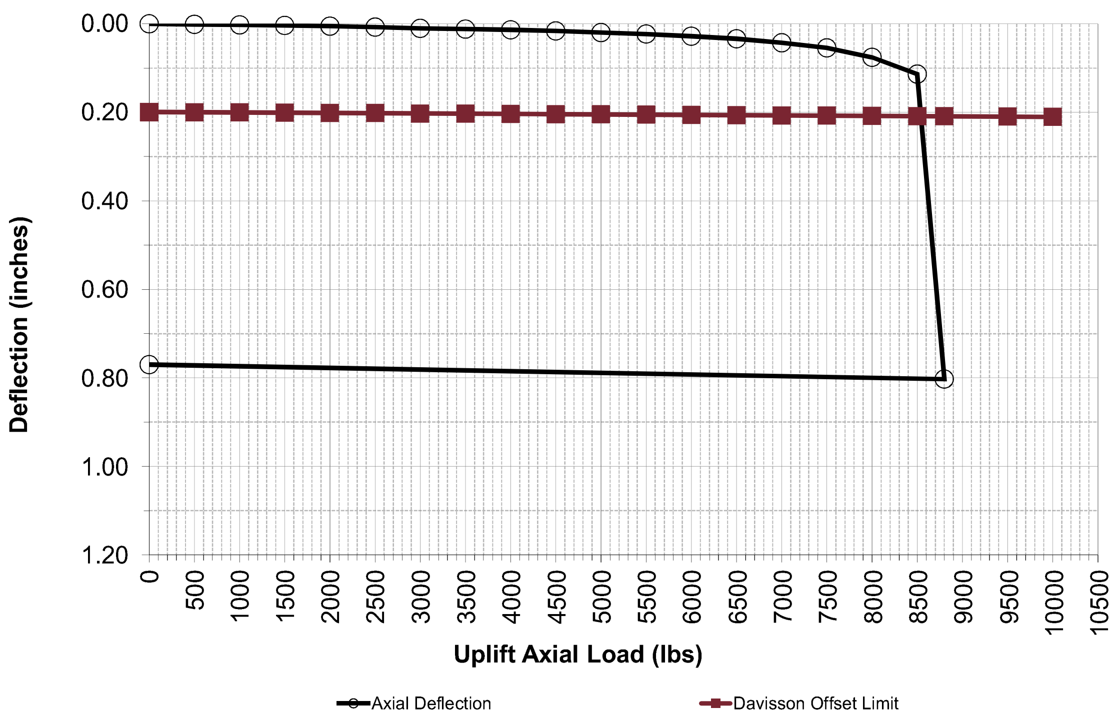
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-7A
Latitude:	40.92604
Longitude:	-84.54827
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	89.1

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.001	0.200	
10%	1000	0.003	0.001	0.200	
15%	1500	0.004	0.002	0.201	
20%	2000	0.005	0.002	0.201	
25%	2500	0.007	0.003	0.202	
30%	3000	0.010	0.003	0.203	
35%	3500	0.012	0.004	0.203	
40%	4000	0.014	0.004	0.204	
45%	4500	0.016	0.005	0.204	
50%	5000	0.020	0.006	0.205	
55%	5500	0.023	0.006	0.205	
60%	6000	0.028	0.007	0.206	
65%	6500	0.034	0.007	0.206	
70%	7000	0.043	0.008	0.207	
75%	7500	0.055	0.008	0.208	
80%	8000	0.076	0.009	0.208	
85%	8500	0.114	0.010	0.209	
88%	8800	0.803	0.010	0.209	
95%	9500		0.011	0.210	
100%	10000		0.011	0.210	
0%	0	0.770	0.000	0.199	



Terracon

Tension Load Test Result for PLT-7B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

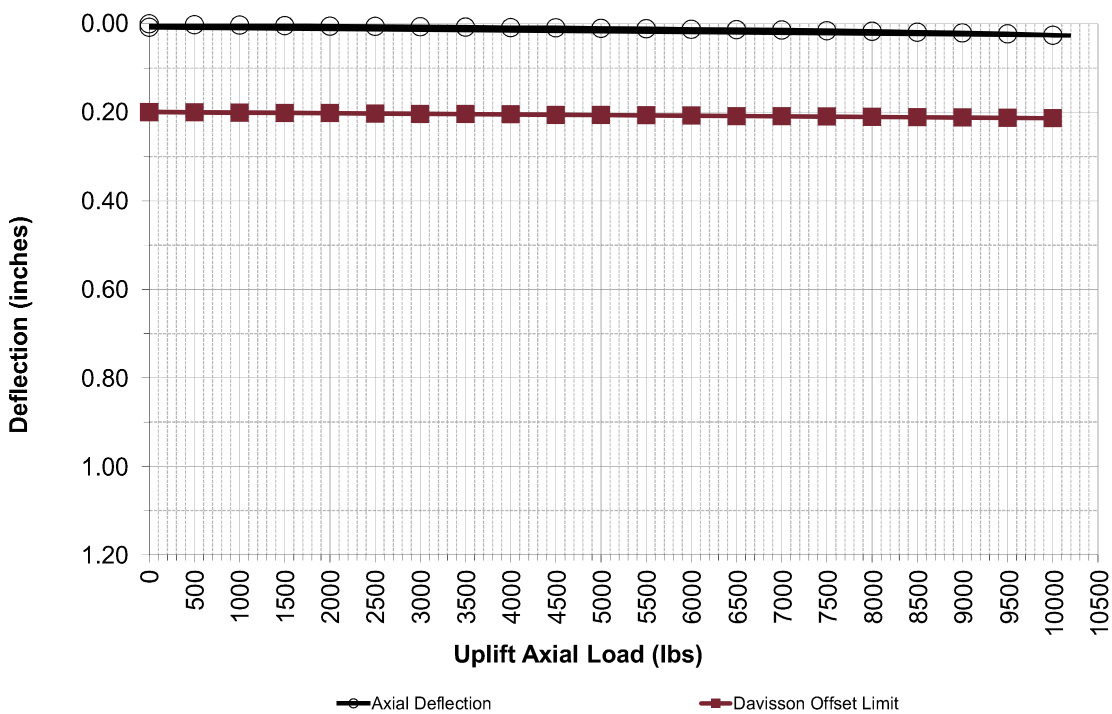
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-7B
Latitude:	40.92604
Longitude:	-84.54827
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	306

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.003	0.001	0.201	
15%	1500	0.004	0.002	0.201	
20%	2000	0.005	0.003	0.202	
25%	2500	0.006	0.003	0.203	
30%	3000	0.007	0.004	0.203	
35%	3500	0.008	0.005	0.204	
40%	4000	0.009	0.006	0.205	
45%	4500	0.009	0.006	0.205	
50%	5000	0.010	0.007	0.206	
55%	5500	0.011	0.008	0.207	
60%	6000	0.012	0.008	0.208	
65%	6500	0.013	0.009	0.208	
70%	7000	0.014	0.010	0.209	
75%	7500	0.016	0.010	0.210	
80%	8000	0.017	0.011	0.210	
85%	8500	0.019	0.012	0.211	
90%	9000	0.021	0.013	0.212	
95%	9500	0.023	0.013	0.212	
100%	10000	0.026	0.014	0.213	
0%	0	0.008	0.000	0.199	



Terracon

Tension Load Test Result for PLT-8A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

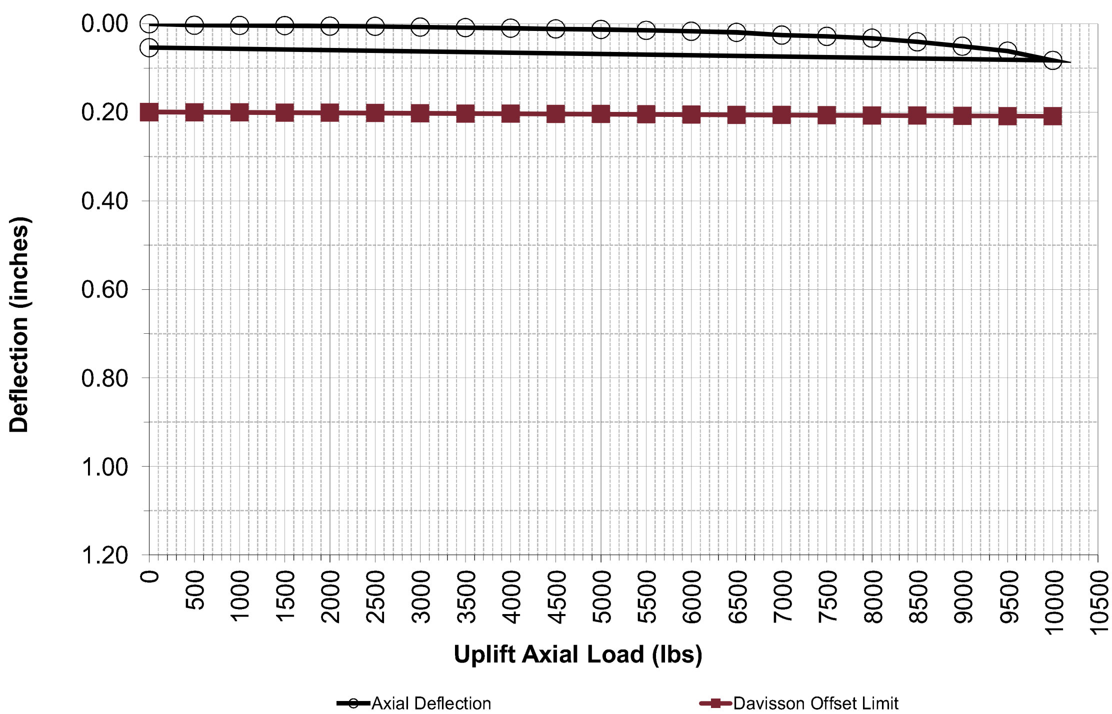
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-8A
Latitude:	40.93348
Longitude:	-84.54428
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	67.4

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.000	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.004	0.001	0.201	
20%	2000	0.005	0.002	0.201	
25%	2500	0.006	0.002	0.202	
30%	3000	0.008	0.003	0.202	
35%	3500	0.009	0.003	0.203	
40%	4000	0.010	0.004	0.203	
45%	4500	0.012	0.004	0.204	
50%	5000	0.013	0.005	0.204	
55%	5500	0.015	0.005	0.205	
60%	6000	0.017	0.006	0.205	
65%	6500	0.019	0.006	0.206	
70%	7000	0.026	0.007	0.206	
75%	7500	0.029	0.007	0.207	
80%	8000	0.033	0.008	0.207	
85%	8500	0.041	0.008	0.207	
90%	9000	0.051	0.009	0.208	
95%	9500	0.062	0.009	0.208	
100%	10000	0.083	0.010	0.209	
0%	0	0.054	0.000	0.199	



Terracon

Tension Load Test Result for PLT-8B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

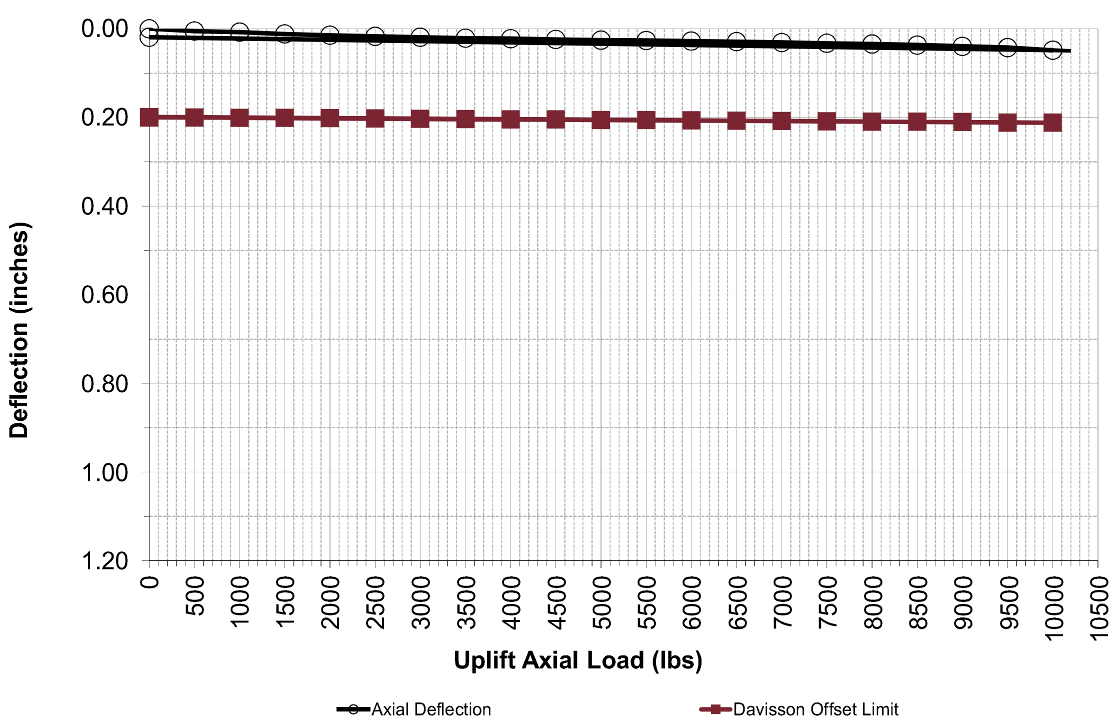
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-8B
Latitude:	40.93348
Longitude:	-84.54428
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	213.3

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.005	0.001	0.200	
10%	1000	0.008	0.001	0.200	
15%	1500	0.012	0.002	0.201	
20%	2000	0.015	0.003	0.202	
25%	2500	0.017	0.003	0.202	
30%	3000	0.019	0.004	0.203	
35%	3500	0.021	0.004	0.204	
40%	4000	0.022	0.005	0.204	
45%	4500	0.024	0.006	0.205	
50%	5000	0.026	0.006	0.205	
55%	5500	0.027	0.007	0.206	
60%	6000	0.028	0.008	0.207	
65%	6500	0.029	0.008	0.207	
70%	7000	0.031	0.009	0.208	
75%	7500	0.033	0.009	0.209	
80%	8000	0.034	0.010	0.209	
85%	8500	0.037	0.011	0.210	
90%	9000	0.040	0.011	0.210	
95%	9500	0.043	0.012	0.211	
100%	10000	0.048	0.013	0.212	
0%	0	0.019	0.000	0.199	



Tension Load Test Result for PLT-9A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

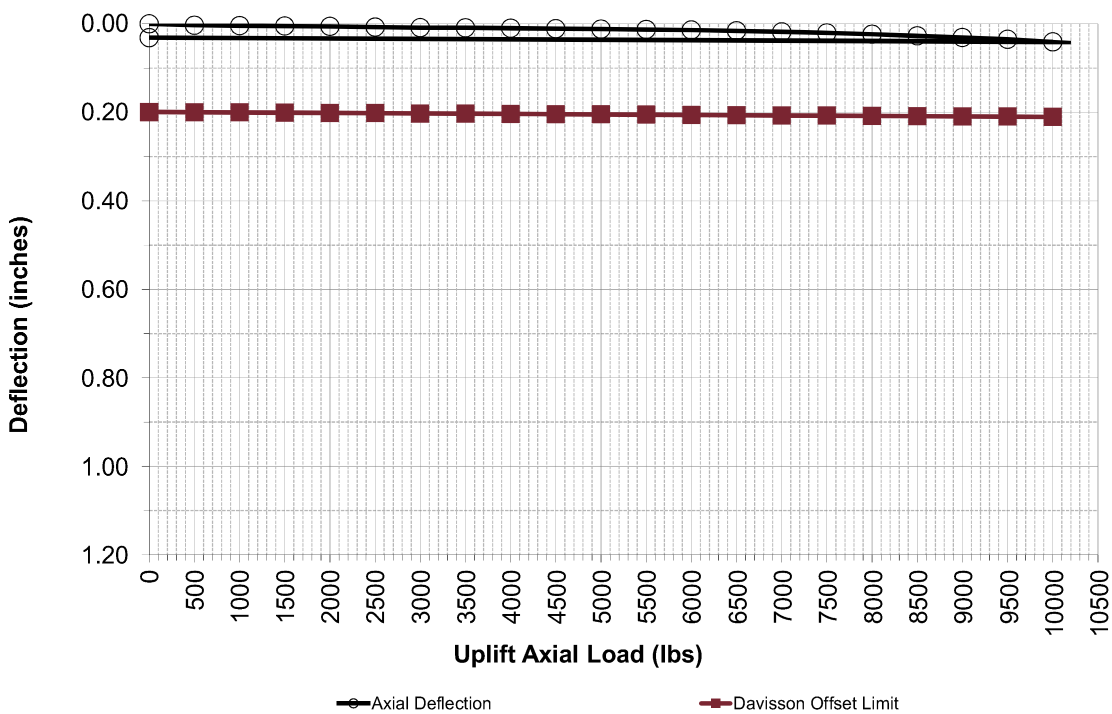
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-9A
Latitude:	40.91886
Longitude:	-84.56024
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	128.9

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.005	0.002	0.201	
20%	2000	0.006	0.002	0.201	
25%	2500	0.008	0.003	0.202	
30%	3000	0.009	0.003	0.203	
35%	3500	0.009	0.004	0.203	
40%	4000	0.010	0.004	0.204	
45%	4500	0.011	0.005	0.204	
50%	5000	0.012	0.006	0.205	
55%	5500	0.013	0.006	0.205	
60%	6000	0.014	0.007	0.206	
65%	6500	0.016	0.007	0.206	
70%	7000	0.018	0.008	0.207	
75%	7500	0.021	0.008	0.208	
80%	8000	0.024	0.009	0.208	
85%	8500	0.027	0.010	0.209	
90%	9000	0.031	0.010	0.209	
95%	9500	0.035	0.011	0.210	
100%	10000	0.041	0.011	0.210	
0%	0	0.031	0.000	0.199	



Tension Load Test Result for PLT-9B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

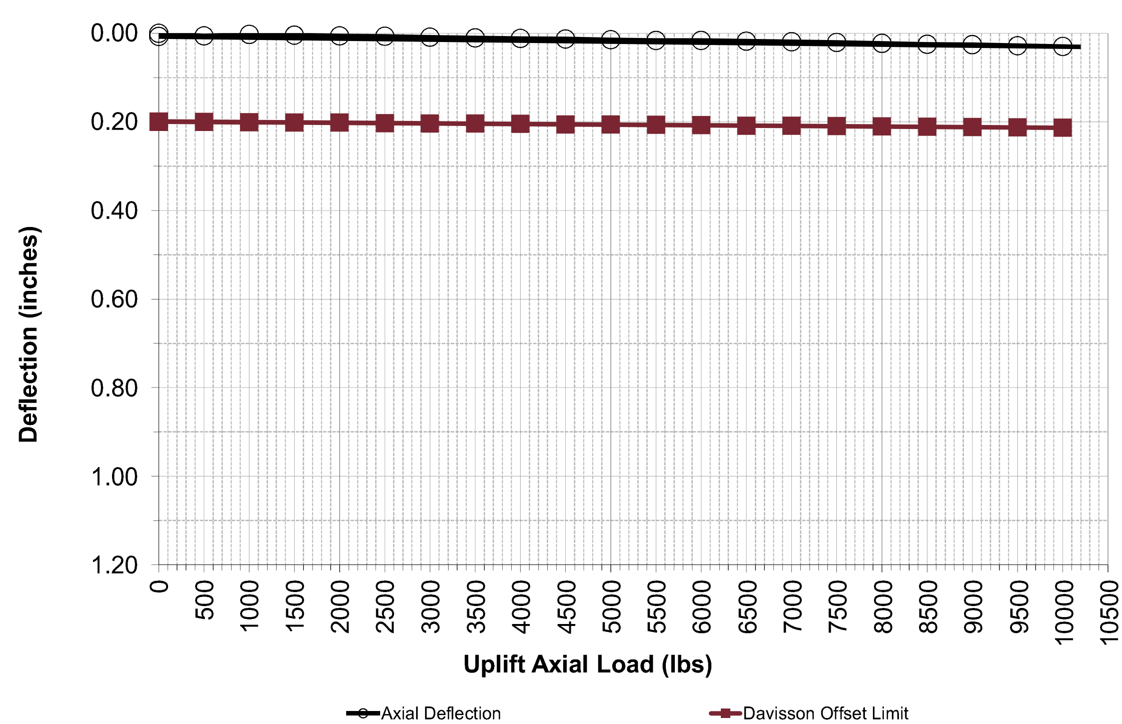
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-9B
Latitude:	40.91886
Longitude:	-84.56024
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	327.9

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.006	0.001	0.200	
10%	1000	0.003	0.001	0.201	
15%	1500	0.004	0.002	0.201	
20%	2000	0.006	0.003	0.202	
25%	2500	0.007	0.003	0.203	
30%	3000	0.009	0.004	0.203	
35%	3500	0.010	0.005	0.204	
40%	4000	0.012	0.006	0.205	
45%	4500	0.013	0.006	0.205	
50%	5000	0.015	0.007	0.206	
55%	5500	0.016	0.008	0.207	
60%	6000	0.016	0.008	0.208	
65%	6500	0.018	0.009	0.208	
70%	7000	0.019	0.010	0.209	
75%	7500	0.021	0.010	0.210	
80%	8000	0.023	0.011	0.210	
85%	8500	0.025	0.012	0.211	
90%	9000	0.026	0.013	0.212	
95%	9500	0.028	0.013	0.212	
100%	10000	0.030	0.014	0.213	
0%	0	0.007	0.000	0.199	



Tension Load Test Result for PLT-10A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

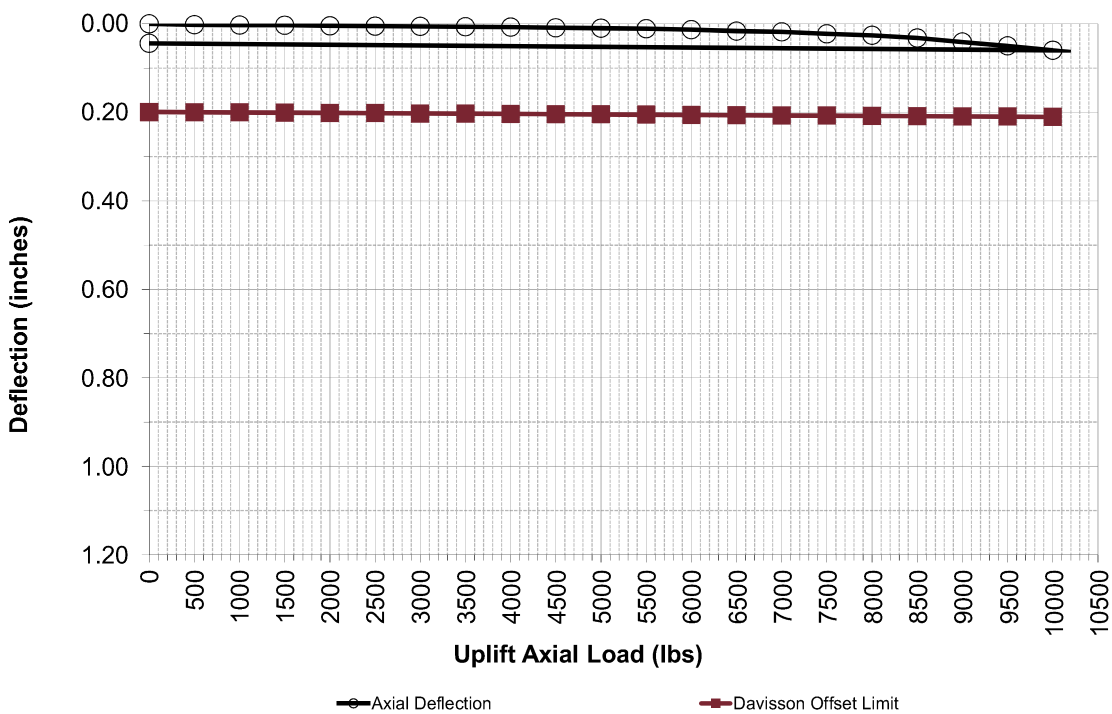
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-10A
Latitude:	40.91946
Longitude:	-84.53181
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	91.7

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.003	0.001	0.200	
15%	1500	0.004	0.002	0.201	
20%	2000	0.005	0.002	0.201	
25%	2500	0.006	0.003	0.202	
30%	3000	0.006	0.003	0.203	
35%	3500	0.007	0.004	0.203	
40%	4000	0.008	0.004	0.204	
45%	4500	0.009	0.005	0.204	
50%	5000	0.010	0.006	0.205	
55%	5500	0.011	0.006	0.205	
60%	6000	0.013	0.007	0.206	
65%	6500	0.017	0.007	0.206	
70%	7000	0.018	0.008	0.207	
75%	7500	0.023	0.008	0.208	
80%	8000	0.026	0.009	0.208	
85%	8500	0.032	0.010	0.209	
90%	9000	0.041	0.010	0.209	
95%	9500	0.050	0.011	0.210	
100%	10000	0.060	0.011	0.210	
0%	0	0.044	0.000	0.199	



Tension Load Test Result for PLT-10B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

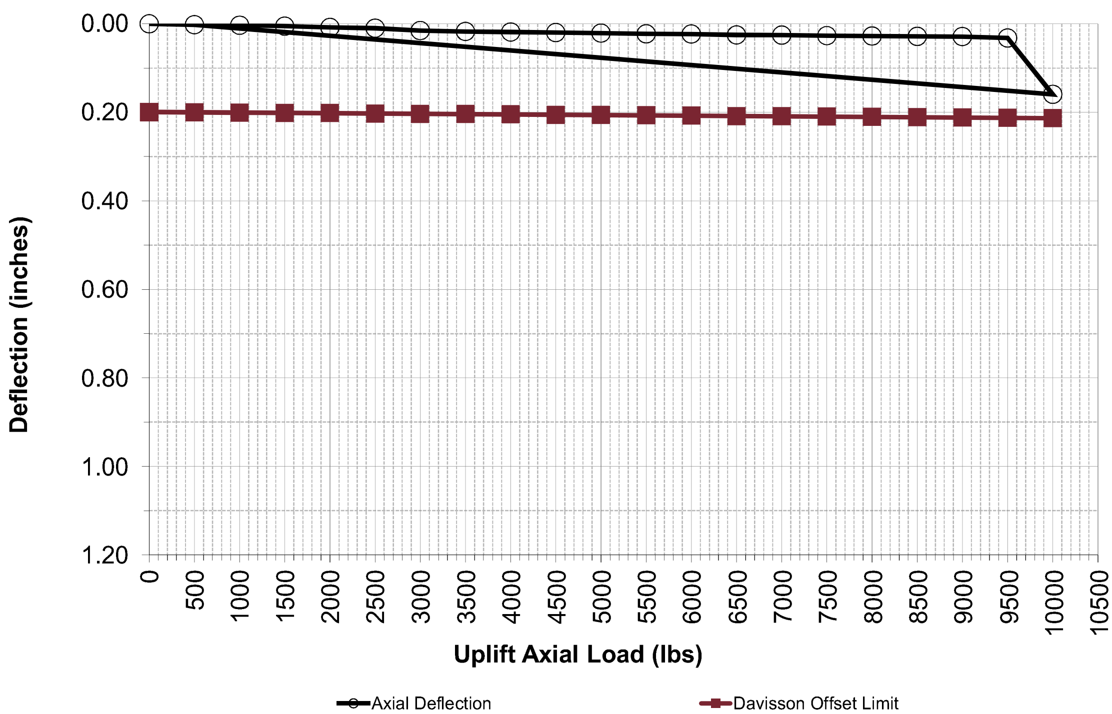
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-10B
Latitude:	40.91946
Longitude:	-84.53181
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	310.1

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offset Limit (in) (0.15+D/120+(PL/AE))	Comments
0%	0	0.000	0.000	0.199	
5%	500	0.002	0.001	0.200	
10%	1000	0.003	0.001	0.201	
15%	1500	0.005	0.002	0.201	
20%	2000	0.008	0.003	0.202	
25%	2500	0.010	0.003	0.203	
30%	3000	0.015	0.004	0.203	
35%	3500	0.018	0.005	0.204	
40%	4000	0.019	0.006	0.205	
45%	4500	0.020	0.006	0.205	
50%	5000	0.021	0.007	0.206	
55%	5500	0.023	0.008	0.207	
60%	6000	0.023	0.008	0.208	
65%	6500	0.025	0.009	0.208	
70%	7000	0.026	0.010	0.209	
75%	7500	0.027	0.010	0.210	
80%	8000	0.028	0.011	0.210	
85%	8500	0.029	0.012	0.211	
90%	9000	0.029	0.013	0.212	
95%	9500	0.032	0.013	0.212	
100%	10000	0.159	0.014	0.213	
0%	0	-0.006	0.000	0.199	



Tension Load Test Result for PLT-11A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

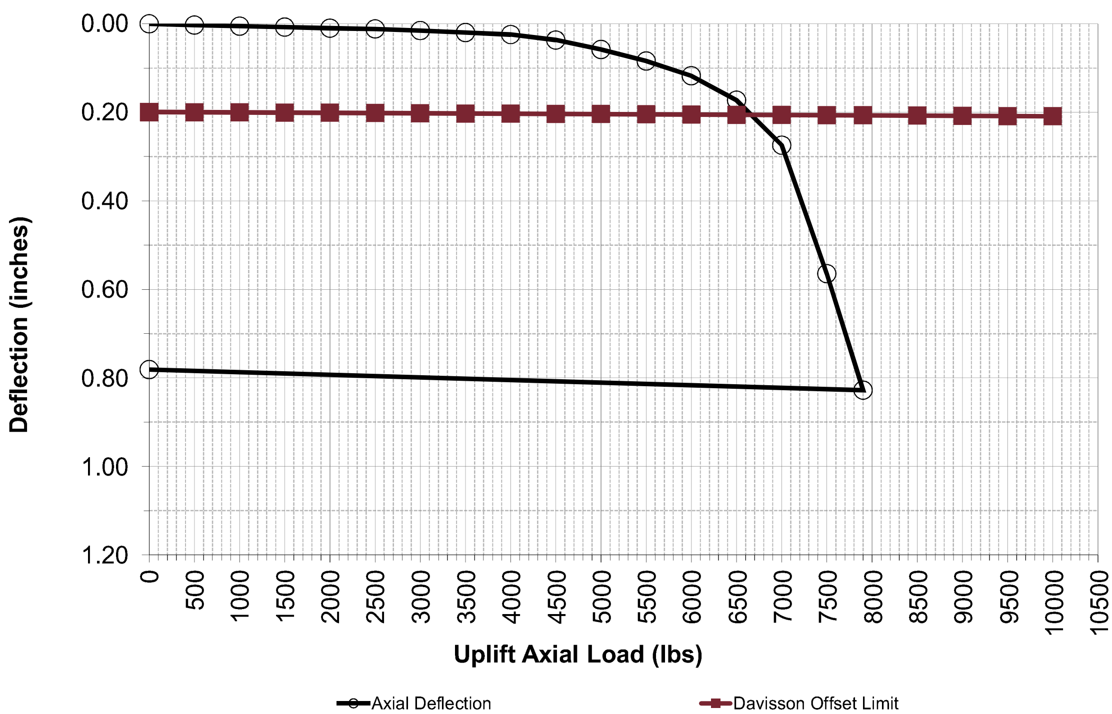
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-11A
Latitude:	40.92657
Longitude:	-84.52215
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	67.6

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.000	0.200	
10%	1000	0.006	0.001	0.200	
15%	1500	0.008	0.001	0.201	
20%	2000	0.010	0.002	0.201	
25%	2500	0.012	0.002	0.202	
30%	3000	0.015	0.003	0.202	
35%	3500	0.020	0.003	0.203	
40%	4000	0.025	0.004	0.203	
45%	4500	0.037	0.004	0.204	
50%	5000	0.058	0.005	0.204	
55%	5500	0.084	0.005	0.205	
60%	6000	0.118	0.006	0.205	
65%	6500	0.173	0.006	0.206	
70%	7000	0.275	0.007	0.206	
75%	7500	0.565	0.007	0.207	
79%	7900	0.828	0.008	0.207	
85%	8500		0.008	0.207	
90%	9000		0.009	0.208	
95%	9500		0.009	0.208	
100%	10000		0.010	0.209	
0%	0	0.781	0.000	0.199	



Tension Load Test Result for PLT-11B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

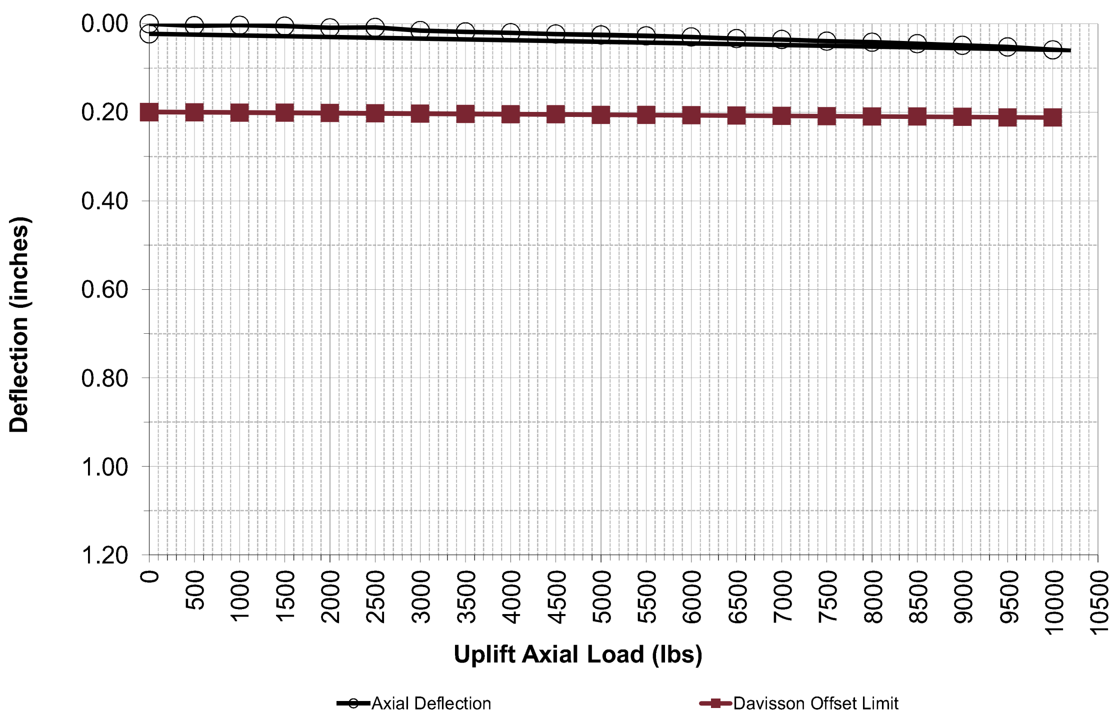
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/27/2021

Pile Information

Pile ID:	PLT-11B
Latitude:	40.92657
Longitude:	-84.52215
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	142.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offset Limit (in) (0.15+D/120+(PL/AE))	Comments
0%	0	0.000	0.000	0.199	
5%	500	0.004	0.001	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.006	0.002	0.201	
20%	2000	0.009	0.003	0.202	
25%	2500	0.008	0.003	0.202	
30%	3000	0.015	0.004	0.203	
35%	3500	0.018	0.004	0.204	
40%	4000	0.020	0.005	0.204	
45%	4500	0.023	0.006	0.205	
50%	5000	0.025	0.006	0.205	
55%	5500	0.027	0.007	0.206	
60%	6000	0.030	0.008	0.207	
65%	6500	0.034	0.008	0.207	
70%	7000	0.036	0.009	0.208	
75%	7500	0.039	0.009	0.209	
80%	8000	0.042	0.010	0.209	
85%	8500	0.045	0.011	0.210	
90%	9000	0.049	0.011	0.210	
95%	9500	0.053	0.012	0.211	
100%	10000	0.059	0.013	0.212	
0%	0	0.023	0.000	0.199	



Tension Load Test Result for PLT-12A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

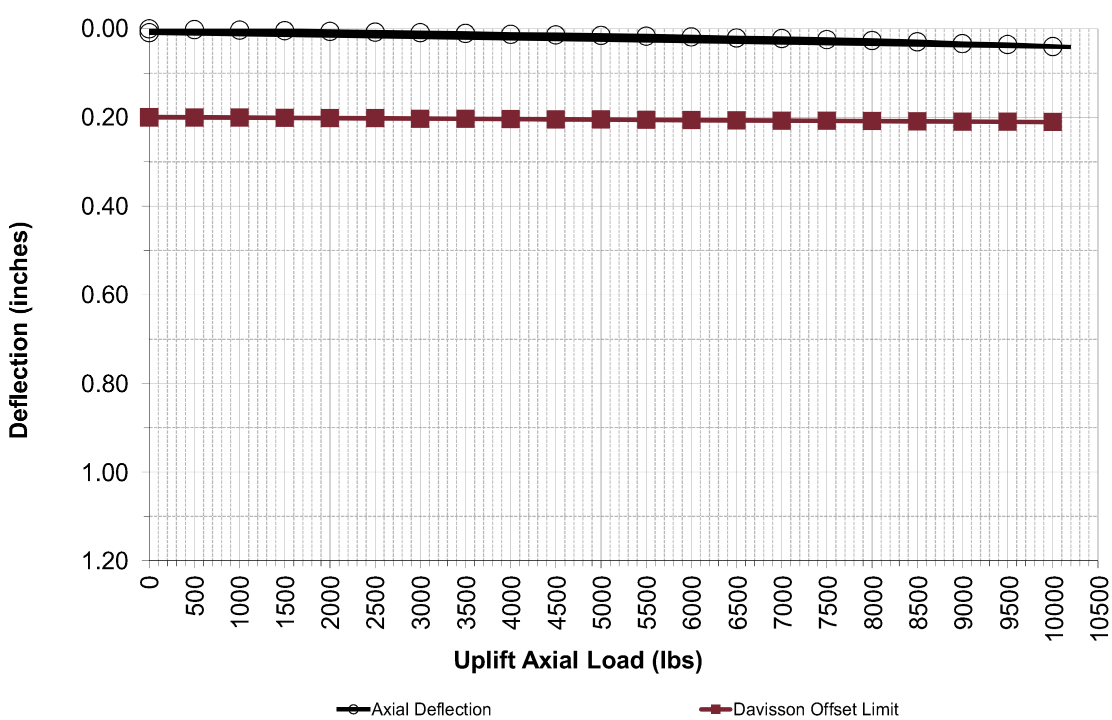
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-12A
Latitude:	40.91884
Longitude:	-84.51665
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	202.4

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.003	0.001	0.200	
15%	1500	0.004	0.002	0.201	
20%	2000	0.006	0.002	0.201	
25%	2500	0.008	0.003	0.202	
30%	3000	0.009	0.003	0.203	
35%	3500	0.011	0.004	0.203	
40%	4000	0.012	0.004	0.204	
45%	4500	0.014	0.005	0.204	
50%	5000	0.015	0.006	0.205	
55%	5500	0.017	0.006	0.205	
60%	6000	0.018	0.007	0.206	
65%	6500	0.021	0.007	0.206	
70%	7000	0.022	0.008	0.207	
75%	7500	0.024	0.008	0.208	
80%	8000	0.026	0.009	0.208	
85%	8500	0.029	0.010	0.209	
90%	9000	0.033	0.010	0.209	
95%	9500	0.036	0.011	0.210	
100%	10000	0.040	0.011	0.210	
0%	0	0.009	0.000	0.199	



Tension Load Test Result for PLT-12B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

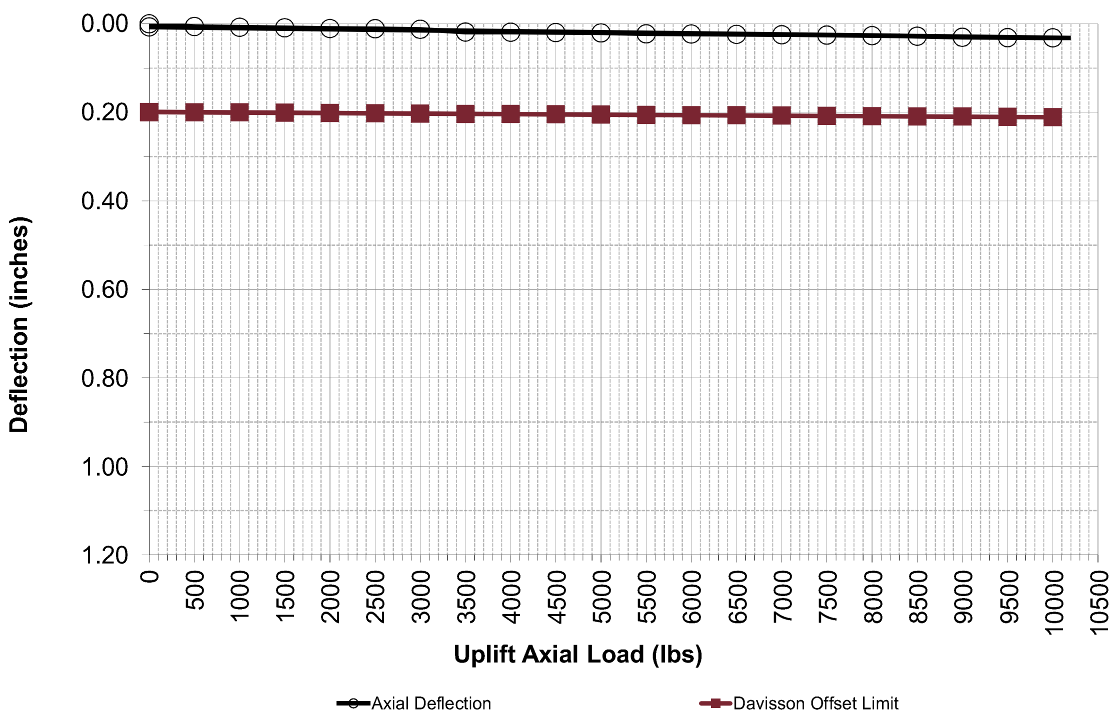
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-12B
Latitude:	40.91884
Longitude:	-84.51665
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	303.61

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.006	0.001	0.200	
10%	1000	0.008	0.001	0.200	
15%	1500	0.009	0.002	0.201	
20%	2000	0.011	0.002	0.202	
25%	2500	0.011	0.003	0.202	
30%	3000	0.013	0.004	0.203	
35%	3500	0.019	0.004	0.203	
40%	4000	0.019	0.005	0.204	
45%	4500	0.020	0.005	0.205	
50%	5000	0.021	0.006	0.205	
55%	5500	0.023	0.007	0.206	
60%	6000	0.023	0.007	0.206	
65%	6500	0.024	0.008	0.207	
70%	7000	0.025	0.008	0.207	
75%	7500	0.026	0.009	0.208	
80%	8000	0.027	0.010	0.209	
85%	8500	0.028	0.010	0.209	
90%	9000	0.031	0.011	0.210	
95%	9500	0.031	0.011	0.210	
100%	10000	0.032	0.012	0.211	
0%	0	0.007	0.000	0.199	



Tension Load Test Result for PLT-13A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

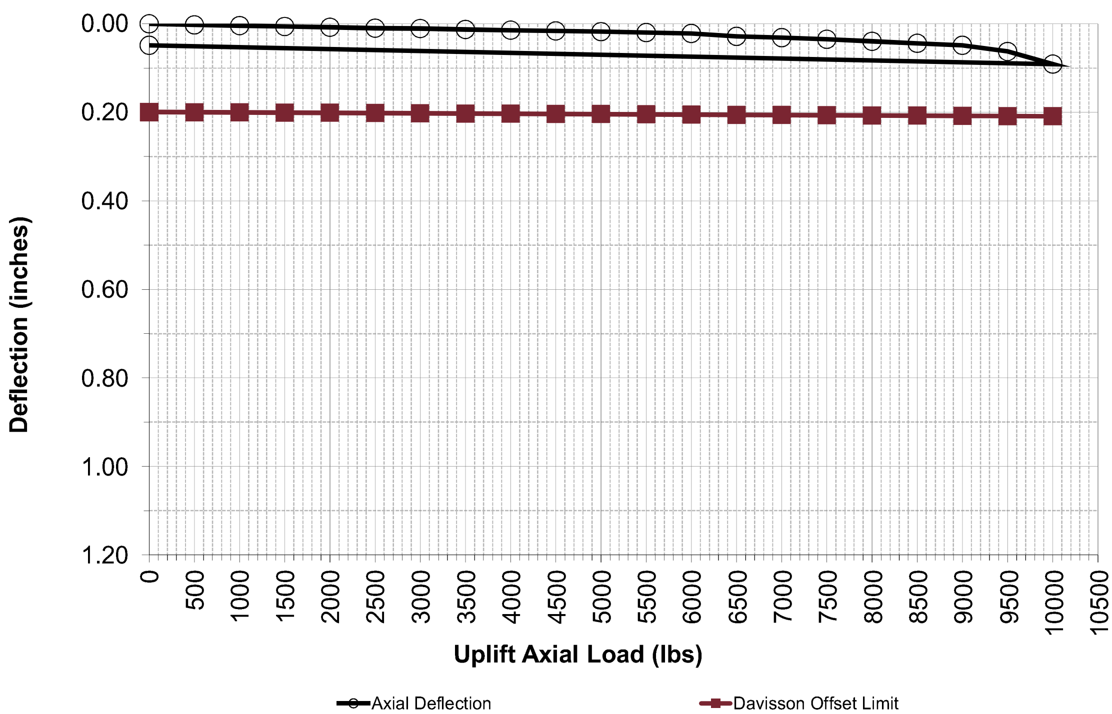
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-13A
Latitude:	40.91516
Longitude:	-84.52141
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	83.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.000	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.006	0.001	0.201	
20%	2000	0.008	0.002	0.201	
25%	2500	0.010	0.002	0.202	
30%	3000	0.011	0.003	0.202	
35%	3500	0.013	0.003	0.203	
40%	4000	0.015	0.004	0.203	
45%	4500	0.016	0.004	0.204	
50%	5000	0.018	0.005	0.204	
55%	5500	0.020	0.005	0.205	
60%	6000	0.022	0.006	0.205	
65%	6500	0.029	0.006	0.206	
70%	7000	0.031	0.007	0.206	
75%	7500	0.035	0.007	0.207	
80%	8000	0.040	0.008	0.207	
85%	8500	0.044	0.008	0.207	
90%	9000	0.049	0.009	0.208	
95%	9500	0.063	0.009	0.208	
100%	10000	0.091	0.010	0.209	
0%	0	0.049	0.000	0.199	



Tension Load Test Result for PLT-13B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

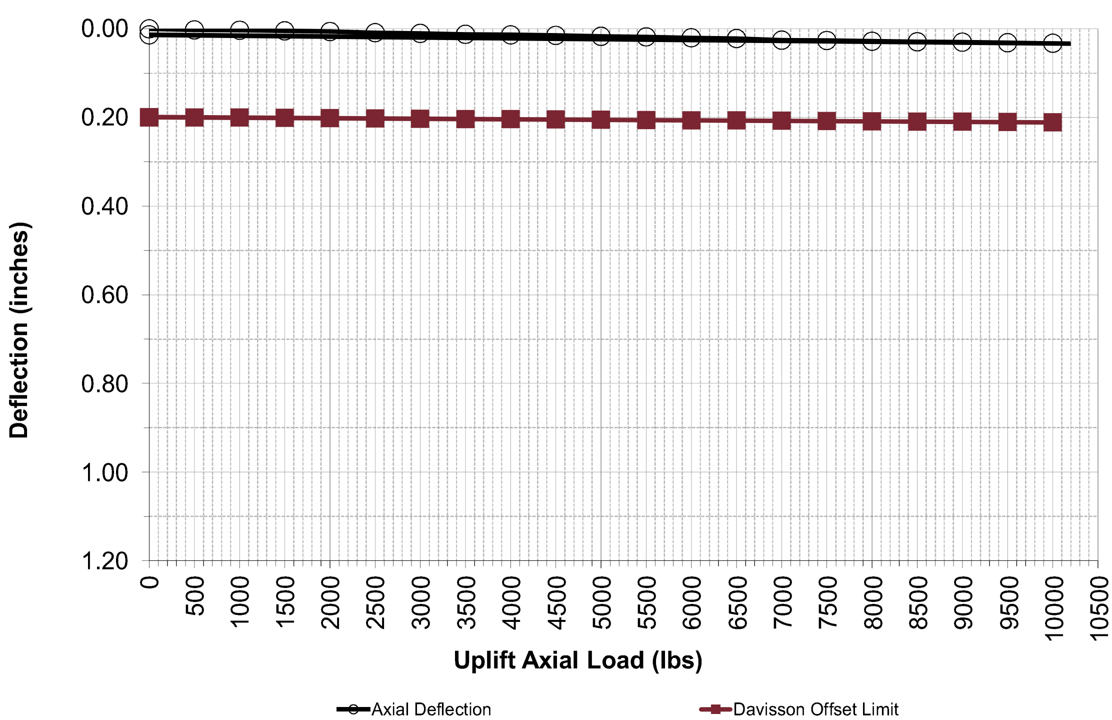
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-13B
Latitude:	40.91516
Longitude:	-84.52141
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	260.15

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Elastic Data (in) (PL/AE)	Davisson Offset Limit (in) (0.15+D/120+(PL/AE))	Comments
0%	0	0.000	0.000	0.199	
5%	500	0.003	0.001	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.005	0.002	0.201	
20%	2000	0.006	0.002	0.202	
25%	2500	0.009	0.003	0.202	
30%	3000	0.011	0.004	0.203	
35%	3500	0.012	0.004	0.203	
40%	4000	0.014	0.005	0.204	
45%	4500	0.015	0.005	0.205	
50%	5000	0.017	0.006	0.205	
55%	5500	0.018	0.007	0.206	
60%	6000	0.020	0.007	0.206	
65%	6500	0.022	0.008	0.207	
70%	7000	0.026	0.008	0.207	
75%	7500	0.027	0.009	0.208	
80%	8000	0.028	0.010	0.209	
85%	8500	0.029	0.010	0.209	
90%	9000	0.030	0.011	0.210	
95%	9500	0.032	0.011	0.210	
100%	10000	0.033	0.012	0.211	
0%	0	0.014	0.000	0.199	



Tension Load Test Result for PLT-14A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

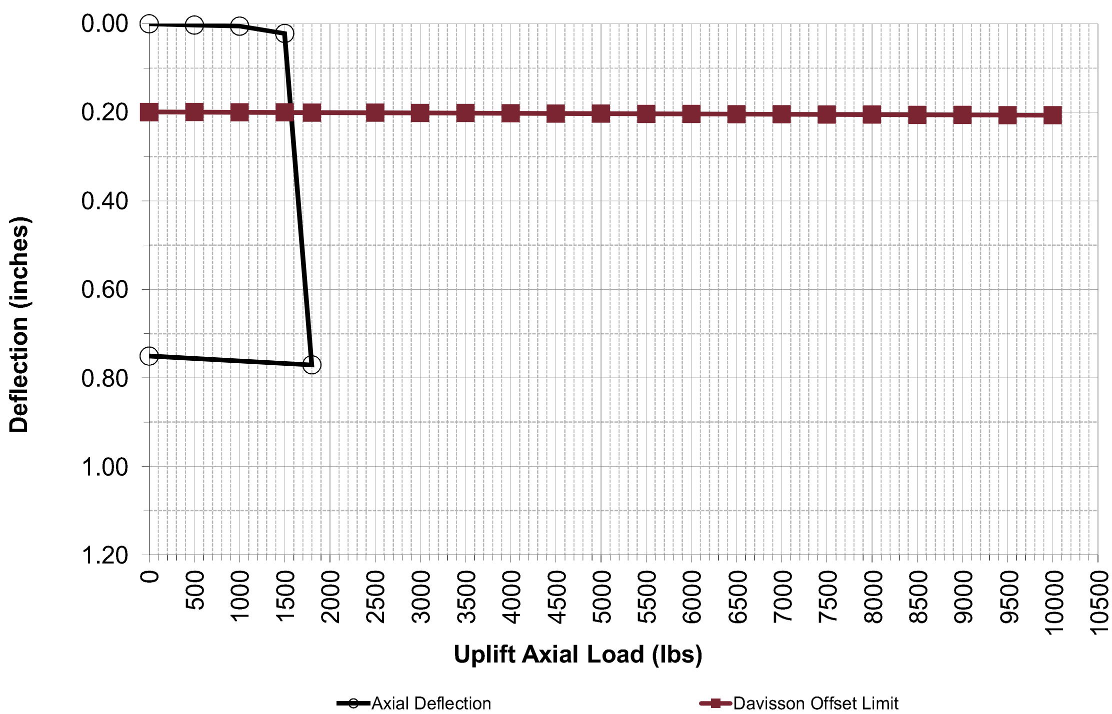
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-14A
Latitude:	40.92404
Longitude:	-84.51687
Pile Type:	W6X9
Pile Embedment Depth [in]:	66
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	173.81

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.000	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.022	0.001	0.200	
18%	1800	0.771	0.001	0.201	
25%	2500		0.002	0.201	
30%	3000		0.002	0.201	
35%	3500		0.003	0.202	
40%	4000		0.003	0.202	
45%	4500		0.003	0.203	
50%	5000		0.004	0.203	
55%	5500		0.004	0.203	
60%	6000		0.005	0.204	
65%	6500		0.005	0.204	
70%	7000		0.005	0.205	
75%	7500		0.006	0.205	
80%	8000		0.006	0.205	
85%	8500		0.007	0.206	
90%	9000		0.007	0.206	
95%	9500		0.007	0.206	
100%	10000		0.008	0.207	
0%	0	0.751	0.000	0.199	



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Tension Load Test Result for PLT-14B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

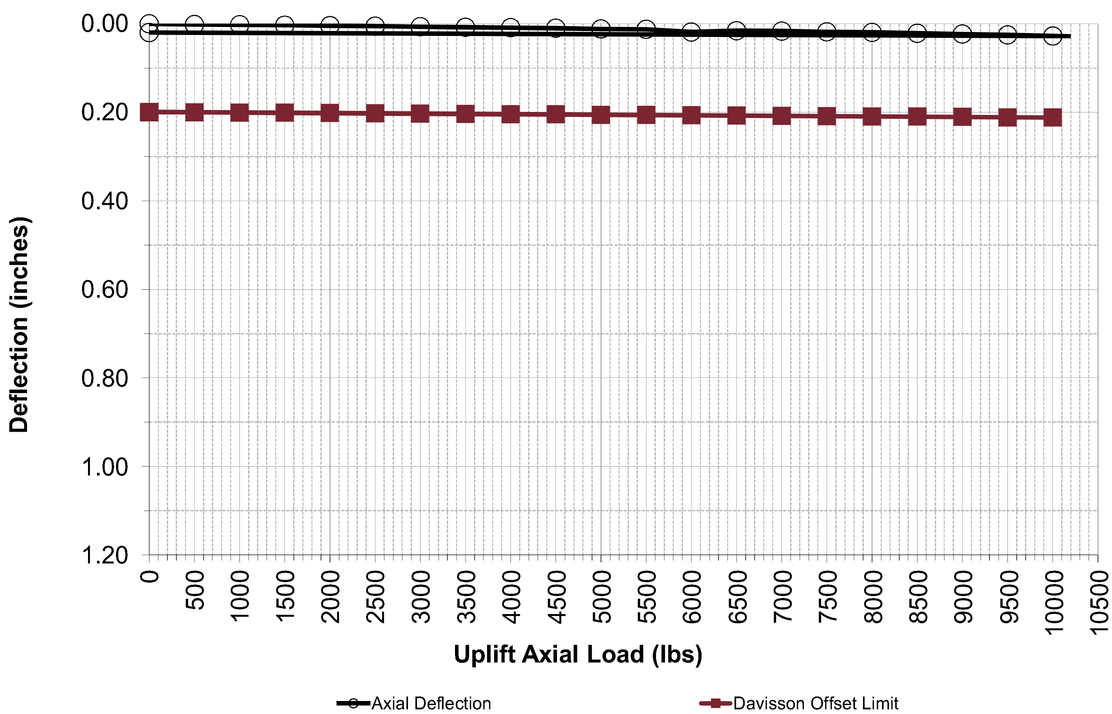
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-14B
Latitude:	40.92404
Longitude:	-84.51687
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	240.9

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.001	0.200	
10%	1000	0.002	0.001	0.200	
15%	1500	0.004	0.002	0.201	
20%	2000	0.004	0.003	0.202	
25%	2500	0.006	0.003	0.202	
30%	3000	0.007	0.004	0.203	
35%	3500	0.008	0.004	0.204	
40%	4000	0.009	0.005	0.204	
45%	4500	0.010	0.006	0.205	
50%	5000	0.012	0.006	0.205	
55%	5500	0.013	0.007	0.206	
60%	6000	0.019	0.008	0.207	
65%	6500	0.016	0.008	0.207	
70%	7000	0.017	0.009	0.208	
75%	7500	0.018	0.009	0.209	
80%	8000	0.020	0.010	0.209	
85%	8500	0.022	0.011	0.210	
90%	9000	0.023	0.011	0.210	
95%	9500	0.025	0.012	0.211	
100%	10000	0.028	0.013	0.212	
0%	0	0.020	0.000	0.199	



Tension Load Test Result for PLT-15A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

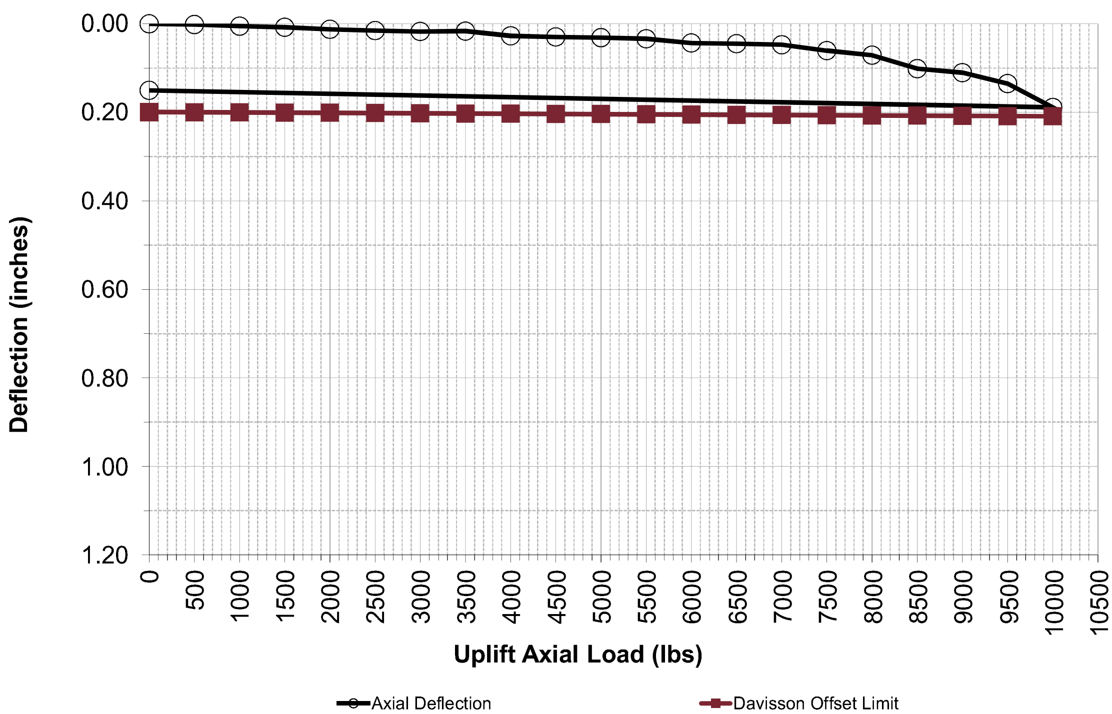
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-15A
Latitude:	40.93018
Longitude:	-84.50753
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	89.6

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.002	0.000	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.008	0.001	0.201	
20%	2000	0.013	0.002	0.201	
25%	2500	0.015	0.002	0.202	
30%	3000	0.017	0.003	0.202	
35%	3500	0.017	0.003	0.203	
40%	4000	0.027	0.004	0.203	
45%	4500	0.030	0.004	0.204	
50%	5000	0.032	0.005	0.204	
55%	5500	0.034	0.005	0.205	
60%	6000	0.043	0.006	0.205	
65%	6500	0.045	0.006	0.206	
70%	7000	0.048	0.007	0.206	
75%	7500	0.061	0.007	0.207	
80%	8000	0.071	0.008	0.207	
85%	8500	0.101	0.008	0.207	
90%	9000	0.111	0.009	0.208	
95%	9500	0.135	0.009	0.208	
100%	10000	0.189	0.010	0.209	
0%	0	0.150	0.000	0.199	



Tension Load Test Result for PLT-15B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

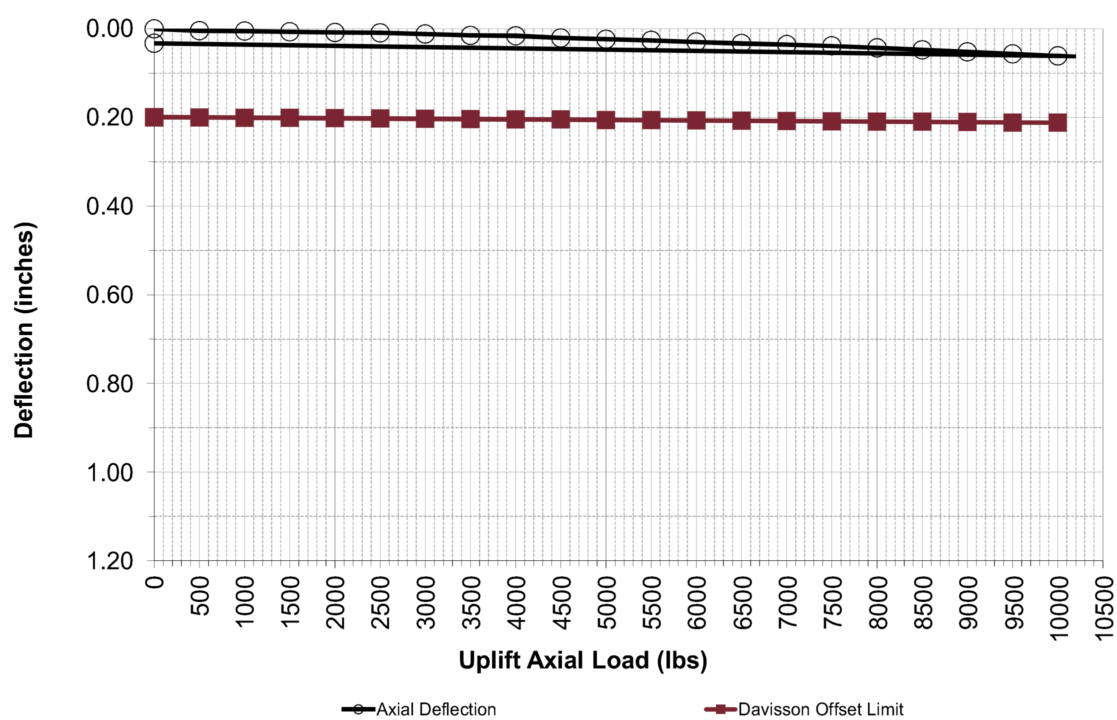
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-15B
Latitude:	40.93018
Longitude:	-84.50753
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	208.5

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.007	0.002	0.201	
20%	2000	0.008	0.003	0.202	
25%	2500	0.009	0.003	0.202	
30%	3000	0.012	0.004	0.203	
35%	3500	0.015	0.004	0.204	
40%	4000	0.016	0.005	0.204	
45%	4500	0.021	0.006	0.205	
50%	5000	0.024	0.006	0.205	
55%	5500	0.026	0.007	0.206	
60%	6000	0.030	0.008	0.207	
65%	6500	0.033	0.008	0.207	
70%	7000	0.036	0.009	0.208	
75%	7500	0.039	0.009	0.209	
80%	8000	0.043	0.010	0.209	
85%	8500	0.047	0.011	0.210	
90%	9000	0.052	0.011	0.210	
95%	9500	0.057	0.012	0.211	
100%	10000	0.061	0.013	0.212	
0%	0	0.033	0.000	0.199	



Tension Load Test Result for PLT-16A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

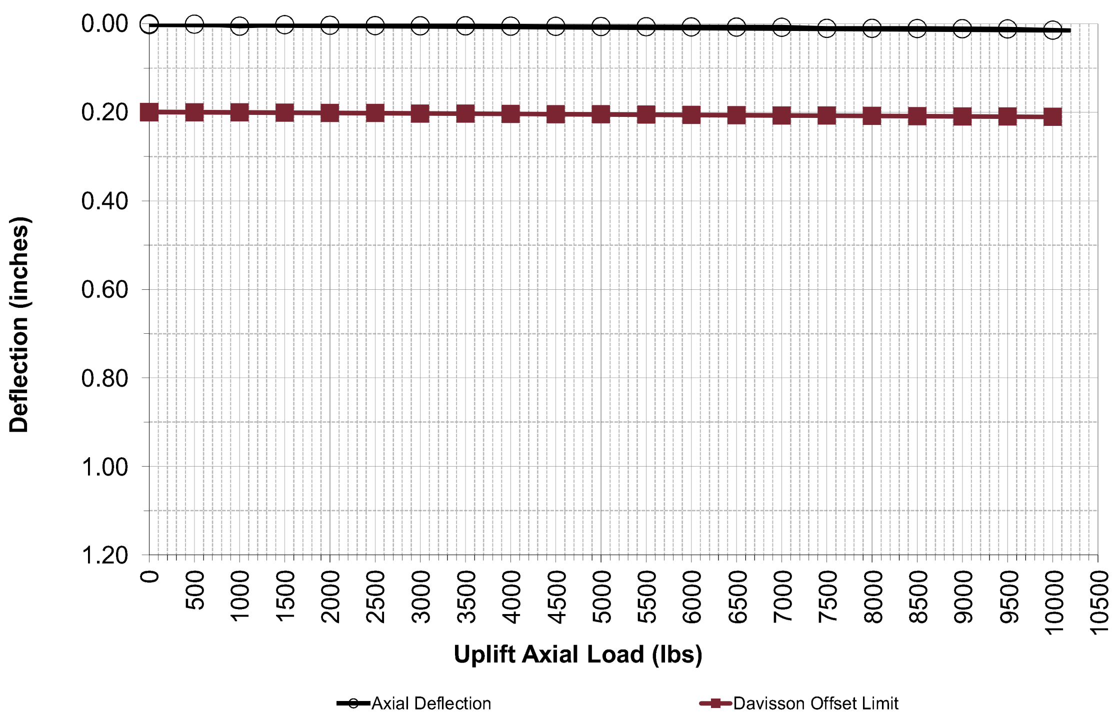
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-16A
Latitude:	40.92677
Longitude:	-84.50774
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	234.8

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.001	0.200	
10%	1000	0.006	0.001	0.200	
15%	1500	0.002	0.002	0.201	
20%	2000	0.003	0.002	0.201	
25%	2500	0.004	0.003	0.202	
30%	3000	0.005	0.003	0.203	
35%	3500	0.005	0.004	0.203	
40%	4000	0.005	0.004	0.204	
45%	4500	0.006	0.005	0.204	
50%	5000	0.006	0.006	0.205	
55%	5500	0.007	0.006	0.205	
60%	6000	0.007	0.007	0.206	
65%	6500	0.008	0.007	0.206	
70%	7000	0.008	0.008	0.207	
75%	7500	0.010	0.008	0.208	
80%	8000	0.010	0.009	0.208	
85%	8500	0.011	0.010	0.209	
90%	9000	0.011	0.010	0.209	
95%	9500	0.012	0.011	0.210	
100%	10000	0.015	0.011	0.210	
0%	0	0.002	0.000	0.199	



Tension Load Test Result for PLT-16B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

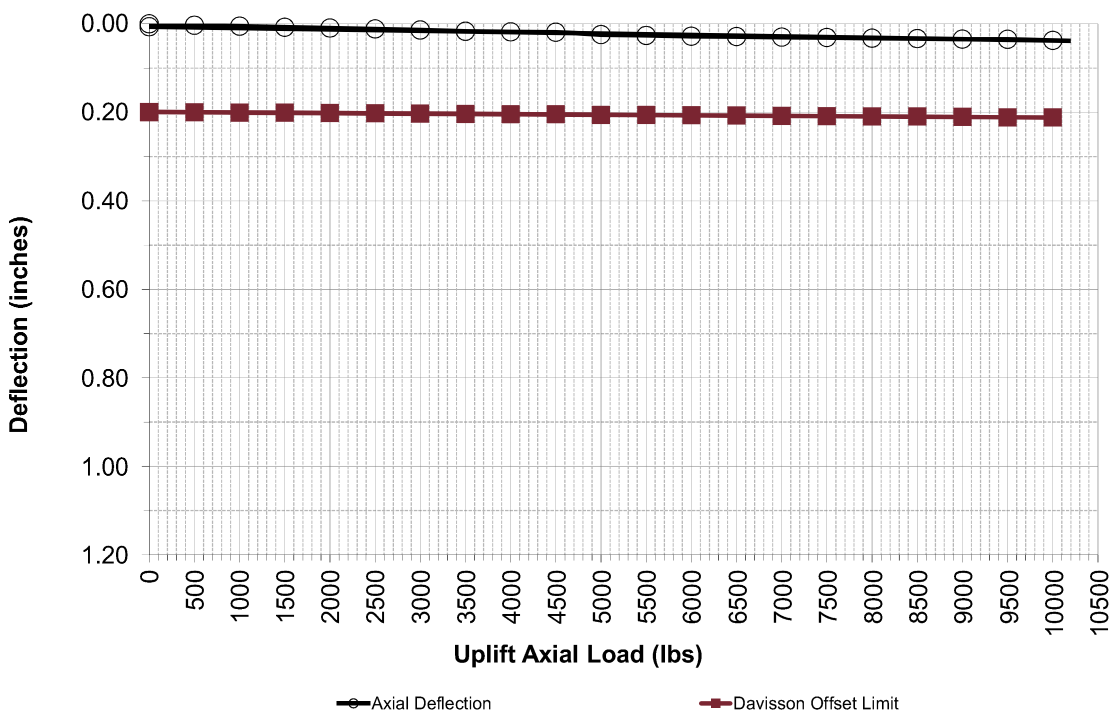
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-16B
Latitude:	40.92677
Longitude:	-84.50774
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	307.1

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.001	0.200	
10%	1000	0.006	0.001	0.200	
15%	1500	0.008	0.002	0.201	
20%	2000	0.010	0.003	0.202	
25%	2500	0.012	0.003	0.202	
30%	3000	0.014	0.004	0.203	
35%	3500	0.017	0.004	0.204	
40%	4000	0.018	0.005	0.204	
45%	4500	0.019	0.006	0.205	
50%	5000	0.025	0.006	0.205	
55%	5500	0.026	0.007	0.206	
60%	6000	0.028	0.008	0.207	
65%	6500	0.029	0.008	0.207	
70%	7000	0.030	0.009	0.208	
75%	7500	0.031	0.009	0.209	
80%	8000	0.033	0.010	0.209	
85%	8500	0.033	0.011	0.210	
90%	9000	0.035	0.011	0.210	
95%	9500	0.035	0.012	0.211	
100%	10000	0.038	0.013	0.212	
0%	0	0.007	0.000	0.199	



Tension Load Test Result for PLT-17A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

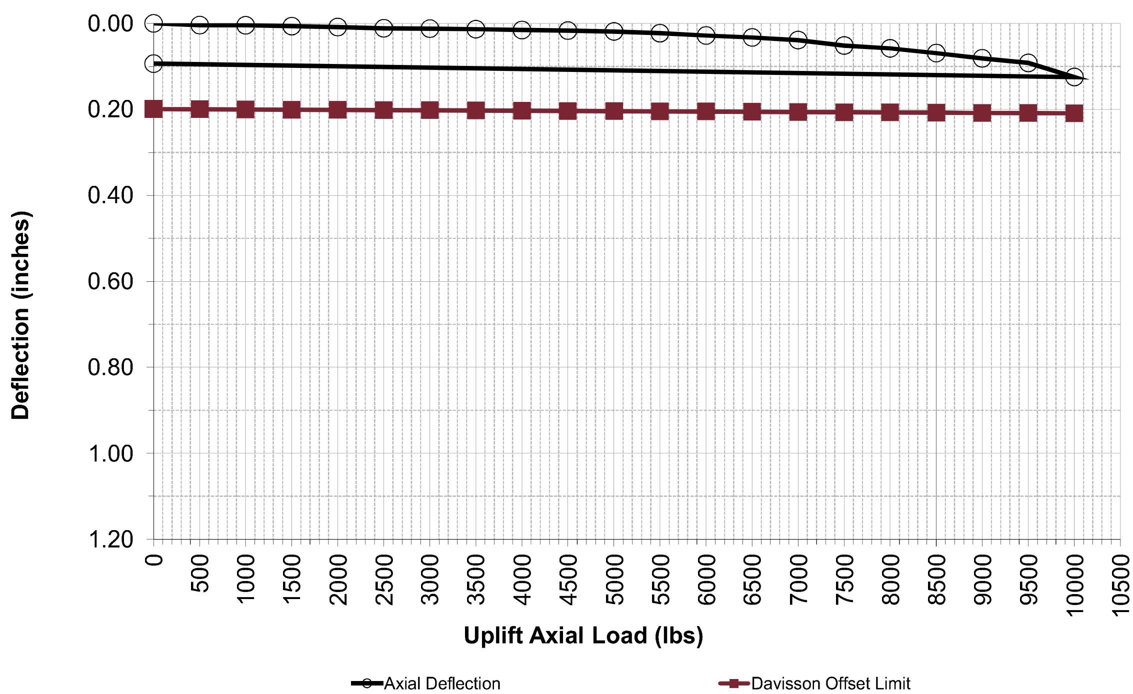
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-17A
Latitude:	40.92063
Longitude:	-84.50807
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	80.9

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.004	0.000	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.007	0.001	0.201	
20%	2000	0.009	0.002	0.201	
25%	2500	0.011	0.002	0.202	
30%	3000	0.012	0.003	0.202	
35%	3500	0.014	0.003	0.203	
40%	4000	0.015	0.004	0.203	
45%	4500	0.017	0.004	0.204	
50%	5000	0.019	0.005	0.204	
55%	5500	0.023	0.005	0.205	
60%	6000	0.028	0.006	0.205	
65%	6500	0.033	0.006	0.206	
70%	7000	0.039	0.007	0.206	
75%	7500	0.052	0.007	0.207	
80%	8000	0.058	0.008	0.207	
85%	8500	0.069	0.008	0.207	
90%	9000	0.081	0.009	0.208	
95%	9500	0.092	0.009	0.208	
100%	10000	0.125	0.010	0.209	pile did not move at all
0%	0	0.094	0.000	0.199	



Tension Load Test Result for PLT-17B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

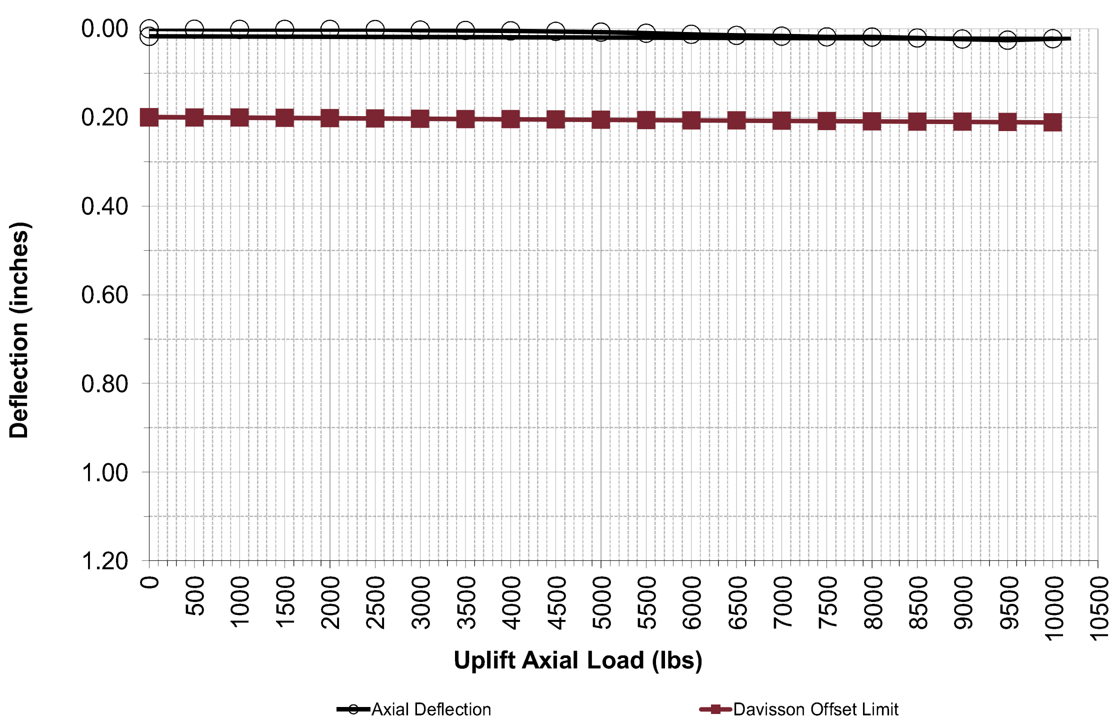
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-17B
Latitude:	40.92063
Longitude:	-84.50807
Pile Type:	W6X9
Pile Embedment Depth [in]:	102
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	302.21

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.001	0.200	
10%	1000	0.001	0.001	0.200	
15%	1500	0.001	0.002	0.201	
20%	2000	0.001	0.002	0.202	
25%	2500	0.002	0.003	0.202	
30%	3000	0.003	0.004	0.203	
35%	3500	0.004	0.004	0.203	
40%	4000	0.005	0.005	0.204	
45%	4500	0.006	0.005	0.205	
50%	5000	0.008	0.006	0.205	
55%	5500	0.010	0.007	0.206	
60%	6000	0.013	0.007	0.206	
65%	6500	0.015	0.008	0.207	
70%	7000	0.017	0.008	0.207	
75%	7500	0.018	0.009	0.208	
80%	8000	0.019	0.010	0.209	
85%	8500	0.021	0.010	0.209	
90%	9000	0.023	0.011	0.210	
95%	9500	0.026	0.011	0.210	
100%	10000	0.022	0.012	0.211	
0%	0	0.017	0.000	0.199	



Tension Load Test Result for PLT-18A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

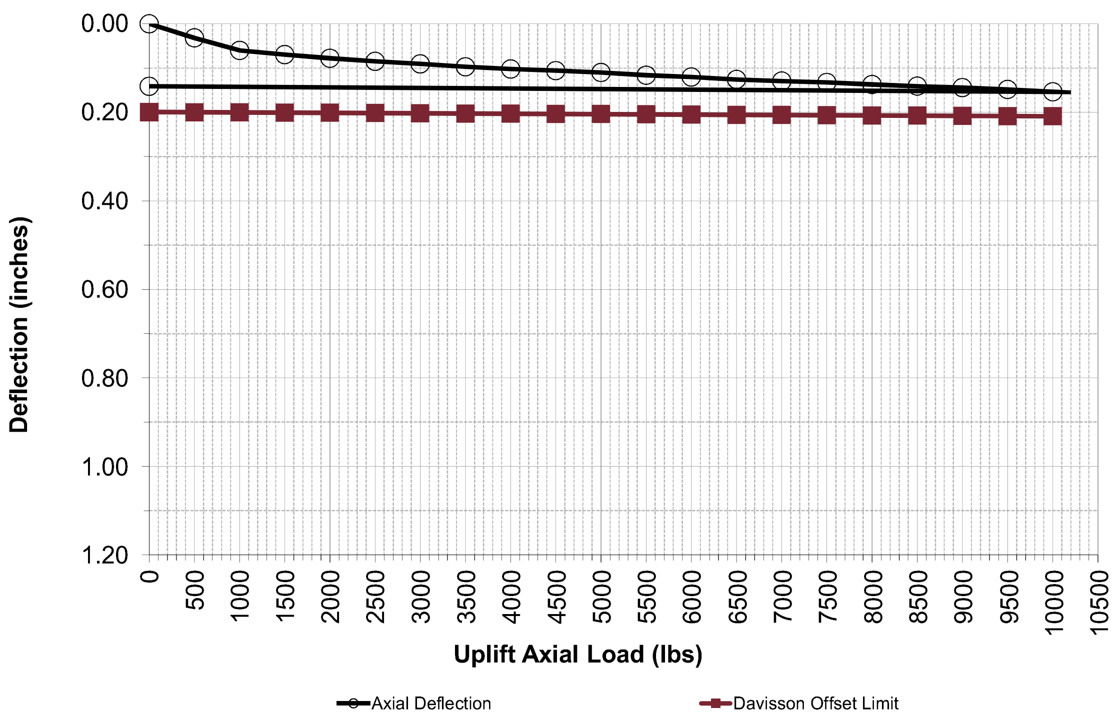
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-18A
Latitude:	40.91561
Longitude:	-84.50802
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	96

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.032	0.000	0.200	
10%	1000	0.060	0.001	0.200	
15%	1500	0.070	0.001	0.201	
20%	2000	0.078	0.002	0.201	
25%	2500	0.085	0.002	0.202	
30%	3000	0.091	0.003	0.202	
35%	3500	0.097	0.003	0.203	
40%	4000	0.102	0.004	0.203	
45%	4500	0.106	0.004	0.204	
50%	5000	0.110	0.005	0.204	
55%	5500	0.116	0.005	0.205	
60%	6000	0.120	0.006	0.205	
65%	6500	0.126	0.006	0.206	
70%	7000	0.129	0.007	0.206	
75%	7500	0.133	0.007	0.207	
80%	8000	0.137	0.008	0.207	
85%	8500	0.141	0.008	0.207	
90%	9000	0.144	0.009	0.208	
95%	9500	0.149	0.009	0.208	
100%	10000	0.154	0.010	0.209	
0%	0	0.142	0.000	0.199	



Tension Load Test Result for PLT-18B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

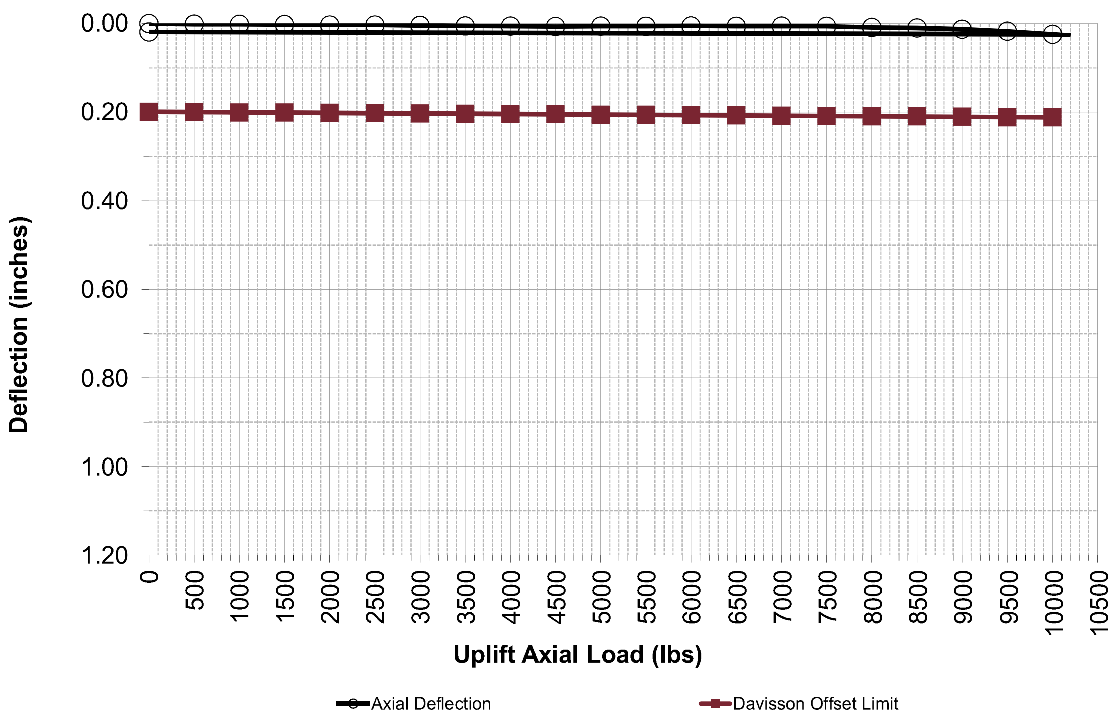
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-18B
Latitude:	40.91561
Longitude:	-84.50802
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	207.8

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.001	0.200	
10%	1000	0.002	0.001	0.200	
15%	1500	0.002	0.002	0.201	
20%	2000	0.003	0.003	0.202	
25%	2500	0.004	0.003	0.202	
30%	3000	0.004	0.004	0.203	
35%	3500	0.005	0.004	0.204	
40%	4000	0.006	0.005	0.204	
45%	4500	0.007	0.006	0.205	
50%	5000	0.006	0.006	0.205	
55%	5500	0.006	0.007	0.206	
60%	6000	0.006	0.008	0.207	
65%	6500	0.006	0.008	0.207	
70%	7000	0.006	0.009	0.208	
75%	7500	0.006	0.009	0.209	
80%	8000	0.009	0.010	0.209	
85%	8500	0.010	0.011	0.210	
90%	9000	0.013	0.011	0.210	
95%	9500	0.017	0.012	0.211	
100%	10000	0.024	0.013	0.212	
0%	0	0.019	0.000	0.199	



Tension Load Test Result for PLT-19A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

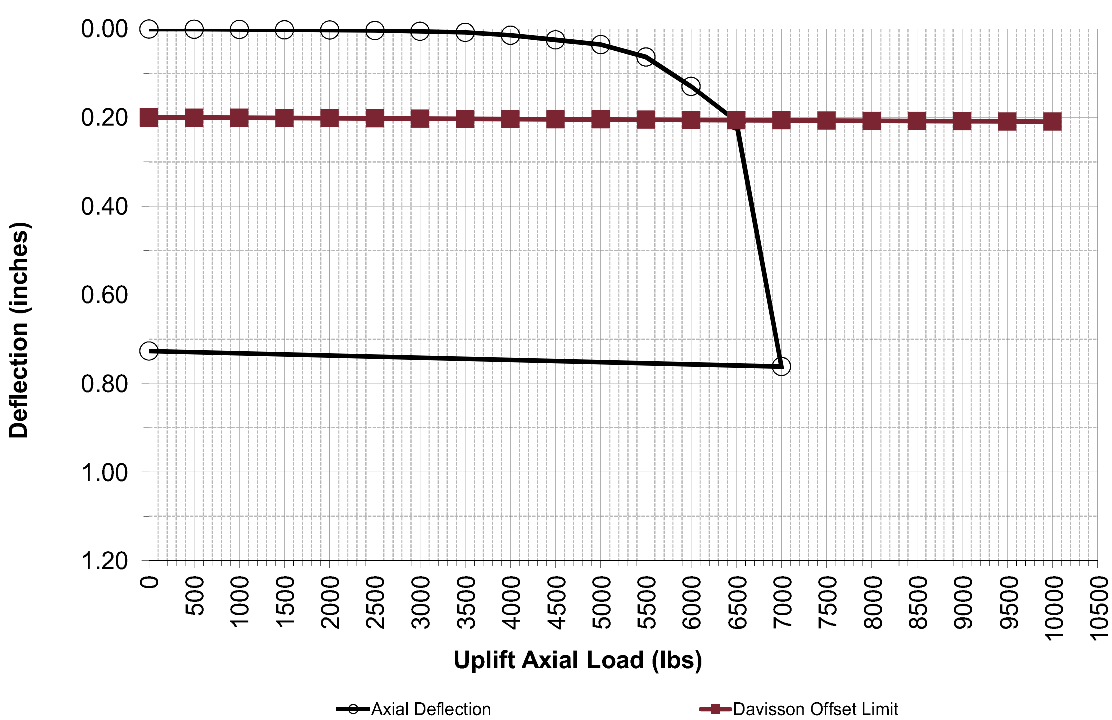
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-19A
Latitude:	40.91050
Longitude:	-84.50779
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	43.92

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.000	0.200	
10%	1000	0.001	0.001	0.200	
15%	1500	0.002	0.001	0.201	
20%	2000	0.002	0.002	0.201	
25%	2500	0.003	0.002	0.202	
30%	3000	0.005	0.003	0.202	
35%	3500	0.007	0.003	0.203	
40%	4000	0.014	0.004	0.203	
45%	4500	0.024	0.004	0.204	
50%	5000	0.035	0.005	0.204	
55%	5500	0.063	0.005	0.205	
60%	6000	0.129	0.006	0.205	
65%	6500	0.207	0.006	0.206	
70%	7000	0.762	0.007	0.206	
75%	7500		0.007	0.207	
80%	8000		0.008	0.207	
85%	8500		0.008	0.207	
90%	9000		0.009	0.208	
95%	9500		0.009	0.208	
100%	10000		0.010	0.209	
0%	0	0.727	0.000	0.199	



Tension Load Test Result for PLT-19B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

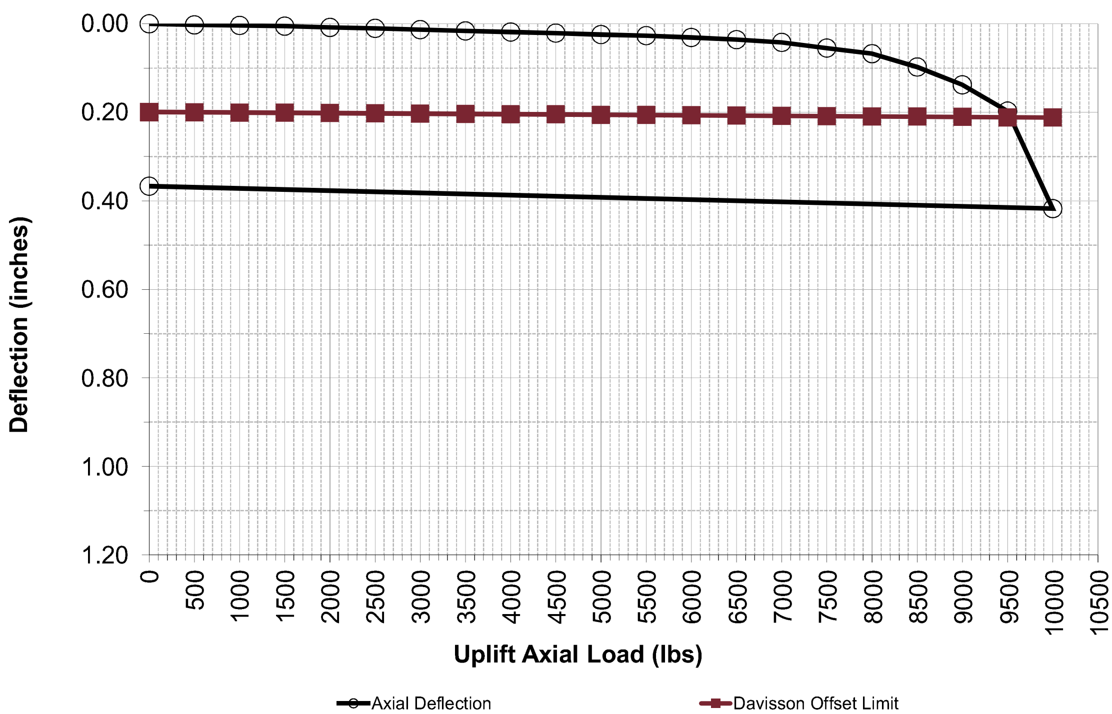
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-19B
Latitude:	40.91050
Longitude:	-84.50779
Pile Type:	W6X9
Pile Embedment Depth [in]:	108
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	127.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.001	0.200	
10%	1000	0.004	0.001	0.200	
15%	1500	0.006	0.002	0.201	
20%	2000	0.008	0.003	0.202	
25%	2500	0.011	0.003	0.202	
30%	3000	0.013	0.004	0.203	
35%	3500	0.016	0.004	0.204	
40%	4000	0.019	0.005	0.204	
45%	4500	0.021	0.006	0.205	
50%	5000	0.024	0.006	0.205	
55%	5500	0.027	0.007	0.206	
60%	6000	0.031	0.008	0.207	
65%	6500	0.036	0.008	0.207	
70%	7000	0.042	0.009	0.208	
75%	7500	0.055	0.009	0.209	
80%	8000	0.068	0.010	0.209	
85%	8500	0.098	0.011	0.210	
90%	9000	0.138	0.011	0.210	
95%	9500	0.198	0.012	0.211	
100%	10000	0.418	0.013	0.212	
0%	0	0.367	0.000	0.199	



Tension Load Test Result for PLT-20A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

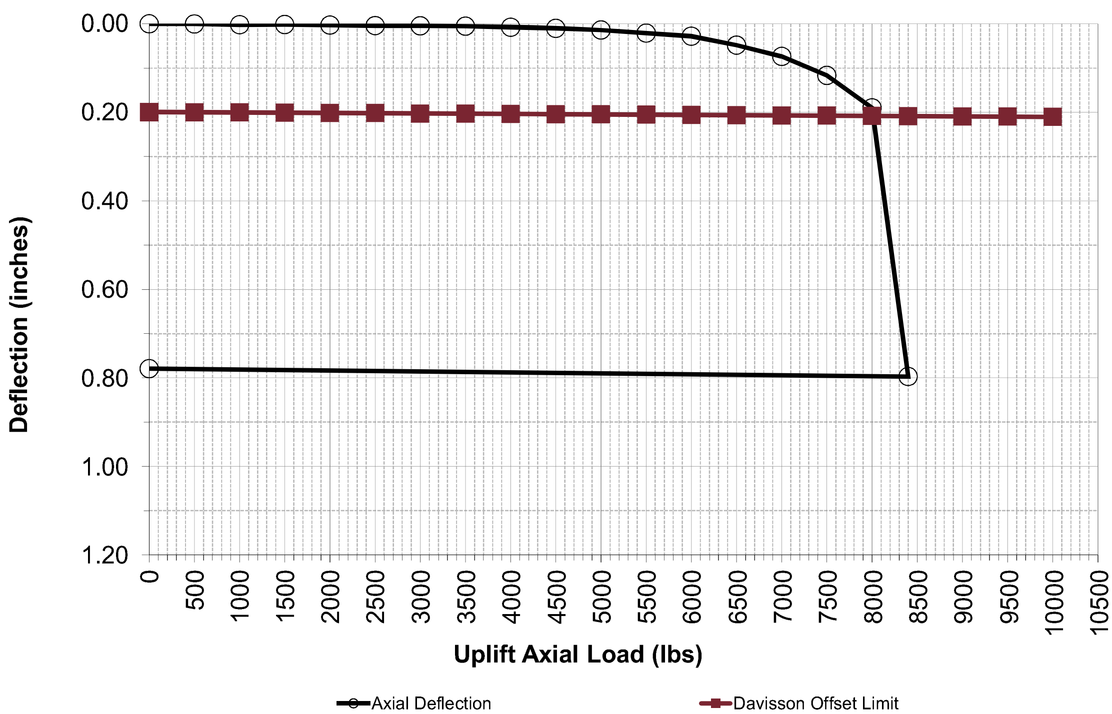
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-20A
Latitude:	40.90807
Longitude:	-84.51120
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	68.1

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.001	0.001	0.200	
10%	1000	0.002	0.001	0.200	
15%	1500	0.002	0.002	0.201	
20%	2000	0.003	0.002	0.201	
25%	2500	0.004	0.003	0.202	
30%	3000	0.005	0.003	0.203	
35%	3500	0.005	0.004	0.203	
40%	4000	0.008	0.004	0.204	
45%	4500	0.010	0.005	0.204	
50%	5000	0.014	0.006	0.205	
55%	5500	0.021	0.006	0.205	
60%	6000	0.028	0.007	0.206	
65%	6500	0.048	0.007	0.206	
70%	7000	0.074	0.008	0.207	
75%	7500	0.117	0.008	0.208	
80%	8000	0.190	0.009	0.208	
84%	8400	0.797	0.009	0.209	
90%	9000		0.010	0.209	
95%	9500		0.011	0.210	
100%	10000		0.011	0.210	
0%	0	0.779	0.000	0.199	



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Tension Load Test Result for PLT-20B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

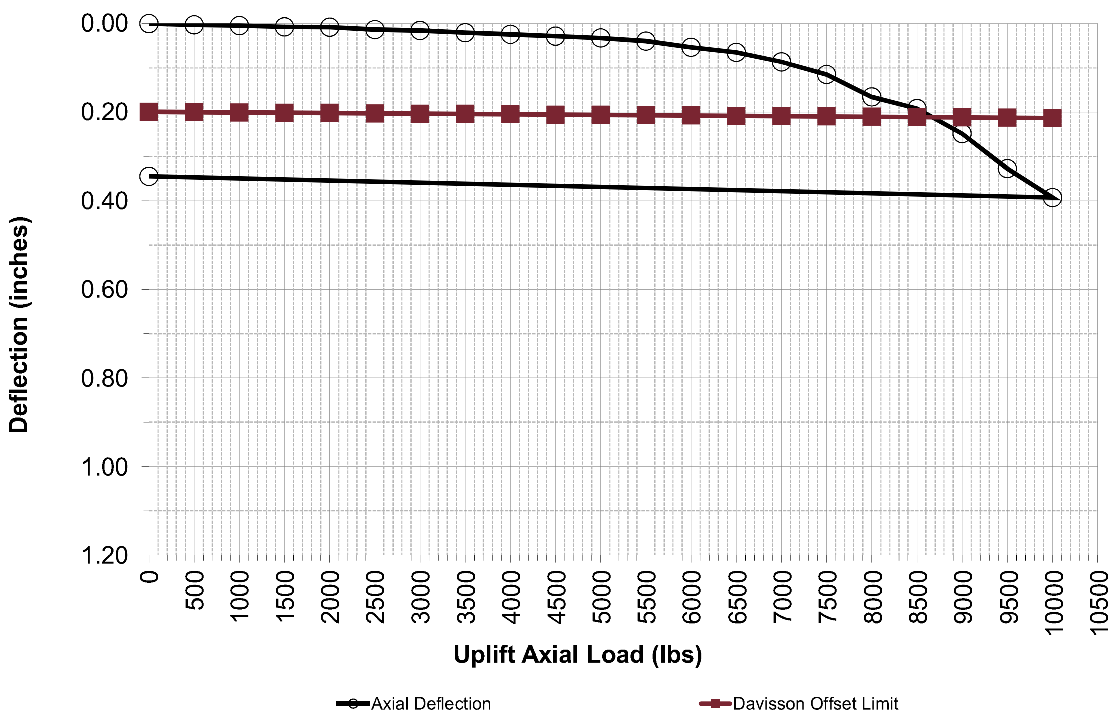
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-20B
Latitude:	40.90807
Longitude:	-84.51120
Pile Type:	W6X9
Pile Embedment Depth [in]:	120
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	127.2

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.001	0.200	
10%	1000	0.005	0.001	0.201	
15%	1500	0.007	0.002	0.201	
20%	2000	0.008	0.003	0.202	
25%	2500	0.014	0.003	0.203	
30%	3000	0.016	0.004	0.203	
35%	3500	0.021	0.005	0.204	
40%	4000	0.024	0.006	0.205	
45%	4500	0.029	0.006	0.205	
50%	5000	0.033	0.007	0.206	
55%	5500	0.040	0.008	0.207	
60%	6000	0.054	0.008	0.208	
65%	6500	0.065	0.009	0.208	
70%	7000	0.087	0.010	0.209	
75%	7500	0.115	0.010	0.210	
80%	8000	0.166	0.011	0.210	
85%	8500	0.192	0.012	0.211	
90%	9000	0.248	0.013	0.212	
95%	9500	0.327	0.013	0.212	
100%	10000	0.393	0.014	0.213	
0%	0	0.345	0.000	0.199	



Tension Load Test Result for PLT-21A

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

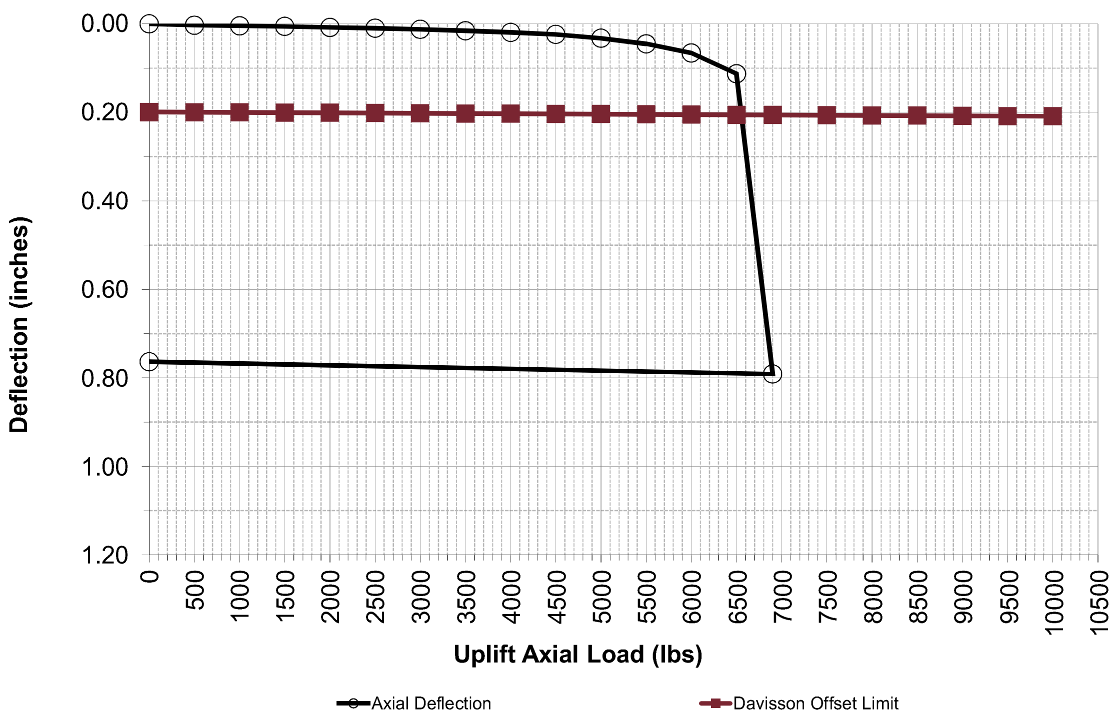
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-21A
Latitude:	40.90545
Longitude:	-84.50691
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	43.32

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.000	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.006	0.001	0.201	
20%	2000	0.008	0.002	0.201	
25%	2500	0.010	0.002	0.202	
30%	3000	0.013	0.003	0.202	
35%	3500	0.016	0.003	0.203	
40%	4000	0.020	0.004	0.203	
45%	4500	0.024	0.004	0.204	
50%	5000	0.033	0.005	0.204	
55%	5500	0.045	0.005	0.205	
60%	6000	0.066	0.006	0.205	
65%	6500	0.113	0.006	0.206	
69%	6900	0.791	0.007	0.206	
75%	7500		0.007	0.207	
80%	8000		0.008	0.207	
85%	8500		0.008	0.207	
90%	9000		0.009	0.208	
95%	9500		0.009	0.208	
100%	10000		0.010	0.209	
0%	0	0.764	0.000	0.199	



Tension Load Test Result for PLT-21B

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

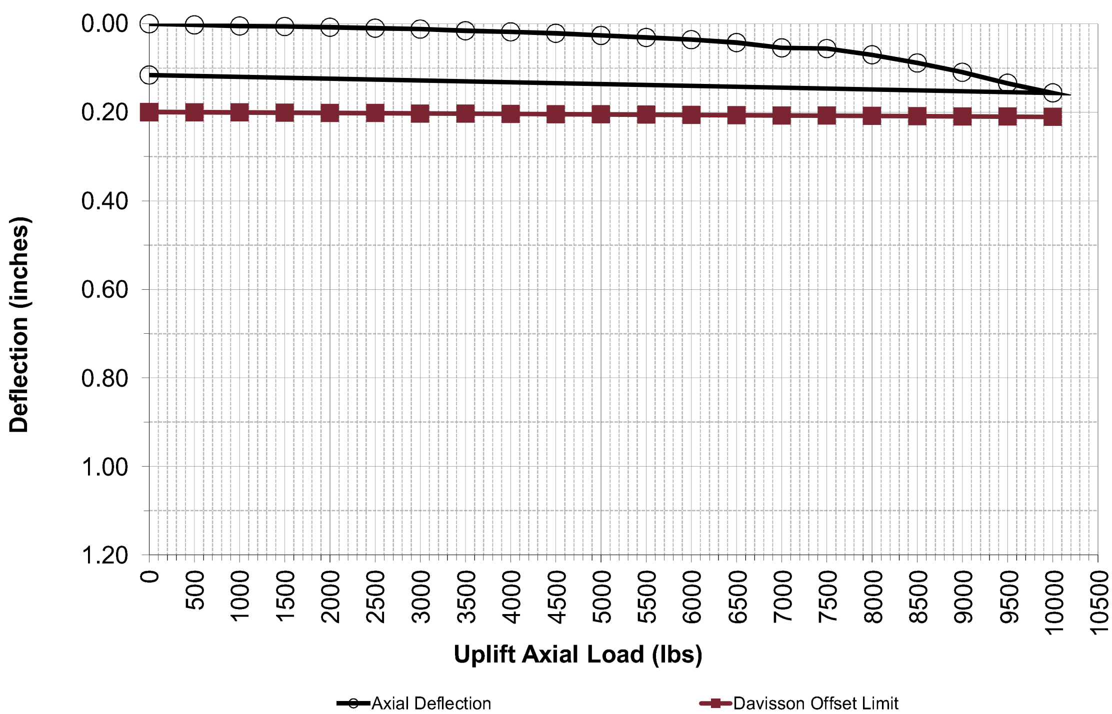
Test Date and Representative

Tested By Terracon Rep:	M. Bishop
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-21B
Latitude:	40.90545
Longitude:	-84.50691
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	138.29

Tension Test Results			Davisson Offset Limit Lines		
% of Design Load	Axial Load [lbs]	Deflection Δ (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	
5%	500	0.003	0.001	0.200	
10%	1000	0.005	0.001	0.200	
15%	1500	0.006	0.002	0.201	
20%	2000	0.008	0.002	0.201	
25%	2500	0.010	0.003	0.202	
30%	3000	0.012	0.003	0.203	
35%	3500	0.016	0.004	0.203	
40%	4000	0.018	0.004	0.204	
45%	4500	0.022	0.005	0.204	
50%	5000	0.026	0.006	0.205	
55%	5500	0.031	0.006	0.205	
60%	6000	0.036	0.007	0.206	
65%	6500	0.043	0.007	0.206	
70%	7000	0.054	0.008	0.207	
75%	7500	0.056	0.008	0.208	
80%	8000	0.070	0.009	0.208	
85%	8500	0.089	0.010	0.209	
90%	9000	0.110	0.010	0.209	
95%	9500	0.134	0.011	0.210	
100%	10000	0.156	0.011	0.210	
0%	0	0.116	0.000	0.199	



Compression Load Test Result for PLT-1C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

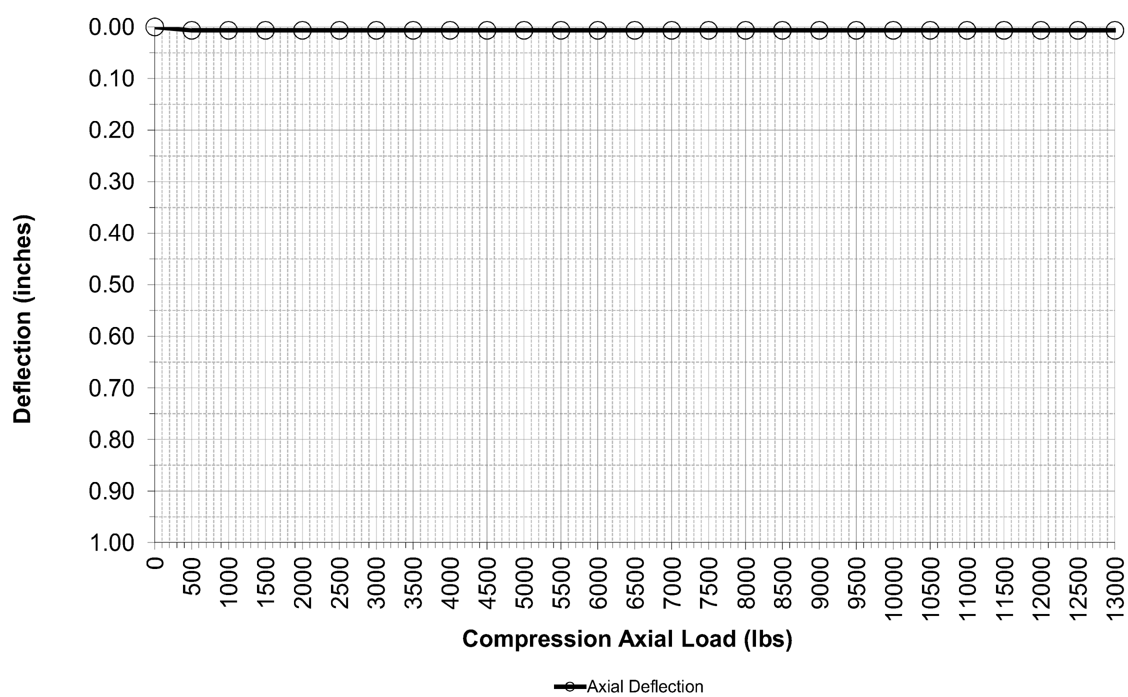
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-1C
Latitude:	40.95067
Longitude:	-84.55509
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	112.36

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.007	
8%	1000	0.007	
12%	1500	0.007	
15%	2000	0.007	
19%	2500	0.007	
23%	3000	0.007	
27%	3500	0.007	
31%	4000	0.007	
35%	4500	0.007	
38%	5000	0.007	
42%	5500	0.007	
46%	6000	0.007	
50%	6500	0.007	
54%	7000	0.007	
58%	7500	0.007	
62%	8000	0.007	
65%	8500	0.007	
69%	9000	0.007	
73%	9500	0.007	
77%	10000	0.007	
81%	10500	0.007	
85%	11000	0.007	
88%	11500	0.007	
92%	12000	0.007	
96%	12500	0.007	
100%	13000	0.007	pile not moving at all
0%	0		



Compression Load Test Result for PLT-3C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

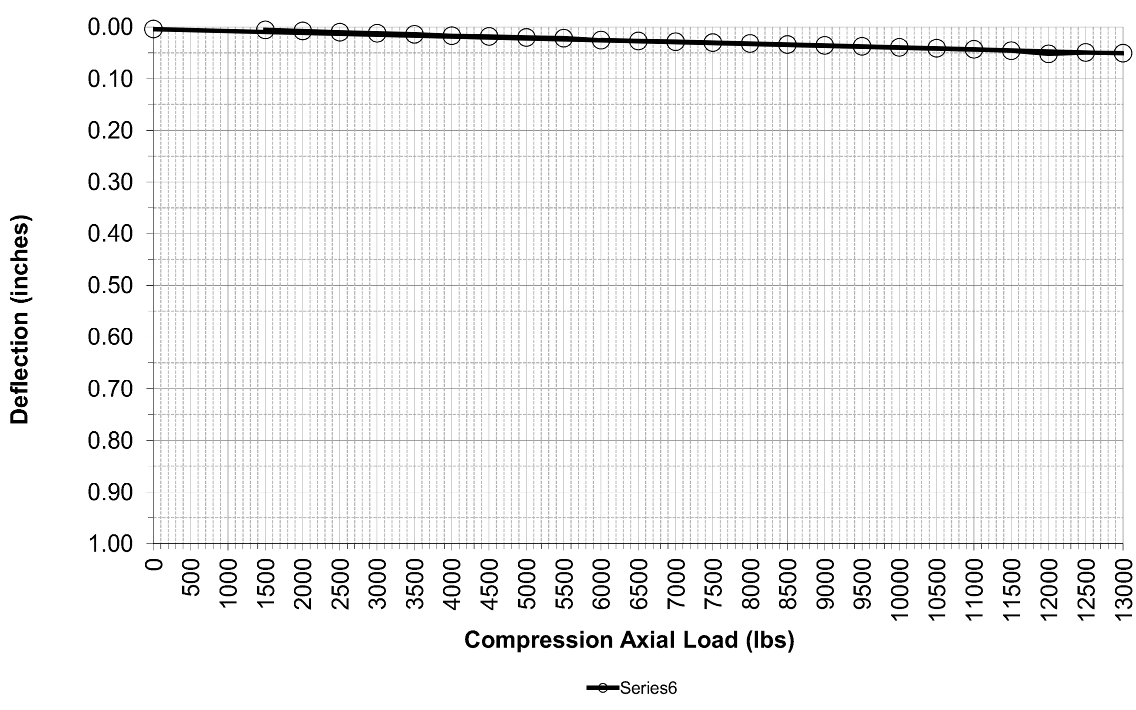
Tested By Terracon Rep:	I. McGougan
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-3C
Latitude:	40.93652
Longitude:	-84.55731
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	72.45

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.003	
8%	1000	0.004	
12%	1500	0.006	
15%	2000	0.008	
19%	2500	0.010	
23%	3000	0.012	
27%	3500	0.014	
31%	4000	0.017	
35%	4500	0.018	
38%	5000	0.020	
42%	5500	0.022	
46%	6000	0.025	
50%	6500	0.027	
54%	7000	0.029	
58%	7500	0.030	
62%	8000	0.032	
65%	8500	0.034	
69%	9000	0.036	
73%	9500	0.037	
77%	10000	0.040	
81%	10500	0.041	
85%	11000	0.043	
88%	11500	0.046	
92%	12000	0.052	
96%	12500	0.049	
100%	13000	0.051	pile not moving at all
0%	0	0.004	



Compression Load Test Result for PLT-4C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

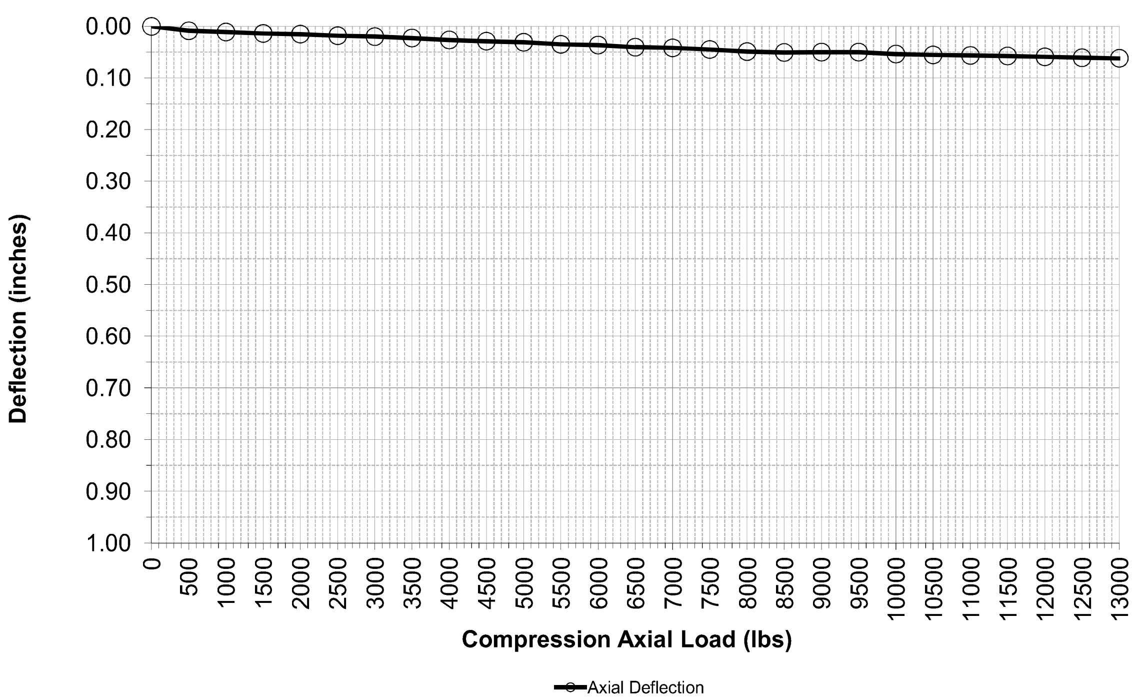
Tested By Terracon Rep:	I. McGougan
Date Tested:	7/22/2021

Pile Information

Pile ID:	PLT-4C
Latitude:	40.93294
Longitude:	-84.56423
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	155.92

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.009	
8%	1000	0.011	
12%	1500	0.014	
15%	2000	0.015	
19%	2500	0.018	
23%	3000	0.020	
27%	3500	0.023	
31%	4000	0.026	
35%	4500	0.029	
38%	5000	0.031	
42%	5500	0.035	
46%	6000	0.036	
50%	6500	0.040	
54%	7000	0.042	
58%	7500	0.045	
62%	8000	0.049	
65%	8500	0.051	
69%	9000	0.050	
73%	9500	0.050	
77%	10000	0.054	
81%	10500	0.055	
85%	11000	0.056	
88%	11500	0.058	
92%	12000	0.059	
96%	12500	0.061	
100%	13000	0.062	pile twisting in ground
0%	0		



Compression Load Test Result for PLT-7C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

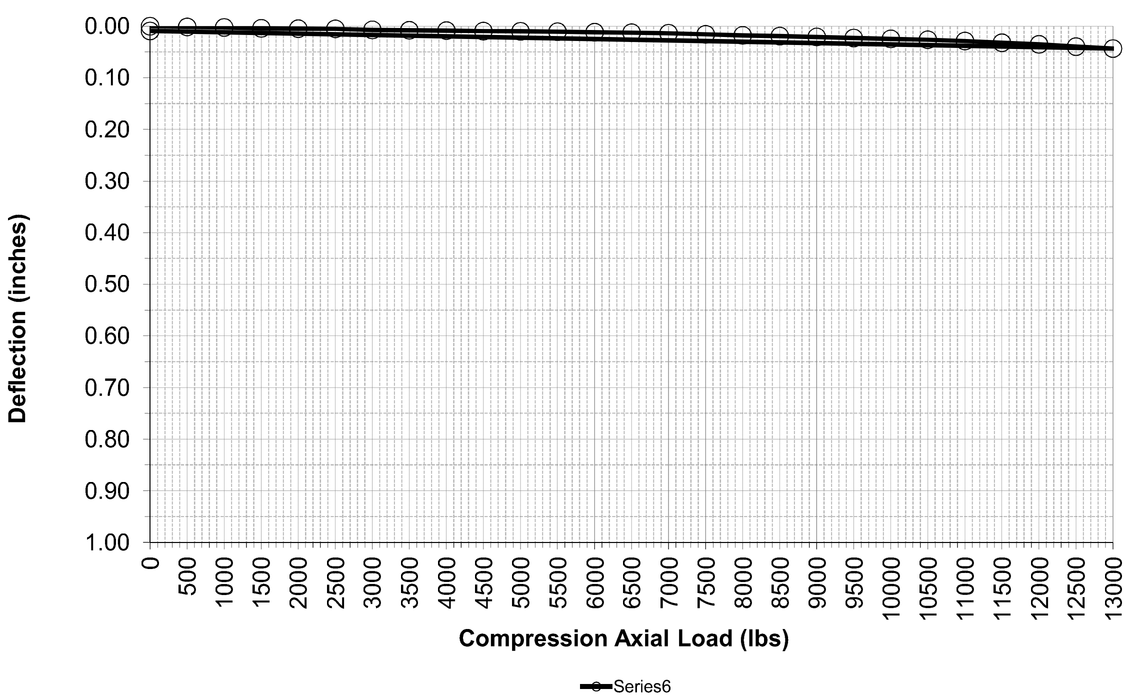
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-7C
Latitude:	40.92604
Longitude:	-84.54827
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	115.7

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.002	
8%	1000	0.003	
12%	1500	0.004	
15%	2000	0.005	
19%	2500	0.005	
23%	3000	0.007	
27%	3500	0.008	
31%	4000	0.009	
35%	4500	0.010	
38%	5000	0.010	
42%	5500	0.011	
46%	6000	0.012	
50%	6500	0.013	
54%	7000	0.014	
58%	7500	0.016	
62%	8000	0.018	
65%	8500	0.019	
69%	9000	0.021	
73%	9500	0.023	
77%	10000	0.025	
81%	10500	0.026	
85%	11000	0.029	
88%	11500	0.032	
92%	12000	0.035	
96%	12500	0.040	
100%	13000	0.043	pile not moving at all
0%	0	0.009	



Compression Load Test Result for PLT-8C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

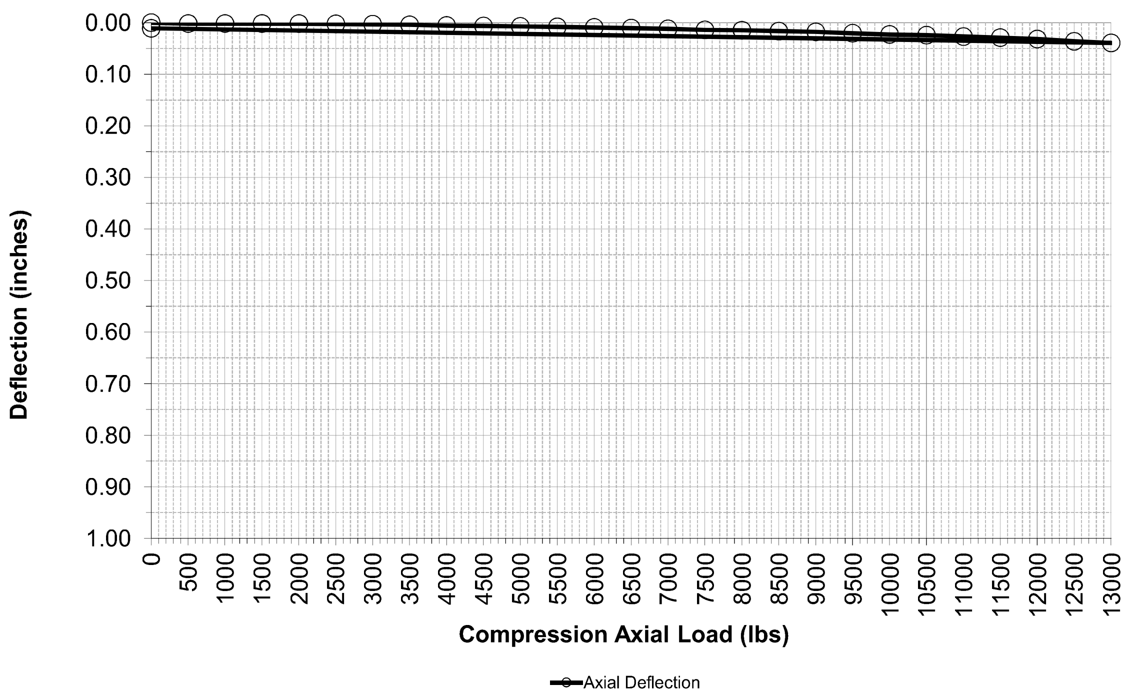
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-8C
Latitude:	40.93348
Longitude:	-84.54428
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	77.16

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.002	
8%	1000	0.002	
12%	1500	0.002	
15%	2000	0.002	
19%	2500	0.002	
23%	3000	0.003	
27%	3500	0.004	
31%	4000	0.005	
35%	4500	0.007	
38%	5000	0.007	
42%	5500	0.008	
46%	6000	0.009	
50%	6500	0.011	
54%	7000	0.012	
58%	7500	0.014	
62%	8000	0.015	
65%	8500	0.016	
69%	9000	0.018	
73%	9500	0.020	
77%	10000	0.023	
81%	10500	0.024	
85%	11000	0.027	
88%	11500	0.029	
92%	12000	0.032	
96%	12500	0.036	
100%	13000	0.039	pile not moving at all
0%	0	0.011	



Compression Load Test Result for PLT-9C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

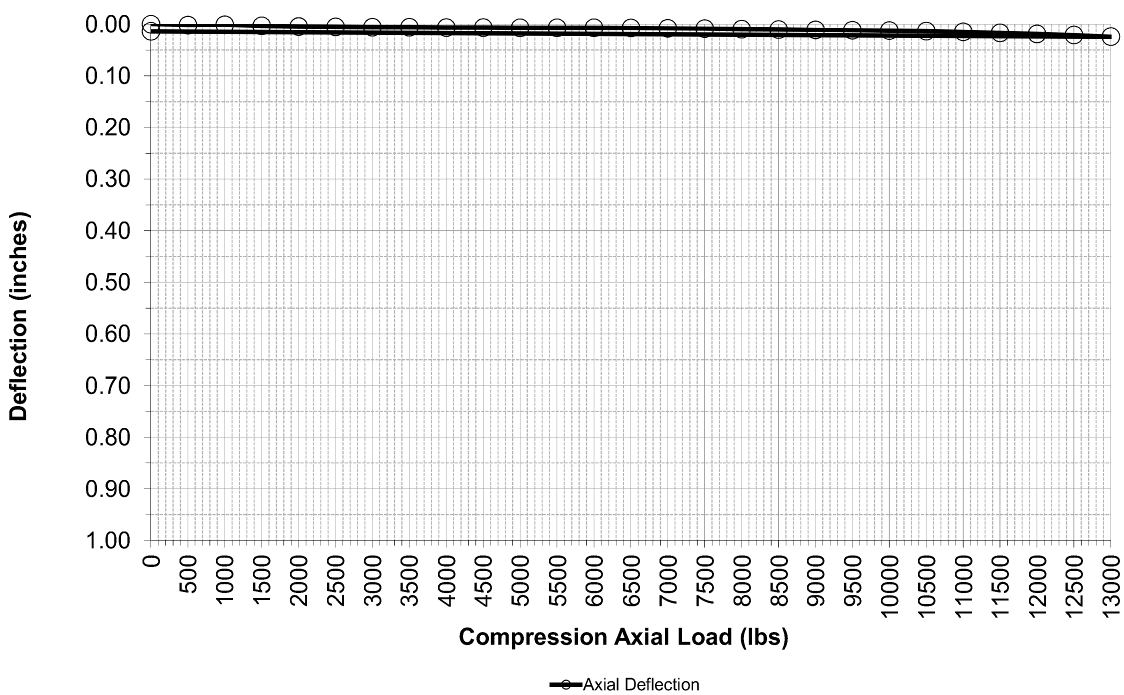
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-9C
Latitude:	40.91886
Longitude:	-84.56024
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	90.26

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.002	
8%	1000	0.001	
12%	1500	0.003	
15%	2000	0.005	
19%	2500	0.005	
23%	3000	0.006	
27%	3500	0.006	
31%	4000	0.007	
35%	4500	0.007	
38%	5000	0.007	
42%	5500	0.007	
46%	6000	0.007	
50%	6500	0.007	
54%	7000	0.008	
58%	7500	0.009	
62%	8000	0.010	
65%	8500	0.010	
69%	9000	0.011	
73%	9500	0.012	
77%	10000	0.012	
81%	10500	0.014	
85%	11000	0.015	
88%	11500	0.017	
92%	12000	0.019	
96%	12500	0.021	
100%	13000	0.024	pile not moving at all
0%	0	0.014	



Compression Load Test Result for PLT-11C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

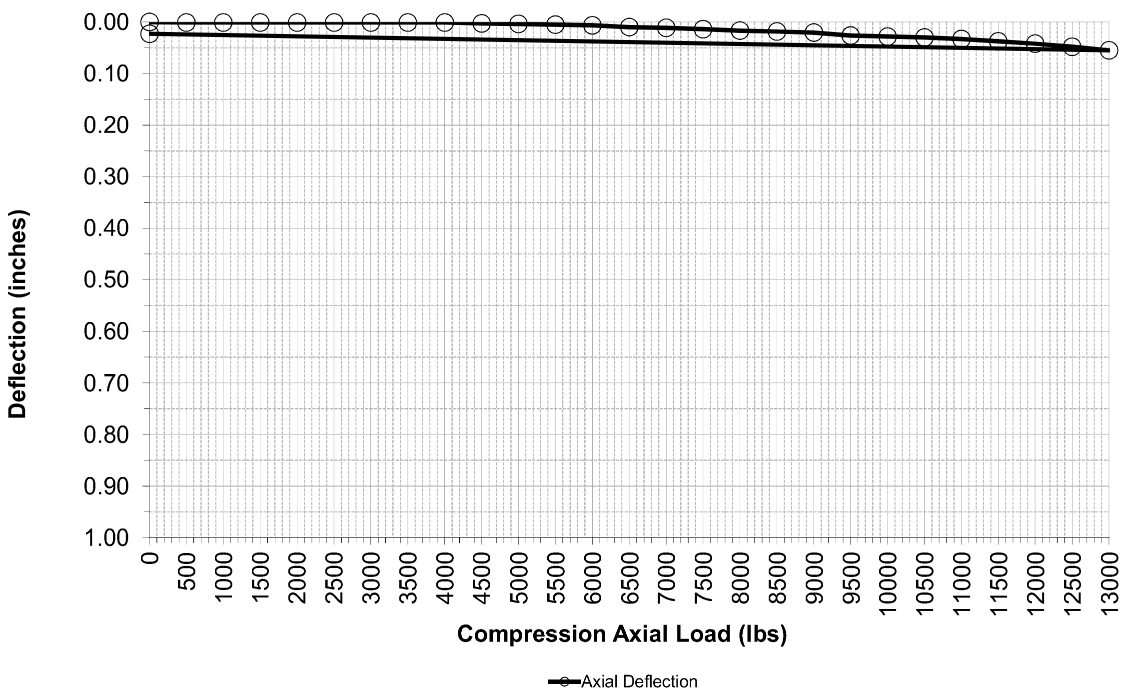
Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-11C
Latitude:	40.92657
Longitude:	-84.52215
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	59.32

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.001	
8%	1000	0.001	
12%	1500	0.001	
15%	2000	0.001	
19%	2500	0.001	
23%	3000	0.001	
27%	3500	0.001	
31%	4000	0.001	
35%	4500	0.003	
38%	5000	0.004	
42%	5500	0.005	
46%	6000	0.007	
50%	6500	0.010	
54%	7000	0.011	
58%	7500	0.014	
62%	8000	0.017	
65%	8500	0.018	
69%	9000	0.021	
73%	9500	0.026	
77%	10000	0.028	
81%	10500	0.030	
85%	11000	0.033	
88%	11500	0.038	
92%	12000	0.042	
96%	12500	0.048	
100%	13000	0.055	pile not moving at all
0%	0	0.023	



Compression Load Test Result for PLT-13C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

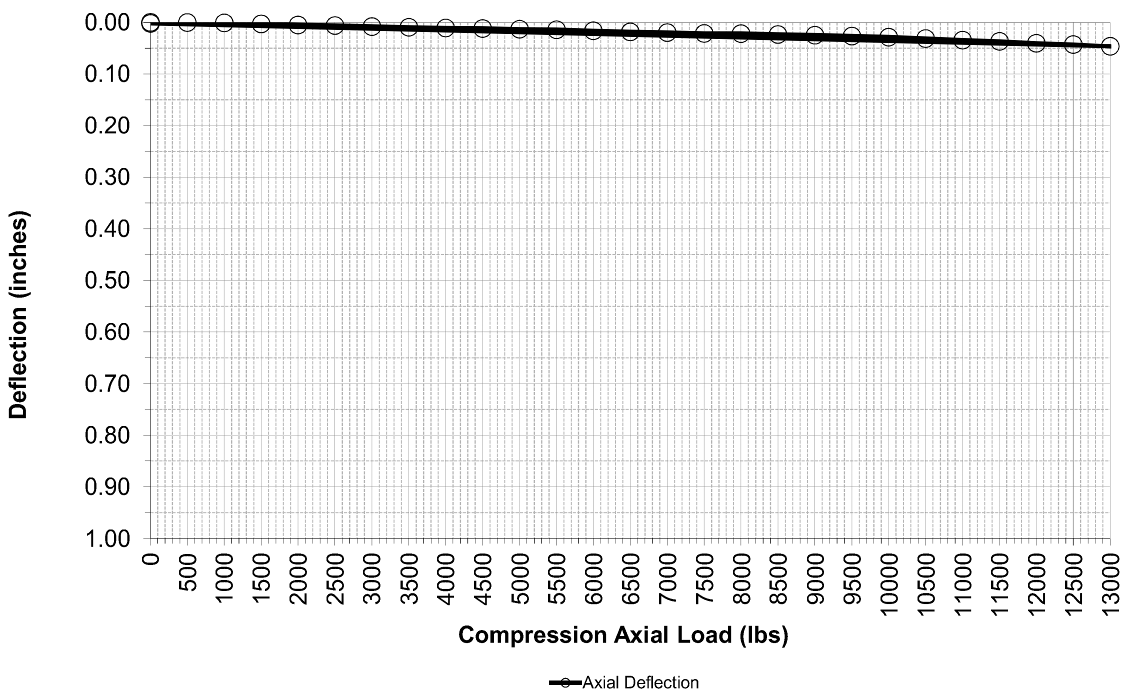
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-13C
Latitude:	40.91516
Longitude:	-84.52141
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	70.21

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.001	
8%	1000	0.001	
12%	1500	0.003	
15%	2000	0.005	
19%	2500	0.006	
23%	3000	0.008	
27%	3500	0.010	
31%	4000	0.011	
35%	4500	0.012	
38%	5000	0.013	
42%	5500	0.014	
46%	6000	0.016	
50%	6500	0.019	
54%	7000	0.020	
58%	7500	0.022	
62%	8000	0.022	
65%	8500	0.024	
69%	9000	0.025	
73%	9500	0.027	
77%	10000	0.029	
81%	10500	0.032	
85%	11000	0.035	
88%	11500	0.037	
92%	12000	0.041	
96%	12500	0.043	
100%	13000	0.047	pile not moving at all
0%	0	0.002	



Compression Load Test Result for PLT-16C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

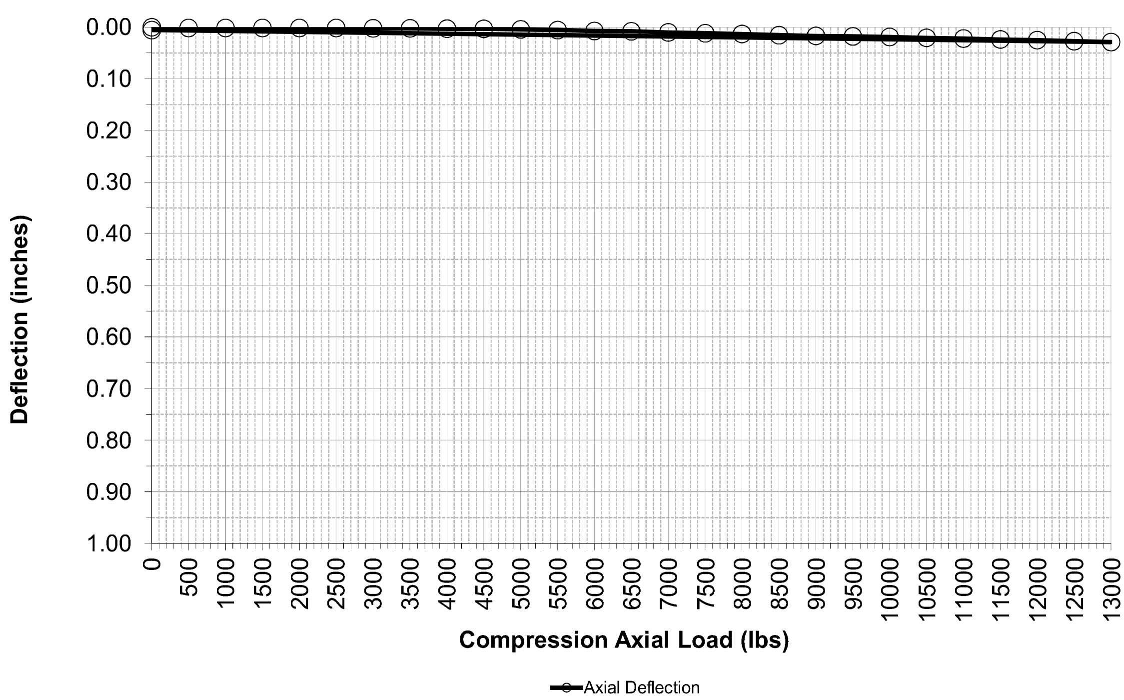
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/23/2021

Pile Information

Pile ID:	PLT-16C
Latitude:	40.92677
Longitude:	-84.50774
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	186.29

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.002	
8%	1000	0.002	
12%	1500	0.002	
15%	2000	0.002	
19%	2500	0.002	
23%	3000	0.002	
27%	3500	0.002	
31%	4000	0.003	
35%	4500	0.003	
38%	5000	0.004	
42%	5500	0.006	
46%	6000	0.007	
50%	6500	0.008	
54%	7000	0.010	
58%	7500	0.012	
62%	8000	0.013	
65%	8500	0.015	
69%	9000	0.017	
73%	9500	0.018	
77%	10000	0.019	
81%	10500	0.021	
85%	11000	0.022	
88%	11500	0.024	
92%	12000	0.025	
96%	12500	0.027	
100%	13000	0.029	pile not moving at all
0%	0	0.006	



Compression Load Test Result for PLT-17C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

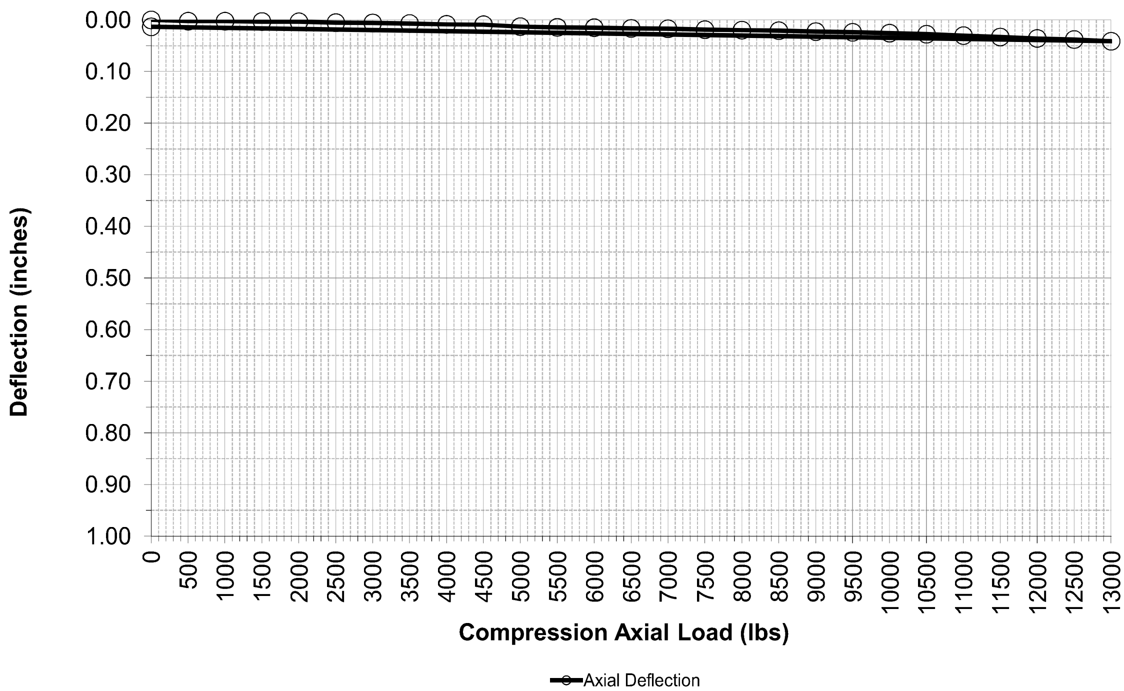
Test Date and Representative

Tested By Terracon Rep:	I. McGougan
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-17C
Latitude:	40.92063
Longitude:	-84.50807
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	73.21

Compression Test Results			
% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.003	
8%	1000	0.003	
12%	1500	0.003	
15%	2000	0.004	
19%	2500	0.005	
23%	3000	0.006	
27%	3500	0.007	
31%	4000	0.009	
35%	4500	0.009	
38%	5000	0.013	
42%	5500	0.014	
46%	6000	0.015	
50%	6500	0.017	
54%	7000	0.017	
58%	7500	0.019	
62%	8000	0.020	
65%	8500	0.021	
69%	9000	0.023	
73%	9500	0.024	
77%	10000	0.026	
81%	10500	0.028	
85%	11000	0.030	
88%	11500	0.033	
92%	12000	0.036	
96%	12500	0.038	
100%	13000	0.041	pile not moving at all
0%	0	0.014	



Compression Load Test Result for PLT-21C

Project Information

Project Name:	Wild Grains Solar
Project Location:	Van Wert, Ohio
Project Number:	N4215167

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

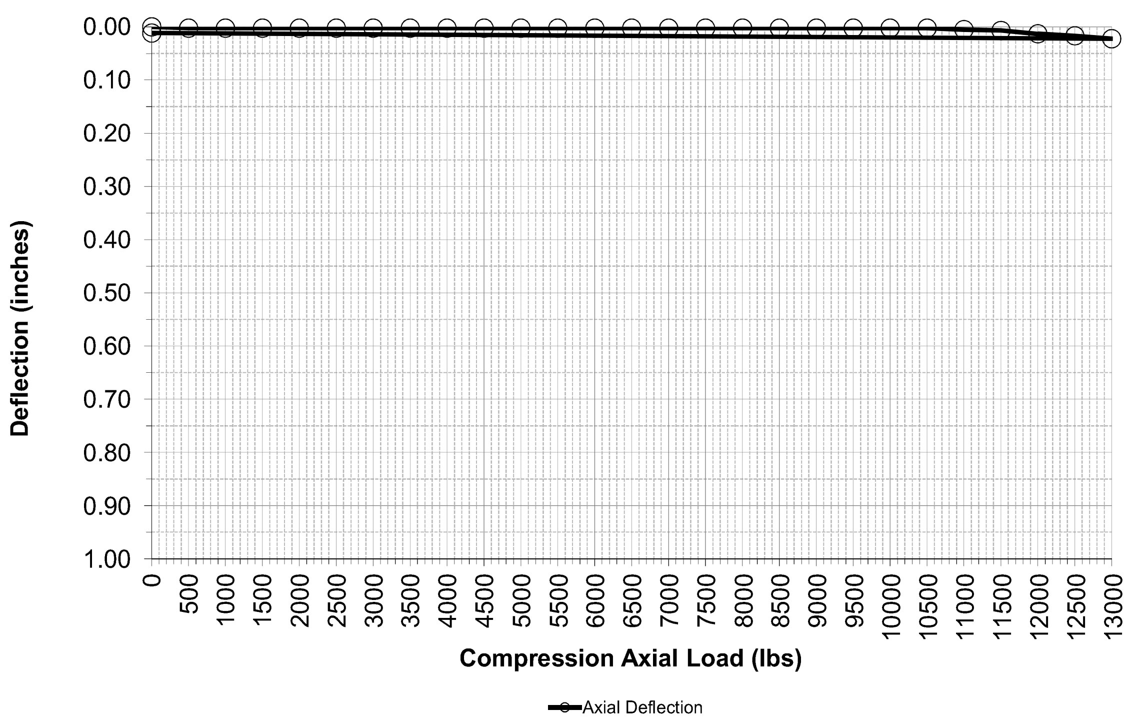
Tested By Terracon Rep:	I. McGougan
Date Tested:	7/24/2021

Pile Information

Pile ID:	PLT-21C
Latitude:	40.90545
Longitude:	-84.50691
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	20
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.96
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	44.2

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.002	
8%	1000	0.002	
12%	1500	0.002	
15%	2000	0.002	
19%	2500	0.002	
23%	3000	0.002	
27%	3500	0.002	
31%	4000	0.002	
35%	4500	0.002	
38%	5000	0.002	
42%	5500	0.002	
46%	6000	0.002	
50%	6500	0.002	
54%	7000	0.002	
58%	7500	0.002	
62%	8000	0.002	
65%	8500	0.002	
69%	9000	0.002	
73%	9500	0.002	
77%	10000	0.002	
81%	10500	0.002	
85%	11000	0.005	
88%	11500	0.007	
92%	12000	0.013	
96%	12500	0.017	
100%	13000	0.022	pile not moving
0%	0	0.012	



SUPPORTING DOCUMENTS

Contents:

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Wild Grains Solar ■ Van Wert, OH

Terracon Project No. N4215167

SAMPLING	WATER LEVEL	FIELD TESTS
Rock Core Grab Sample Shelby Tube Standard Penetration Test	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **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 water level observations.	**N** — **Standard Penetration Test Resistance (Blows/Ft.)** **(HP)** — **Hand Penetrometer** **(T)** — **Torvane** **(DCP)** — **Dynamic Cone Penetrometer** **UC** — **Unconfined Compressive Strength** **(PID)** — **Photo-Ionization Detector** **(OVA)** — **Organic Vapor Analyzer**

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

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		**CONSISTENCY OF FINE-GRAINED SOILS** (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification: Group Symbol	Soil Classification: Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:**	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines:	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:**	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$] [E]		SP	Poorly graded sand [I]
		Sands with Fines:	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-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.

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

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

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

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

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

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

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 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.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.