Request

1. Various places in the application and exhibits list different acreages for the project. Provide the total leased acreage for the project, the total fenced acreage, and the total acreage that will contain project components.

Response

Telesto has Option to Purchase and Option to Lease agreements in place, totaling 1,028 acres. Within that total leased acreage, the Project's fenced acreage depicted in Application Exhibit A.5 (the 10% design plan layouts) is 559 acres; the acreage within the Project boundary that may be designed to contain Project components is 633 acres. The difference between the Project boundary and fenced acreage is due to the difference between the current site plan and the request for permitted project development space. More specifically, the current site plan anticipates only building on 559 acres, but the Application requested approval for construction on 633 acres. That request is still in effect. While the current site plan only anticipates needing 559 acres, the request for 633 acres remains in effect in order to accommodate any subsequent siting plan changes that require panels to be moved from one portion of the project to another. The Application anticipated building on the full 633 acres, thus all notice and other requirements were met in regards to these properties and locations.

Request

2. Refer to the Application, paragraph 12, page 4. Also refer to the Application, paragraph 20(a), page 6. These paragraphs list different megawatts for the project. Provide the correct total megawatts for the project.

Response

The Project is proposing to construct an approximately 110 megawatt (MW) electric solar generating facility, as correctly stated in Application ¶20(a) and the caption for this Case. The 100 MW number in Application ¶12 is a typographical error.

Request

3. Provide a schedule for the project, starting from the receipt of the proposed certificate for construction to the completion of the project, and including the length of each construction phase.

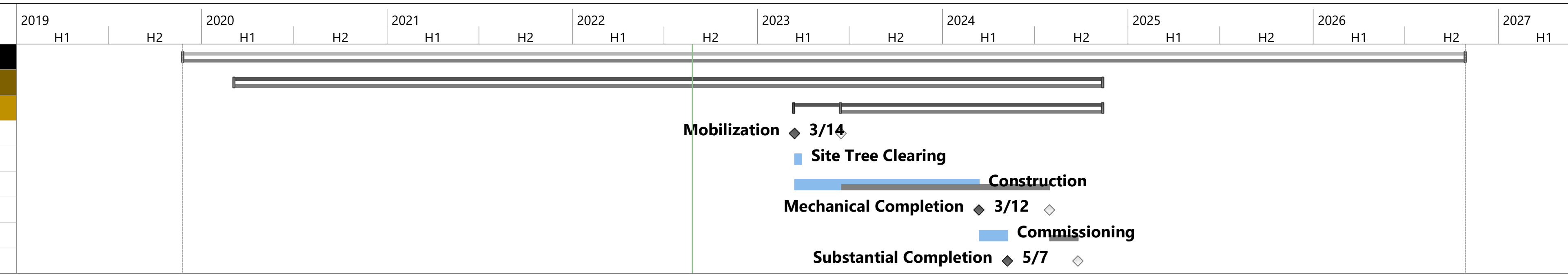
Response

Although there is no definite date for start of construction, Telesto has prepared the attached preliminary construction schedule. These dates/time intervals/estimates are anticipated to change based on timing of permit and certificate approvals, as well as coordinating with necessary contractors and other contingencies. See attached preliminary construction schedule.

Telesto Solar
(Cygnus Portfolio)

Development Manager: Jack Steele
Project Manager: Hannah Kuney

ID	Task Name	Duration	% Complete	Start	Finish	Resource Names
0	KY – 110,0 MWac – Telesto	1806 days	55%	11/25/19	10/27/26	
186	Engineering & Project Management	1222 days	19%	3/5/20	11/11/24	
215	Construction	435 days	0%	3/14/23	11/11/24	
217	Mobilization	0 days	0%	3/14/23	3/14/23	
218	Site Tree Clearing	10 days	0%	3/15/23	3/28/23	Hannah Kuney
219	Construction	260 days	0%	3/15/23	3/12/24	Hannah Kuney
220	Mechanical Completion	0 days	0%	3/12/24	3/12/24	
221	Commissioning	40 days	0%	3/13/24	5/7/24	Hannah Kuney
222	Substantial Completion	0 days	0%	5/7/24	5/7/24	



Project: Telesto Solar
Date: 8/26/22

Task	Inactive Milestone	Start-only	Path Driving Predecessor Summary Task	Critical Split
Split	Inactive Summary	Finish-only	Path Driving Predecessor Normal Task	Baseline
Milestone	Manual Task	External Tasks	Path Driven Successor Milestone Task	Baseline Milestone
Summary	Duration-only	External Milestone	Path Driven Successor Summary Task	Baseline Summary
Project Summary	Manual Summary Rollup	Deadline	Path Driven Successor Normal Task	Progress
Inactive Task	Manual Summary	Path Driving Predecessor Milestone Task	Critical	Manual Progress

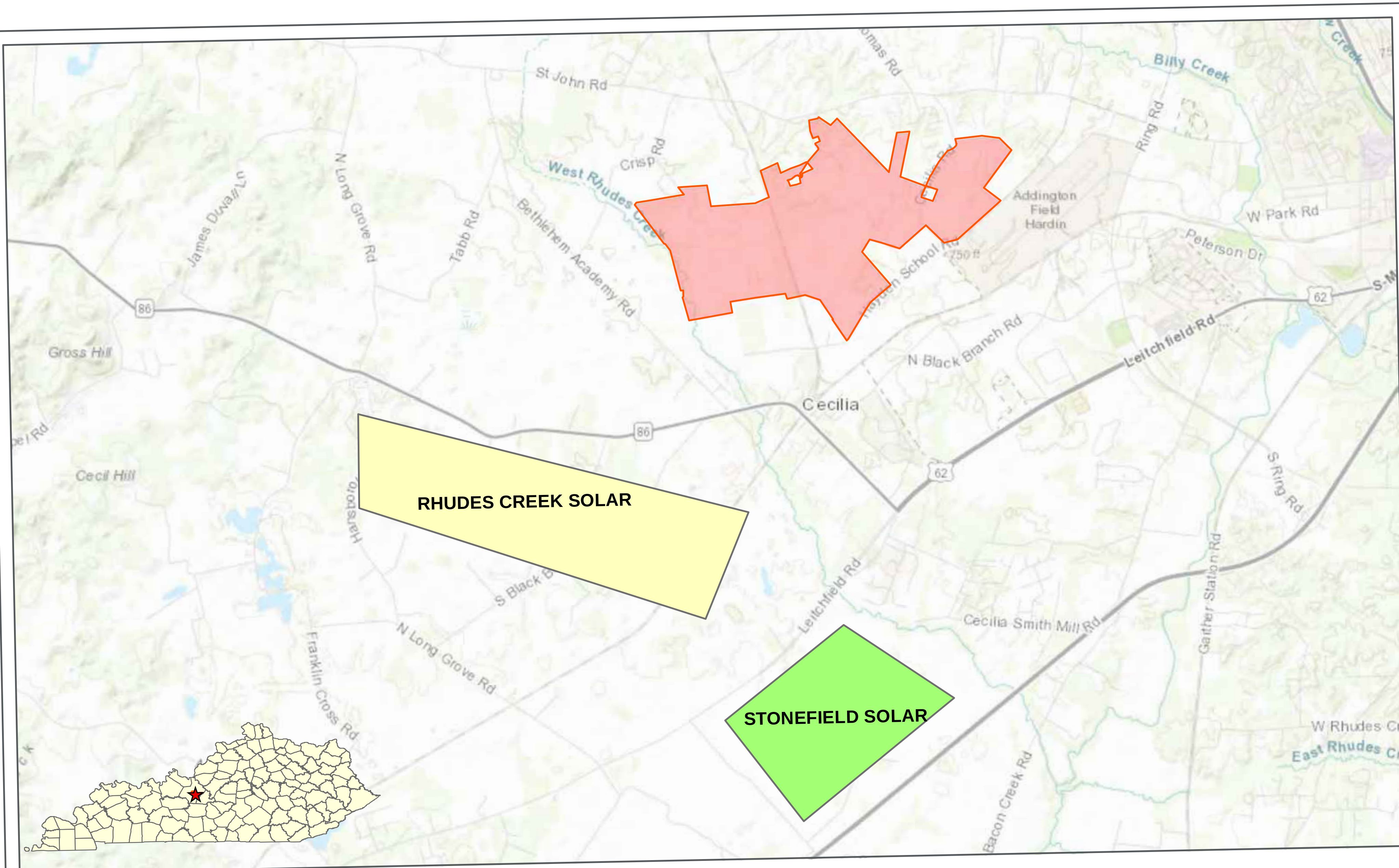
Slippage

Request

4. Provide the number of miles between the Telesto Project and the Rhudes Creek Solar, LLC Project (Rhudes Creek Solar), Case No. 2021-00127, *Electronic Application of Rhudes Creek Solar, LLC for a Certificate of Construction for an Approximately 100-Megawatt Merchant Electric Solar Generating Facility and Related 138 KV Nonregulated Electric Transmission Line Approximately 1½ Miles in Length in Hardin County, Kentucky Pursuant to KRS 278.700 and 807 KAR 5:100*.

Response

The closest distance from the edge of the Rhudes Creek Project site to the edge of the Telesto Project is 1.75 miles. See the attached Project Location Comparison Map for relative positions of the projects.



0 1 Miles
0 1 2 Kilometers

Telesto Energy Project

7.5' Quadrangles:
New Vienna, OH (1962)
Lynchburg, OH (1960)
New Market, OH (1976)

PLSS: unsectioned

R 4/5: Project Location - Comparison Map

Data Request #1
Telesto Energy Project, LLC
Hardin County, Kentucky

Cardno now Stantec
76 San Marcos Street, Austin, TX 78702 USA
Phone(+1) 512-306-9669
www.cardno.com

GIS Analyst: chad.martin

Date: 8/19/2022
File Path: S:\PROJECTS\7x.Energy\E319302605 - Telesto Solar KY\KY Siting Board Files\Deviation Request\GIS\Response Map R4_5.mxd
Basemap: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Request

5. Provide the number of miles between the Telesto Project and the Stonefield Solar, LLC Project (Stonefield Solar), Case No. 2022-00011, *Electronic Application of Stonefield Solar, LLC for a Certificate of Construction for an Approximately 120-Megawatt Merchant Electric Solar Generating Facility and Nonregulated Electric Transmission Line in Hardin County, Kentucky Pursuant to KRS 278.700 and 807 KAR 5:100*.

Response

The distance from the GPS coordinates stated in the Notice of Intent filed 6/9/22 in the Stonefield Solar case (No. 2022-00011), to the edge of the Telesto Project is approximately 2.60 miles. See Project Location Comparison Map, filed in Response to Request #4, for relative positions of the projects.

Request

6. Explain any overlaps in the projected construction schedules of the three projects.

Response

It is unclear whether or how the construction schedules of the three projects will overlap, because it is unknown when construction will start on any of the projects. Telesto proposes to start construction within 1 or 2 months of receiving a Siting Board certificate if all other necessary approvals and permits can be obtained and pre-construction conditions met within that timeframe.

The construction schedule for Stonefield's proposed Hardin County project is unknown. The Rhudes Creek project was granted a construction certificate by the Siting Board in a final order issued March 4, 2022. The order states that prior to construction: (a) a conditional use permit would be required (p.22), but now the conditional use resolution has been invalidated; and (b) Rhudes Creek must file its completed decommissioning plan with the Siting Board (Appx. A Condition #29), which has not happened yet.

Request

7. Describe the potential for cumulative effects on noise from construction activities of the three projects, and any steps to minimize these effects.

Response

Telesto does not know whether there will be any overlap in the construction schedules (see Response to RFI 1, Request 10). If any overlap exists, Telesto anticipates that any cumulative effect on noise would be minimal to nonexistent due to the distance between projects.

Noise studies for the Rhudes Creek, Stonefield, and Telesto projects demonstrate that construction noise would not exceed background or baseline levels (45dBA) in excess of approximately 1,000 feet from the project perimeter. Because the other projects are over 1.75 and 2.6 miles from the Telesto Project, this distance would prevent construction noise impacts having a cumulative effect on surrounding sensitive receptors.

Request

8. Describe the potential for cumulative effects on traffic and roadways from construction activities of the three projects, and any steps planned to minimize these effects.

Response

It is unclear whether the three solar projects will overlap during their respective 12-month construction period.

Having reviewed the information filed in the Rhudes Creek and Stonefield matters, Rhudes Creek's project plans to utilize HWY 86 as its primary access road and Stonefield Solar appears to plan to utilize HWY 62 as its primary access point. Telesto will utilize KY 1357 and associated feeders on the north side, KY 253 from the west, and Hayden School Road from the south.

There may be some potential for slight overlap in morning and evening commuting traffic along KY 86 (east/west); however, given the multiple routes and entrances to the Telesto project, this increase in traffic would be temporary during construction overlap and localized during construction activities near access roads at the Telesto southern parcels. Additionally, these road segments are currently experiencing a Level of Service (LOS) of B or better and are projected to be LOS C during construction. It may be that cumulative impacts to KY 86 would remain at a LOS C. See attached LOS definitions.

FIGURE 1. LEVEL OF SERVICE (LOS) DEFINITIONS

Level of Service A: Free-flow traffic with individual users virtually unaffected by the presence of others in the traffic stream.

Level of Service B: Stable traffic flow with a high degree of freedom to select speed and operating conditions but with some influence from other users.

Level of Service C: Restricted flow that remains stable but with significant interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level.

Level of Service D: High-density flow in which speed and freedom to maneuver are severely restricted and comfort and convenience have declined even though flow remains stable.

Level of Service E: Unstable flow at or near capacity levels with poor levels of comfort and convenience.

Level of Service F: Forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. LOS F is characterized by stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure.

Request

9. Describe the potential for cumulative effects on property values and land uses from the construction and operation of the three projects.

Response

Projected property value impact studies completed on the Rhudes Creek, Stonefield and Telesto solar projects found no significant negative effect to adjacent land or residential properties. Due to the other projects being at least 1.5 miles apart from the Telesto Project, it is reasonable to conclude that no cumulative property value impacts would occur and that construction of any or all of the solar projects would have no cumulative effect to land use adjacent to the projects.

Request

10. Describe what steps have been taken, or will be taken, to communicate with the developers of Rhudes Creek Solar and Stonefield Solar.

Response

On multiple occasions, Telesto has had discussions with the developers of the Rhudes Creek and Stonefield projects. Little coordination has been possible, based on the uncertainty in development and approval that those projects face.

Request

11. Verify if a power purchase agreement has been made. If so, provide.

Response

Telesto has not entered into a power purchase agreement, and it intends to sell power from the project on a merchant basis into the PJM electricity market. To the extent that this question also seeks production of a renewable energy credit (REC) transfer agreement (where RECs generated by the project are sold to a counterparty), then such an agreement exists, but Telesto is unable to provide a copy (even a redacted copy) of such agreement. Telesto's REC transfer agreement is subject to confidentiality and would further require the consent of the counterparty before it may be provided to a third-party (including government agencies), and the counterparty has declined to provide such consent citing concerns over the relevance of this agreement to the Siting Board proceedings and concerns about disclosing the confidential sensitive business information contained in the agreement, even under protective order. In lieu of disclosing the full REC transfer agreement, the counterparty would not object to the submission of an abstract of key information about the agreement, such as the term of the agreement, project size, pricing structure, and that the counterparty has an investment grade credit rating.

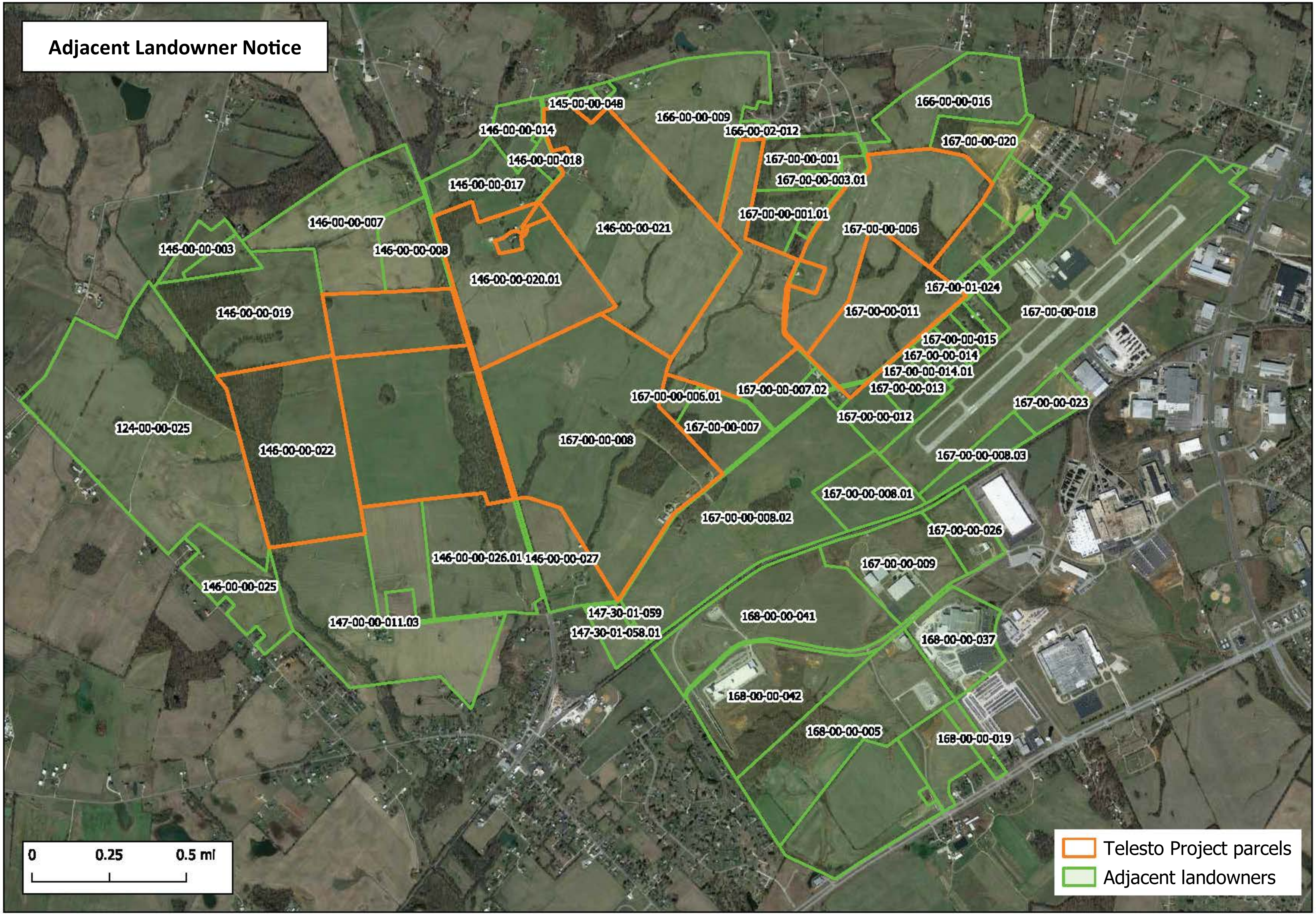
Request

12. Refer to the Application, Exhibit B, Addresses for Pre-Application Notices, and Addresses for Public Information Meeting Notice. Provide a map identifying the adjacent parcels labelled by the Assessor's Parcel Number (APN).

Response

The requested map identifying adjacent parcels by APN is attached.

Adjacent Landowner Notice

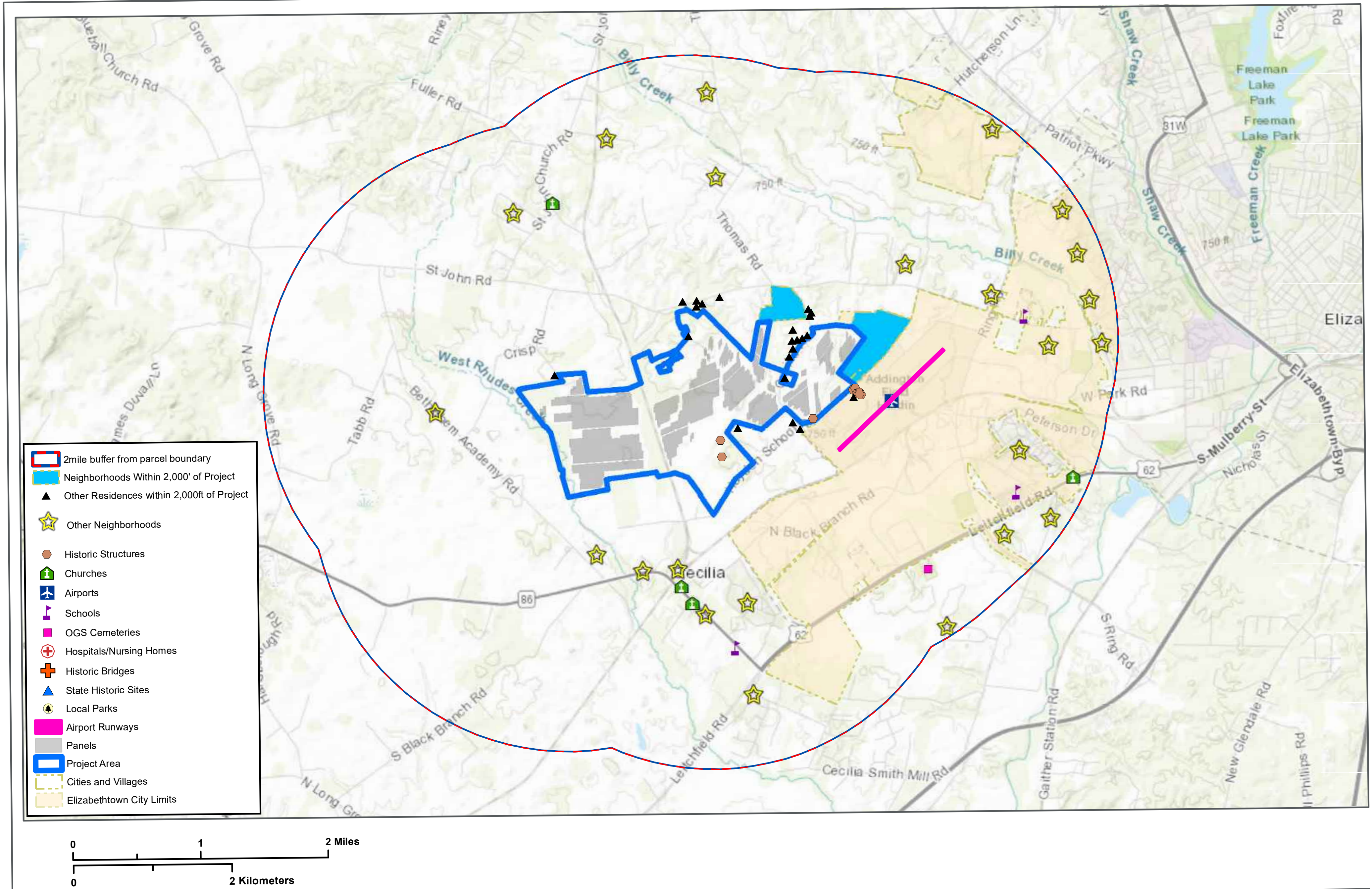


Request

13. Refer to the Application, Exhibit A, page 5, titled "Public Resources within Two Miles of PV Panels." Provide a map with the 2-mile buffer from the boundaries of the leased parcels, not from the boundary of the solar panels.

Response

The requested map is attached.



This map and all data contained within are supplied as is with no warranty. Cardno, Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Exhibit 1.3: Public Resources wthin 2 Miles of the Project Parcel Boundary

Telesto Energy Project
Telesto Energy, LLC
Hardin County, Kentucky

Cardno now Stantec
76 San Marcos Street, Austin, TX 78702 USA
Phone(+1) 512-306-9669
www.cardno.com

GIS Analyst: chad.martin

Date: 8/25/2022

File Path: S:\PROJECTS\7x.Energy\E319302605 - Telesto Solar KY\GIS\Sensitive Receptors within 2 Miles.mxd

Basemap: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Request

14. Provide the stormwater management plan for construction and operation.

Response

A Notice of Intent will be submitted in compliance with the KYR10-Stormwater Construction General Permit. A Stormwater Pollution Prevention Plan (SWPPP) will be drafted and followed in accordance with this permit prior to construction.

Request

15. Explain planned mitigation measures for eliminating any glint or glare that could affect Addington Field. Also provide any permits or communications with the Federal Aviation Association or the Kentucky Airport Zoning Commission.

Response

A Glint and Glare analysis was completed for the airfield located at Addington Field. No Green or Yellow glare was modeled to occur at the airstrip as a result of the proposed solar facility. See Glare Hazard Analysis (App. Exh. G) p.16/1035. A letter determination of "no hazard to air navigation" was issued on 05/04/2022 (Aeronautical Study No. 2022-ASO-6053-OE) for the Project solar panels. This 05/04/2022 letter is attached. Telesto plans to seek approval from the Kentucky Airport Zoning Commission and the permit will be filed into this docket when issued.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-ASO-6053-OE

Issued Date: 05/04/2022

Telesto Solar
Lightsource BP
400 Montgomery St, Eighth Floor
San Francisco, CA 94104

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Telesto Solar
Location:	Cecilia, KY
Latitude:	37-41-15.75N NAD 83
Longitude:	85-55-49.25W
Heights:	800 feet site elevation (SE)
	15 feet above ground level (AGL)
	815 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 11/04/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

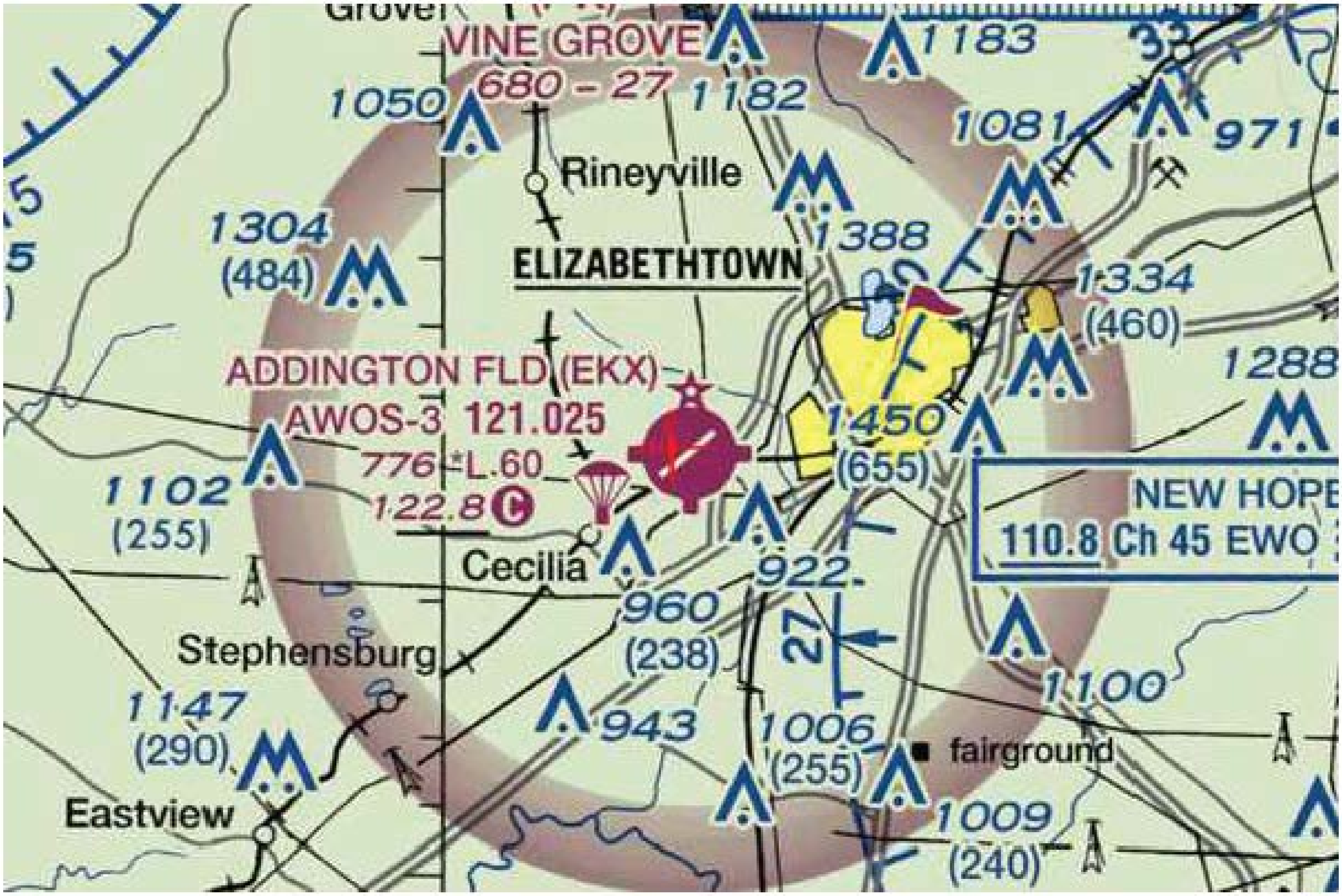
If we can be of further assistance, please contact our office at (817) 222-5928, or chris.smith@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-ASO-6053-OE.

Signature Control No: 512183784-528149024 (DNE)
Chris Smith
Specialist

Attachment(s)
Map(s)

TOPO Map for ASN 2022-ASO-6053-OE

Sectional Map for ASN 2022-ASO-6053-OE



Request

16. If batteries are to be used for energy storage, provide the location of the batteries on the site.

Response

No batteries are proposed for on-site energy storage.

Request

17. Provide information about existing or proposed utilities that will be necessary for construction or operation of the project.

Response

During the construction phase of the project, Telesto anticipates that electrical service will be provided by Nolin RECC; Nolin RECC will also provide the necessary electrical service during the operation of the site. Typical long-term operation of the site will require water service, which Telesto anticipates will be provided by an onsite well or the local utility or other provider.

Request

18. Refer to the Site Assessment Report (SAR), page 3, paragraph 7. Telesto proposes to build a 9,000-foot, 138 kV non-regulated transmission line. Explain why Telesto has not submitted an application for a non-regulated transmission line.

Response (from legal counsel)

The SAR (App. Exh. C) ¶7 states that a gen-tie line approximately 9,000 feet long will be constructed between an on-site substation and EKPC's Central Hardin substation. In the site layout's initial design (App. Exh. A.1), the Telesto substation was on the Project site and not adjacent to the EKPC substation that would be the point of interconnection. In the more recent, 10% design plan (supplemental App. Exh. A.5), the Telesto substation will be located immediately adjacent to EKPC's Central Hardin Substation, and a medium voltage (34.5 kV) line or group of lines will run underground from the Project site to a point at or near the Telesto substation. When this application was submitted the Applicant had yet to finalize the location of the substation. Now that the Applicant has determined that the substation will be located directly adjacent to the EKPC substation, Applicant is evaluating whether an application for a nonregulated electric transmission line will be necessary.

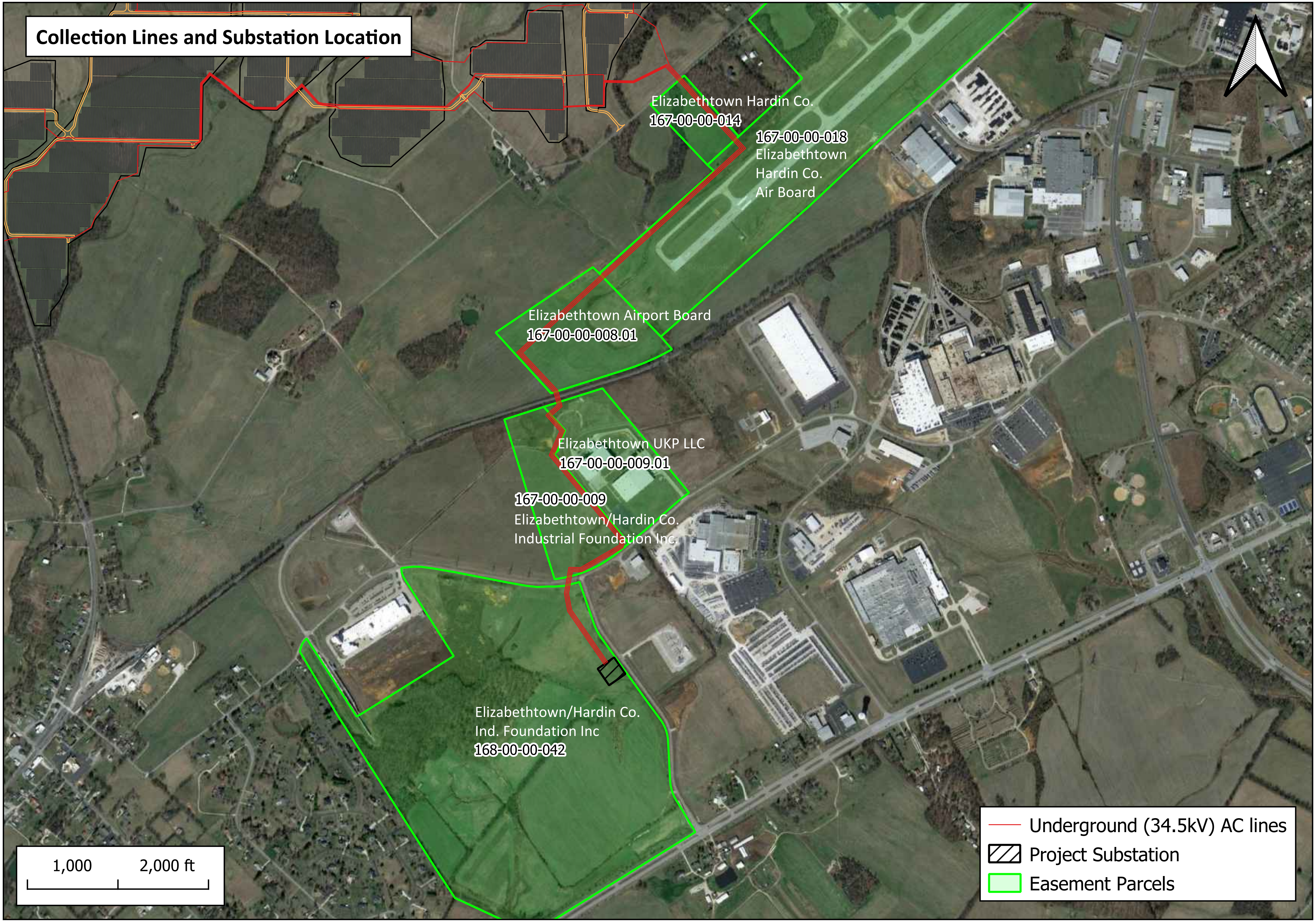
Request

19. Submit a map with the complete route of the gen-tie line connecting the project substation to the Central Hardin 138 kV substation owned and operated by East Kentucky Power Cooperative (EKPC). Include the parcels with the APN and owner name that the transmission line will cross. Also include the anticipated length of the gen-tie within and outside of the project boundaries.

Response

At this time, the design plan is to construct the Telesto substation immediately adjacent to EKPC's Central Hardin Substation and run a 34.5 kV medium voltage (MV) line or group of MV lines underground from the Project's PV arrays to the Telesto substation. See 10% design plan filed August 23, 2022, App. Exh. A.5. Easements or other property rights for the off-site MV lines and location of the Telesto substation are still being secured, but the corridor for the MV line path will be approximately as shown in Exhibit A.5, and the Telesto substation will be adjacent to the EKPC substation. The route between the Telesto substation and the point of interconnection at the Central Hardin substation will then be the span to connect the Telesto substation to the EKPC substation.

Attached hereto is a map that shows the parcels (with the APN and owner name) along the path of the MV lines depicted on Application Exh. A.5. The grouped MV lines are anticipated to begin near the Project boundary and travel underground approximately 8,900 feet to the Telesto substation.



Collection Lines and Substation Location
Elizabethtown Hardin Co.
167-00-00-014
167-00-00-018
Elizabethtown
Hardin Co.
Air Board
Elizabethtown Airport Board
167-00-00-008.01
Elizabethtown UKP LLC
167-00-00-009.01
167-00-00-009
Elizabethtown/Hardin Co.
Industrial Foundation Inc.
Elizabethtown/Hardin Co.
Ind. Foundation Inc
168-00-00-042
Underground (34.5kV) AC lines
Project Substation
Easement Parcels
1,000
2,000 ft

Request

20. Provide any easements that have been secured or need to be secured for the gen-tie outside of the project boundaries.

Response

Please see Response to Request 19. Easements are in the process of being secured for the MV line(s) underground.

Request

21. Refer to the SAR, page 3, paragraph 6. Provide an explanation of why portions of the alternating current collection system will be above and below ground. Provide information regarding the overhead portions.

Response

With the exception of where the alternating current collection lines emerge to connect to inverters and MV breakers, all of the collection system will be underground. The collection system lines will come up above ground to connect with inverters and MV breakers and then return below ground; there will be no significant travel above ground and the above-ground portion will not reach heights that could be characterized as overhead.

Request

22. Refer to the SAR, page 3, paragraph 7. Describe the need for the Project's oil containment area. Also describe the size and design of the oil containment area.

Response

The oil containment area around a main power transformer (MPT) is a constructed pit around the MPT foundations, lined with a non-permeable liner; it will be designed to contain the oil held by the MPT in the event of any leakage. Please refer to Telesto's Cumulative Environmental Assessment, Am. App. Exh. J p. 8, for a description of used oil produced during maintenance of transformer and its possible inclusion in the Project's Spill Prevention, Control and Countermeasures (SPCC) plan.

Request

23. Refer to the SAR, page 5, paragraph 13. Detail the planned safety requirements for access and egress during construction and operation. Include the design of perimeter safety fence for the substation. Also include access for emergency services if required.

Response

Telesto requires sufficient access and egress so that site personnel can safely muster and exit the site in the event of an emergency. This requirement also includes safe entry by local emergency responders. Further details about site access for emergency personnel are provided below.

The design of the perimeter safety fence for the Telesto substation (which is now planned to be located adjacent to the point of interconnection, the EKPC Hardin Central substation) is a seven (7) foot game fence.

Site/substation access for emergency personnel (fire, police, ambulance, etc.) will be made readily available in the event of an emergency. If site access gates are normally kept locked, a Knox Corporation key box or padlock for emergency access (Fire Department access) will be managed next to the locked access gate(s). The method used to grant emergency access into the site with locked gates will be communicated to the local Fire Department. Keys to the padlocks, lockbox combinations, etc. will be shared with the local Fire Department.

Request

24. Explain the proposed setbacks for the project. Include the distance between solar equipment and adjacent residences.

Response

The Project setbacks were designed to meet local expectations based on conversations had with representatives of Hardin County Planning and Development Commission.

All solar equipment will be set back at least 100 feet from the leased property boundary and is at least that distance from any adjacent residence. In the initial layout design filed with the Application (Exh. A.1), project components are more than 450 feet from the nearest non-participating residence and the proposed Telesto substation is approximately 1,800 feet from the nearest non-participating residence.

In requesting a deviation from the state statutory setback requirement (Motion ¶ 22), Telesto has committed to place electricity generating facilities and structures no closer than 450 feet, and the Telesto substation no closer than 1,000 feet, from any nonparticipating residence or participating residence.

Request

25. Refer to the SAR, page 6, paragraph 15(b). Describe any communication between Telesto and the P&L Railway (P&L) regarding the proposed Project. Provide any P&L requirements for the railroad crossing.

Response

Telesto's third-party agent has begun communications with P&L about the proposed Project, and has provided the crossing locations. Telesto is working to create "plan and profile" engineering deliverables requested by P&L. P&L has not yet specified its requirements for the railroad crossings.

Request

26. Provide any geotechnical studies that have been completed.

Response

The geotechnical study that has been completed for the Project is by Terracon Consultants, Inc. and dated May 5, 2022. Please find the attached Design Level Geotechnical Engineering Report narrative (53 pp.).

Design-Level Geotechnical Engineering Report

Telesto Solar
Cecilia, Hardin County, Kentucky
May 5, 2022
Terracon Project No. 57215113

Prepared for:
Ulteig Engineers, Inc.
St. Paul, Minnesota

Prepared by:
Terracon Consultants, Inc.
Louisville, Kentuck

Environmental ■ Facilities ■ Geotechnical ■ Materials

May 5, 2022

Ulteig Engineers, Inc.
4285 Lexington Avenue. N.
St. Paul, Minnesota 55216

Attn: Ms. Sadie Lambrecht
P: (651) 415-3978
E: Sadie.Lambrecht@ulteig.com

Re: Design-Level Geotechnical Engineering Report
Telesto Solar
Cecilia, Hardin County, Kentucky
Terracon Project No. 57215113

Dear Ms. Lambrecht:

We have completed the Design-Level Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with the revised Terracon Proposal No. P57215113 dated October 27, 2021. This report presents the findings of the subsurface exploration and includes geotechnical recommendations concerning earthwork and the design and installation of driven piles for solar array support, and substation equipment foundations 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.

Mohammad Zaid
Staff Geotechnical Engineer

Benjamin W. Taylor, P.E., P.G.
Regional Manager, Principal

Reviewed by: James M. Jackson, P.E. (FL)

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. For more interactive features, please view your project online at client.terracon.com.

APPENDICES

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

REPORT SUMMARY

Topic	Overview Statement
Project Description	The project consists of development of a solar farm at the proposed site. The proposed solar project will produce about 110 MWac. The fenced in area (array) is indicated to be approximately 760 acres. The overall site development area is approximately 984 acres.
Subsurface Conditions	The surface layer at the site generally consisted of tilled zones (cultivated soil) approximately 3 to 7 inches thick. Beneath the surficial soils, the borings generally encountered soft to very stiff native cohesive soils with very loose to dense granular soils underlain by limestone bedrock. In some borings, apparent soil softening was observed as an indication of karst activity.
Full Scale Pile Load Testing (PLT) Program	Results of the full-scale uplift, compression and lateral pile load testing are provided in the Full-Scale Pile Load Testing (PLT) Program section.
PV Solar Array Field – Recommendations for and Construction	Solar panel racking systems and other miscellaneous structures may be supported on driven steel piles utilizing skin friction and end bearing values provided in this section. Shallow or mat foundations may also be used for support of miscellaneous structures utilizing the bearing capacity values provided in this section.
Substation – Deep Foundation Parameters	The proposed substation structures may be supported on drilled shaft foundations using the soil properties presented in this section. Other ancillary structures may be supported on mat foundations utilizing bearing capacity values provided in this section.
Access Roadways	We understand that access road cross sections used for construction of the project will be the responsibility of the EPC, and that only post construction traffic with an allowable rut depth of 2 inches is what we are to design for in this report. We anticipate low-volume, aggregate-surfaced and native soil access roads based on a design vehicle loading of 30,000 pounds, with travel over the access roads only once per week.
General Comments	This section contains important information about the limitations of this geotechnical engineering report.
This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.	

Design-Level Geotechnical Engineering Report

Telesto Solar

Cecilia, Hardin County, Kentucky

Terracon Project No. 57215113

May 5, 2022

1.0 INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed photovoltaic (PV) generating facility to be located on parcels in the general vicinity of Cecilia, Hardin County, Kentucky. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Contributory risk components
- Access roadways
- Foundation design and construction
- Seismic considerations
- Site preparation and earthwork
- Frost considerations

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

Type of Exploration / Test	Number
SPT Borings – Photovoltaic (PV) array field	25
SPT Borings - Photovoltaic (PV) array field (B-2-THG1, B-4-THG2, B-11-THG4, B-29-THG11, B-30-THG12, and THG-3, THG-5 through THG-10) [1]	12
SPT Borings (SB-1 through SB-5) – Substation area	5
Field Electrical Resistivity Tests (FER-1 through FER-15) – PV array field	15
Field Electrical Resistivity Tests – Substation area	1
Corrosion Testing – PV array field	10
Corrosion Testing – Substation area	1
Thermal Resistivity Testing – PV array field	7
Thermal Resistivity Testing – Substation area	1
Lateral Pile Load Tests	15
Axial Tension Pile Load Tests	15
Axial Compression Pile Load Tests	7

1. Locations selected by THG Geophysics Ltd (THG) consulting with Ulteig on karst risk assessment.

Maps showing the site and exploration locations are in the **FIELD EXPLORATION** section. The results of the pile load tests are included in **PILE DRIVING AND LOAD TEST RESULTS** attachments. The results of the field exploration and laboratory testing performed on soil samples obtained from the site during both the field explorations are included in the **FIELD EXPLORATION** and **LABORATORY TESTING** section. The field electrical resistivity, corrosion testing and laboratory thermal resistivity test results are also included in **LABORATORY TESTING** section.

2.0 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 on approximately 984 acres in the general vicinity of Cecilia, Hardin County, Kentucky. Approximate center of site: Latitude 37.683780° / Longitude -85.953122°. See **FIELD EXPLORATION** section included in the attachments to this report.
Existing Improvements	Based on observations made during our site visit, the project development areas are located within recently harvested agricultural fields. Partially wooded areas are present across the site.
Current Ground Cover	Based on our recent site visit, the current ground cover consisted of remnants of harvested crops.
Existing Topography	Based on Google Earth PRO™, the site grades vary significantly across the site with ground surface elevations ranging from about 712 to 815 feet above the mean sea level. The project site appears to be generally slope down from east to west.

3.0 PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Project Description	Development of an approximate 110-Megawatt (MWac) solar facility with a development area of about 760 acres. Project site will include solar arrays, substation, inverters, various equipment structures, and access roads.
Anticipated Construction	We understand the solar structures will be supported by driven steel piles, although other foundation options will be considered, and equipment structures will be supported by mat foundations. Substation will have mat foundations and drilled pier foundations for H-Frame and Dead-End Structures.
Maximum Loads	Structural loads were not provided, but have been estimated based on our experience on projects using steel racking systems: ■ Downward: 1 to 7 kips ■ Lateral 1 to 2 kips ■ Uplift: ½ to 3 kips exclusive of frost heave loads ■ Moment: 0.1 to 30 kip-ft Ancillary equipment in the array (supported on mat/slab or steel pile foundations): ■ 150 kips Substation structures (supported on mat/slab foundations): ■ 250 kips
Grading/Slopes	Finish design grades are anticipated to be within 2 feet of existing grades within substation and access road areas. We anticipate final grades for the solar panel area will generally follow the existing site grade with minimal grade changes. Final slope angles no steeper than 3H:1V (Horizontal: Vertical) nor taller than 5 feet are anticipated.
Access Roads	We understand that access road cross sections used for construction of the project will be the responsibility of the EPC, and that only post construction traffic with an allowable rut depth of 2 inches is what we are to design for in this report. We anticipate low-volume, aggregate-surfaced and native soil access roads will have a maximum vehicle load of 30,000 lbs. and will travel over the access roads only once per week.

4.0 GEOTECHNICAL CHARACTERIZATION

Based on mapping by the Kentucky Geological Survey (KGS), the project site is located within the Mississippian Plateau or Pennyroyal region. This physiographic region consists of a limestone plain characterized by tens of thousands of sink holes, sinking streams, streamless valleys, springs, and caverns. Sinkholes were mapped within 1-mile of the site.

4.1 Surficial Geology

The surficial geology at the project site consists of Lawrence silt loam over bedrock. The soils formed in mixed alluvium or colluvium derived from soils formed in residuum from limestone, sandstone. The bedrock geology consists of Mississippian-age limestone and dolomite. The primary rock is anticipated to be Limestone. The secondary rock is anticipated to be dolomite while the tertiary rock is anticipated to be chert and sandstone.

4.2 Bedrock Geology

The project site is mapped with the following underlying bedrock geology:

Ste. Genevieve Limestone
Primary Lithology: Limestone, dolomite
Limestone is light-yellowish-gray that is weathered partially with white to light-gray color, interbedded with about equal amounts of light-gray to light-brownish-gray sublithographic to medium-grained clastic limestone, locally shaly, cherty or pyritic. Dolomite is yellowish gray, very fine grained, massive; locally calcareous and contains fist-sized vugs filled with crystalline calcite. Silty clay shale is yellowish to greenish gray, locally calcareous.

Lost River Chert of Elrod
Primary Lithology: Limestone
Limestone, very pale-orange to yellowish-gray, medium- to coarse grained; contains very coarse fossil fragments; medium-bedded, massive; rarely exposed except in sinkholes.

Ste. Louis Limestone
Primary Lithology: Limestone
Limestone is light-yellowish-gray to olive-gray, medium- to fine-grained dolomitic, silty, thin- to thick-bedded and contains zones of gray chert.

4.3 Karst Potential

According to USGS mapping, the site is mapped within carbonate karst consisting of carbonate rocks at or near the land surface. **CONTRIBUTORY RISK COMPONENTS** and **GEOTECHNICAL OVERVIEW** sections of this report discuss karst related issues. The Kentucky Geological Survey (KGS) indicates a very high karst potential at the site with the presence of limestone and dolomite bedrock at varying depths across the site.

Terracon's proposed karst survey and assessment has not been authorized at the time of this report. However, Ulteig Engineering contracted THG Geophysics (THG) to perform a desktop and geophysical investigation ad detailed in their report dated March 18, 2022. Based on review of the provided reports, their geophysical study included 10 electrical resistivity imaging (EI) arrays and 11 MASW test data sets. Through comparison between geophysical methods and against local water well data and the soil borings, THG determined a depth to bedrock across the site with variation between approximately 18½ to 87 ft bgs.

4.4 Subsurface Soil Conditions

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs and GeoModel can be found in the **FIELD EXPLORATION** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Surficial Layer**	Topsoil with cultivated zone – 3 to 7 inches [1]
2	**Soft Clay**	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	**Stiff Clay**	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
4	**Loose Sand**	Very loose to loose, clayey sand, silty sand, silt with varying amounts of sand and gravel (SC, SM, ML)
5	**Dense Sand**	Medium dense to dense, clayey sand, silty sand, poorly graded sand with varying amounts of silt, sand and gravel (SC, SM, SP)
6	**Bedrock**	Limestone, weathered, gray

1. Due to prior use of the site for agricultural purposes, tilled soils with elevated organic content should be anticipated to depths deeper than the topsoil depths noted on the logs.

4.5 Refusal Conditions

The following exploration locations exploration locations which encountered auger or penetration refusal are highlighted on the Exploration Location Plan:

- Borings B-21, B-28, B-29-THG11, B-30-THG12, THG-6, THG-7, THG-8, THG-9, THG-10, SB-1, SB-3 through SB-5 encountered refusal at depths ranging from approximately 20 to 47 feet below existing site grades.
- Pile Load Test locations PLT-9, PLT-13, and PLT-14 encountered refusal at depths ranging from about 6½ to 7 feet below existing site grades

4.6 Groundwater Conditions

The borings were observed while drilling and after completion for the presence and level of groundwater. Groundwater depths have been listed on individual boring logs. A summary of the groundwater depths is listed in the following table:

Exploration Location	Approximate Depth to Water (feet) [1]	
	During Exploration	At Completion
B-2-THG1	13.5	Water was not encountered
B-4-THG2	13.5	Water was not encountered
B-5	19	Water was not encountered
B-6	20	Water was not encountered
B-11-THG4	28.5	Water was not encountered
B-17	4	Water was not encountered
B-19	18.5	Water was not encountered
B-21	33.5	Water was not encountered
B-26	18.5	Water was not encountered
SB-1	20	Water was not encountered
SB-4	23.5	Water was not encountered
THG-3	13.5	Water was not encountered
THG-6	23.5	Water was not encountered
THG-7	23.5	Water was not encountered
THG-8	18	Water was not encountered
THG-9	33.5	10.7
THG-10	25	Water was not encountered

1. bgs – below ground surface

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

5.0 FROST CONSIDERATIONS

5.1 Adfreeze Stress for Driven Piles

It is Terracon's professional opinion that the overburden soils (silty sand and sandy lean clay) encountered in the borings are frost susceptible. In cold weather climates, design to resist frost heave forces exerted on foundations is often a significant factor in the foundation design. Specifically, pile lengths will need to be long enough to counteract potential heave forces in the seasonal frost zone.

As the frost penetrates deeper into the soil and the ground swells due to freezing, a portion of the soil profile and ground surface will rise due to frost heaving. The upward displacement is due to freezing water contained in the soil voids along with the formation of ice lenses in the soil. The freezing material grips the steel pile and exerts an uplift force due to the adfreeze stress developed around the surface area of the pile. The amount of upward force depends on the following:

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

Based on our review of soil samples and review of associated references, we recommend an adfreeze stress of 1,500 psf be considered when determining the frost heave load on a pile. The box perimeter of the pile (two times the pile shape depth, d, plus two times the flange width, b_f) acting over a depth of 1.3 feet below ground surface should be considered when determining the frost heave uplift load on a pile. It should be noted that the above depth to which the adfreeze stress should be applied is <u>not</u> the frost protection depth associated with at-grade structures and slabs in un-heated areas for the local area and should only be applied to the slender pile foundation support of the solar array structures. This adfreeze depth was estimated based on nearby weather station data, consideration of the on-site soil consistency and moisture condition, and assumes the array areas will be turf covered after construction.

Depending on the final size of the solar panels, the adfreeze uplift forces could govern the design and embedment depth of the steel piles; therefore, uplift might be the primary factor in foundation costs. The factor of safety against uplift should be determined based on discussions with the owner and design engineer considering the desired level of risk, construction costs, and the long-term maintenance program.

A reduced set of geotechnical parameters are also considered in this upper zone of piles for consideration of strength loss with freeze-thaw cycles, moisture variations and other potential disturbances of near surface soils adjacent to the piles.

5.2 Shallow or Mat/Slab Foundations

The typical frost protection depth for design of shallow spread footing and mat foundations for unheated structures is 2 feet. If frost action needs to be eliminated in critical grade supported slab or mat foundation areas, we recommend the use of non-frost susceptible (NFS) fill in all or portions of the conventional frost depths of 2 feet or structural slabs (for instance, structural stoops in front of building doors). As an alternative to extending NFS fill to the full frost depth, consideration can be made to placing extruded polystyrene or cellular concrete under a buffer of at least 2 feet of NFS material.

6.0 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 results, it is our professional opinion that the **Seismic Site Classification is D**. Subsurface explorations at this site were extended to a maximum depth of 47 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

7.0 CORROSIVITY

To help estimate potential corrosive characteristics of the on-site soils, a suite of laboratory tests was performed on bulk samples collected from 10 locations within the PV array field and 1 location within the substation. Location of the samples and the test result are included in our results of corrosion analysis included in the appendix B of this report. As discussed in Section 10.7.5 of the AASHTO LRFD Bridge Manual, 8th Edition, 2017, the following soil or site conditions should be considered as indicative of potential deterioration or corrosion situation for steel piles:

- Soil electrical resistivity less than 2,000 ohm-cm
- pH less than 5.5
- pH between 5.5 and 8.5 with high organic content
- Sulfate concentration greater than 1,000 ppm (mg/kg)

These test results are provided to assist in determining the type and degree of corrosion protection that may be required. We recommend that a certified corrosion engineer be retained to analyze the need for corrosion protection and to design appropriate protective measures, if required.

8.0 THERMAL RESISTIVITY

Laboratory thermal resistivity testing was performed by Terracon on bulk samples collected from 7 PV array field and 1 substation location obtained during our field exploration, from depths of approximately 2 to 4 feet below the existing ground surface. The thermal resistivity testing was performed in general accordance with the IEEE standard. The dry-out curves for Shelby tube soil specimens were developed on the soils as received in the laboratory. The dry-out curves for the bulk soil specimens were developed on soils compacted to 90% of the standard Proctor criteria (ASTM D698). The results of the laboratory thermal resistivity testing ranged from 46° to 62° C-cm/W for wet conditions and from 119° to 157° C-cm/W for dry conditions. A summary of the test results is presented in Appendix B.

9.0 FIELD ELECTRICAL RESISTIVITY

Field measurements of soil electrical resistivity were performed by Terracon in January 2022. The soil resistivity testing was performed at the locations identified on the Field Electrical Resistivity Plan in the **FIELD ELECTRICAL RESISTIVITY DATA** section of this report. For the PV array field, the Wenner arrangement (equal electrode spacing) was used with “a” spacing of 1, 2, 4, 8, 15, 25, and 50 feet at 15 locations. For the Substation area, the Wenner arrangement (equal electrode spacing) was used with “a” spacing of 1, 2, 4, 8, 15, 25, 50, 100, 150, 200, and 300 feet at 1 location. The testing was performed in both a north-south and an east-west orientation at each location in the array field and substation area. The resistivity ranged from as low as 33.1 ohm-m to as high as 425.9 ohm-m. Results of the soil resistivity measurements are presented in Appendix C.

10.0 GEOTECHNICAL OVERVIEW

Based on the exploration results, steel piles can be used to support the proposed solar array panels. The steel piles should be embedded to bear on suitable soil below the existing ground surface. The design pile embedment depth, however, depends on several other factors (pile driving time, steel section, design structural loads and field pile load test results) that will need to be considered by the designer.

Moderate to high plasticity native cohesive soils were encountered at the site. These clay 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 cracking in the pavements should be anticipated. The severity of cracking will probably increase if any modification of the site results on excessive wetting or drying of the shrink/swell prone soils.

The site is underlain by carbonate bedrock susceptible to dissolution along joints and bedding planes in the rock mass. This process results in voids and solution channels within the rock strata and a highly irregular bedrock surface. The weathering of the bedrock and subsequent collapse or erosion of the overburden into these openings results in what is referred to as karst topography. Our borings encountered soil-softening and a variable top of bedrock was encountered by our borings and interpreted by THG from their geophysical exploration, which are conditions indicative of karst activity.

The site should be expected to have a high karst risk and any construction in karst topography is accompanied by some degree of possible concern for future internal soil erosion and ground subsidence that could affect the stability of the proposed structures. Refer to our exploration results and reports prepared by THG for additional information regarding the site karst risk.

Construction activities may expose karst features or change 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. If karst related issues are encountered during the construction phase, Terracon should be notified to observe and evaluate the condition. Given the possible concern for karst related problems, it is essential that stripping and proof-rolling operations be observed by the Geotechnical Engineer to detect the presence of any near surface karst features which may require repair. Important issues involved with evaluating potential possible concern of construction over such likely karst features include:

- Variations in top of bedrock surface over short distances, making it difficult to estimate excavation costs related to bedrock removal and feasibility of pile driving, need for pre-drilling, or drilled shaft construction
- Potential changes in surface and groundwater patterns, and
- Rock Jointing and pinnacle development, at depths shallower or deeper than encountered by our exploration.

Possible mitigation methods following construction activities should be performed:

- Monitor structures and grades on a regular basis for evidence of settlement
- Use racking systems which are capable of handling larger than normal distortions
- Perform remediation should subsidence occur.

The **GENERAL COMMENTS** section provides an understanding of the report limitations.

11.0 CONTRIBUTORY RISK COMPONENTS

ITEM	DESCRIPTION
Soil Conditions	According to the borings performed, the surface layer at the site generally consisted of tilled zones (cultivated soil) approximately 3 to 7 inches thick. Beneath the surficial soils, the borings generally encountered soft to very stiff native cohesive soils with very loose to dense granular soils underlain by limestone bedrock. In some borings, apparent soil softening was observed as an indication of karst activity.
Karst Potential	The site is underlain by carbonate bedrock susceptible to dissolution along joints and bedding planes in the rock mass. This process results in voids and solution channels within the rock strata and a highly irregular bedrock surface. The weathering of the bedrock and subsequent collapse or erosion of the overburden into these openings results in what is referred to as karst topography. Our borings encountered soil-softening and a variable top of bedrock was encountered by our borings and interpreted by THG from their geophysical exploration, which are conditions indicative of karst activity. The site should be expected to have a high karst risk and any construction in karst topography is accompanied by some degree of possible concern for future internal soil erosion and ground subsidence that could affect the stability of the proposed structures. Refer to our exploration results and reports prepared by THG for additional information regarding the site karst risk. Construction activities may expose karst features or change 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. If karst related issues are encountered during the construction phase, Terracon should be notified to observe and evaluate the condition.
Liquefaction	Sands located below the groundwater table can be subject to liquefaction, a phenomenon characterized by sudden loss of strength and collapse under seismic loading. Settlement can be observed at the surface where significant volume loss occurs in sand layers beneath the surface. Based on the subsurface profile encountered at the project site and very low anticipated ground accelerations as indicated by ASCE 7-16 Hazard Tool, we expect that the potential for liquefaction is not likely under an earthquake of the magnitude predicted for the site.
Access	Wet and loose/soft surface conditions due to rainwater and cultivated zones 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. The existing drainage canals have a limited number of crossings, likely designed to facilitate access with agricultural equipment.

ITEM	DESCRIPTION
Grading	We anticipate the solar plants will follow the existing site grades and may require minimal grading. Clearing and grubbing will be required if the proposed constructions extend into areas that are not currently cultivated. It is anticipated that the site work will include cuts and fills that will generally be within 2 feet of the existing grades.
Groundwater	Groundwater was encountered in the test borings at depths ranging from approximately 4 to 33½ feet bgs which is typical for the geologic setting of the project site. Based on the results of our borings as well as our experience in the project area, seepage in excavations at relatively shallow depths (such as trenches for electrical cable and conduit) may be encountered in isolated areas of the site. Excavations for shallow foundations would 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 existing perimeter ditches / canals were likely installed to facilitate farming activities and site access. Filling the drainage canals or destruction of other site drainage systems such as field tiles, will result in increased groundwater levels, softer soils, and generally undesirable subsurface conditions.
Corrosion Hazard	Based on field resistivity data and laboratory testing for electrical resistivity and chemical properties, the site soils have a mild corrosion range to buried metal per corrosion guidelines from U.S Department of Transportation Federal Highway Administration. According to the ACI Design Manual, the soils at this site have a 'negligible' classification for sulfate exposure. The results of our laboratory testing of soil chemical properties (provided in the attachments) are expected to assist a qualified engineer to design corrosion protection for the production piles and other project elements.
Excavation Hazards	Based on the results of the subsurface findings and our experience with the geology of the project site, we anticipate some pile driving refusal may be experienced due to presence of cobbles/boulder. As previously noted, groundwater is expected to be encountered in excavations. Additionally, we expect general instability in the form of caving, sloughing, and raveling to be encountered in excavations. Excavations will likely require bracing, sloping, and/or other means to create safe and stable working conditions. In addition, agricultural chemicals are anticipated in the project site. Consequently, environmental testing may be required.
Slope Hazards	The site is gently to moderately rolling in the east to west direction. Based on Kentucky Geological Survey (KGS) Landslide Inventory mapping, the project site not located within areas prone to landslides.
Anticipated Pile Drivability	Three of the pile locations, PLT-9A, PLT-13A, and PLT-14A encountered refusal at depths of about 7, 7 and 6.5 feet bgs respectively. There is some likelihood of encountering difficulties/obstructions during pile driving

ITEM	DESCRIPTION
	due to presence of cobbles/boulder in isolated regions and variable depth of the bedrock. We anticipate some pre-drilling would be required if embedment depths exceed 7 feet.
Expansive Soil Hazards	Moderate to high plasticity clays were encountered at this site. Slab on grade and foundations should be underlain by at least 2 feet of Low Volume Change (LVC) material in accordance with Earthwork section of this report. We do not anticipate the solar arrays to be affected by these soils. Access roads are anticipated to need some stabilization (such as using a geogrid or chemical stabilization), before placing aggregate.
General Construction Considerations	Shallow groundwater is expected in the project site. To the extent practical, we recommend the earthwork be performed during warmer and drier periods of weather to reduce the amount of necessary subgrade remedial measures for soft/loose and unsuitable conditions beneath access roadways, equipment pads, etc.
Note: 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 attachments. These test results are provided to assist the designers of corrosion protection for the project.	

12.0 FULL SCALE PILE LOAD TESTING (PLT) PROGRAM

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

- Installation of a group of 3 test piles at 7 test locations and 2 test piles at 8 locations
- Performing full-scale testing under axial compressive loads for 1 test pile at 7 locations
- Performing full-scale testing under axial tensile loads for 2 test piles at 15 locations
- Performing full-scale testing under lateral loads for 2 test piles at 15 locations

12.1 Test Pile Installation

Test piles consisted of wide-flange, bare steel W6x9 sections. A group of 3 test piles were tested at 7 locations and 2 test piles were tested at 8 other locations. The test piles have been identified using an alphanumeric system which begins with “PLT” and is followed by the number corresponding to the test pile group location while the assigned letters “A”, “B”, and “C”. 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 seven “C” piles were tested in axial compression.

The piles were advanced on February 19 through February 20, 2022 with a track mounted Vermeer PD10 equipped with a hydraulic hammer to embedment depths ranging from approximately 5 to 8 feet. The time rate of installation was recorded with a stopwatch. The total time required to advance each pile to its specified embedment depth was recorded and is summarized in the following table:

Pile Location	Actual Embedment Depth (feet) [1]	Drive Time (seconds) [2]	Average Drive Time (seconds/foot)
PLT-1A	8.0	99.0	16.5
PLT-1B	5.0	47.0	15.7
PLT-1C	5.0	26.0	8.7
PLT-2A	8.0	330.0	55.0
PLT-2B	5.0	94.0	31.3
PLT-3A	8.0	120.0	20.0
PLT-3B	5.0	33.0	11.0
PLT-3C	5.0	40.0	13.3
PLT-4A	8.0	290.0	48.3
PLT-4B	5.0	79.0	26.3
PLT-5A	8.0	72.0	12.0
PLT-5B	5.0	25.0	8.3
PLT-5C	5.0	24.0	8.0
PLT-6A	8.0	137.0	22.8
PLT-6B	5.0	25.0	8.3
PLT-7A	8.0	74.0	12.3
PLT-7B	5.0	24.0	8.0
PLT-7C	5.0	27.0	9.0
PLT-8A	8.0	77.0	12.8
PLT-8B	5.0	38.0	12.7
PLT-9A	7.0 [3]	128.0	25.6
PLT-9B	5.0	35.0	11.7
PLT-9C	5.0	43.0	14.3
PLT-10A	8.0	102.0	17.0
PLT-10B	5.0	43.0	14.3
PLT-11A	8.0	203.0	33.8
PLT-11B	5.0	48.0	16.0
PLT-12A	8.0	150.0	25.0
PLT-12B	5.0	45.0	15.0
PLT-12C	5.0	50.0	16.7
PLT-13A	7.0 [3]	22.0	4.4
PLT-13B	5.0	6.0	2.0
PLT-14A	6.5 [3]	193.0	42.9
PLT-14B	7.0	115.0	23.0
PLT-15A	8.0	178.0	29.7
PLT-15B	5.0	47.0	15.7
PLT-15C	5.0	46.0	15.3

1. Embedment depth measured from ground surface.
2. Average driving time calculated based on embedded depth excluding the 2-foot predrill depth.
3. Pile encountered refusal prior to reaching the planned embedment depth.

Pile installation records showing individual pile drive times per foot are included in Appendix D. The average drive time was about 18½ seconds per foot but the maximum was about 55 seconds per foot. For purposes of this study, pile driving refusal has been defined as 120 seconds per foot. Although only 3 of the 37 piles encountered refusal at depths ranging from 6½ to 7 feet, longer than normal drive times should be expected at the site.

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

Thirty piles, 2 piles at each PLT location, were tested under axial tensile ("pull-out") load using the procedures generally outlined below.. The test piles with the designations "A" and "B" were tested under axial tensile load with the designation "A" being embedded 8 feet below the ground surface, and the designation "B" being embedded 5 feet below the ground surface.

The "pull-out" load reaction was supported using Terracon's proprietary 20-kip tripod frame supported at an appropriate lateral distance from the post. Some locations were inaccessible to the tripod and therefore used the excavator to provide the reaction load.

Axial loads were applied to the test pile using a hydraulic pump and 10-kip pull cylinder. Connections to the test posts were made using a 5-ton plate clamp (vertical) designed for connection to W-sections.

The hydraulic pull cylinder and load cell were connected in series with chains and clevises to the two test piles, and the load was applied by pulling the chain through the chain fall in successive 500-pound increments from 0 to the ultimate tension load of 10,000 pounds or 0.75-inch of deflection. Each load increment was sustained for about 30 seconds and the stabilized deflection reading of both indicator gauge was recorded.

Deflections were measured with digital gauges and loads were measured with a Digital Dynamometer 25-kip electronic load cell. The gauges and load cell were read, and the data was recorded manually by Terracon field personnel.

12.3 Testing Under Lateral Load

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

As the test piles were installed in-line with each other, the piles were connected to provide a reaction for the opposite post and tested simultaneously in the strong axis direction. At some locations the piles were unable to be connected and were therefore tested individually using the excavator as the reaction force.

For lateral load testing, Terracon connected 2 test piles 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 6 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-, 4000- 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.

Deflections were measured with digital gauges and loads were measured with a Digital Dynamometer 25-kip electronic load cell. The gauges and load cell were read, and the data was recorded manually by Terracon field personnel.

12.4 Testing Under Axial Compressive Load

Seven piles were tested under axial compressive load. Please note that test piles with the designation “C” were tested under axial compressive load and were embedded to 5 feet below the ground surface.

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

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

The loads were applied in 500-pound increments up to a maximum load of 13,000 pounds, which is the maximum safe working load of our equipment. Each load increment was held for about 30 seconds and the stabilized deflection reading of both indicator gauges were recorded.

Deflections were measured with digital gauges and loads were measured with a 25-kip electronic load cell. The gauges and load cell were read, and the data was recorded manually by Terracon field personnel.

12.5 Summary of Pile Load Test Results

In general, the axial compressive, tensile, and lateral loads were applied at approximately 500-pound increments. The maximum applied load during the axial compression test was 13,000 pounds or until the deflection exceeded 1 inch. The maximum applied load during the axial tension test was 10,000 pounds or until the deflection exceeded 0.75-inch. The maximum applied load during the lateral load test was 7,000 pounds or until the deflection exceeded one inch when measured at 6 inches above the ground surface.

The individual pile load test results are provided in Appendices E (compression), F (uplift), and G (lateral). The following table provides a summary of each test pile location, embedment depth, total drive time, compressive load at ¼ of an inch of vertical displacement, uplift load at ¼ of an inch of vertical displacement, and the lateral load at ½ of an inch of lateral displacement:

Pile Location	Actual Embedment Depth (feet) [1]	Drive Time (seconds)	Uplift Load at ¼ of an inch Displacement (lbs.)	Lateral Load at ½ of an inch Displacement (lbs.)	Compressive Load at ¼ of an inch Displacement, (lbs.)
PLT-1A	8	99	>10,000 [3]	1,690	---
PLT-1B	5	47	8,580	2,050	---
PLT-1C	5	26	---	---	8,770
PLT-2A	8	330	>10,000 [3]	2,790	---
PLT-2B	5	94	>10,000 [3]	3,620	---
PLT-3A	8	120	>10,000 [3]	2,400	---
PLT-3B	5	33	6,050	1,580	---
PLT-3C	5	40	---	---	12,100
PLT-4A	8	290	>10,000 [3]	2,380	---
PLT-4B	5	79	8,420	2,290	---
PLT-5A	8	72	>10,000 [3]	2,670	---
PLT-5B	5	25	6,100	1,700	---
PLT-5C	5	24	---	---	8,100
PLT-6A	8	137	>10,000 [3]	2,050	---
PLT-6B	5	25	4,980	2,030	---
PLT-7A	8	74	5,690	2,550	---
PLT-7B	5	24	2,520	1,440	---
PLT-7C	5	27	---	---	5,620
PLT-8A	8	77	9,730	1,320	---
PLT-8B	5	38	6,390	2,100	---
PLT-9A	7.0 [2]	128	>10000 [3]	2,380	---
PLT-9B	5	35	4,580	1,630	---
PLT-9C	5	43	---	---	9,580
PLT-10A	8	102	>10000 [3]	2,070	---
PLT-10B	5	43	7,530	2,250	---
PLT-11A	8	203	>10,000 [3]	3,250	---
PLT-11B	5	48	7,260	1,910	---
PLT-12A	8	150	>10,000 [3]	3,030	---
PLT-12B	5	45	6,870	2,200	---
PLT-12C	5	50	---	---	11,170
PLT-13A	7.0 [2]	22	6,050	1,610	---

Pile Location	Actual Embedment Depth (feet) [1]	Drive Time (seconds)	Uplift Load at ¼ of an inch Displacement (lbs.)	Lateral Load at ½ of an inch Displacement (lbs.)	Compressive Load at ¼ of an inch Displacement, (lbs.)
PLT-13B	5	6	1,620	1,320	---
PLT-14A	6.5 [2]	193	8,520	2,620	---
PLT-14B	7	115	5,560	2,410	---
PLT-15A	8	178	>10,000 [3]	2,440	---
PLT-15B	5	47	9,050	1,860	---
PLT-15C	5	46	---	---	6,140

1. Embedment depth measured from ground surface and includes the 24-inch pre-drill depth.
2. The pile encountered early refusal at this location
3. The “>” sign indicates the load was achieved prior to reaching the noted deflection.

13.0 PV SOLAR ARRAY FIELD

13.1 Geotechnical Considerations

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

Based on the results of the pile load testing program, the site appears to be variable in terms of uplift capacity. Recommended ultimate side friction and end bearing values are presented in the following table. The analysis for this site resulted in four zones for axial capacity, labeled “1” through “4” and three zones for lateral labeled “A”, “B”, and “C”. The alphanumerical axial and lateral zones are shown on the Pile Location Plan presented in the **TEST PILE DRIVING DATA** section of the attached appendices.

Topsoil, organic matter, stumps, existing fill, or other unsuitable materials should not be left in place below inverters supported on mat foundations, otherwise, these types of materials may be left in place. All mat foundations for inverters should bear on suitable natural soil, or on properly compacted structural fill.

13.2 Solar Panel Support Pile Design Recommendations

13.2.1 Axial Capacity Recommendations

The axial uplift capacity of driven piles may be estimated based on skin friction developed along the perimeter of the pile, while the compression capacity may be estimated using the skin friction and end bearing. When determining embedment depths, the perimeter of a wide flange beam should be taken as twice the sum of the flange width and section depth. The upper 1.3 feet 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.

Zone	Pile Load Test Location [1]	Minimum Drive Time (sec/ft.)	Depth Interval (feet bgs)	Ultimate Skin Friction (psf) (q_s)	Ultimate End Bearing (lbs.) ($Q_{ult\,(end)}$)
1	PLT (7 and 13)	4.4	1.3 [2] – 8	350	2,000
2	PLT (3, 5, 6, 8, 9, and 14)	12		1,000	
3	PLT (10, 11, and 12)	17		1,400	
4	PLT (1, 2, 4, and 15)	16.5		1,600	

1. For the full extent of coverage for each zone, see Skin Friction Zone Map in appendix
2. The upper 1.3 foot should be neglected in pile design due to soil disturbance.

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

$$Q_{ult\ (compressive)} = Q_{ult\ (end)} + H \times P \times q_s$$
$$Q_{ult\ (uplift)} = H \times P \times q_s$$

Q_{ult} = Ultimate uplift or compression capacity of post (lbs.)
$Q_{ult\ (end)}$ = Ultimate end bearing capacity per table above (lbs.)
H = Depth of embedment of pile (ft.)
P = Perimeter area/ft. of pile. (i.e. W6x9 = 1.64 sf/ft.)
q_s = Unit skin friction per table above (psf).

The provided 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 values be determined by applying a factor of safety (FOS) of at least 1.5 to the ultimate values. A FOS of 1.5 should be applied to the ultimate end bearing.

Piles should have a minimum center-to-center spacing of at least 5 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 engineer licensed in the State of Kentucky based upon information contained in this geotechnical report, final design phase study and independent pile load testing.

13.2.2 Lateral Capacity Recommendations

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 lateral load analysis for driven pile foundations are shown in the following table:

Entire Site					
Depth[1]	**L-Pile Soil Model**	**c (psf)** [2]	**ϕ** [2]	**γ (pcf)** [2,3]	**ε_{50} or k**
0 - 4	Stiff Clay w/o Free Water	2,500	---	110	L-Pile Default
4 - 8	Stiff Clay w/o Free Water	3,500	---	115	

1. See Subsurface Profile in Geotechnical Characterization for more details on Stratigraphy.
2. Definition of Terms:
   c: Cohesion
   ϕ: Internal friction angle
   γ: Moist unit weight
   ε_{50}: Non-default E50 strain
   K: Horizontal modulus of subgrade reaction
   q_u: Non-default soil modulus – static. Refer to software guidelines for cyclic loading.
3. Buoyant unit weight values have been provided for the soils below groundwater.

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

P-Multiplier Table[1]			
Minimum Embedment Depth (feet bgs)	**Zone A PLT- 3, 5, 7, and 9**	**Zone B PLT- 1, 6, 8, 10, and 13**	**Zone C PLT- 2, 4, 11, 12, 14, and 15**
5 [2]	2.2	3.0	3.3
7 [2]	2.3	0.9	2.7
8 [3]	2.7	1.0	3.6

1. Due to Adfreeze effects, 70% of the calculated P-Multiplier should be used for the upper 1.3 feet.
2. Linearly interpolate between values for embedment depths greater than 5 and less than 8 feet.
3. For embedment depths greater than 8 use the p-multiplier for the 8-foot depth.

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 3 feet above the ground surface. The effective unit weight and cohesion were 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 five and eight feet below grade. In our evaluation, the piles were modeled as a Steel AISC Section Strong Axis.

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.

13.2.3 Construction Considerations

Based on the field exploration and pile load testing, it is our opinion that the soils on the site are suitable for pile installation using conventional methods. However, PLT-9A, PLT-13A, and PLT-14A encountered refusals at 6½ to 7 feet. Pre-drilling may be considered if refusal is encountered prior to planned embedded depths. For preliminary planning, an undersized pre-drill hole backfilled with soil cuttings, we estimate an ultimate skin friction of 500 psf and ultimate end bearing of 2,000 lbs may be considered for piles embedded at least 5 feet below the ground surface. A FOS of 2 should be used to estimate the preliminary axial capacity of piles installed in undersized predrilled holes. If pre-drilling is performed, we recommend supplemental pre-production pile load testing be completed to determine the design-level skin friction, end bearing, and lateral parameters for-predrill conditions.

A representative of the geotechnical engineer should observe pile driving operations. Each pile should be observed and checked for buckling, crimping and alignment in addition to recording penetration resistance, depth of embedment, and general pile driving operations.

13.2.4 Pile Design Recommendations for Other Structures

Some structures may require piles to be driven to greater depths than 8 feet to achieve the required axial capacities. Piles should have a minimum center-to-center spacing of at least 5 times their largest cross-sectional dimension to prevent reduction in the axial capacities due to group effects. We recommend Terracon be consulted to determine the minimum drive time based on the proposed equipment to be used for driving of the piles.

Based on the results of the SPT borings, we recommend an ultimate unit skin friction of 350 psf be used in Zone 1 for piles embedded between depths of 8 and 20 feet. A value of 1,000 psf may be used for Zones 2, 3, and 4 for piles with embedment depths between 8 and 20 feet. 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 1.3 feet of soil for each pile should be neglected.

Based on the results of the SPT borings, we recommend an ultimate end bearing capacity of 2,000 pounds for W6x9 piles with embedment depths between 8 and 20 feet. The ultimate unit end bearing for alternate pile sections should be assumed to be the same as the W6x9 piles tested for this project. The ultimate end bearing provided does not apply to smaller piles than the one for which the study has been conducted. We recommend the allowable side resistance and end bearing be determined by applying a factor of safety of at least 2 to the ultimate values for piles embedded greater than 8 feet.

14.0 SHALLOW FOUNDATIONS

A turned-down concrete slab-on-grade is recommended for lightly-loaded equipment pads that can tolerate some movement due to seasonal variation in temperature (freeze thaw action).

14.1 Design Parameters - Compressive Loads

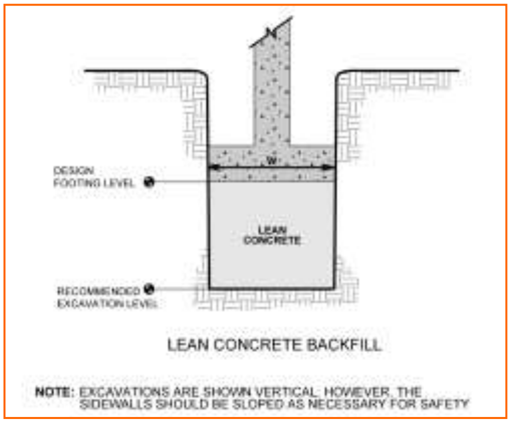
Item	Description
Maximum Net Allowable Bearing pressure [1, 2]	1,000 psf
Required Bearing Stratum [3]	stiff low plasticity cohesive soils, medium dense granular soils, or at least 2 feet of LVC structural fill
Minimum Foundation Dimensions	Columns: 30 inches Continuous: 18 inches
Ultimate Passive Resistance [4] **(equivalent fluid pressures)**	300 pcf (cohesive backfill) 430 pcf (granular backfill)
Ultimate Coefficient of Sliding Friction [5]	0.30
Minimum Embedment below Finished Grade [6]	24 inches
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch
Estimated Differential Settlement [2, 7]	About 1/2 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. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Values provided are for maximum loads noted in **PROJECT DESCRIPTION**.
3. Unsuitable or soft or loose soils should be over-excavated and replaced per the recommendations presented below.
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. Passive resistance should be neglected in the uppermost 24 inches below grade.
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. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
7. Differential settlements are estimated over a span of 50 feet.

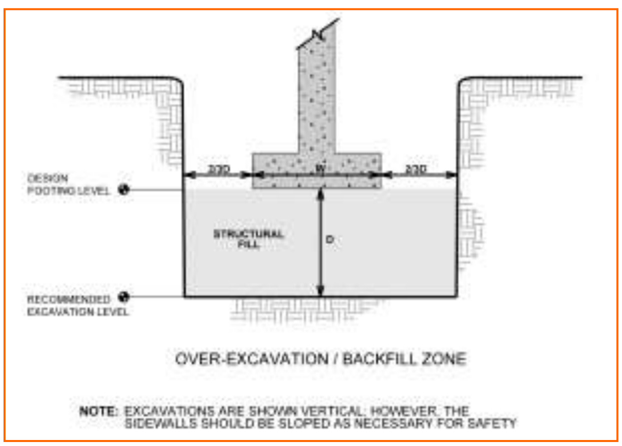
14.2 Foundation Construction Considerations

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.



Over-excavation for structural fill placement below footings should be conducted as shown below. Over-excavation for compacted structural fill 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 granular structural fill material placed in lifts of 8 inches or less in loose thickness (4 inches or less if using hand-guided compaction equipment) and compacted according to the recommendations provided in the **EARTHWORK** section.



15.0 MAT FOUNDATION

We understand the main foundation component in the array area will include driven pile foundations for support of solar arrays. Lightly-loaded, inverter structures are typically required across the site and 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 18-inch thick free draining granular base, such as relatively clean, well-graded crushed limestone.

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:

15.1 Mat/Slab Design Parameters

Item	Description
Slab Support [1]	Minimum 18 inches of free-draining (less than 5% passing the U.S. No. 200 sieve) crushed aggregate compacted to at least 98% of ASTM D 698 [2, 3]
Estimated Modulus of Subgrade Reaction [2]	■ 110 pounds per square inch per inch (psi/in) for point loads ■ 10 pounds per square inch per inch (psi/in) for area loads
Minimum Width	3.5 feet
Modulus Correction Factor [4]	$k_c=k((b+1)/2b)^2$
Minimum Embedment below Finished Grade [5]	24 inches
Ultimate Coefficient of Sliding Friction [6]	0.30
Maximum Design Contact Stress	1,250 psf on 7 ft. x 7 ft. mat slab
Total Estimated Settlement	1 inch or less

1. On subgrade prepared in accordance with recommendations provided above.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **EARTHWORK** as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.

Item	Description

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. Reduce the k-value to account for dimensional effects of large loaded areas, where k_c is the corrected or design modulus value and b is the mat width (short dimension) or tributary loaded area.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
6. This value includes a theoretical safety factor of about 1.5 against sliding. It is recommended that passive pressure resistance along the sides of the foundation be neglected.

15.2 Foundation 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 (temperature above 40° F), undercutting/replacement and use of geotextile fabric as recommended in the **EARTHWORK** section later.

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.

16.0 SUBSTATION – DEEP FOUNDATIONS

16.1 Deep Foundation

It is anticipated that some of the substation structures/appurtenances will be supported on deep foundation systems such as drilled shaft foundation elements. It is recommended that each drilled shaft element be at least 2.5 feet in diameter and that lengths be at least 3 times the shaft diameter or 10 feet, whichever is more. Drilled shaft length may need to be adjusted (increased) to resist the lateral loads and moments acting at or near the ground surface elevation (structural loads). Soil Parameters and Models for Lateral Load Analyses of Drilled Shafts section provided above for the detailed lateral load analyses of drilled shaft foundation. Drilled shafts should be terminated within stiff cohesive soils or medium dense granular soils or socketed into limestone bedrock below any voids within the soil overburden or bedrock.

The following geotechnical parameters are recommended based on our exploration results within the substation, locations SB-1 to SB-5. Drilled shaft design should include a factor of safety of 3 for end bearing and 2.5 for side resistance in compression. A factor of safety of 3 is recommended for side resistance in uplift.

Axial Capacity, MFAD and L-PILE Parameters											
Soil Type / L-Pile Model	Depth to Bottom of Layer (feet) [1]	Unit Weight (pcf) [3]	Friction Angle (degrees)	Un-drained Shear Strength (psf) [4] Uniaxial Compressive Strength (psi)	K-Value (pci)	ε50	Deformation Modulus (ksi)	Adhesion Factor	Ultimate End Bearing (ksf) [5]	Ultimate Side Resistance Compression (ksf) [2,4,5]	Ultimate Side Resistance Uplift (ksf) [2,4,5]
Location SB-1 [6]											
Stiff Clay w/o Free Water (Reese)	2.5	123	--	500	75	0.020	--	0.55	-	0.28	
	13.5	128	--	2,000	650	0.008	1.2	0.55	9.0	1.10	
	18.5	131	--	4,500	1,600	0.004	2.75	0.49	9.0	2.48	
	23.5	125	--	1,000	300	0.012	0.6	0.55	9.0	0.55	
Sand (Reese)	20 [6]	130	36	--	200	--	7	--	60	1.02	0.58
	25 [6]	67.6	36	--	120	--	7	--	60	1.02	0.58
Location SB-2 [7]											
Stiff Clay w/o Free Water (Reese)	4.5	123	--	500	75	0.020	--	0.55	-	0.28	
	8.5	129	--	2,500	800	0.007	1.5	0.55	-	1.38	
	23.5	124	--	750	100	0.015	--	0.55	2.3	0.41	
Sand (Reese)	28.5	120	32	--	125	--	0.9	--	2.3	1.08	0.62
Stiff Clay w/o Free Water (Reese)	32.5	122	--	250	20	0.025	--	0.55	2.3	0.14	
Vuggy Limestone	42.5	140	--	3,500	--	--	--	--	60	1.93	
Location SB-3 [7]											
Stiff Clay w/o Free Water (Reese)	4.5	123	--	500	75	0.020	--	0.55	-	0.28	
	28.5	125	--	1000	300	0.012	0.6	0.55	9.0	0.55	
Sand (Reese)	30	67.6	36	--	120	--	7	--	60	1.41	0.80
Location SB-4 [6]											
Stiff Clay w/o Free Water (Reese)	2.5	123	--	500	75	0.020	--	0.55	--	0.28	
	8.5	126	--	1,500	500	0.010	1	0.55	--	0.83	
	23.5	124	--	750	100	0.015	--	0.55	--	0.41	
	28.5	128	--	2,000	650	0.008	1.2	0.55	2.3	1.10	
	23.5 [6]	122		250	20	0.025	--	0.55	2.3	0.14	
	30 [6]	59.6	--	250	20	0.025	--	0.5	2.3	0.14	
Location SB-5 [7]											
Stiff Clay w/o Free Water (Reese)	2.5	123	--	500	75	0.020	--	0.55	--	0.28	
	18.5	126	--	1,500	500	0.010	1	0.55	6.8	0.83	
	29	124	--	750	100	0.015	--	0.55	6.8	0.41	

1. Depth referenced to existing ground surface.

2. The side resistance of the uppermost 2 feet of the soil should be ignored due to the potential for disturbance caused during the drilled shaft construction.
3. Groundwater levels during the life of the structures may be higher or lower than the levels encountered during our exploration. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.
4. Exploration encountered variability in soil strength and apparent karst soil-softening, with generally higher strength soils overlying lower strength soils. Therefore, we recommend that when calculating the end bearing capacity of the drilled shaft, in order to be able to use the prescribed soil parameters of the subject soil bearing stratum, that soil stratum should extend at least three times the drilled shaft diameter below the bottom of the drilled shaft. If this condition is not met, and the strength parameters of the soil stratum below the bearing soil stratum are less than those of the bearing stratum, then the soil parameters of the lowest strength layer below within the three diameters depth, should be used in calculating the end bearing capacity.
5. Ultimate end bearing and side resistance values provided above are applicable to bottom of layer, values area a function of depth and will be variable between the top and bottom of a layer
6. Groundwater encountered while drilling at 20 feet at SB-1 and 23.5 feet at SB-4
7. Groundwater not encountered below the existing ground surface at SB-2, SB-3, and SB-5

16.2 Deep Foundation Construction Considerations

The following additional construction considerations are provided for drilled shaft foundations:

- Drilled shaft construction using the slurry displacement method is anticipated
- Actual bearing elevation at each drilled shaft location should be determined in the field during construction through inspection by the geotechnical engineer.
- Due to the site karst potential, we recommend probe drilling at the drilled shafts to explore for voids within the soil overburden and bedrock. Probes should be extended to a depth of at least 3 diameters below the design bottom of shaft elevation or 10 feet of continuous bedrock to ensure bearing below any open- or soil-filled voids.
- The bearing surface of each drilled shaft should be cleaned of any loose material prior to concrete placement.
- If effective dewatering is not practical, concrete should be placed at the bottom of the excavation by pumping or by using a tremie pipe.
- It is recommended that no completed drilled shaft holes be left open overnight without being filled with concrete.
- To facilitate shaft construction, concrete should be on-site and ready for placement as shaft excavations are completed.
- Temporary casing, if used during construction of the shaft, should be removed after concrete is placed. Casing should not be left in place permanently as voids/gaps may be 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 and potential reduction of the side resistance should be evaluated by the project geotechnical and structural engineers.

- Drilled shaft installation methods should account for cobbles, boulders, weathered rock variable bedrock depth, and potential voids to be encountered during drilling.

17.0 EARTHWORK

We anticipate earthwork for the project will include clearing and grubbing, minimal excavation and filling for solar arrays, 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 intended for planning general site grading in the solar array areas, access roadways, drainage, and equipment structure areas (such as the transformer pad areas).

17.1 General

It is recommended that areas of proposed slab-on-grade, shallow foundations, mat foundations, access roadways, and the entire substation area be stripped of any tilled soil, topsoil, or soft/loose overburden soils containing organic matter. Topsoil thickness encountered in the borings ranged from approximately 3 to 7 inches; however due to prior usage of the site for agricultural purposes, it is possible that the previously tilled horizon would be comprised of highly organic soils to deeper depths. The actual topsoil depths across the site can vary significantly as the borings represent conditions at widely spaced locations; therefore, the topsoil depths from the borings should not be used for estimating stripping depths. We recommend actual stripping depths be evaluated by a representative of Terracon during construction to aid in preventing removal of excess material.

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. In solar array and new fill areas of the site, the tilled soils/topsoil will create difficult access issues, particularly when the soils 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 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 non-structural areas after completion of grading operations.

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. 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.

After performing the initial site preparation activities, the exposed soils within the limits of the proposed development area should be proof-rolled in the presence of a representative of the geotechnical engineer. Native granular soils should be proof-rolled with several passes of a vibratory drum roller (minimum dead weight of least 8-tons on the drum). Any native cohesive soils should be proof-rolled with a fully loaded, tandem axle dump truck or suitable equipment weighing at least 20-tons. Proofrolling should be performed after a suitable period of dry weather to avoid degrading an otherwise acceptable subgrade and to reduce the amount of undercutting/remedial work required. Based on conditions encountered in the borings, subgrade stabilization should be anticipated especially in low-lying, poorly drained areas and during wet seasons.

Any loose/soft or yielding areas encountered within the new fill areas, solar array bays, substation and access road areas during proof-rolling operations should be undercut to expose firm stable soils or densified in place to a suitable acceptable condition.

Moderate to high plasticity native clays encountered at this site are not suitable for direct support of foundation, floor slab and pavements. These clay soils have the potential for volume change (shrink-swell potential) due to fluctuation in soil moisture conditions. Therefore, we recommend placing the foundation, floor slabs and pavements on at least 2 feet of LVC structural fill or chemically stabilized fill.

Chemical modification of the subgrade in the access road locations may be an alternative to removal, though any planned chemical modification should be tested and approved by a geotechnical engineer 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 modification is generally considered to be more cost effective than undercut and replacement of large areas.

Alternatively, as a construction expedient method of stabilization, chemical stabilization should be considered especially if construction is planned during wet seasons. The use of lime or by-product lime (lime kiln dust) could be considered for shallow stabilization. Portland cement may also be an additive to stabilize the low to moderately plastic clays encountered at this site, however, it is generally more expensive than lime kiln dust and it may not readily react with moderate to high plasticity clays present at the site. Use of lime kiln dust is therefore considered a relatively better option. We recommend stabilization methods be further evaluated prior to the time of construction. We recommend that a mix design be performed with samples of the chemical agent to be used and the site soils. This will aid in optimizing the mix design and evaluating for potential negative reactions such as sulfate induced heave. Since the agents can vary significantly in terms of chemical composition, it will be important that samples of the actual proposed modifying agent be used in the laboratory mix design. For the preliminary cost estimating purpose 5% lime kiln dust or cement can be assumed. However, the optimum stabilization agent % needs to be further verified prior to construction by performing trial mix design. With all chemical modification methods, proper mixing and control of clod sizes, moisture conditions, and compaction are critical. We recommend that only experienced contractors perform chemical modification and that they provide detailed descriptions of their proposed procedures and equipment, as well as a list of projects successfully completed in the last 5 years.

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**.

17.2 Fill Material Types

Fill required to achieve design grade should be classified as structural fill. Structural fill is material used below, or within 10 feet of structures or constructed slopes. Earthen materials used for 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
High Plasticity Cohesive	CH	Should not be used within 2 feet of shallow, mat foundations, pavements, and floor slabs
Well Graded Granular	SW and GW[2]	All locations and elevations
Low Volume Change (LVC) Material[3]	CL (LL<40 & PI<22) or GW[2]	All locations and elevations
On-site Soils	CL, CH, SC, SM, ML, SP [4]	Onsite native soils appear suitable for use as structural fill after moisture conditioning, with the exception of ML. During wet season, it will be difficult to dry the soils to suitable moisture condition and achieve specified compaction.

1. New structural fill should consist of approved materials that are free of organic matter, muck, 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. Maximum particle size of 3 inches and less than 10% passing #200 sieve.
3. Similar to KYTC DGA or crushed stone base limestone, limestone screenings, or granular material such as sand, gravel, or crushed stone, containing not more than 14% non-plastic fines
4. Delineation of high plasticity fat clay should be performed in the field by a qualified Geotechnical Engineer or their representative.

17.3 Fill Compaction Requirements

Structural fill should meet the following compaction requirements.

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 – Cohesive Soil (High Plasticity)	Within 0 to 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 structural fill should be tested in the laboratory to determine their suitability and compaction characteristics.

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

17.4 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.

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.

17.5 Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction, including backfill placement and compaction. 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.

17.6 Site 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.

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.

17.7 Earthwork Construction Considerations

Shallow excavations for the proposed structures 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 floor slabs and mat\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. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab and mat\slab construction.

Based on the results of our field exploration, groundwater was encountered in borings at depths ranging from approximately 4 and 33½ feet below existing surface grades, respectively. Groundwater seepage is anticipated in the shallow excavation. Trapped groundwater may be encountered in excavations at the site. Groundwater could affect over-excavation and utility trench excavation efforts. A temporary dewatering system consisting of sumps with pumps could be utilized to achieve the recommended depth of excavation.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom as well as adjacent to structures, pavements, and utilities. All excavations should be sloped or shored in the interest of safety and following local and federal regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards. 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.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

17.8 Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

Fill Placement Area	Recommended Testing Frequency (ASTM D6938)
Structure 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 backfill placed

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If 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.

18.0 ACCESS ROADWAYS

18.1 Crushed Stone Roadway Design Recommendations

We recommend the design team consider the use of crushed stone flexible base for the solar panel array access roads and substation road. The flexible base should meet the requirements given in the **Fill Material Types** section of the report. Access road subgrade should be prepared as recommended in **EARTHWORK**. Proper drainage should be provided for the access road and water should not be allowed to pond near the access road. The design was based on the following input parameters:

- Resilient Modulus of Aggregate Base = 30,000 psi (based on CBR = 50)
  M_R (psi) = 2,555 × CBR^0.64, for CBR ≥ 10
- Resilient Modulus of Subgrade = 3,000 (based on CBR of 2).
  M_R (psi) = 1500 × CBR, for CBR ≤ 10; (Heukelom and Klomp, 1962)]

Pavement Section	PV Array Roads & Substation	
	Option A Rut Depth 2-inches	Option B Rut Depth 3-inches
KYTC DGA Thickness (inches) [1]	8 [2, 3]	6 [3]
Allowable ESALs	14,000	20,000

1. KYTC Standard Specifications, 300 Aggregate Base Courses 2019
2. Tensar TX-160 can be used to reduce base thickness to 6 inches. Minimum base thickness is 6 inches. Minimum rut depth is 2 inches.
3. See Appendix H "Low Volume Road Design - Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting".

18.2 Roadway Design And Construction Considerations

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.

Regardless of the design, crushed limestone will display varying levels of wear and deterioration. We recommend implementation of a site inspection program at a frequency of at least once per year to verify the adequacy of the roadways. Preventative measures should be applied as needed for erosion control and regrading. An initial site inspection should be completed approximately three months following construction.

Preventative maintenance should be planned and provided for through an on-going pavement management program to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

Crushed stone should not be placed when the surface is wet. Surface drainage should be provided away from the edge of roadways to reduce lateral moisture transmission into the subgrade.

18.3 Access Road Site Preparation

On most project sites, the site grading is accomplished relatively early in the construction phase. However, as construction proceeds, excavations are made into these areas, rainfall and surface water saturates some areas, heavy construction traffic disturbs the subgrade and many surface irregularities are filled in with soft/loose soils to improve trafficability temporarily. As a result, the roadways subgrades should be carefully evaluated as the time of construction.

We recommend the moisture content and density of the upper 12 inches of the subgrade be evaluated and the road subgrades be proof-rolled. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. Particular attention should be paid to anticipated high traffic areas and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills.

After proof-rolling and repairing subgrade deficiencies, the entire subgrade should be scarified and compacted as recommended in **EARTHWORK** section to provide a uniform subgrade for gravel road construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to application of the gravel surfacing. The subgrade should be in its finished form at the time of final review. The chemical stabilization should be performed according to the recommendations provided in the **EARTHWORK** section of this report.

Access road and substation road pavement subgrade can be stabilized with cement to improve subgrade support. The cement application rate should be determined by laboratory testing once the road subgrade is rough graded. Cement stabilized subgrade should have a minimum compressive strength of 150 psi as determined in accordance with ASTM D1633-17 test method. The cement should be thoroughly mixed and blended with the upper 9 inches of the subgrade. Cement stabilization should extend a minimum of one foot beyond the edge of the access road.

The cement stabilized clay should be uniformly compacted as discussed in **Fill Compaction Requirements**. If soft subgrade soils are encountered during construction to depths greater than nine inches or more below the cement treated layer, compacting the 9-inch of cement stabilized subgrade to meet the density requirements will not be feasible. For this condition, the soft subgrade should be excavated to the top of a relatively stiff clay layer, or to a maximum depth of 21 inches below the bottom of flexible base layer. Excavated soft soils should be blended with cement to increase the stability of the subgrade to support compaction. The amount of cement will need to be determined by trial, typically 5 percent by dry weight may be sufficient. Cement treated 9-inch-thick road base should then be placed and compacted.

18.4 Drainage

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.

The proposed gravel access road should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the road could saturate the subgrade and contribute to premature road deterioration. In addition, the road subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

18.5 Maintenance

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

Typical repairs could consist of placing additional gravel in ruts or depressed areas. In some cases, complete removal of distressed portions of the existing section will be required along with replacement of the roadway section. Potholes and depressions should not be filled by blading adjacent ridges or high areas into the depressed areas. New material should be added to depressed areas as they develop. Failure to make timely repairs will result in more rapid deterioration of the roadways, making more extensive repairs necessary.

19.0 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 will occur between exploration point locations 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 this report, to provide observation and testing services during pertinent construction phases. 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.

It should be noted that the site is underlain by a Limestone and Dolomite formation that is susceptible to karst. This report provides recommendations to avoid karst related issues and discusses some possible mitigation methods. Any construction in karst topography is accompanied by some degree of possible concern for future internal soil erosion and ground subsidence that could affect the stability of the proposed structures.

Soils prone to shrink/swell characteristics are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and swell. However, even if these procedures are followed, some movement and cracking in the structure and pavements should be anticipated. The severity of cracking and other damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the shrink/swell prone soils.

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.

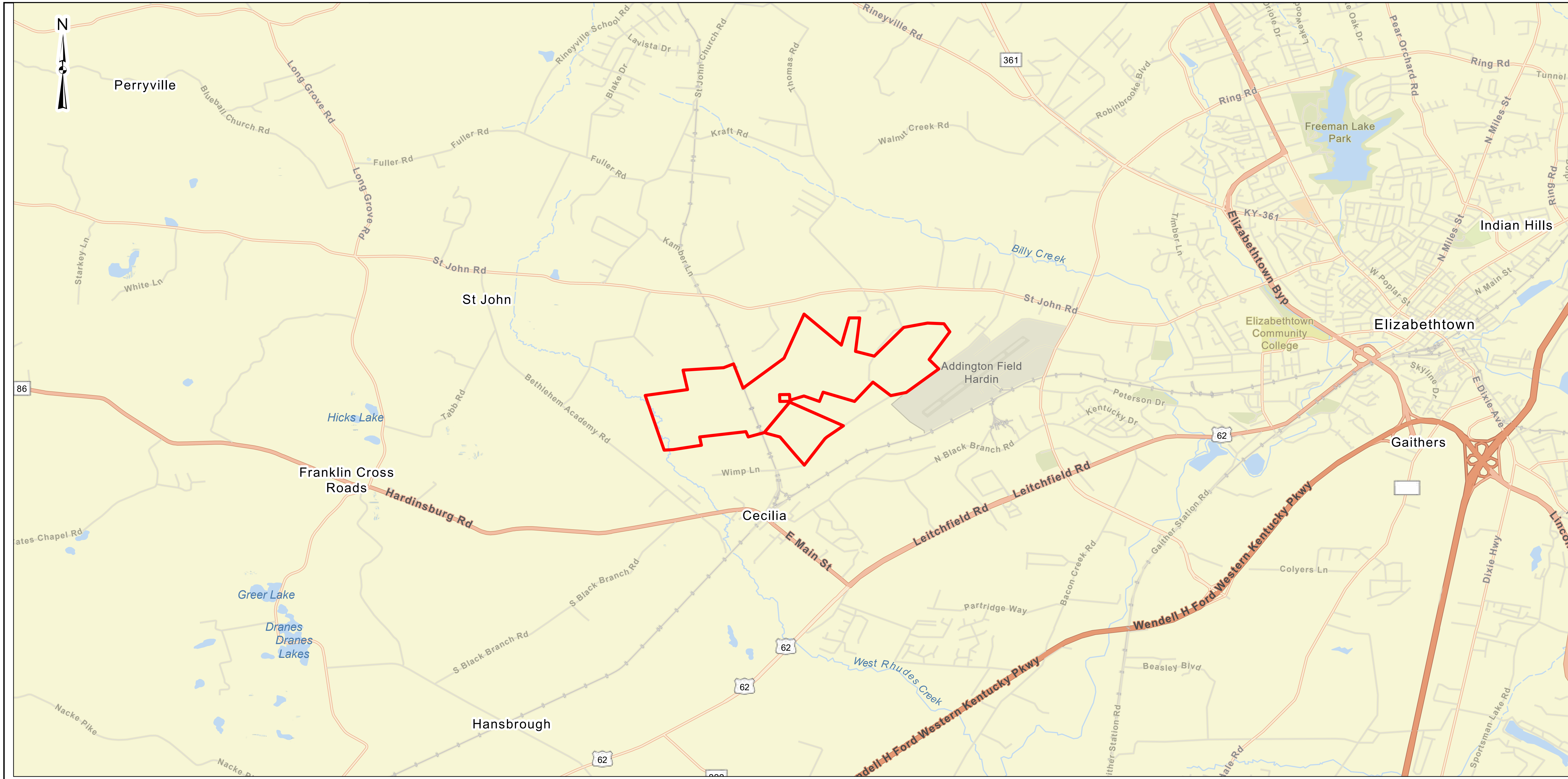
Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation 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, and cost estimating including, 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

APPENDIX A – FIELD EXPLORATION

Contents:

Note: All attachments are one page unless noted above



Legend

Site Boundary

DATA SOURCES:
ESRI Street Map base layer.

0 0.5 1 2 Miles

Project No.:	P57215113
Date:	May 2022
Drawn By:	KT
Reviewed By:	JNT

Terracon

13050 Eastgate Park Way #101 Louisville, Kentucky 40223

PH. (502) 456-1256 terracon.com

SITE PLAN

Telesto Solar
Cecilia, Harden County, Kentucky

Ulteig Engineers, Inc.
4285 Lexington Ave. N.
St. Paul, MN 55216

Legend

Site Boundary

Exploration Location 2022

Exploration Location 2022 (Boring Encountered Refusal)

DATA SOURCES:
ESRI World Imagery Hybrid Map base layer.

Feet
0 500 1,000 2,000

Project No.:	P57215113
Date:	May 2022
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EXPLORATION PLAN

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20.0 EXPLORATION AND TESTING PROCEDURES

20.1 Field Exploration

Type of Exploration	Depth or "a" Spacing (feet)[1]	Planned Location	Quantity
SPT Borings	20 to 47	Array and Substation area	42
Field Electrical Resistivity	1, 2, 4, 8, 15, 25, and 50	Array area	15
Field Electrical Resistivity	1, 2, 4, 8, 15, 25, 50, 100, 150, 200, and 300	Substation	1
Thermal Resistivity	2 to 4	Array and Substation area	8
Corrosion Testing	2 to 4	Array and Substation area	11
Pile Load Testing (PLT)	5 to 8 feet bgs (embedment depth)	Array area	15

1. Below ground surface.

Boring Layout and Elevations: We used handheld GPS equipment and existing site features to locate borings with an estimated horizontal accuracy of +/-10 feet as shown on the attached **Exploration Plan** in the **FIELD EXPLORATION** section and approximate elevations were obtained by interpolation from the Google Earth.

Subsurface Exploration Procedures: The SPT soil borings utilized an ATV-mounted, rotary drilling rig equipped with an automatic hammer. Soil samples were obtained by the split spoon sampling procedure in general accordance with the Standard Penetration Test (SPT) procedure. In the split spoon sampling procedure, the number of blows required to advance the sampling spoon the last 12 inches of an 18-inch penetration or the middle 12 inches of a 24-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring logs. In addition, we observed and recorded groundwater levels during sampling.

Portions of the samples from the borings were sealed in jars to reduce moisture loss, and then the jars were taken to our laboratory for further observation and classification. Upon completion, the boreholes were backfilled with soil cuttings.

Our exploration team prepared field boring logs as part of standard drilling operations including sampling depths, penetration distances, and other relevant sampling information. Field logs included visual classifications of materials encountered during drilling, and our interpretation of subsurface conditions between samples. Final boring logs, prepared from field logs, represent the Geotechnical Engineer's interpretation, and include modifications based on observations and laboratory tests.

Field Electrical Resistivity Testing: Field measurements of field electrical resistivity were performed by Terracon in January 2022. The field resistivity testing was performed at the locations identified on the Field Electrical Resistivity (FER) Test Plan in the Exploration Results section of this report. The Wenner arrangement (equal electrode spacing) was used with "a" spacing of 1, 2, 4, 8, 15, 25, and 50 feet at 15 locations within the solar array area. For the Substation area, the Wenner arrangement (equal electrode spacing) was used with "a" spacing of 1, 2, 4, 8, 15, 25, 50, 100, 150, 200, and 300 feet at 1 location. The testing was performed in both a north-south and an east-west orientation at each location in the array field and substation area.

For this FER survey, the electrodes consisted of ½-inch diameter, copper-coated steel grounding rods. The electrodes were inserted into the ground to a depth of 6 inches at electrode spacings of less than 10 feet and 12 inches for electrode spacings of 10 feet and greater.

It should be noted that the resistivity values measured in the field may vary by material type, moisture content, surface temperature, groundwater depth, and other climatic conditions. During the site visit, our field representative indicated that the ground surface cover consisted of Sandy Lean Clay at each test location. The weather conditions during the site visit are indicated on the FER data sheets located in this report.

20.2 Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
- ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
- ASTM D2974 Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

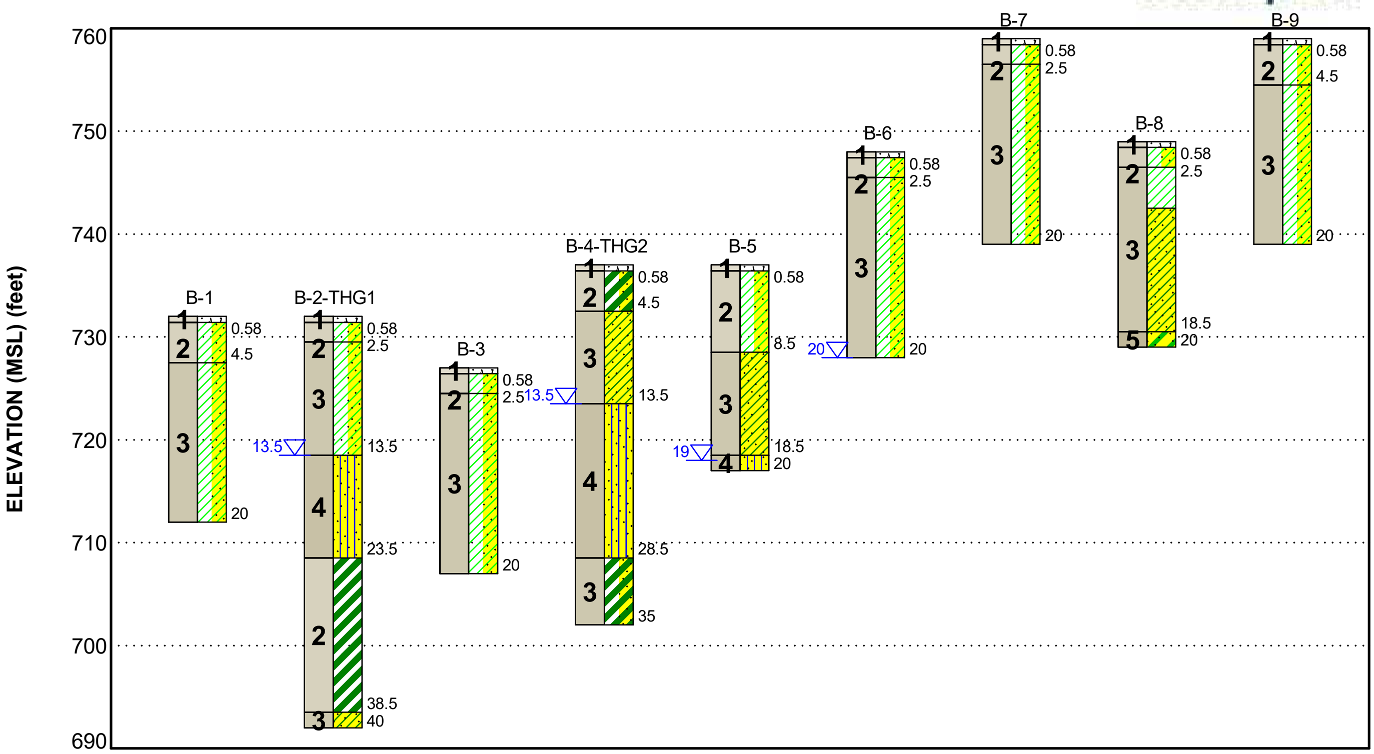
Corrosion Potential Testing: During the present study, a suite of laboratory tests was performed on bulk sample collected from one substation location at depth ranging from 2 to 4 feet below ground surface. The testing included water-soluble sulfate ion content in soil in accordance with ASTM C1580 presented in percent by weight, water-soluble chloride ion content in accordance with ASTM D512 presented in percent by weight, pH in accordance with ASTM G51, Sulfides in accordance with ASTM D4658, Oxidation Reduction Potential in accordance with ASTM D1498, Total Salts according to ASTM D1125, and Resistivity according to ASTM G187. The results of this laboratory testing are presented in the **LABORATORY TESTING** section.

Laboratory Thermal Resistivity Testing: During the current study, thermal resistivity tests were performed at 8 locations (7 PV-array and 1 substation). At each test location, Terracon collected one bulk sample obtained between depths of 2 and 4 feet below existing grade. Each bulk sample was tested for thermal resistivity on samples remolded to 90 percent of the material’s maximum dry density as determined by test method ASTM D698 (Standard Proctor) and at the material’s natural water content.

GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND

- Topsoil
- Silty Sand
- Sandy Lean Clay
- Lean Clay
- Lean Clay with Sand
- Fat Clay
- Fat Clay with Sand
- Clayey Sand

Model Layer	Layer Name	General Description
1	**Surficial Layer**	Topsoil with cultivated zone
2	**Soft Clay**	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	**Stiff Clay**	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
4	**Loose Sand**	Very loose to loose, clayey sand, silty sand, silt with varying amounts of sand and gravel (SC, SM, ML)
5	**Dense Sand**	Medium dense to dense, clayey sand, silty sand, poorly graded sand with varying amounts of silt, sand and gravel (SC, SM, SP)
6	**Bedrock**	Limestone, weathered, gray

NOTES:

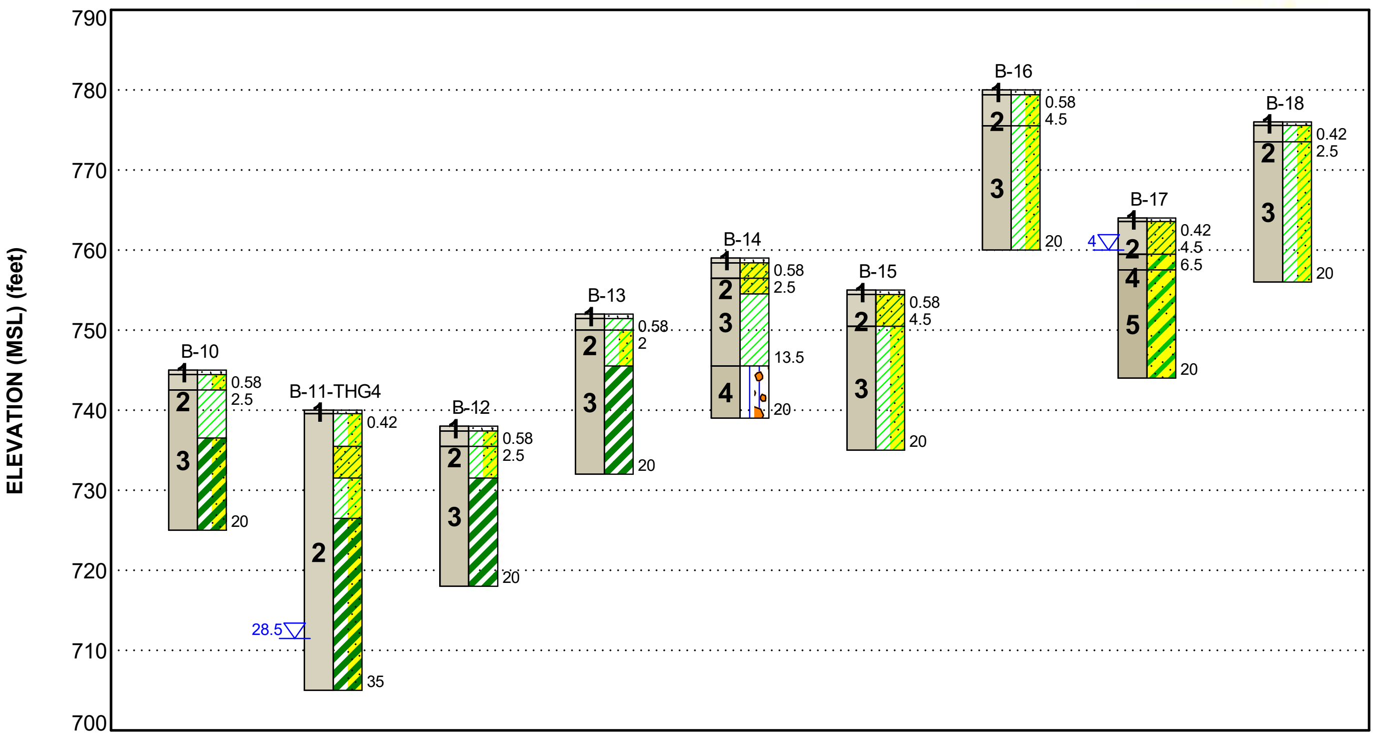
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.

First Water Observation
Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND

Topsoil
Lean Clay
Sandy Lean Clay
Silt with Gravel
Lean Clay with Sand
Fat Clay with Sand
Fat Clay
Clayey Sand

Model Layer	Layer Name	General Description
1	Surficial Layer	Topsoil with cultivated zone
2	Soft Clay	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	Stiff Clay	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
4	Loose Sand	Very loose to loose, clayey sand, silty sand, silt with varying amounts of sand and gravel (SC, SM, ML)
5	Dense Sand	Medium dense to dense, clayey sand, silty sand, poorly graded sand with varying amounts of silt, sand and gravel (SC, SM, SP)
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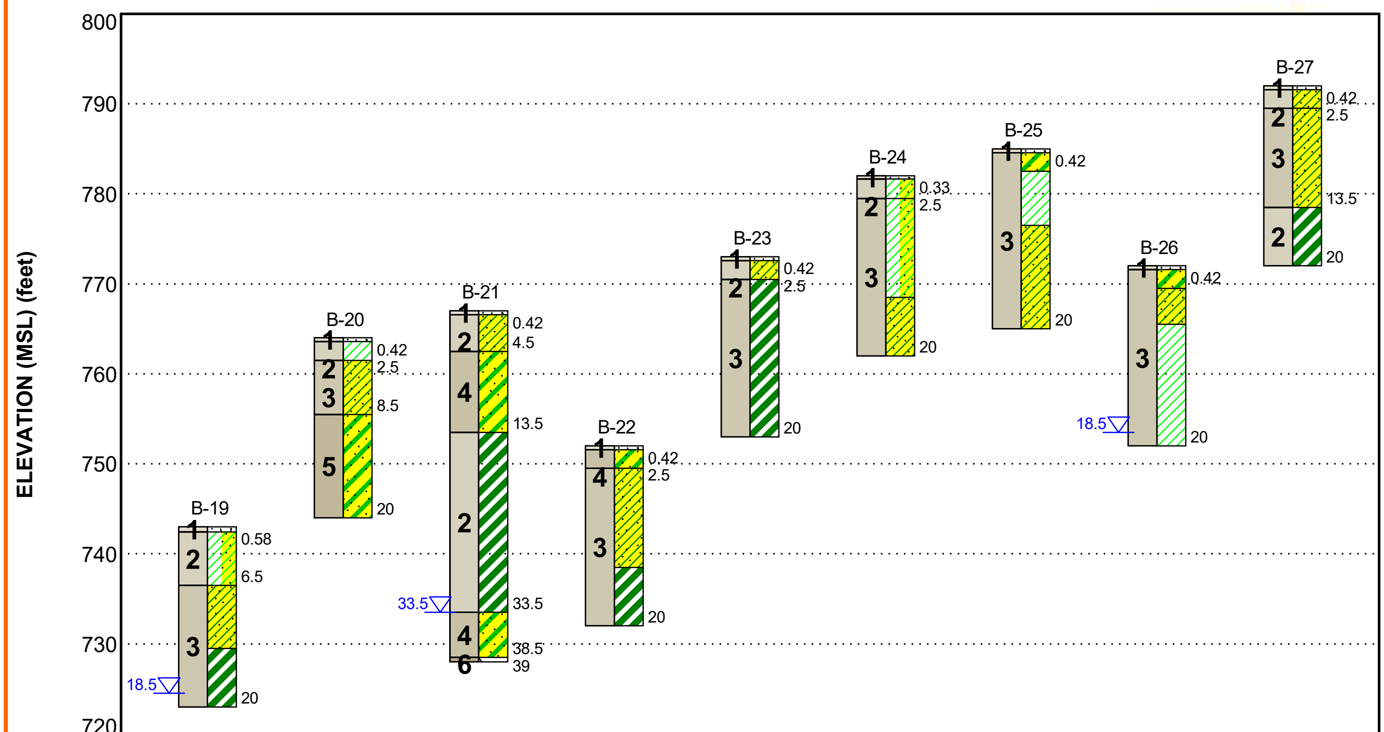
First Water Observation
Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND

- Topsoil
- Lean Clay with Sand
- Sandy Lean Clay
- Fat Clay
- Lean Clay
- Clayey Sand
- Weathered Rock

Model Layer	Layer Name	General Description
1	**Surficial Layer**	Topsoil with cultivated zone
2	**Soft Clay**	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	**Stiff Clay**	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
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First Water Observation

Second Water Observation

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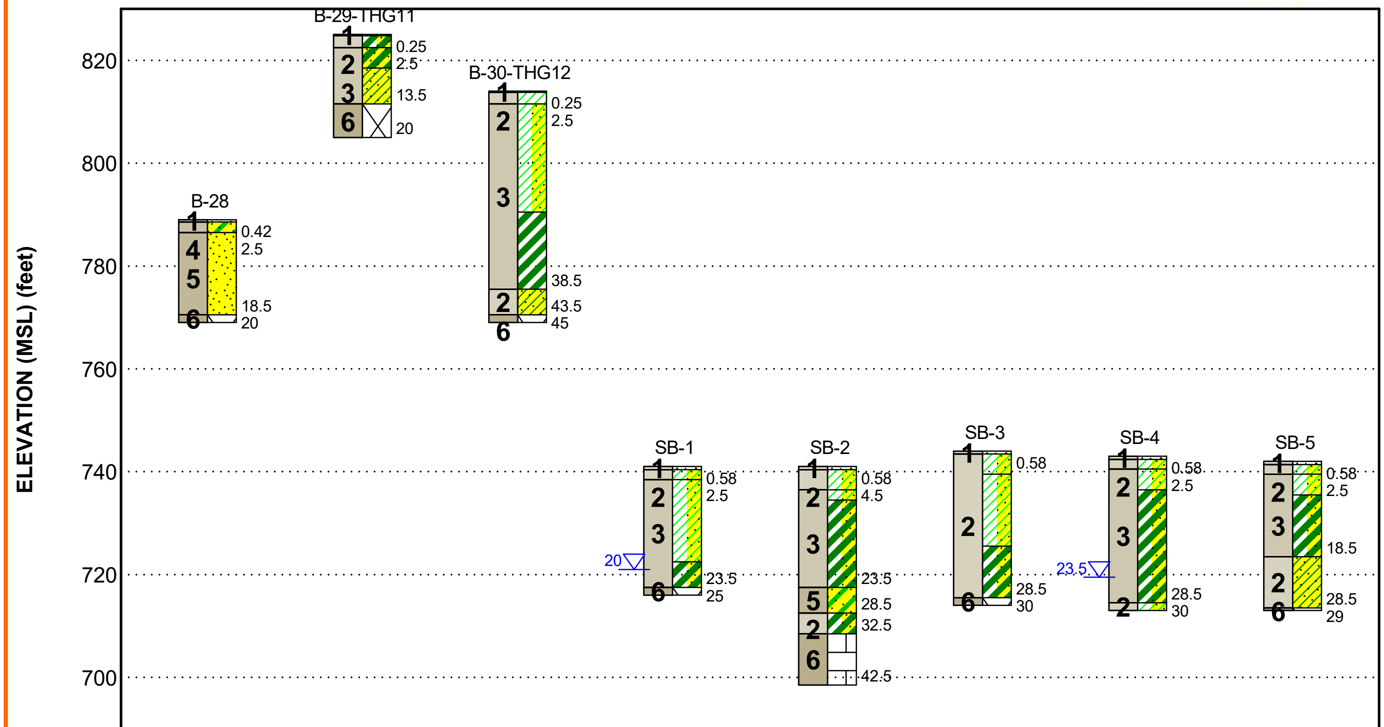
GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND

- Topsoil
- Clayey Sand
- Poorly-graded Sand
- Weathered Rock
- Fat Clay with Sand
- Sandy Fat Clay
- Sandy Lean Clay
- Lean Clay
- Lean Clay with Sand
- Fat Clay
- Limestone

Model Layer	Layer Name	General Description
1	**Surficial Layer**	Topsoil with cultivated zone
2	**Soft Clay**	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	**Stiff Clay**	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
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▽ First Water Observation
▽ Second Water Observation

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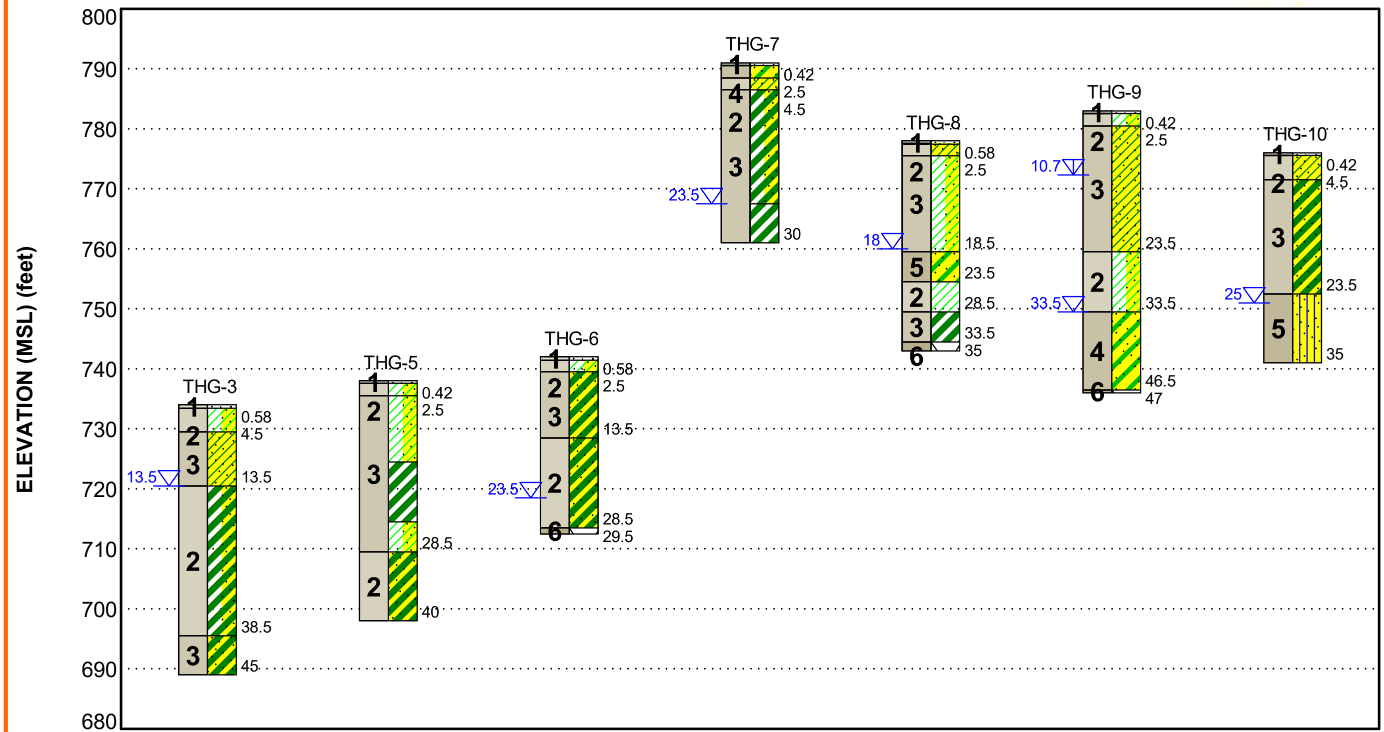
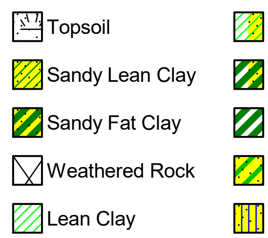
GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND



Model Layer	Layer Name	General Description
1	Surficial Layer	Topsoil with cultivated zone
2	Soft Clay	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
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Second Water Observation

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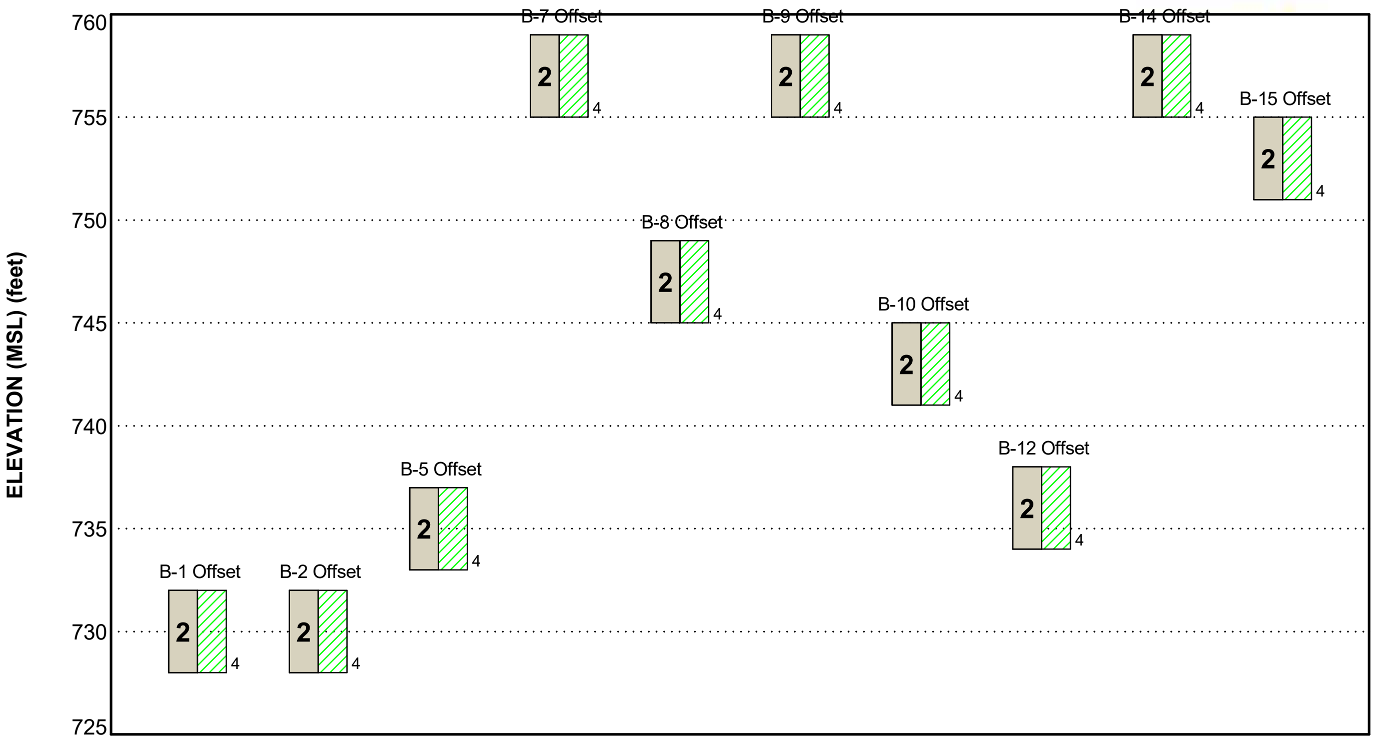
GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



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LEGEND

Lean Clay

Model Layer	Layer Name	General Description
1	Surficial Layer	Topsoil with cultivated zone
2	Soft Clay	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	Stiff Clay	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
4	Loose Sand	Very loose to loose, clayey sand, silty sand, silt with varying amounts of sand and gravel (SC, SM, ML)
5	Dense Sand	Medium dense to dense, clayey sand, silty sand, poorly graded sand with varying amounts of silt, sand and gravel (SC, SM, SP)
6	Bedrock	Limestone, weathered, gray

NOTES:

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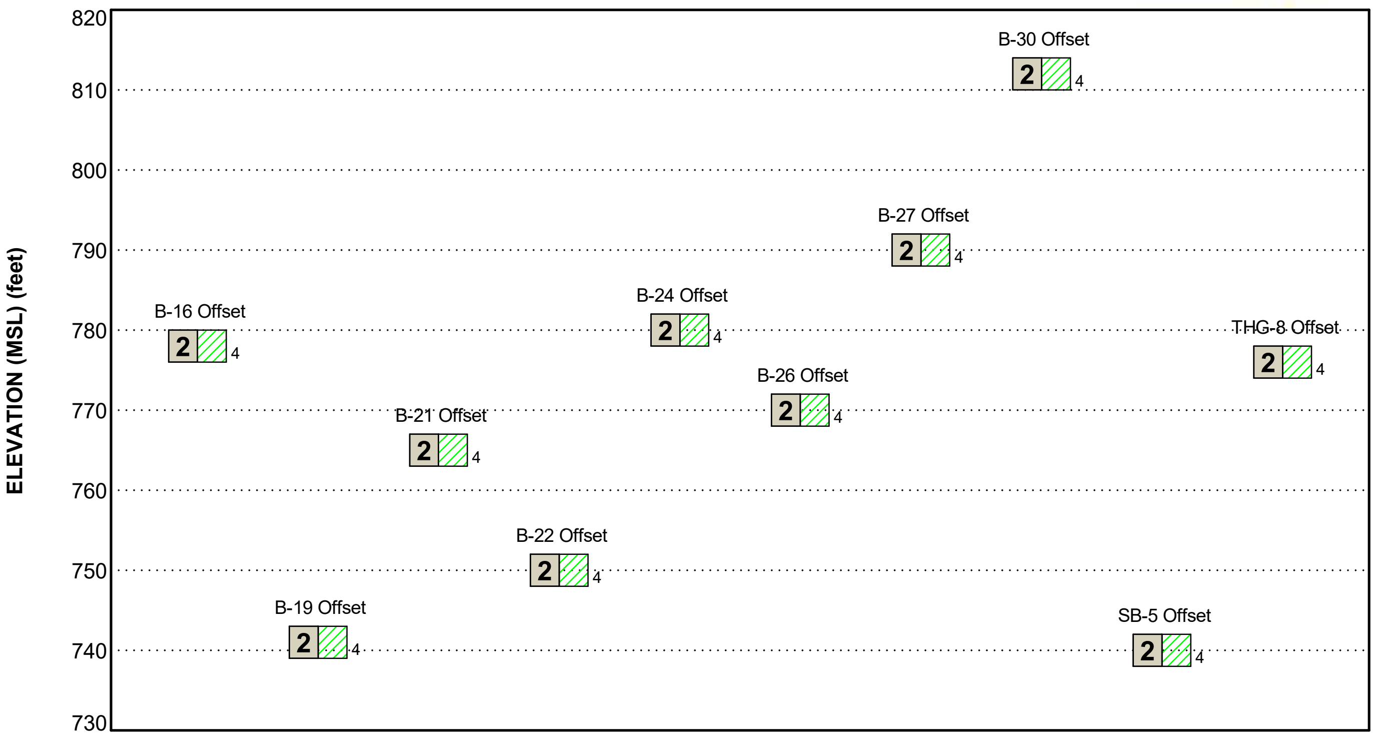
First Water Observation
Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

GEOMODEL

Telesto Solar Farm ■ Cecilia, KY
Terracon Project No. 57215113



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

LEGEND

Lean Clay

Model Layer	Layer Name	General Description
1	Surficial Layer	Topsoil with cultivated zone
2	Soft Clay	Soft to medium stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
3	Stiff Clay	Stiff to very stiff, lean clay and fat clay with varying amounts of sand, silt and gravel (CL, CH)
4	Loose Sand	Very loose to loose, clayey sand, silty sand, silt with varying amounts of sand and gravel (SC, SM, ML)
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6	Bedrock	Limestone, weathered, gray

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.

First Water Observation
Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

BORING LOG NO. B-1

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6770° Longitude: -85.9679°

Approximate Surface Elev.: 732 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	731.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft to medium stiff				X	12	1-1-1-2 N=2		0 (HP)	23.0	
						X	18	3-3-3 N=6		1.0 (HP)	20.0	
	4.5		727.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, reddish brown, stiff		5		X	18	3-4-5 N=9		1.0 (HP)	22.0	
						X	18	5-4-5 N=9		1.5 (HP)	21.0	38-13-25
				10		X	18	4-4-4 N=8		1.0 (HP)	24.0	
				15		X	18	4-4-4 N=8		1.0 (HP)	22.0	
	20.0		712+/-	20		X	18	4-4-4 N=8		0.5 (HP)	24.0	
		Boring Terminated at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-2-THG1

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6831° Longitude: -85.9704°

Approximate Surface Elev.: 732 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	731.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	729.5+/-			X	12	1-2-2-4 N=4		0.5 (HP)	21.0	
3	13.5	**LEAN CLAY WITH SAND (CL)**, brown, medium stiff to stiff	718.5+/-			X	18	3-4-7 N=11		2.0 (HP)	24.0	
				5		X	18	4-3-4 N=7		1.0 (HP)	19.0	
						X	18	3-4-6 N=10		1.5 (HP)	21.0	
				10		X	18	4-5-4 N=9		1.5 (HP)	19.0	
4	23.5	**SILTY SAND (SM)**, trace gravel, brown, loose	708.5+/-		▽	X	18	2-3-3 N=6		-	24.0	
				15								
				20		X	18	1-2-2 N=4		-		
2		**FAT CLAY (CH)**, trace gravel, reddish brown, medium stiff, possible karst soil softening		25		X	18	3-3-3 N=6		1.0 (HP)	35.0	

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 13.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-2-THG1

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6831° Longitude: -85.9704°

Approximate Surface Elev.: 732 (Ft.) +/-

MODEL LAYER	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
2		**FAT CLAY (CH)**, trace gravel, reddish brown, medium stiff, possible karst soil softening *(continued)*									
			30		X	18	3-3-3 N=6		0.5 (HP)	30.0	
			35		X	18	3-2-3 N=5		0.5 (HP)	32.0	
		38.5 / 693.5+/-									
3		**SANDY LEAN CLAY (CL)**, trace gravel, brown, stiff			X	18	2-3-5 N=8		1.0 (HP)	23.0	
		40.0 / 692+/-	40								
		Boring Terminated at 40 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 13.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-3

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6792° Longitude: -85.9686°

Approximate Surface Elev.: 727 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	726.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	724.5+/-			X	12	2-1-1-2 N=2		0 (HP)		
3		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff to very stiff				X	18	3-5-7 N=12		2.0 (HP)	21.0	
				5		X	18	5-6-9 N=15		2.5 (HP)	27.0	
						X	18	4-5-6 N=11		1.0 (HP)	23.0	
				10		X	18	3-4-6 N=10		1.5 (HP)	27.0	
				15		X	18	4-4-5 N=9		1.0 (HP)	19.0	
	20.0		707+/-	20		X	18	3-4-4 N=8		1.0 (HP)	26.0	

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-4-THG2

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6832° Longitude: -85.9684°

Approximate Surface Elev.: 737 (Ft.) +/-

Model Layer	Depth	Material Description	Elevation (Ft.)
1	0.6	**TOPSOIL(7.0")**	736.5+/-
2	4.5	**FAT CLAY WITH SAND (CH)**, trace gravel, brown, soft	732.5+/-
3	13.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, stiff	723.5+/-
4		**SILTY SAND (SM)**, brown, loose	

Water Level Observations	Recovery (In.)	Field Test Results	RQD (%)	Laboratory HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI
	12	2-1-1-2 N=2		0 (HP)	26.0	
	12	2-2-2 N=4		1.0 (HP)	28.0	
	18	3-4-4 N=8		2.0 (HP)	18.0	
	18	4-5-7 N=12		1.5 (HP)	18.0	
	18	5-4-4 N=8		1.0 (HP)	18.0	
▽ (13.5 ft)	18	3-3-3 N=6		-	24.0	NP
	18	2-2-2 N=4		-		
	18	3-4-4 N=8		-		

Depth (Ft.): 5, 10, 15, 20, 25

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 13.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-4-THG2

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6832° Longitude: -85.9684°

Approximate Surface Elev.: 737 (Ft.) +/-

MODEL LAYER	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
4			**SILTY SAND (SM)**, brown, loose *(continued)*										
		28.5		708.5+/-									
3			**FAT CLAY WITH SAND (CH)**, trace gravel, reddish brown, medium stiff to stiff				X	18	3-4-3 N=7		1.0 (HP)	29.0	
					30								
							X	18	3-4-4 N=8		1.5 (HP)	40.0	
		35.0		702+/-	35								
			Boring Terminated at 35 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 13.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-5

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6775° Longitude: -85.9523°

Approximate Surface Elev.: 737 (Ft.) +/-

MODEL LAYER	DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)
1	0.6	**TOPSOIL(7.0")**	736.5+/-
2	8.5	**LEAN CLAY WITH SAND (CL)**, brown, soft to medium stiff, encountered rock fragments	728.5+/-
3	18.5	**SANDY LEAN CLAY (CL)**, trace gravel, reddish brown, stiff	718.5+/-
4	20.0	**SILTY SAND (SM)**, trace gravel, reddish brown, medium dense	717+/-
		Boring Terminated at 20 Feet	

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		X	12	1-1-2-3 N=3		-	22.0	
		X	18	2-3-4 N=7		0.5 (HP)	20.0	
5		X	18	3-2-2 N=4		0.5 (HP)	6.0	
		X	18	3-3-4 N=7		1.0 (HP)	22.0	
10		X	18	4-5-6 N=11		1.5 (HP)	17.0	
15		X	18	5-5-6 N=11		1.5 (HP)	25.0	
20	▽	X	18	4-6-5 N=11		-	22.0	

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 19 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-6

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6860° Longitude: -85.9558°

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

MODEL LAYER	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
1	0.6	**TOPSOIL (7.0")**	747.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, brown, soft				X	12	1-2-2-3 N=4		0.75 (HP)		
	2.5		745.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, reddish brown with brown, stiff to very stiff				X	18	3-4-5 N=9		2.25 (HP)	17.7	43-18-25
				5		X	18	6-8-10 N=18		2.5 (HP)		
						X	18	4-6-7 N=13		2.0 (HP)		
				10		X	18	4-4-4 N=8		1.75 (HP)	22.0	
		@ 13.5' - 20', encountered chert		15		X	18	2-4-5 N=9		2.0 (HP)	29.7	
					▽	X	18	4-6-6 N=12		2.0 (HP)		
	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:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 20 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-7

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6854° Longitude: -85.9639°

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

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	758.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	756.5+/-			X	12	1-2-2-2 N=4		0.5 (HP)	25.0	
3	20.0	**LEAN CLAY WITH SAND (CL)**, brown to reddish brown, stiff	739+/-			X	18	4-5-5 N=10		1.5 (HP)	17.0	
				5		X	18	4-4-4 N=8		1.0 (HP)	16.0	
						X	18	5-4-5 N=9		1.5 (HP)	19.0	
				10		X	18	5-5-6 N=11		2.0 (HP)	21.0	
				15		X	18	5-6-5 N=11		1.5 (HP)	21.0	
				20		X	18	4-4-5 N=9		1.0 (HP)	20.0	

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022 | Boring Completed: 03-03-2022
Drill Rig: ATV #651 | Driller: J. Williams
Project No.: 57215113

BORING LOG NO. B-8

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6833° Longitude: -85.9617°

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

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	748.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, brown, soft				X	12	1-2-2-3 N=4		0.25 (HP)		
	2.5		746.5+/-									
3		**LEAN CLAY (CL)**, trace sand, brown with black spots, stiff to very stiff				X	18	5-6-7 N=13		2.5 (HP)	16.2	
				5		X	18	3-7-8 N=15		2.25 (HP)		
	6.5		742.5+/-									
		SANDY LEAN CLAY (CL), reddish brown, stiff				X	18	6-7-7 N=14		1.75 (HP)		
						X	18	5-6-8 N=14		2.0 (HP)	21.9	
				10								
						X	18	5-5-5 N=10		-	21.0	
				15								
	18.5		730.5+/-									
5		**CLAYEY SAND (SC)**, brown, medium dense				X	18	4-6-6 N=12		-	21.0	35-12-23
	20.0		729+/-	20								
		Boring Terminated at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-9

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6794° Longitude: -85.9636°

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

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	758.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft to medium stiff				X	12	1-1-1-2 N=2		0 (HP)	21.0	
						X	18	3-4-3 N=7		1.5 (HP)	23.0	
	4.5		754.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown to reddish brown, medium stiff to stiff		5		X	18	4-4-5 N=9		1.0 (HP)	22.0	
						X	18	4-4-5 N=9		1.0 (HP)	20.0	
				10		X	18	4-3-4 N=7		1.0 (HP)	23.0	
				15		X	18	3-4-4 N=8		1.0 (HP)	20.0	
	20.0		739+/-	20		X	18	3-4-4 N=8		1.0 (HP)	22.0	
		Boring Terminated at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-10

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6849° Longitude: -85.9577°

Approximate Surface Elev.: 745 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	744.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	742.5+/-			X	18	2-2-2-3 N=4		1.0 (HP)		
3		**LEAN CLAY (CL)**, trace sand, reddish brown, stiff to very stiff				X	18	4-5-4 N=9		2.5 (HP)	18.9	
				5		X	18	5-9-11 N=20		2.5 (HP)		
	8.5		736.5+/-			X	18	6-6-7 N=13		3.0 (HP)		
		FAT CLAY WITH SAND (CH), reddish brown, stiff to very stiff		10		X	18	6-7-9 N=16		3.5 (HP)	27.8	
				15		X	18	4-5-6 N=11		3.25 (HP)		
	20.0	@ 18.5' - 20', encountered chert	725+/-	20		X	18	4-5-6 N=11		1.5 (HP)	43.8	

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-11-THG4

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6818° Longitude: -85.9546°

Approximate Surface Elev.: 740 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	739.5+/-									
		LEAN CLAY WITH SAND (CL), trace gravel, brown, soft to medium stiff					12	1-2-2-4 N=4		0.5 (HP)	25.0	
							18	3-4-3 N=7		1.0 (HP)	23.0	
	4.5	**SANDY LEAN CLAY (CL)**, trace silt, brown, medium stiff	735.5+/-	5			18	2-3-4 N=7		1.5 (HP)	19.0	
							18	3-3-3 N=6		1.5 (HP)	20.0	
	8.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, medium stiff	731.5+/-				18	3-3-3 N=6		1.0 (HP)	22.0	
				10								
2	13.5	**FAT CLAY WITH SAND (CH)**, trace gravel, reddish brown, soft to medium stiff, possible karst soil softening	726.5+/-				18	4-4-3 N=7		1.0 (HP)	35.0	
				15								
				20			18	4-3-4 N=7		1.0 (HP)	38.0	
		@ 23.5' - 25', stiff					18	4-4-4 N=8		1.5 (HP)	35.0	
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 28.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-11-THG4

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6818° Longitude: -85.9546°

Approximate Surface Elev.: 740 (Ft.) +/-

MODEL LAYER	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
2		**FAT CLAY WITH SAND (CH)**, trace gravel, reddish brown, soft to medium stiff, possible karst soil softening *(continued)*		▽							
			30		X	18	3-3-4 N=7		1.0 (HP)	30.0	
		35.0 — 705+/-	35		X	18	1-2-1 N=3		0.5 (HP)	28.0	
		Boring Terminated at 35 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 28.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-12

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6799° Longitude: -85.9561°

Approximate Surface Elev.: 738 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	737.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft	735.5+/-			X	12	1-2-2-2 N=4		0.5 (HP)	22.0	
3	6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, reddish brown, stiff to very stiff	731.5+/-			X	18	7-8-9 N=17		3.5 (HP)	25.0	
				5		X	18	5-6-7 N=13		2.5 (HP)	19.0	
	20.0	**FAT CLAY (CH)**, trace sand, brown, stiff to very stiff	718+/-			X	18	6-7-7 N=14		2.5 (HP)	31.0	
				10		X	18	7-8-10 N=18		3.5 (HP)	31.0	
				15		X	18	5-6-7 N=13		2.0 (HP)	35.0	63-26-37
				20		X	18	3-4-4 N=8		1.5 (HP)	35.0	

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-13

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6853° Longitude: -85.9521°

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

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	751.5+/-									
2	2.0	**LEAN CLAY (CL)**, brown, soft	750+/-			X	17	2-2-2-3 N=4		0.25 (HP)		
3	6.5	**LEAN CLAY WITH SAND (CL)**, reddish brown, stiff	745.5+/-			X	18	4-5-6 N=11		3.0 (HP)		
				5		X	18	6-7-7 N=14		3.0 (HP)	17.3	
		FAT CLAY (CH), trace sand, reddish brown, stiff to very stiff				X	18	6-5-6 N=11		3.0 (HP)		
				10		X	18	3-4-9 N=13		3.5 (HP)	33.0	
		@ 13.5' - 20', encountered chert		15		X	18	4-5-5 N=10		2.0 (HP)	48.5	
	20.0		732+/-	20		X	18	5-5-14 N=19		2.0 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS
No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-14

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc. Minneapolis, MN

SITE: Thomas Cecilia Road Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6870° Longitude: -85.9528°

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

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	758.5+/-									
2	2.5	**SANDY LEAN CLAY (CL)**, brown, soft	756.5+/-			X	12	1-2-1-2 N=3		0.5 (HP)		
3	4.5	**SANDY LEAN CLAY (CL)**, brown, stiff	754.5+/-			X	18	4-4-6 N=10		2.0 (HP)	18.1	
3	13.5	**LEAN CLAY (CL)**, trace sand, reddish brown to brown, stiff	745.5+/-	5		X	18	5-5-4 N=9		3.0 (HP)		
						X	18	5-4-5 N=9		2.5 (HP)	21.0	
				10		X	18	3-4-5 N=9		2.0 (HP)		
4	20.0	**SILT WITH GRAVEL (ML)**, brown, loose	739+/-	15		X	18	3-3-4 N=7		-		
				20		X	18	4-4-5 N=9		-	1.6	49-43-6

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-15

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6844° Longitude: -85.9491°

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

MODEL LAYER	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
1		0.6	**TOPSOIL(7.0")**	754.5+/-									
2			**SANDY LEAN CLAY (CL)**, brown, soft to medium stiff, encountered organics				X	12	2-2-2-2 N=4		1.25 (HP)		
							X	18	2-3-4 N=7		1.5 (HP)		
		4.5		750.5+/-									
3			**LEAN CLAY WITH SAND (CL)**, reddish brown and brown, stiff to very stiff		5		X	18	3-4-7 N=11		1.5 (HP)	19.5	35-17-18
							X	18	4-5-5 N=10		1.5 (HP)		
							X	18	4-5-7 N=12		2.0 (HP)	24.6	
					10								
							X	18	5-6-6 N=12		1.5 (HP)	25.1	
					15								
			@ 18.5' - 20', encountered chert				X	16	7-8-17 N=25		1.5 (HP)		
		20.0		735+/-	20								
			Boring Terminated at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-16

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6890° Longitude: -85.9509°

Approximate Surface Elev.: 780 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1	0.6	779.5+/-	**TOPSOIL(7.0")**									
2			**LEAN CLAY WITH SAND (CL)**, trace sand, brown, medium stiff			X	12	1-2-3-3 N=5		1.25 (HP)		
	4.5	775.5+/-				X	18	3-3-3 N=6		1.5 (HP)	20.5	
3			**LEAN CLAY WITH SAND (CL)**, trace sand, reddish brown and brown, stiff to very stiff	5		X	18	3-4-6 N=10		2.25 (HP)		
						X	18	3-5-5 N=10		2.0 (HP)	23.5	
				10		X	18	6-10-10 N=20		2.5 (HP)		
			@ 13.5' - 20', encountered chert	15		X	18	5-4-5 N=9		2.0 (HP)		
	20.0	760+/-		20		X	18	4-7-8 N=15		2.25 (HP)		
			Boring Terminated at 20 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-17

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6890° Longitude: -85.9434°

Approximate Surface Elev.: 764 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)
1	0.4	**TOPSOIL(5.0")**	763.5+/-
2	4.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, medium stiff	759.5+/-
4	6.5	**CLAYEY SAND (SC)**, trace gravel, light brown and gray, loose	757.5+/-
5	20.0	**CLAYEY SAND (SC)**, trace gravel, light brown and gray, medium dense	744+/-
		Boring Terminated at 20 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		X	12	2-2-3-2 N=5		0.5 (HP)		
2.5–4	▽ (4 ft)	X	3	2-3-2 N=5		-	0.6	34-16-18
4.5–6		X	18	3-4-5 N=9		-	14.7	
6.5–8		X	18	5-5-6 N=11		-		
8.5–10		X	18	5-5-5 N=10		-	18.3	
13.5–15		X	18	5-7-6 N=13		-	18.3	
18.5–20		X	18	3-4-7 N=11		-		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 4 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-18

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6905° Longitude: -85.9470°

Approximate Surface Elev.: 776 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1	0.4	775.5+/-	**TOPSOIL(5.0")**									
2	2.5	773.5+/-	**LEAN CLAY WITH SAND (CL)**, reddish brown, medium stiff			X	12	3-3-3-3 N=6		1.25 (HP)		
3	20.0	756+/-	**LEAN CLAY WITH SAND (CL)**, reddish brown, stiff			X	18	4-4-6 N=10		2.5 (HP)		
			@ 2.5' - 4', encountered organics	5		X	18	5-6-7 N=13		2.0 (HP)	24.4	
						X	18	5-6-8 N=14		2.0 (HP)		
				10		X	18	4-6-8 N=14		2.25 (HP)	23.1	
				15		X	18	4-4-4 N=8		1.5 (HP)		
				20		X	18	3-4-7 N=11		1.25 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-19

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6801° Longitude: -85.9513°

Approximate Surface Elev.: 743 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	742.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft to medium stiff				X	12	2-1-2-2 N=3		0.5 (HP)	16.0	
						X	18	3-3-4 N=7		1.0 (HP)	24.0	
				5		X	18	2-3-2 N=5		0.5 (HP)		
	6.5		736.5+/-									
3		**SANDY LEAN CLAY (CL)**, trace gravel, reddish brown, stiff				X	18	2-3-5 N=8		1.0 (HP)		
						X	18	4-6-8 N=14		2.0 (HP)	17.0	
				10								
	13.5		729.5+/-									
		FAT CLAY (CH), trace gravel, reddish brown, stiff to very stiff				X	18	5-7-10 N=17		2.5 (HP)	34.0	
				15								
					▽	X	18	3-5-6 N=11		1.5 (HP)		
	20.0		723+/-	20								

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 18.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-20

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6867° Longitude: -85.9472°

Approximate Surface Elev.: 764 (Ft.) +/-

MODEL LAYER	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
1		0.4	**TOPSOIL(5.0")**	763.5+/-									
2			**LEAN CLAY (CL)**, trace silt, brown, soft				X	12	2-1-2-2 N=3		1.0 (HP)		
		2.5		761.5+/-									
3			**SANDY LEAN CLAY (CL)**, with rock fragments, gray and reddish brown, stiff				X	18	2-4-4 N=8		2.5 (HP)		
					5		X	18	4-6-8 N=14		2.5 (HP)	17.5	
							X	18	4-4-5 N=9		1.25 (HP)		
		8.5		755.5+/-									
5			**CLAYEY SAND (SC)**, gray, loose to medium dense				X	18	4-5-7 N=12		-	19.4	38-18-20
					10								
							X	18	4-3-5 N=8		-		
					15								
							X	18	3-4-7 N=11		-		
		20.0		744+/-	20								

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-21

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6854° Longitude: -85.9426°

Approximate Surface Elev.: 767 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	766.5+/-									
2		**SANDY LEAN CLAY (CL)**, trace silt, brown, soft				X	12	1-1-2-1 N=3		0 (HP)		
						X	18	2-2-2 N=4		1.25 (HP)	19.8	
	4.5		762.5+/-									
4		**CLAYEY SAND (SC)**, light brown to gray, very loose to loose		5		X	18	2-1-2 N=3		-		
						X	18	1-2-1 N=3		-		
						X	6	2-2-3 N=5		-	16.4	
				10								
	13.5		753.5+/-									
2		**FAT CLAY (CH)**, trace sand, reddish brown with black spots, medium stiff to stiff, possible karst soil softening				X	18	5-5-6 N=11		2.75 (HP)	38.2	
				15								
						X	18	3-3-4 N=7		2.0 (HP)		
				20								
						X	18	2-2-3 N=5		1.5 (HP)		
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 33.5 ft while drilling

Water not encountered upon completion

Terracon

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-21

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6854° Longitude: -85.9426°

Approximate Surface Elev.: 767 (Ft.) +/-

MODEL LAYER	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
2		**FAT CLAY (CH)**, trace sand, reddish brown with black spots, medium stiff to stiff, possible karst soil softening *(continued)*										
				30			18	2-3-3 N=6		1.75 (HP)		
	33.5		733.5+/-		▽							
4		**CLAYEY SAND (SC)**, reddish brown, loose		35			18	1-2-2 N=4		-		
	38.5		728.5+/-									
6	39.0	**LIMESTONE**, gray, highly weathered	728+/-				0	50/1"		-		
		Auger Refusal at 39 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 33.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-22

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6839° Longitude: -85.9462°

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

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	751.5+/-									
4	2.5	**CLAYEY SAND (SC)**, brown, very loose	749.5+/-			X	17	1-1-1-2 N=2		-	19.4	
3	13.5	**SANDY LEAN CLAY (CL)**, reddish brown and gray, medium stiff to stiff	738.5+/-			X	18	3-5-7 N=12		2.25 (HP)	18.7	
				5		X	18	3-5-5 N=10		1.5 (HP)		
						X	18	3-3-4 N=7		1.25 (HP)	0.7	31-17-14
				10		X	18	3-4-4 N=8		1.5 (HP)	19.0	
3	20.0	**FAT CLAY (CH)**, trace sand, reddish brown and brown, stiff	732+/-			X	18	3-4-5 N=9		2.5 (HP)	29.4	
				15								
				20		X	18	3-6-7 N=13		3.0 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022 | Boring Completed: 03-01-2022

Drill Rig: ATV #651 | Driller: J. Williams

Project No.: 57215113

BORING LOG NO. B-23

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6836° Longitude: -85.9436°

Approximate Surface Elev.: 773 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	772.5+/-									
2	2.5	**SANDY LEAN CLAY (CL)**, trace silt, brown, soft	770.5+/-			X	12	1-2-2-3 N=4		0.5 (HP)		
3	20.0	**FAT CLAY (CH)**, trace sand and trace chert fragments, reddish brown, stiff to very stiff	753+/-			X	18	4-4-5 N=9		3.0 (HP)	23.1	
				5		X	18	5-7-9 N=16		3.5 (HP)		
						X	18	5-8-6 N=14		3.0 (HP)	35.7	
				10		X	18	5-6-7 N=13		3.0 (HP)		
				15		X	18	5-5-5 N=10		3.25 (HP)		
				20		X	18	5-7-8 N=15		2.5 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-24

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6898° Longitude: -85.9387°

Approximate Surface Elev.: 782 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)
1	0.3	**TOPSOIL(4.0")**	781.5+/-
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	779.5+/-
3	13.5	**LEAN CLAY WITH SAND (CL)**, brown, stiff	768.5+/-
3	20.0	**SANDY LEAN CLAY (CL)**, trace gravel, brown and gray, medium stiff to stiff	762+/-
		Boring Terminated at 20 Feet	

MODEL LAYER	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
2			12	1-2-2-3 N=4		0.25 (HP)		
3			18	3-3-5 N=8		1.5 (HP)	20.4	
3			18	3-3-5 N=8		1.5 (HP)		
3			18	4-5-6 N=11		2.0 (HP)	23.2	
3			18	4-4-6 N=10		2.25 (HP)		
3			18	3-3-5 N=8		1.0 (HP)	20.1	
3			18	3-3-4 N=7		1.25 (HP)		

DEPTH (Ft.): 5, 10, 15, 20

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-25

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6868° Longitude: -85.9354°

Approximate Surface Elev.: 785 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	784.5+/-									
3	2.5	**CLAYEY SAND (SC)**, light brown, loose	782.5+/-			X	12	1-2-5-7 N=7		-		
	8.5	**LEAN CLAY (CL)**, trace sand, reddish brown, stiff to very stiff	776.5+/-			X	14	5-7-9 N=16		3.0 (HP)		
				5		X	18	4-4-6 N=10		1.5 (HP)	21.3	
						X	18	4-4-6 N=10		1.5 (HP)		
	20.0	**SANDY LEAN CLAY (CL)**, reddish brown, stiff	765+/-			X	18	5-7-7 N=14		2.25 (HP)	20.3	42-20-22
				10								
						X	18	4-5-7 N=12		2.0 (HP)		
				15								
						X	18	3-4-5 N=9		1.25 (HP)		
				20								
		Boring Terminated at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-26

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6858° Longitude: -85.9380°

Approximate Surface Elev.: 772 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	771.5+/-									
	2.5	**CLAYEY SAND (SC)**, light brown and gray, very loose	769.5+/-			X	12	1-1-1-2 N=2		-		
	6.5	**SANDY LEAN CLAY (CL)**, light brown and gray, stiff	765.5+/-			X	18	3-4-5 N=9		1.5 (HP)	20.9	
				5		X	18	3-4-6 N=10		1.5 (HP)		
3	20.0	**LEAN CLAY (CL)**, trace sand and silt, brown, stiff to very stiff	752+/-			X	18	4-5-7 N=12		2.0 (HP)		
				10		X	18	5-7-8 N=15		2.0 (HP)	23.1	
				15		X	18	5-7-8 N=15		2.5 (HP)		
				20	▽	X	18	3-4-4 N=8		2.0 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 18.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-27

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6873° Longitude: -85.9322°

Approximate Surface Elev.: 792 (Ft.) +/-

MODEL LAYER	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
1		0.4	**TOPSOIL(5.0")**	791.5+/-									
2		2.5	**SANDY LEAN CLAY (CL)**, light brown, soft	789.5+/-			X	12	1-1-2-2 N=3		1.0 (HP)		
3		13.5	**SANDY LEAN CLAY (CL)**, reddish brown and brown, stiff	778.5+/-			X	18	5-5-6 N=11		3.0 (HP)	21.5	42-20-22
					5		X	18	5-6-8 N=14		2.5 (HP)		
							X	18	3-3-6 N=9		1.5 (HP)		
					10		X	18	4-3-6 N=9		1.5 (HP)	22.6	
2		20.0	**FAT CLAY (CH)**, trace sand, reddish brown and light brown, medium stiff, possible karst soil softening	772+/-	15		X	18	2-2-3 N=5		0.75 (HP)		
					20		X	18	3-3-4 N=7		1.5 (HP)		

Boring Terminated at 20 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-28

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6884° Longitude: -85.9338°

Approximate Surface Elev.: 789 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	788.5+/-									
4		**CLAYEY SAND (SC)**, brown, loose					12	1-2-5-6 N=7		-		
	2.5		786.5+/-									
5		**POORLY GRADED SAND (SP)**, brown, medium dense to dense					18	6-5-8 N=13		-	13.3	
				5			14	6-10-11 N=21		-		
		@ 6.5' - 10', encountered cobbles/boulder					18	11-17-16 N=33		-		
							12	11-20-7 N=27		-		
				10								
							10	4-7-6 N=13		-	22.8	
				15								
	18.5		770.5+/-									
6		**LIMESTONE**, gray, highly weathered					12	11-15-50/2"		-		
	20.0		769+/-	20								
		Auger Refusal at 20 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-29-THG11

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6922° Longitude: -85.9355°

Approximate Surface Elev.: 825 (Ft.) +/-

MODEL LAYER	DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)
1	0.3	**TOPSOIL(3.0")**	825+/-
2	2.5	**FAT CLAY WITH SAND (CH)**, brown, medium stiff	822.5+/-
3	6.5	**SANDY FAT CLAY (CH)**, reddish brown and brown, stiff	818.5+/-
3	13.5	**SANDY LEAN CLAY (CL)**, trace gravel, light brown and gray, very stiff	811.5+/-
6	20.0	**LIMESTONE**, gray, highly weathered	805+/-
		Auger Refusal at 20 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		X	12	1-2-3-4 N=5		1.5 (HP)		
2.5–4		X	18	4-5-6 N=11		1.5 (HP)		
4.5–6		X	18	4-5-5 N=10		1.5 (HP)		
6.5–8		X	18	5-7-8 N=15		3.0 (HP)		
8.5–10		X	18	7-8-8 N=16		3.25 (HP)		
13.5–15		X	18	7-10-27 N=37		-		
18.5–20		X	3	18-23-29 N=52		-		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 02-28-2022

Boring Completed: 02-28-2022

Drill Rig: ATV #651

Driller: J. Williams

Project No.: 57215113

BORING LOG NO. B-30-THG12

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6923° Longitude: -85.9311°

Approximate Surface Elev.: 814 (Ft.) +/-

MODEL LAYER	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
1	0.3	**TOPSOIL(3.0")**	814+/-									
2		**LEAN CLAY (CL)**, brown, soft				X	18	1-2-2-2 N=4		0.5 (HP)		
	2.5		811.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, reddish brown, stiff to very stiff				X	18	4-7-7 N=14		1.25 (HP)	13.2	
				5		X	18	6-6-8 N=14		1.5 (HP)		
						X	18	5-7-8 N=15		2.0 (HP)		
				10		X	18	4-7-8 N=15		2.0 (HP)	17.7	
		@ 13.5' - 18.5', medium stiff		15		X	18	2-2-5 N=7		1.25 (HP)		
				20		X	18	6-11-18 N=29		3.5 (HP)	16.8	
	23.5		790.5+/-									
		FAT CLAY (CH), trace gravel, reddish brown, stiff		25		X	18	5-6-8 N=14		2.0 (HP)	2.4	61-21-40

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 02-28-2022	Boring Completed: 02-28-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-30-THG12

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6923° Longitude: -85.9311°

Approximate Surface Elev.: 814 (Ft.) +/-

MODEL LAYER	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
3		**FAT CLAY (CH)**, trace gravel, reddish brown, stiff *(continued)*										
				30		X	18	3-5-7 N=12		2.0 (HP)		
				35		X	18	3-4-7 N=11		1.75 (HP)		
		38.5	775.5+/-									
2		**SANDY LEAN CLAY (CL)**, with gravel, brown, medium stiff, possible karst soil softening		40		X	18	2-3-3 N=6		1.0 (HP)		
		43.5	770.5+/-									
6		**LIMESTONE**, gray, highly weathered				X	14	3-3-50/2"		-		
		45.0	769+/-	45								

Auger Refusal at 45 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 02-28-2022	Boring Completed: 02-28-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-1

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6826° Longitude: -85.9540°

Approximate Surface Elev.: 741 (Ft.) +/-

MODEL LAYER	DEPTH	MATERIAL DESCRIPTION	ELEVATION (Ft.)
1	0.6	**TOPSOIL(7.0")**	740.5+/-
2	2.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft	738.5+/-
3	18.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff to very stiff	722.5+/-
3	23.5	**FAT CLAY WITH SAND (CH)**, trace gravel, brown, stiff	717.5+/-
6	25.0	**LIMESTONE**, gray, highly weathered	716+/-
		Auger Refusal at 25 Feet	

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
			12	1-2-2-2 N=4		0.5 (HP)		
			18	1-5-6 N=11		1.5 (HP)		
5			18	3-6-9 N=15		2.5 (HP)		
			18	5-6-9 N=15		-		
10			18	4-5-5 N=10		2.0 (HP)		
15			0	9-12-12 N=24		-		
20	▽		18	3-3-6 N=9		1.0 (HP)		
25			2	6-7-50/4"		-		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 20 ft while drilling*

Water not encountered upon completion

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-2

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6827° Longitude: -85.9529°

Approximate Surface Elev.: 741 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	740.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft to medium stiff				X	12	3-2-2-2 N=4		0.5 (HP)	18.0	
						X	18	2-3-4 N=7		1.5 (HP)	24.0	
	4.5		736.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, brown, very stiff		5		X	18	7-7-11 N=18		3.5 (HP)	24.0	
	6.5		734.5+/-									
		FAT CLAY WITH SAND (CH), trace gravel, reddish brown, medium stiff to stiff				X	18	5-7-7 N=14		2.5 (HP)	32.0	
				10		X	18	4-5-5 N=10		1.5 (HP)	27.0	
				15		X	18	3-4-4 N=8		1.5 (HP)	29.0	
				20		X	18	2-3-2 N=5		1.0 (HP)	38.0	
	23.5		717.5+/-									
5		**CLAYEY SAND (SC)**, trace gravel, brown, medium dense		25		X	18	7-9-8 N=17		-	17.0	

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-2

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6827° Longitude: -85.9529°

Approximate Surface Elev.: 741 (Ft.) +/-

MODEL LAYER	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
5	28.5	**CLAYEY SAND (SC)**, trace gravel, brown, medium dense *(continued)*	712.5+/-									
2	32.5	**FAT CLAY WITH SAND (CH)**, trace gravel, brown, soft, possible karst soil softening	708.5+/-	30		Split spoon	18	0-1-2 N=3		-	33.0	
6	42.5	**LIMESTONE**, gray, close to moderate fracture spacing, slightly weathered, medium strong	698.5+/-	35		Rock core	60		83			
				40		Rock core	60		80			

Boring Terminated at 42.5 Feet

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-3

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6834° Longitude: -85.9540°

Approximate Surface Elev.: 744 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	743.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft to medium stiff				X	12	2-1-2-1 N=3		0.5 (HP)		
						X	18	3-3-3 N=6		1.0 (HP)		
	4.5		739.5+/-									
		LEAN CLAY WITH SAND (CL), trace gravel, brown, stiff		5		X	18	3-4-5 N=9		1.5 (HP)		
						X	18	4-5-5 N=10		2.0 (HP)		
						X	18	4-4-5 N=9		1.5 (HP)		
				10								
						X	18	4-5-4 N=9		1.5 (HP)		
				15								
	18.5		725.5+/-									
		FAT CLAY WITH SAND (CH), trace gravel, brown, medium stiff, possible karst soil softening				X	18	4-3-3 N=6		1.0 (HP)		
				20								
						X	18	2-3-4 N=7		1.0 (HP)		
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-3

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6834° Longitude: -85.9540° Approximate Surface Elev.: 744 (Ft.) +/- 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
2		**FAT CLAY WITH SAND (CH)**, trace gravel, brown, medium stiff, possible karst soil softening *(continued)* 28.5 715.5+/-									
6		**LIMESTONE**, brown, highly weathered 30.0 714+/-	30			18	4-18-43 N=61		-		
		Auger Refusal at 30 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS
No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-4

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6834° Longitude: -85.9529°

Approximate Surface Elev.: 743 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	742.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft				X	12	2-2-2-3 N=4		0.5 (HP)	19.0	
	2.5		740.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff				X	18	3-5-7 N=12		2.5 (HP)	20.0	
				5		X	18	5-5-6 N=11		2.0 (HP)	19.0	
	6.5		736.5+/-									
		FAT CLAY WITH SAND (CH), trace gravel, reddish brown, stiff to very stiff				X	18	6-7-8 N=15		3.0 (HP)	31.0	
						X	18	3-4-4 N=8		1.5 (HP)	33.0	
				10								
						X	18	4-5-4 N=9		2.0 (HP)	34.0	
				15								
		@ 18.5' - 20', medium stiff				X	18	3-3-3 N=6		1.5 (HP)	31.0	
				20								
					▽							
						X	18	6-7-6 N=13		3.0 (HP)	35.0	
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 23.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-4

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6834° Longitude: -85.9529° Approximate Surface Elev.: 743 (Ft.) +/- 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
3		**FAT CLAY WITH SAND (CH)**, trace gravel, reddish brown, stiff to very stiff *(continued)* 28.5 714.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft, possible karst soil softening 30.0 713+/-	30			18	1-1-1 N=2		0 (HP)	45.0	
		Auger Refusal at 30 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 23.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-5

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6831° Longitude: -85.9534°

Approximate Surface Elev.: 742 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	741.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, soft	739.5+/-			X	12	1-2-2-2 N=4		0.5 (HP)	18.0	
3	6.5	**LEAN CLAY WITH SAND (CL)**, trace gravel, brown to reddish brown, stiff	735.5+/-			X	18	3-4-5 N=9		2.0 (HP)	22.0	
				5		X	18	3-5-6 N=11		1.5 (HP)	20.0	
3	18.5	**FAT CLAY WITH SAND (CH)**, trace gravel, brown to reddish brown, stiff to very stiff	723.5+/-			X	18	5-6-9 N=15		3.0 (HP)	27.0	
				10		X	18	3-5-7 N=12		2.0 (HP)	32.0	
				15		X	18	3-5-5 N=10		2.0 (HP)	33.0	
2		**SANDY LEAN CLAY (CL)**, reddish brown, medium stiff, possible karst soil softening		20		X	18	2-3-4 N=7		1.5 (HP)	23.0	NP
				25		X	18	3-3-3 N=6		1.0 (HP)	31.0	47-13-34

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022 | Boring Completed: 03-05-2022
Drill Rig: ATV #651 | Driller: J. Williams
Project No.: 57215113

BORING LOG NO. SB-5

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6831° Longitude: -85.9534°

Approximate Surface Elev.: 742 (Ft.) +/-

MODEL LAYER	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
2			**SANDY LEAN CLAY (CL)**, reddish brown, medium stiff, possible karst soil softening *(continued)*										
		28.5		713.5+/-									
6		29.0	**LIMESTONE**, gray, highly weathered	713+/-				1	50/1"		-	10.0	
			Auger Refusal at 29 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-05-2022	Boring Completed: 03-05-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-3

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6829° Longitude: -85.9689°

Approximate Surface Elev.: 734 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	733.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, brown, soft to medium stiff				X	12	2-1-2-1 N=3		0.5 (HP)	24.0	
						X	2	3-3-3 N=6		1.0 (HP)	24.0	
3	4.5	**SANDY LEAN CLAY (CL)**, trace gravel, brown, stiff to very stiff	729.5+/-	5		X	18	4-6-11 N=17		3.0 (HP)	18.0	
						X	16	4-11-12 N=23		3.5 (HP)	17.0	
				10		X	18	5-6-8 N=14		2.5 (HP)	19.0	
2	13.5	**FAT CLAY WITH SAND (CH)**, trace gravel, brown, medium stiff to stiff	720.5+/-		▽							
				15		X	18	3-5-4 N=9		1.5 (HP)	27.0	
				20		X	18	2-3-5 N=8		1.0 (HP)	35.0	
		@ 23.5' - 25', very stiff		25		X	18	4-6-9 N=15		2.5 (HP)	44.0	

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 13.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022

Boring Completed: 03-03-2022

Drill Rig: ATV #651

Driller: J. Williams

Project No.: 57215113

BORING LOG NO. THG-3

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6829° Longitude: -85.9689°

Approximate Surface Elev.: 734 (Ft.) +/-

MODEL LAYER	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
2		**FAT CLAY WITH SAND (CH)**, trace gravel, brown, medium stiff to stiff *(continued)*										
				30		X	18	3-3-3 N=6		1.0 (HP)	49.0	
				35		X	18	3-3-3 N=6		1.0 (HP)	33.0	
	38.5		695.5+/-									
3		**SANDY FAT CLAY (CH)**, reddish brown, stiff										
				40		X	18	2-4-5 N=9		1.5 (HP)	28.0	
	45.0		689+/-	45		X	18	2-4-5 N=9		1.0 (HP)	27.0	
		Boring Terminated at 45 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 13.5 ft while drilling

Water not encountered upon completion

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-03-2022	Boring Completed: 03-03-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-5

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6816° Longitude: -85.9528°

Approximate Surface Elev.: 738 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	737.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, trace gravel, brown, medium stiff				X	12	2-2-3-3 N=5		0.5 (HP)	23.0	
	2.5		735.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, brown, stiff				X	18	4-4-4 N=8		1.0 (HP)	23.0	
				5		X	18	3-3-5 N=8		1.0 (HP)	23.0	
						X	18	3-4-5 N=9		1.5 (HP)	20.0	
				10		X	18	2-4-4 N=8		1.5 (HP)	22.0	
	13.5		724.5+/-									
		FAT CLAY (CH), brown, stiff		15		X	18	4-6-4 N=10		1.0 (HP)	33.0	
				20		X	18	3-5-7 N=12		2.0 (HP)	25.0	
	23.5		714.5+/-									
		LEAN CLAY WITH SAND (CL), brown, stiff		25		X	18	6-5-5 N=10		1.0 (HP)	22.0	

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-5

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6816° Longitude: -85.9528°

Approximate Surface Elev.: 738 (Ft.) +/-

MODEL LAYER	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
3		**LEAN CLAY WITH SAND (CL)**, brown, stiff *(continued)*									
		28.5 / 709.5+/-									
2		**SANDY FAT CLAY (CH)**, trace gravel, brown, soft to medium stiff, possible karst soil softening	30		X	18	3-4-3 N=7		1.0 (HP)	32.0	
			35		X	18	1-2-1 N=3		0 (HP)	25.0	
					X	18	2-2-1 N=3		0 (HP)	28.0	
		40.0 / 698+/-	40								
		Boring Terminated at 40 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-6

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6836° Longitude: -85.9535°

Approximate Surface Elev.: 742 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(7.0")**	741.5+/-									
2		**LEAN CLAY WITH SAND (CL)**, brown, soft				X	12	1-2-1-3 N=3		0 (HP)	24.0	
	2.5		739.5+/-									
3		**SANDY FAT CLAY (CH)**, trace gravel, brown, stiff				X	18	3-3-4 N=7		1.5 (HP)	26.0	
				5		X	18	8-9-5 N=14		3.0 (HP)	24.0	
						X	18	3-4-5 N=9		1.5 (HP)	37.0	
						X	18	4-5-6 N=11		2.0 (HP)	37.0	
				10								
	13.5		728.5+/-									
2		**SANDY FAT CLAY (CH)**, trace gravel, brown, medium stiff				X	18	3-3-4 N=7		1.0 (HP)	32.0	
				15								
						X	18	3-3-4 N=7		1.0 (HP)	27.0	54-14-40
				20								
					▽							
		@23.5' - 25', very stiff				X	10	49-9-9 N=18		2.5 (HP)	51.0	
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 23.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-6

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6836° Longitude: -85.9535°

Approximate Surface Elev.: 742 (Ft.) +/-

MODEL LAYER	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
2		**SANDY FAT CLAY (CH)**, trace gravel, brown, medium stiff *(continued)* 28.5 — 713.5+/-									
6		**LIMESTONE**, brown, highly weathered 29.5 — 712.5+/-				6	7-50/5"		-	22.0	
		Auger Refusal at 29.5 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 23.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-04-2022	Boring Completed: 03-04-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-7

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6924° Longitude: -85.9494°

Approximate Surface Elev.: 791 (Ft.) +/-

MODEL LAYER	DEPTH	Description	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1	0.4	**TOPSOIL(5.0")**	790.5+/-								
4	2.5	**CLAYEY SAND (SC)**, brown, very loose	788.5+/-			12	1-1-2-2 N=3		-		
2	4.5	**SANDY LEAN CLAY (CL)**, brown, medium stiff	786.5+/-			18	3-3-3 N=6		1.5 (HP)		
3	23.5	**FAT CLAY WITH SAND (CH)**, reddish brown, medium stiff to stiff	767.5+/-	5		18	3-5-6 N=11		1.5 (HP)		
						18	3-4-6 N=10		1.5 (HP)	26.5	
				10		18	5-5-6 N=11		2.0 (HP)	2.9	63-23-40
				15		18	4-3-4 N=7		1.5 (HP)		
				20		18	3-4-5 N=9		1.5 (HP)	38.4	
		FAT CLAY (CH), trace sand, brown, stiff to very stiff			▽ (23.5)						
				25		18	14-19-10 N=29		3.0 (HP)		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 23.5 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-7

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6924° Longitude: -85.9494° Approximate Surface Elev.: 791 (Ft.) +/- 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
3		**FAT CLAY (CH)**, trace sand, brown, stiff to very stiff *(continued)*									
		30.0 / 761+/-	30			18	4-6-4 N=10		2.0 (HP)		
		Auger Refusal at 30 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 23.5 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-8

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6916° Longitude: -85.9443°

Approximate Surface Elev.: 778 (Ft.) +/-

MODEL LAYER	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
1	0.6	**TOPSOIL(5.0")**	777.5+/-									
2		**SANDY LEAN CLAY (CL)**, brown, soft				X	12	1-1-1-3 N=2		0 (HP)		
	2.5		775.5+/-									
3		**LEAN CLAY WITH SAND (CL)**, brown, stiff				X	18	3-4-5 N=9		1.0 (HP)		
				5		X	18	4-6-8 N=14		2.0 (HP)	24.1	
						X	18	4-4-6 N=10		1.5 (HP)		
				10		X	18	4-5-7 N=12		1.5 (HP)		
				15		X	18	4-5-5 N=10		1.5 (HP)	23.8	
	18.5		759.5+/-		▽							
5		**CLAYEY SAND (SC)**, trace gravel, brown, medium dense		20		X	18	4-5-8 N=13		-		
	23.5		754.5+/-									
2		**LEAN CLAY (CL)**, trace sand, brown, soft, possible karst soil softening		25		X	18	2-2-2 N=4		1.0 (HP)		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 18 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-8

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6916° Longitude: -85.9443°

Approximate Surface Elev.: 778 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY (CL)**, trace sand, brown, soft, possible karst soil softening *(continued)*									
		28.5 — 749.5+/-									
3		**FAT CLAY (CH)**, trace sand, brown, very stiff	30		X	18	4-8-11 N=19		2.5 (HP)		
		33.5 — 744.5+/-									
6		**LIMESTONE**, brown, highly weathered			X	10	19-17-23 N=40		-		
		35.0 — 743+/-	35								
		Auger Refusal at 35 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 18 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-9

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6927° Longitude: -85.9440°

Approximate Surface Elev.: 783 (Ft.) +/-

MODEL LAYER	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
1	0.4	**TOPSOIL(5.0")**	782.5+/-									
2	2.5	**LEAN CLAY WITH SAND (CL)**, brown, soft	780.5+/-			X	12	1-1-2-1 N=3		0.5 (HP)		
3		**SANDY LEAN CLAY (CL)**, trace silt, trace gravel, brown, stiff to very stiff				X	18	4-5-4 N=9		1.0 (HP)		
				5		X	18	4-7-11 N=18		2.0 (HP)		
						X	18	3-4-5 N=9		1.5 (HP)		
						X	18	4-6-7 N=13		1.5 (HP)		
				10	∇ (10.7 ft)							
						X	18	3-4-4 N=8		1.25 (HP)		
				15								
						X	18	4-3-5 N=8		1.5 (HP)	1.0	34-14-20
	23.5		759.5+/-	20								
2		**LEAN CLAY WITH SAND (CL)**, brown, medium stiff, possible karst soil softening				X	16	2-3-3 N=6		1.0 (HP)		
				25								

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 33.5 ft while drilling

Water encountered at 10.7 ft upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-9

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6927° Longitude: -85.9440°

Approximate Surface Elev.: 783 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY WITH SAND (CL)**, brown, medium stiff, possible karst soil softening *(continued)*					18	3-4-3 N=7		1.5 (HP)		
	33.5		749.5+/-	30	▽							
4		**CLAYEY SAND (SC)**, brown, loose, possible karst soil softening		35			4	3-2-2 N=4		-		
				40			18	3-2-2 N=4		-		
	46.5		736.5+/-	45								
6	47.0	**LIMESTONE**, gray, highly weathered	736+/-				0	50/0"		-		
		Auger Refusal at 47 Feet										

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 33.5 ft while drilling*

▽ *Water encountered at 10.7 ft upon completion*

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-02-2022	Boring Completed: 03-02-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-10

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6890° Longitude: -85.9377°

Approximate Surface Elev.: 776 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)
1	0.4	**TOPSOIL(5.0")**	775.5+/-
2	4.5	**SANDY LEAN CLAY (CL)**, trace silt, brown, soft to medium stiff	771.5+/-
3	23.5	**SANDY FAT CLAY (CH)**, trace sand, reddish brown, stiff	752.5+/-
5		**SILTY SAND (SM)**, light brown, medium dense	

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
			12	1-1-2-1 N=3		0.5 (HP)		
			13	2-2-3 N=5		0.5 (HP)		
5			12	3-4-6 N=10		1.5 (HP)	25.6	
			18	5-5-7 N=12		1.5 (HP)		
10			14	3-4-5 N=9		1.5 (HP)	33.6	
15			14	3-4-4 N=8		1.0 (HP)		
20			18	3-4-5 N=9		1.0 (HP)		
25	▽		18	4-4-17 N=21		-		

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water observed at 25 ft while drilling*

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-10

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6890° Longitude: -85.9377°

Approximate Surface Elev.: 776 (Ft.) +/-

MODEL LAYER	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
5		**SILTY SAND (SM)**, light brown, medium dense *(continued)*									
			30		X	0	9-8-7 N=15		-		
		35.0 / 741+/-	35		X	12	6-7-9 N=16		-	0.7	NP
		Auger Refusal at 35 Feet									

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

Hammer Type: Automatic

Advancement Method:
3.25 in HSA

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.

Elevations obtained using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Water observed at 25 ft while drilling

Water not encountered upon completion

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started: 03-01-2022	Boring Completed: 03-01-2022
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-1 Offset

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road, Cecilia, KY

CLIENT: Ulteig Engineers, Inc., Minneapolis, MN

LOCATION See Exploration Plan

Latitude: 37.6770° Longitude: -85.9679°

Approximate Surface Elev.: 732 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY (CL)** 4.0 — 728+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-2 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6831° Longitude: -85.9704° Approximate Surface Elev.: 732 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 728+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 57215113 TELESTO SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 4/8/22

BORING LOG NO. B-5 Offset

PROJECT: Telesto Solar Farm

**SITE: Thomas Cecilia Road
Cecilia, KY**

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6775° Longitude: -85.9523° Approximate Surface Elev.: 737 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 733+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-7 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6854° Longitude: -85.9639° Approximate Surface Elev.: 759 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 755+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-8 Offset

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6833° Longitude: -85.9617° Approximate Surface Elev.: 749 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 745+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-9 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6794° Longitude: -85.9636° Approximate Surface Elev.: 759 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 755+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-10 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6849° Longitude: -85.9577° Approximate Surface Elev.: 745 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 741+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-12 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6799° Longitude: -85.9561° Approximate Surface Elev.: 738 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 — 734+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-14 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6870° Longitude: -85.9528° Approximate Surface Elev.: 759 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 755+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-15 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6844° Longitude: -85.9491°

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

MODEL LAYER	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
2		**LEAN CLAY (CL)**									
		4.0 — 751+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-16 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6890° Longitude: -85.9509° Approximate Surface Elev.: 780 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 — 776+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-19 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6801° Longitude: -85.9513° Approximate Surface Elev.: 743 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 739+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 57215113 TELESTO SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 4/8/22

BORING LOG NO. B-21 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6854° Longitude: -85.9426°

Approximate Surface Elev.: 767 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY (CL)**									
		4.0 763+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 57215113 TELESTO SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 4/8/22

BORING LOG NO. B-22 Offset

PROJECT: Telesto Solar Farm	**CLIENT: Ulteig Engineers, Inc.** **Minneapolis, MN**
SITE: Thomas Cecilia Road **Cecilia, KY**	

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6839° Longitude: -85.9462° Approximate Surface Elev.: 752 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 748+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:	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:
Abandonment Method:		

WATER LEVEL OBSERVATIONS	Terracon 13050 Eastgate Park Way Ste 101 Louisville, KY	Boring Started:	Boring Completed:
		Drill Rig: ATV #651	Driller: J. Williams
		Project No.: 57215113	

BORING LOG NO. B-24 Offset

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6898° Longitude: -85.9387° Approximate Surface Elev.: 782 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 778+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-26 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6858° Longitude: -85.9380° Approximate Surface Elev.: 772 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 768+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-27 Offset

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

LOCATION See Exploration Plan

Latitude: 37.6873° Longitude: -85.9322°

Approximate Surface Elev.: 792 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY (CL)**									
		4.0 788+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. B-30 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

LOCATION See Exploration Plan

Latitude: 37.6923° Longitude: -85.9311°

Approximate Surface Elev.: 814 (Ft.) +/-

MODEL LAYER	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
2		**LEAN CLAY (CL)**									
		4.0 810+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. SB-5 Offset

PROJECT: Telesto Solar Farm

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

SITE: Thomas Cecilia Road
Cecilia, KY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6831° Longitude: -85.9534° Approximate Surface Elev.: 742 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 738+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

BORING LOG NO. THG-8 Offset

PROJECT: Telesto Solar Farm

**CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN**

**SITE: Thomas Cecilia Road
Cecilia, KY**

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 37.6916° Longitude: -85.9443° Approximate Surface Elev.: 778 (Ft.) +/- 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
2		**LEAN CLAY (CL)** 4.0 / 774+/-									
		Boring Terminated at 4 Feet									

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

Hammer Type: Automatic

Advancement Method:

Abandonment Method:

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

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

Boring Started:	Boring Completed:
Drill Rig: ATV #651	Driller: J. Williams
Project No.: 57215113	

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Telesto Solar Farm ■ Cecilia, KY

Terracon Project No. 57215113

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Rock Core Grab Sample 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 is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no ctual 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			BEDROCK	
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.**	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1	< 20	Weathered
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4	20 - 29	Firm
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8	30 - 49	Medium Hard
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15	50 - 79	Hard
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30	>79	Very Hard
		Hard	> 4.00	> 30		

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES	
Descriptive Term(s) of other constituents	Percent of Dry Weight	**Descriptive Term(s) of other constituents**	**Percent of Dry Weight**
Trace	<15	Trace	<5
With	15-29	With	5-12
Modifier	>30	Modifier	>12

GRAIN SIZE TERMINOLOGY		PLASTICITY DESCRIPTION	
Major Component of Sample	**Particle Size**	**Term**	**Plasticity Index**
Boulders	Over 12 in. (300 mm)	Non-plastic	0
Cobbles	12 in. to 3 in. (300mm to 75mm)	Low	1 - 10
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)	Medium	11 - 30
Sand	#4 to #200 sieve (4.75mm to 0.075mm	High	> 30
Silt or Clay	Passing #200 sieve (0.075mm)		

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	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 $1 > Cc > 3$ [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 $1 > Cc > 3$ [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:	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 $\geq$ 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.

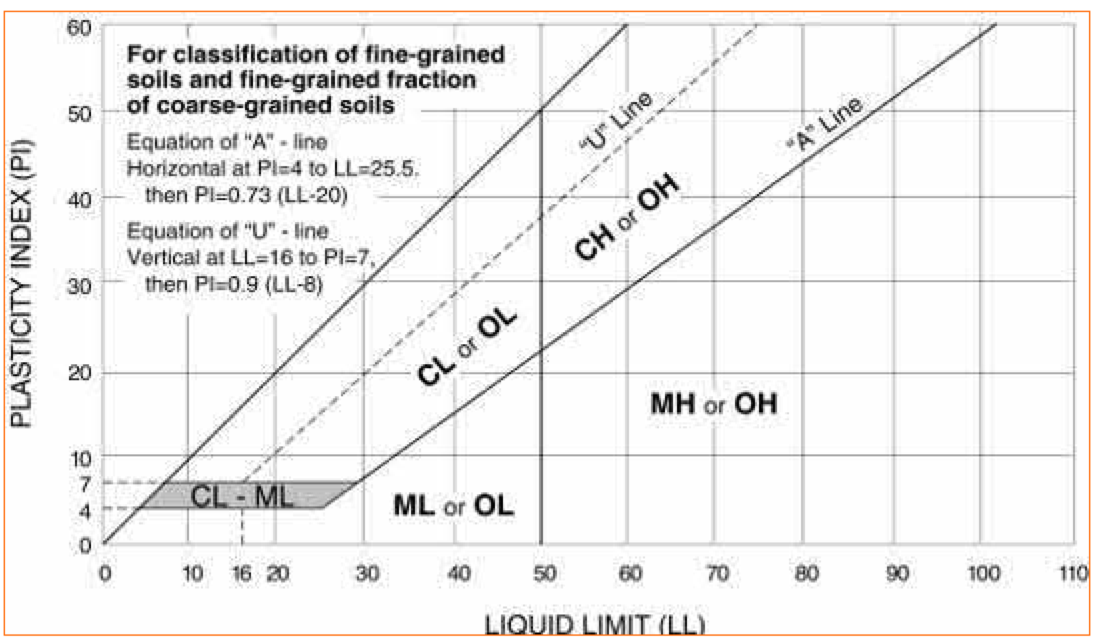
[M] If soil contains $\geq$ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[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.



DESCRIPTION OF ROCK PROPERTIES

Terracon GeoReport

WEATHERING

Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" not discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)

Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding, and Foliation Spacing in Rock [a]		
Spacing	**Joints**	**Bedding/Foliation**
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

a. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.

Rock Quality Designator (RQD) a	
RQD, as a percentage	**Diagnostic description**
Exceeding 90	Excellent
90 – 75	Good
75 – 50	Fair
50 – 25	Poor
Less than 25	Very poor

a. RQD (given as a percentage) = length of core in pieces 4 in. and longer/length of run.

Joint Openness Descriptors	
Openness	**Descriptor**
No Visible Separation	Tight
Less than 1/32 in.	Slightly Open
1/32 to 1/8 in.	Moderately Open
1/8 to 3/8 in.	Open
3/8 in. to 0.1 ft.	Moderately Wide
Greater than 0.1 ft.	Wide

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976. U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

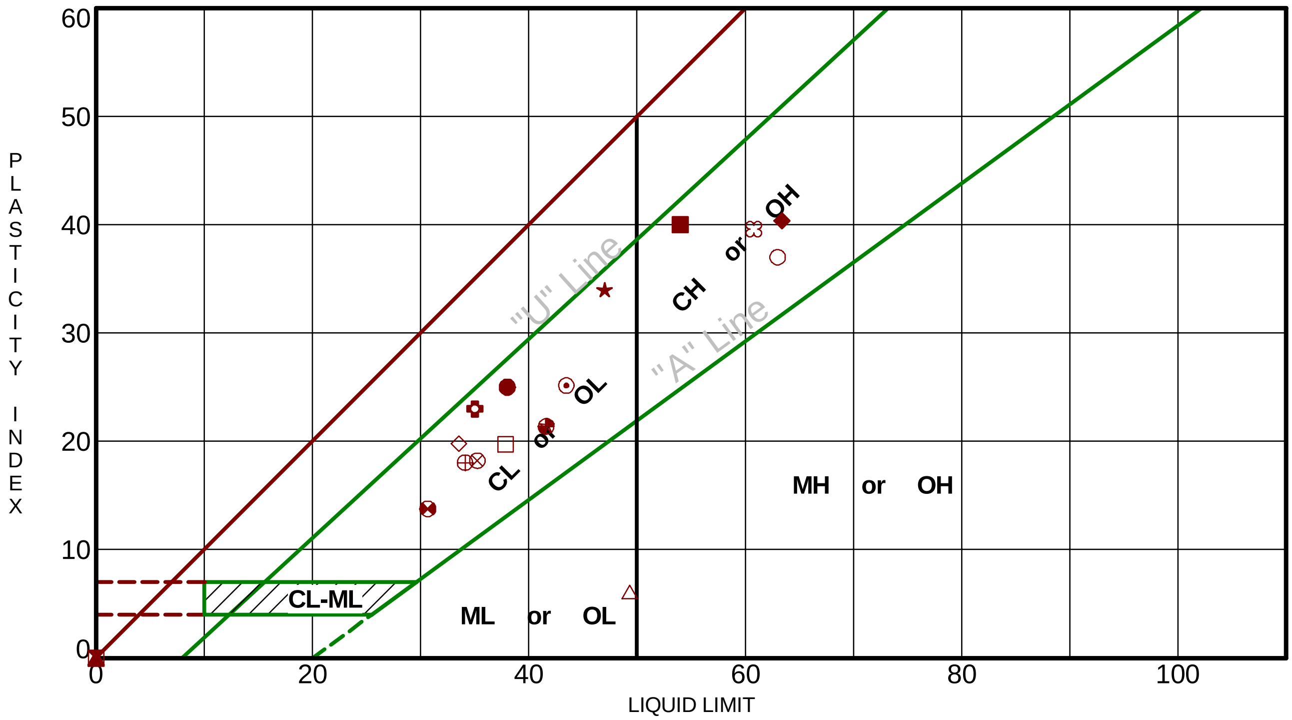
APPENDIX B – LABORATORY TESTING

Contents:

Note: All attachments are one page unless noted above.

ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	6.5 - 8	38	13	25	75.0	CL	LEAN CLAY with SAND
⧗	B-4-THG2	13.5 - 15	NP	NP	NP	32.9	SM	SILTY SAND
▲	B-5	18.5 - 20	NP	NP	NP	21.4	SM	SILTY SAND
★	SB-5	23.5	47	13	34	66.1	CL	SANDY LEAN CLAY
⊙	B-6	2.5 - 4	43	18	25	80.0	CL	LEAN CLAY with SAND
✿	B-8	18.5 - 20	35	12	23	46.2	SC	CLAYEY SAND
○	B-12	13.5 - 15	63	26	37	87.3	CH	FAT CLAY
△	B-14	18.5 - 20	49	43	6	77.6	ML	SILT with GRAVEL
⊗	B-15	4.5 - 6	35	17	18	74.5	CL	LEAN CLAY with SAND
⊕	B-17	2.5 - 4	34	16	18	50.3	CL	SANDY LEAN CLAY
□	B-20	8.5 - 10	38	18	20	42.6	SC	CLAYEY SAND
⊗	B-22	6.5 - 8	31	17	14	54.7	CL	SANDY LEAN CLAY
◕	B-25	8.5 - 10	42	20	22	60.2	CL	SANDY LEAN CLAY
☆	B-27	2.5 - 4	42	20	22	52.8	CL	SANDY LEAN CLAY
✤	B-30-THG12	23.5 - 25	61	21	40	85.2	CH	FAT CLAY
■	THG-6	18.5 - 20	54	14	40	59.2	CH	SANDY FAT CLAY
◆	THG-7	8.5 - 10	63	23	40	78.0	CH	FAT CLAY with SAND
◇	THG-9	18.5 - 20	34	14	20	54.0	CL	SANDY LEAN CLAY
×	THG-10	33.5 - 35	NP	NP	NP	17.9	SM	SILTY SAND

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

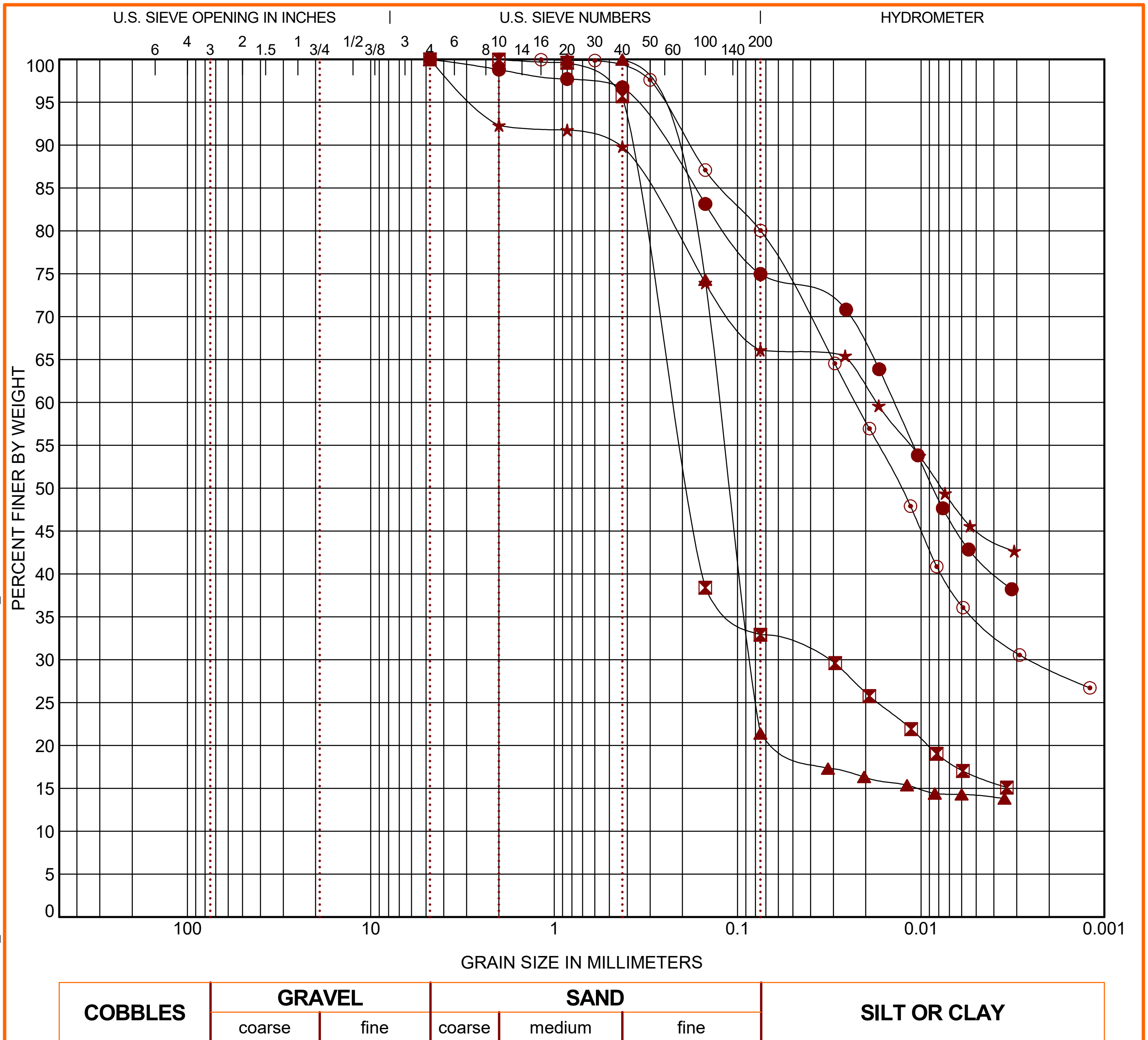
Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



	Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-1	6.5 - 8	LEAN CLAY with SAND (CL)	21.0	38	13	25		
⊠	B-4-THG2	13.5 - 15	SILTY SAND (SM)	24.0	NP	NP	NP		
▲	B-5	18.5 - 20	SILTY SAND (SM)	22.0	NP	NP	NP		
★	SB-5	23.5	SANDY LEAN CLAY (CL)		47	13	34		
⊙	B-6	2.5 - 4	LEAN CLAY with SAND (CL)	17.7	43	18	25		

	Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-1	6.5 - 8	0.254	0.009			0.0	25.0	32.9		42.0
⊠	B-4-THG2	13.5 - 15	0.383	0.185	0.033		0.0	67.1	16.5		16.4
▲	B-5	18.5 - 20	0.284	0.109	0.084		0.0	78.6	7.3		14.1
★	B-5	23.5	0.451	0.008			0.0	33.9	20.9		45.2
⊙	B-6	2.5 - 4	0.182	0.013	0.003		0.0	20.0	45.3		34.8

PROJECT: Telesto Solar Farm

PROJECT NUMBER: 57215113

SITE: Thomas Cecilia Road
Cecilia, KY

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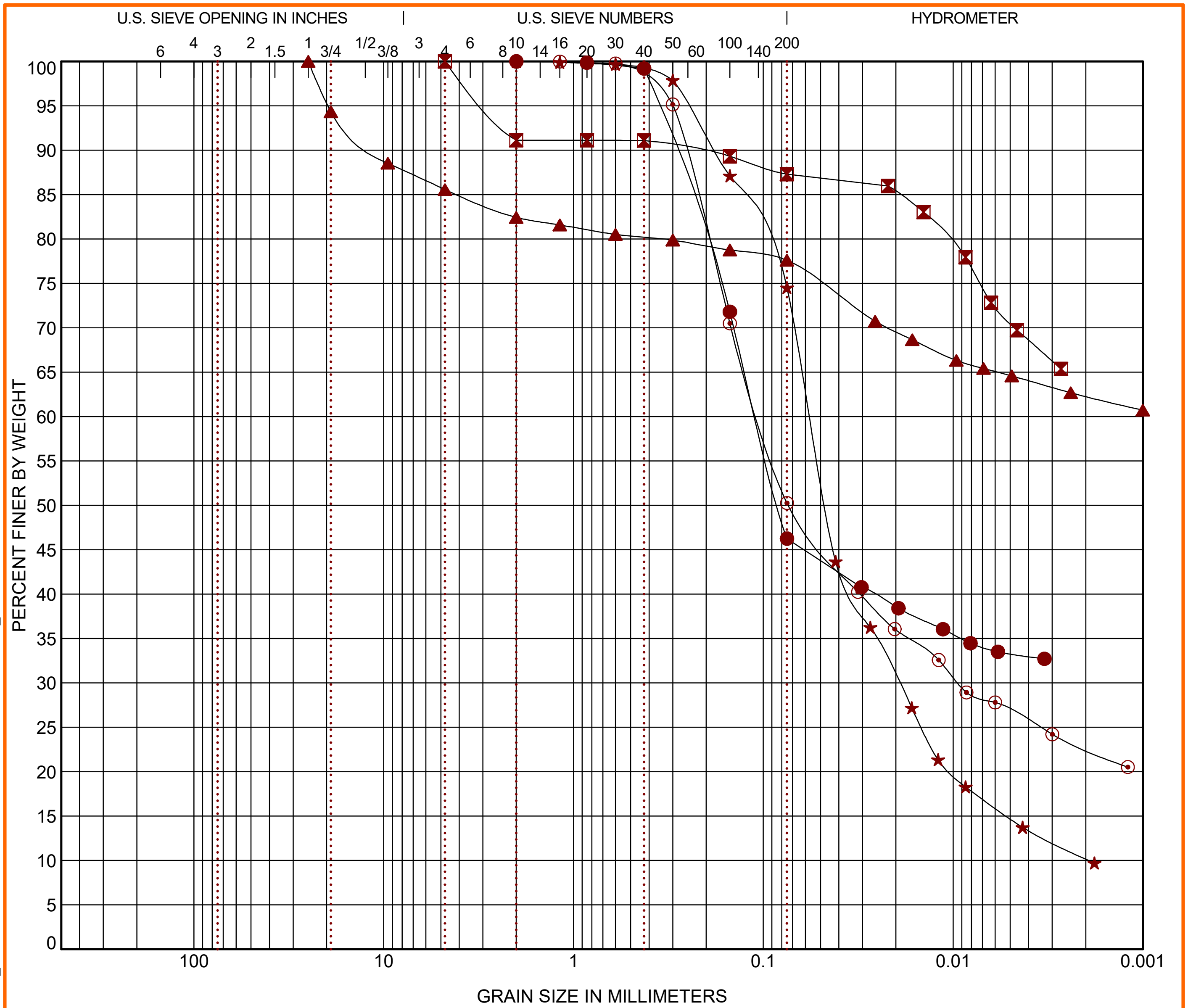
CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-8	18.5 - 20	CLAYEY SAND (SC)	21.0	35	12	23		
⧗	B-12	13.5 - 15	FAT CLAY (CH)	35.0	63	26	37		
▲	B-14	18.5 - 20	SILT with GRAVEL (ML)		49	43	6		
★	B-15	4.5 - 6	LEAN CLAY with SAND (CL)	19.5	35	17	18	3.41	29.62
⊙	B-17	2.5 - 4	SANDY LEAN CLAY (CL)		34	16	18		

	Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-8	18.5 - 20	0.3	0.083			0.0	53.8	13.0		33.3
⧗	B-12	13.5 - 15	0.225				0.0	12.7	16.7		70.6
▲	B-14	18.5 - 20	11.33				14.4	8.0	13.0		64.6
★	B-15	4.5 - 6	0.181	0.047	0.019	0.002	0.0	25.5	59.8		14.7
⊙	B-17	2.5 - 4	0.26	0.073	0.009		0.0	49.7	23.4		26.8

PROJECT: Telesto Solar Farm

PROJECT NUMBER: 57215113

SITE: Thomas Cecilia Road
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13050 Eastgate Park Way Ste 101
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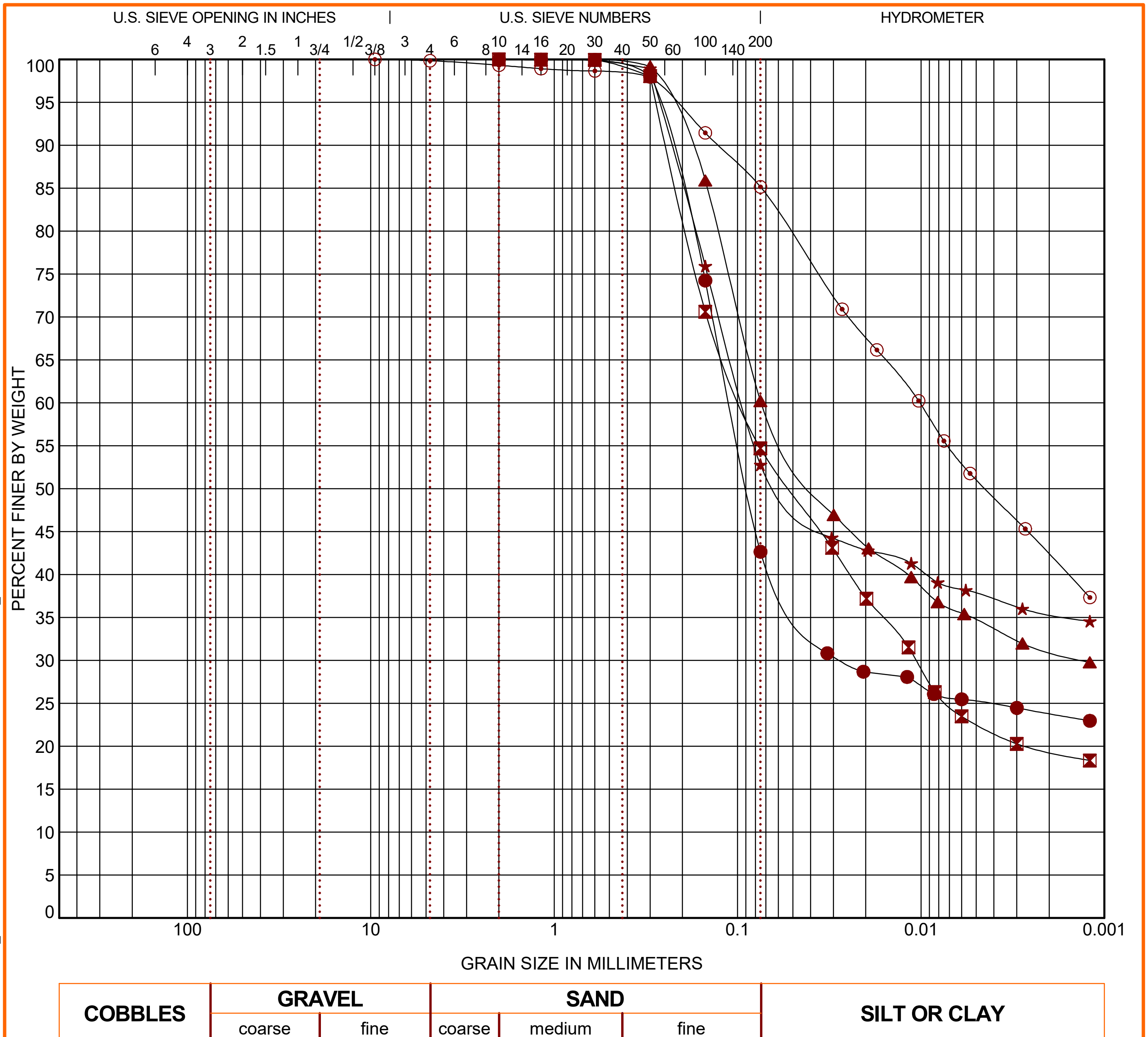
CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-20	8.5 - 10	CLAYEY SAND (SC)	19.4	38	18	20		
⊠ B-22	6.5 - 8	SANDY LEAN CLAY (CL)		31	17	14		
▲ B-25	8.5 - 10	SANDY LEAN CLAY (CL)	20.3	42	20	22		
★ B-27	2.5 - 4	SANDY LEAN CLAY (CL)	21.5	42	20	22		
⊙ B-30-THG12	23.5 - 25	FAT CLAY (CH)		61	21	40		

Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-20	8.5 - 10	0.237	0.088	0.027		0.0	57.4	17.4		25.2
⊠ B-22	6.5 - 8	0.245	0.052	0.011		0.0	45.3	32.1		22.6
▲ B-25	8.5 - 10	0.186	0.037	0.001		0.0	39.8	25.5		34.7
★ B-27	2.5 - 4	0.229	0.056			0.0	47.2	15.0		37.8
⊙ B-30-THG12	23.5 - 25	0.128	0.004			0.2	14.7	34.1		51.1

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
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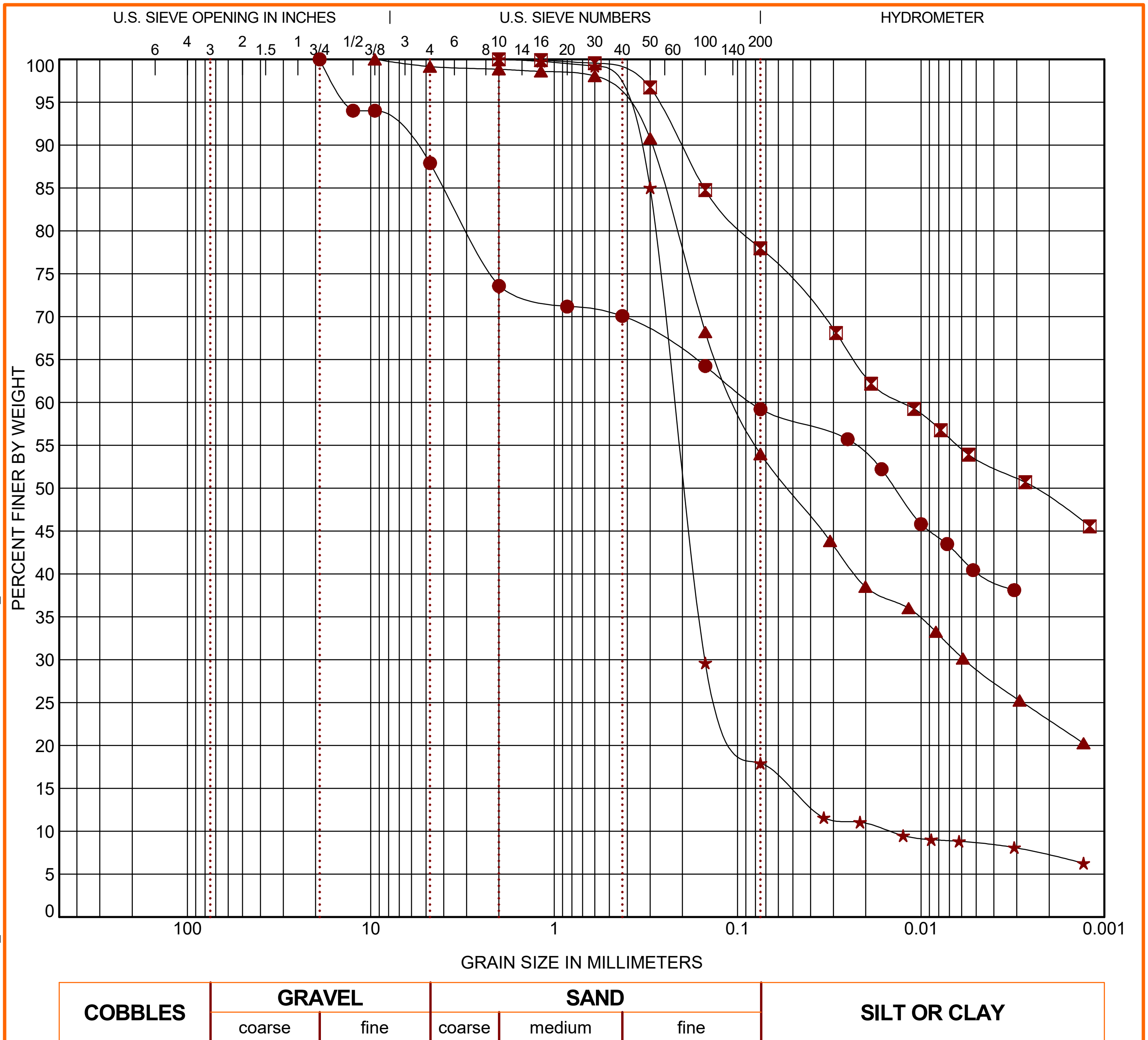
CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



	Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	THG-6	18.5 - 20	SANDY FAT CLAY (CH)	27.0	54	14	40		
⊠	THG-7	8.5 - 10	FAT CLAY with SAND (CH)		63	23	40		
▲	THG-9	18.5 - 20	SANDY LEAN CLAY (CL)		34	14	20		
★	THG-10	33.5 - 35	SILTY SAND (SM)		NP	NP	NP	6.94	14.70

	Boring ID	Depth	D_{90}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	THG-6	18.5 - 20	6.026	0.014			12.1	28.7	18.9		40.3
⊠	THG-7	8.5 - 10	0.203	0.002			0.0	22.0	24.5		53.5
▲	THG-9	18.5 - 20	0.293	0.053	0.006		0.8	45.2	25.0		29.0
★	THG-10	33.5 - 35	0.383	0.194	0.151	0.015	0.0	82.1	9.3		8.6

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

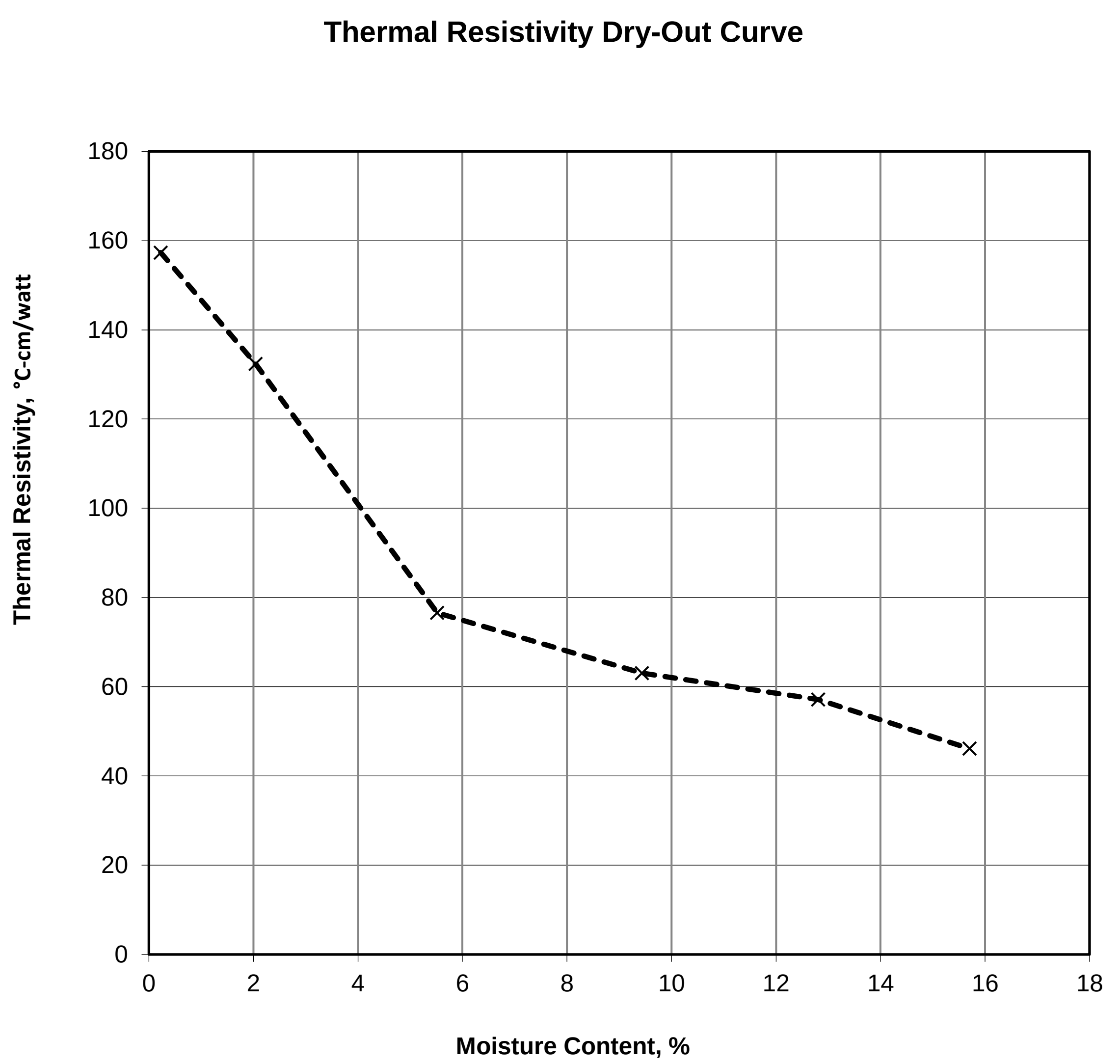
Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-1 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 108.2
Optimum Moisture Content, %: 16.3
Target % Compaction: 90
Sample Dry Density, pcf: 97
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	**Thermal Resistivity (°C-cm/watt)**	**Temperature (°C)**
0.2	157	25.1
2.0	132	26.1
5.5	77	23.8
9.4	63	25.4
12.8	57	23.7
15.7	46	24.7

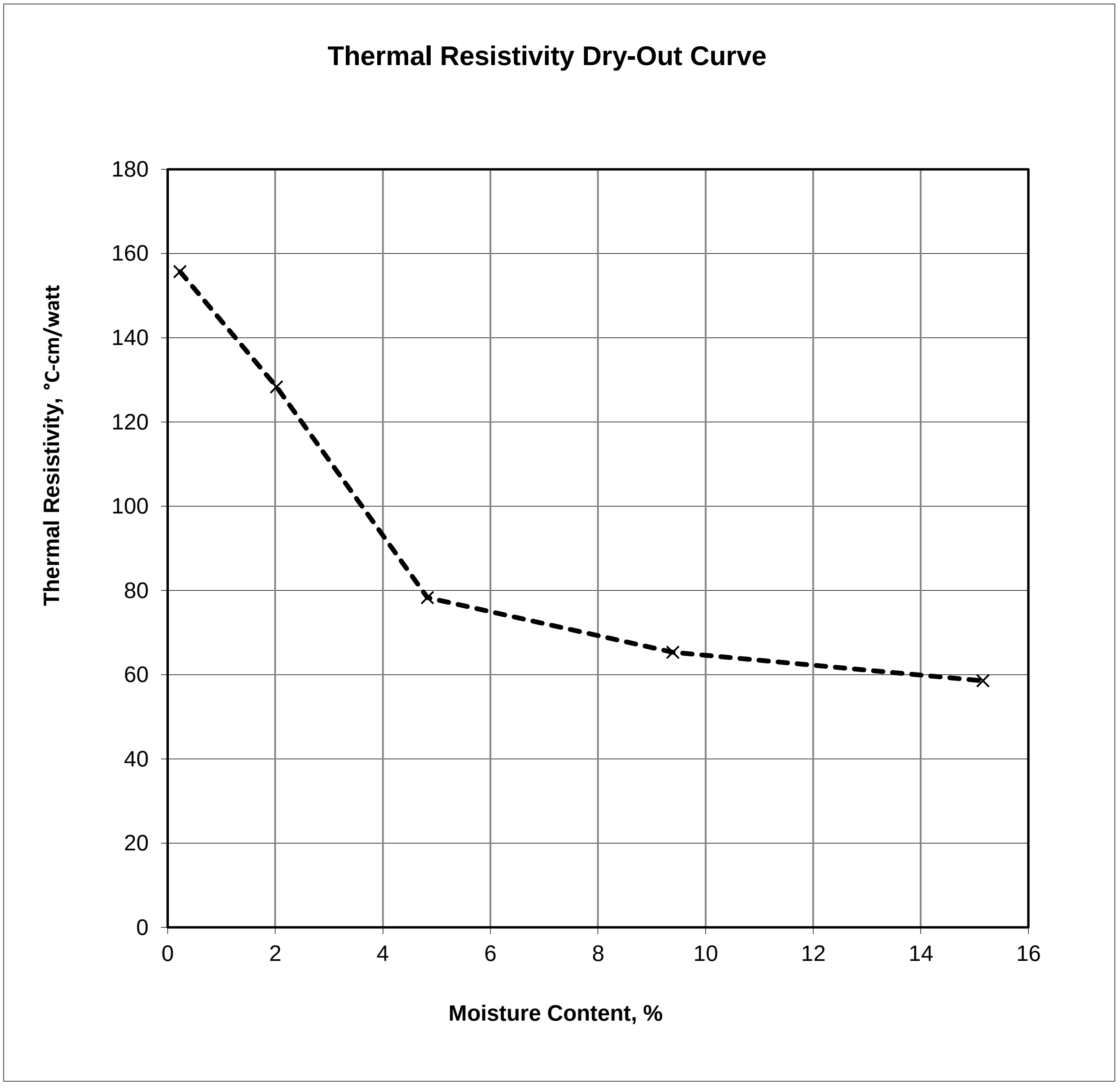


Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-5 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 110.1
Optimum Moisture Content, %: 15.0
Target % Compaction: 90
Sample Dry Density, pcf: 99
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	Thermal Resistivity (˚C-cm/watt)	Temperature (°C)
0.2	156	25.2
2.0	128	25.5
4.8	78	24.4
9.4	65	25.4
15.2	59	23.5



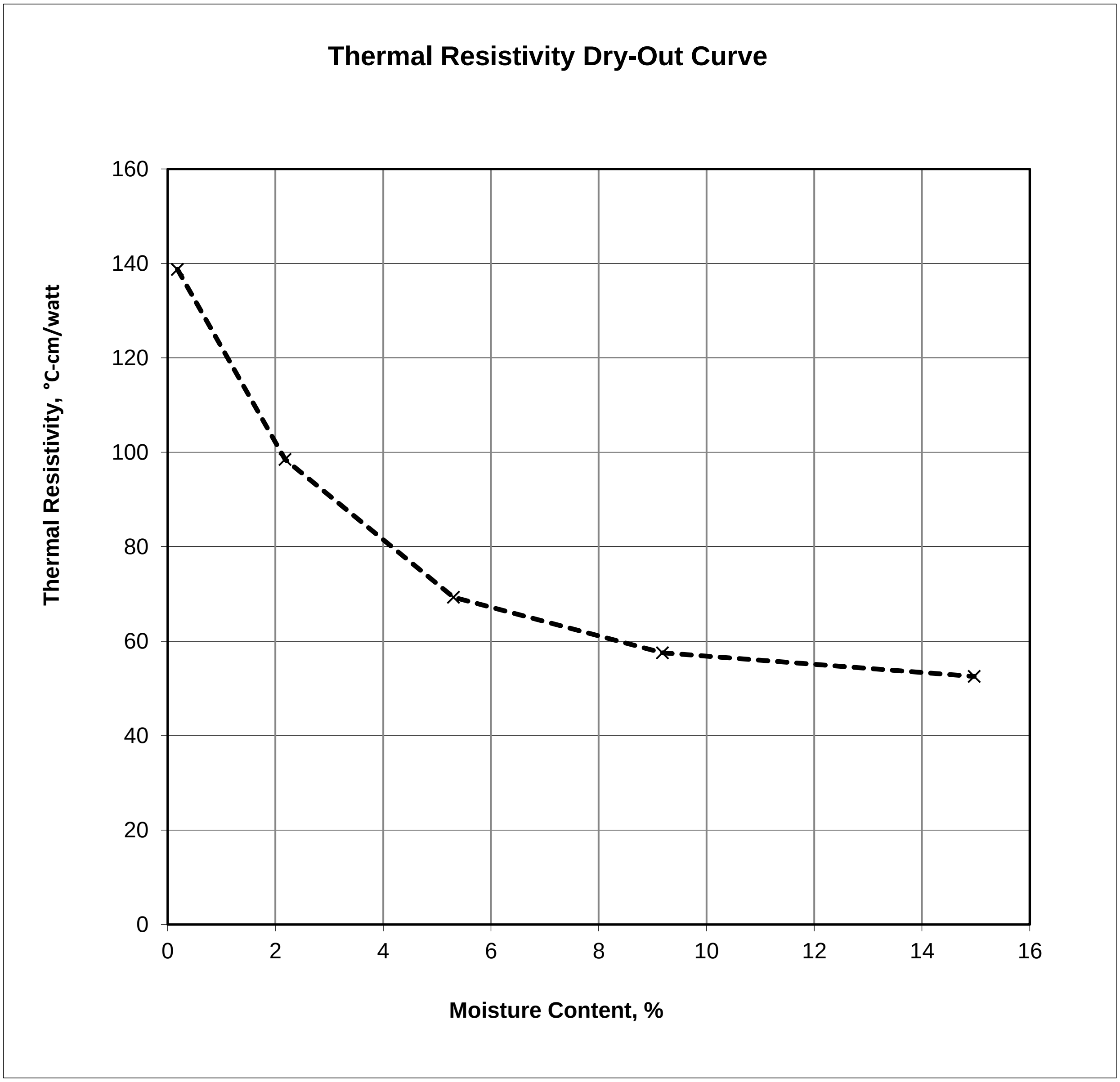
Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-7 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 112.3
Optimum Moisture Content, %: 13.4
Target % Compaction: 90
Sample Dry Density, pcf: 101
Sample % Compaction: 90

Thermal Resistivity Test Results

Moisture Content (%)	Thermal Resistivity (°C-cm/watt)	Temperature (°C)
0.2	139	24.7
2.2	98	24.1
5.3	69	24.0
9.2	58	24.8
15.0	53	22.4

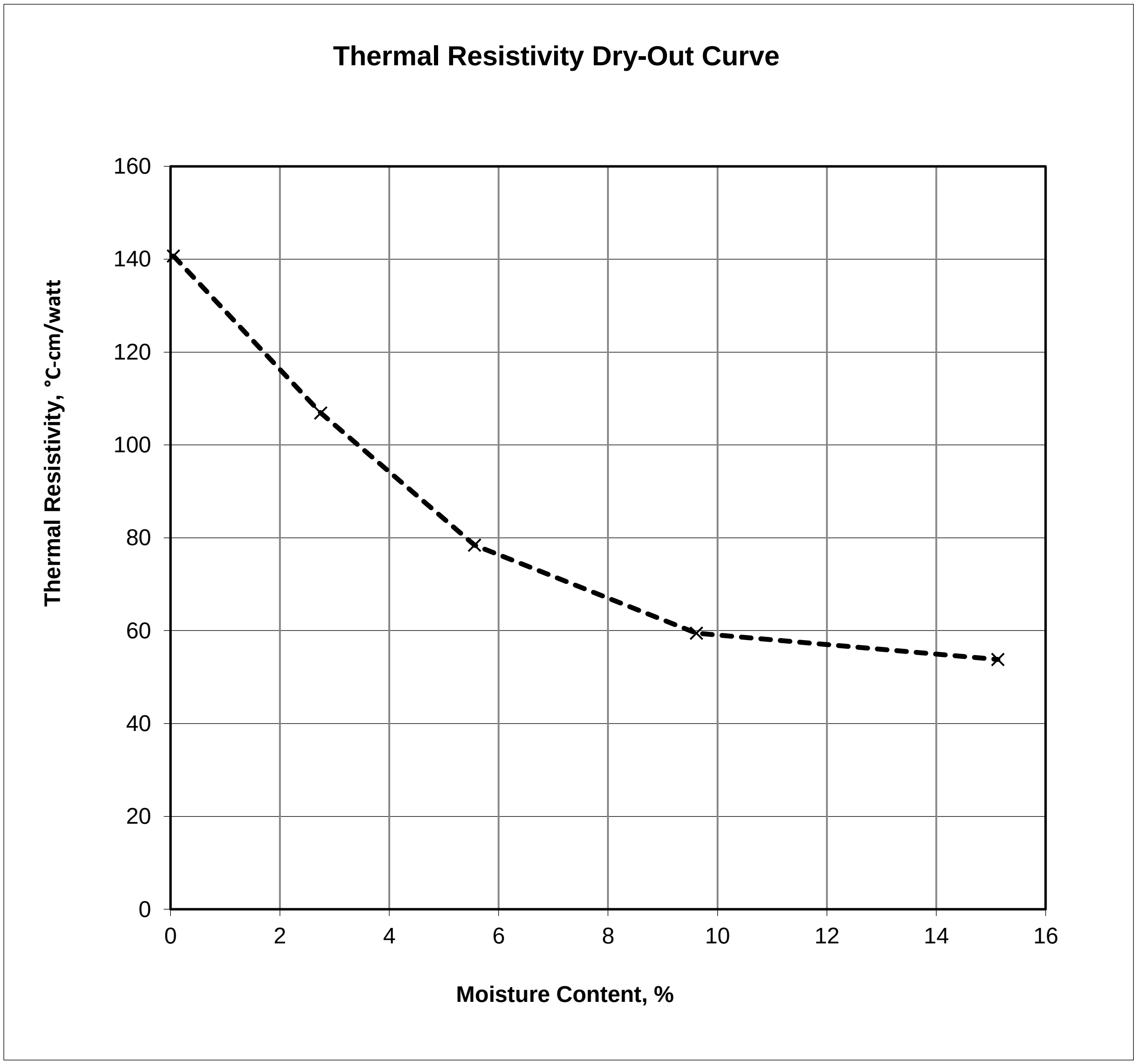


Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-14 / 2.0'-4.0'
Soil Type: SANDY LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 110.9
Optimum Moisture Content, %: 14.2
Target % Compaction: 90
Sample Dry Density, pcf: 100
Sample % Compaction: 90
As-received Moisture Content, %: 0

Thermal Resistivity Test Results		
Moisture Content (%)	**Thermal Resistivity (˚C-cm/watt)**	**Temperature (°C)**
0.1	141	24.4
2.7	107	23.3
5.6	78	23.4
9.6	59	22.5
15.1	54	20.6

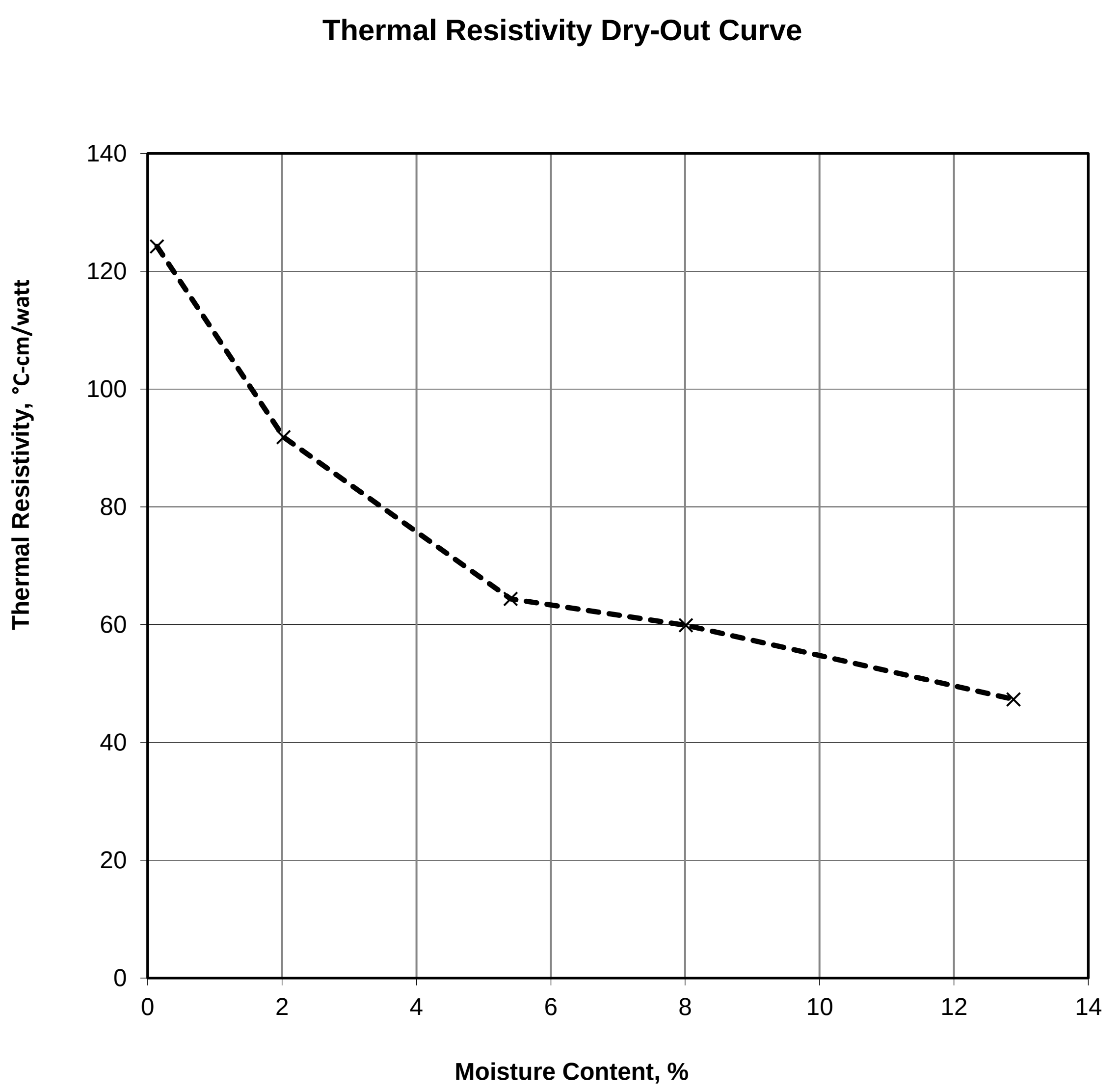


Date: 4/11/2022	Run By: RS	Reviewed By: RB

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-21 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 115.2
Optimum Moisture Content, %: 11.7
Target % Compaction: 90
Sample Dry Density, pcf: 104
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	Thermal Resistivity (°C-cm/watt)	Temperature (°C)
0.1	124	25.4
2.0	92	24.3
5.4	64	22.9
8.0	60	23.4
12.9	47	22.2

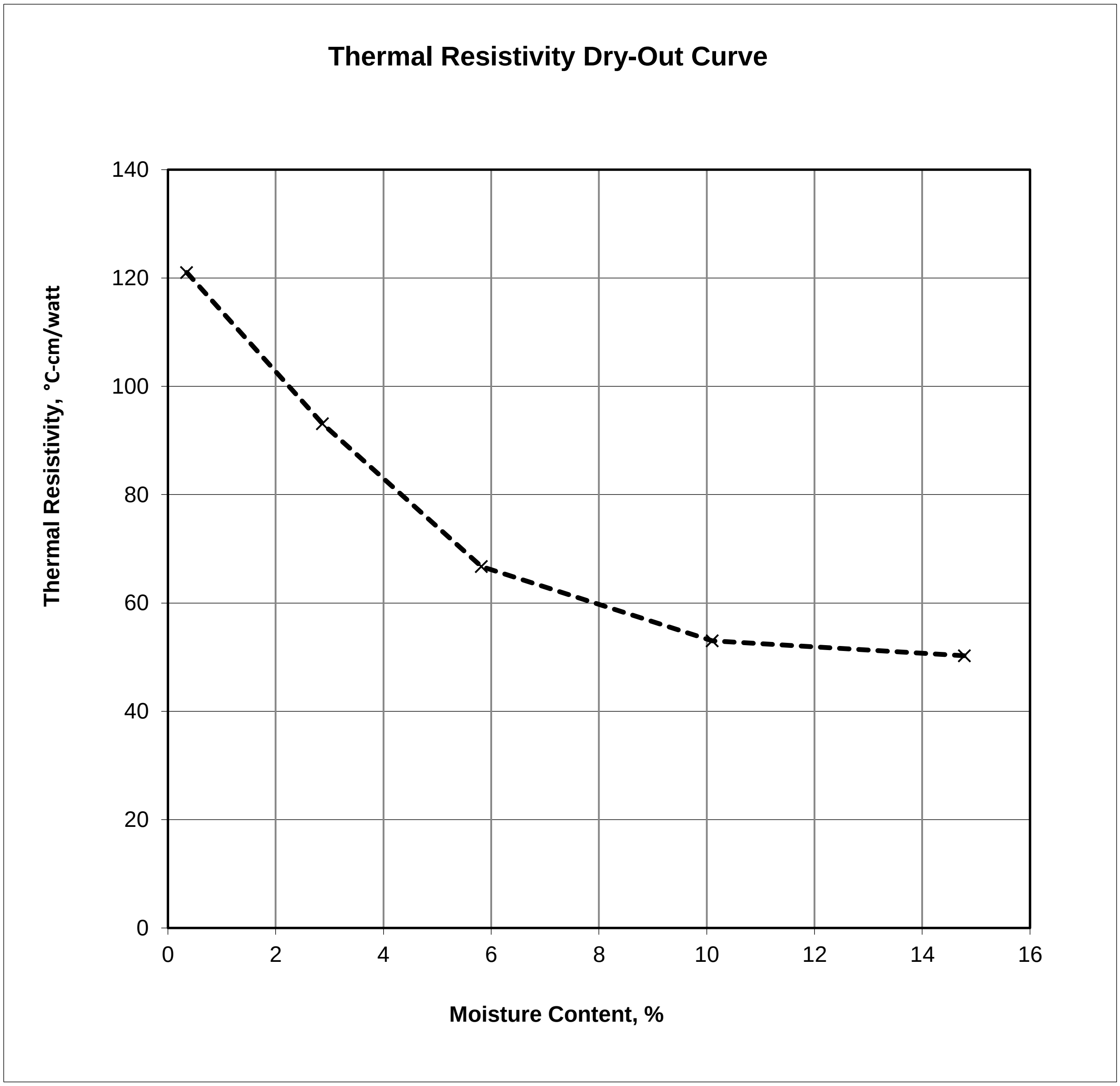


Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-26 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 114.2
Optimum Moisture Content, %: 13.7
Target % Compaction: 90
Sample Dry Density, pcf: 103
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	**Thermal Resistivity (˚C-cm/watt)**	**Temperature (°C)**
0.3	121	23.9
2.9	93	22.5
5.8	67	23.5
10.1	53	23.8
14.8	50	21.6

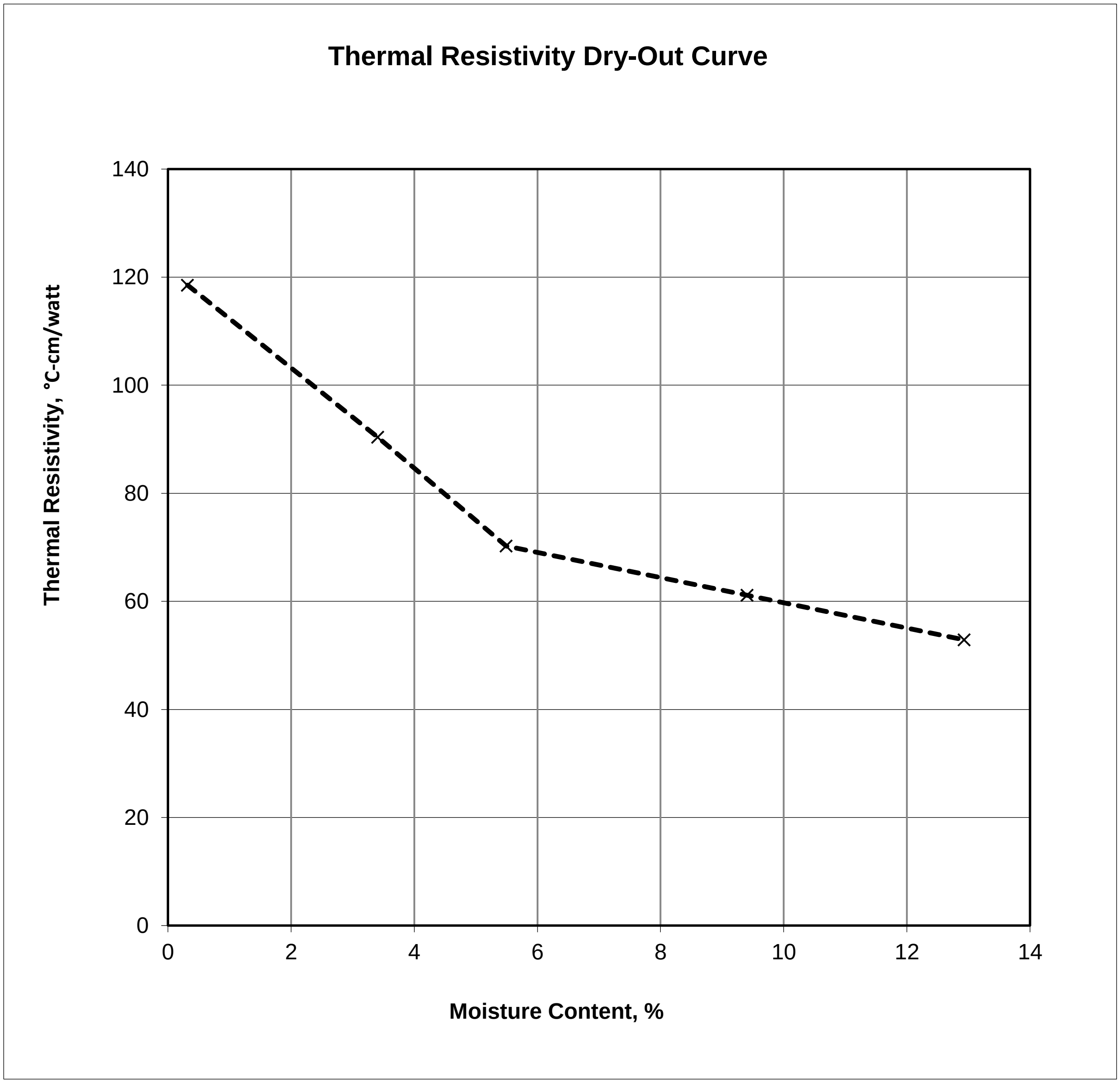


Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: B-30 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 114.0
Optimum Moisture Content, %: 12.2
Target % Compaction: 90
Sample Dry Density, pcf: 102
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	Thermal Resistivity (°C-cm/watt)	Temperature (°C)
0.3	119	24.4
3.4	90	23.7
5.5	70	23.1
9.4	61	23.2
12.9	53	21.6

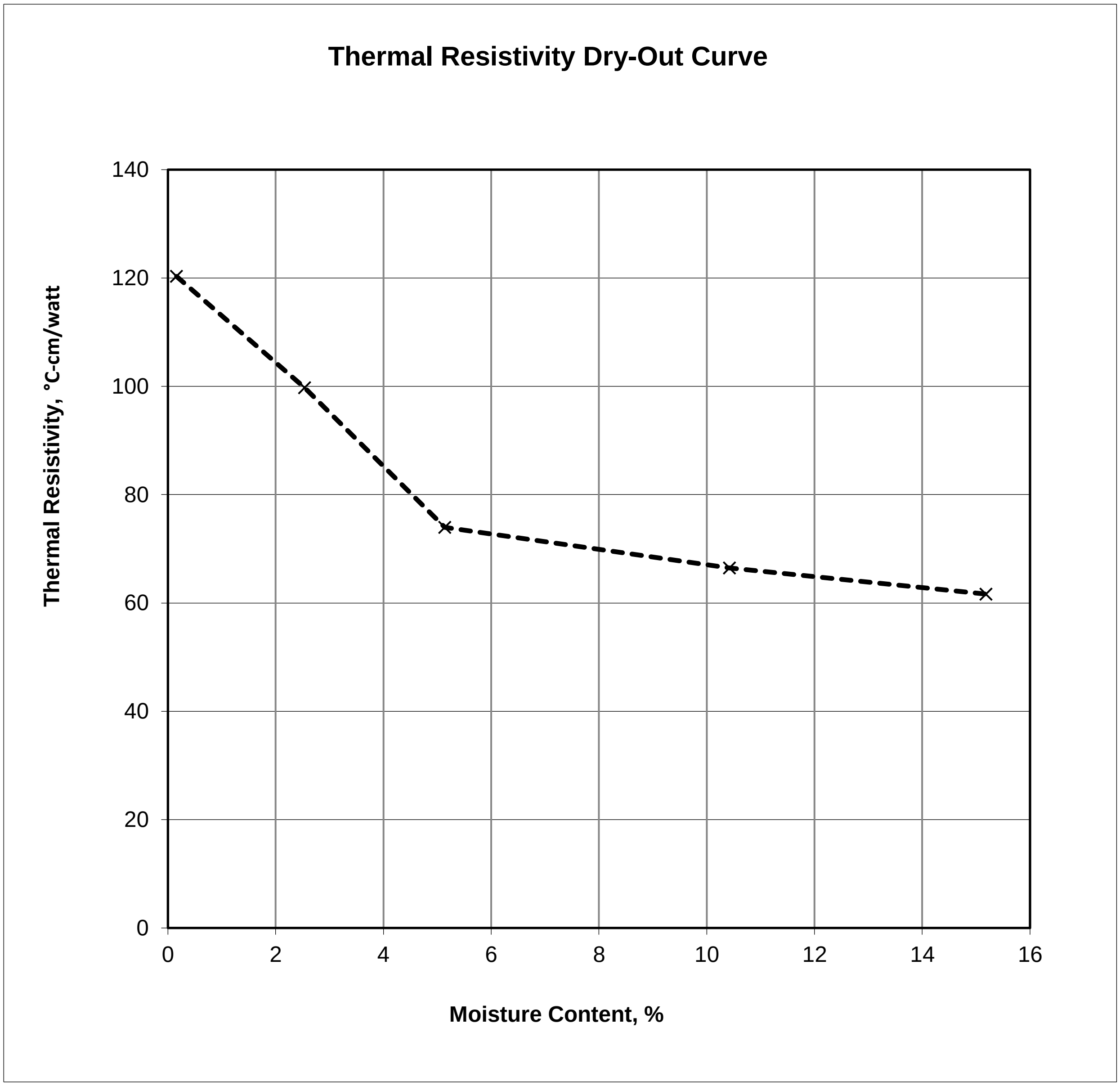


Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

Project Name: Telesto Solar
Project Number: 57215113
Sample ID: SB-5 / 2.0'-4.0'
Soil Type: LEAN CLAY
Standard/Modified Proctor: ASTM D 698-C
Max Dry Density, pcf: 110.2
Optimum Moisture Content, %: 15.0
Target % Compaction: 90
Sample Dry Density, pcf: 99
Sample % Compaction: 90

Thermal Resistivity Test Results		
Moisture Content (%)	Thermal Resistivity (°C-cm/watt)	Temperature (°C)
0.2	120	25.5
2.5	100	24.8
5.1	74	25.0
10.4	66	24.4
15.2	62	23.8



Date: 3/30/2022	Run By: RS	Reviewed By: BWP

Terracon

CHEMICAL LABORATORY TEST REPORT

Project Number: 57215113
Service Date: 03/15/22
Report Date: 03/16/22

Terracon
10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Ulteig Engineers, Inc
5201 E River Rd Ste 308
Minneapolis, MN 55421-3744

Project

Telesto Solar Farm
Thomas Cecilia Road
Cecilia, KY

Sample Location	B-8	B-10	B-15	B-16	B-21	B-22	B-24	B-26
Sample Depth (ft.)	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
pH Analysis, ASTM - G51-18	7.0	7.3	7.3	7.4	7.2	7.3	7.4	6.8
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	96	15	31	45	27	24	29	15
Sulfides, ASTM - D4658-15, (mg/kg)	nil	nil	nil	nil	nil	nil	nil	nil
Chlorides, ASTM D 512 , (mg/kg)	50	38	44	31	38	25	44	44
RedOx, ASTM D-1498, (mV)	+575	+635	+641	+638	+604	+646	+574	+653
Total Salts, ASTM D1125-14, (mg/kg)	209	58	75	81	70	54	79	62
Resistivity, ASTM G187, (ohm-cm)	15,488	16,520	17,553	5,782	15,488	25,813	10,325	16,520

Analyzed By: Zach Robertson

Zach Robertson
Engineering Technician III

CHEMICAL LABORATORY TEST REPORT

Project Number: 57215113
Service Date: 03/15/22
Report Date: 03/16/22

Terracon
10400 State Highway 191
Midland, Texas 79707
432-684-9600

Client

Ulteig Engineers, Inc
5201 E River Rd Ste 308
Minneapolis, MN 55421-3744

Project

Telesto Solar Farm
Thomas Cecilia Road
Cecilia, KY

Sample Location	B-27	B-30-THG12	SB-5
Sample Depth (ft.)	2-4	2-4	2-4
pH Analysis, ASTM - G51-18	6.8	7.1	7.2
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	44	53	58
Sulfides, ASTM - D4658-15, (mg/kg)	nil	nil	nil
Chlorides, ASTM D 512 , (mg/kg)	31	25	25
RedOx, ASTM D-1498, (mV)	+654	+556	+536
Total Salts, ASTM D1125-14, (mg/kg)	81	164	304
Resistivity, ASTM G187, (ohm-cm)	15,488	10,325	5,782

Analyzed By: Zach Robertson

Zach Robertson
Engineering Technician III

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557

Source of Material: **B-1 Offset @ 0 - 4 feet**

Description of Material: Lean Clay with Sand (CL)

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

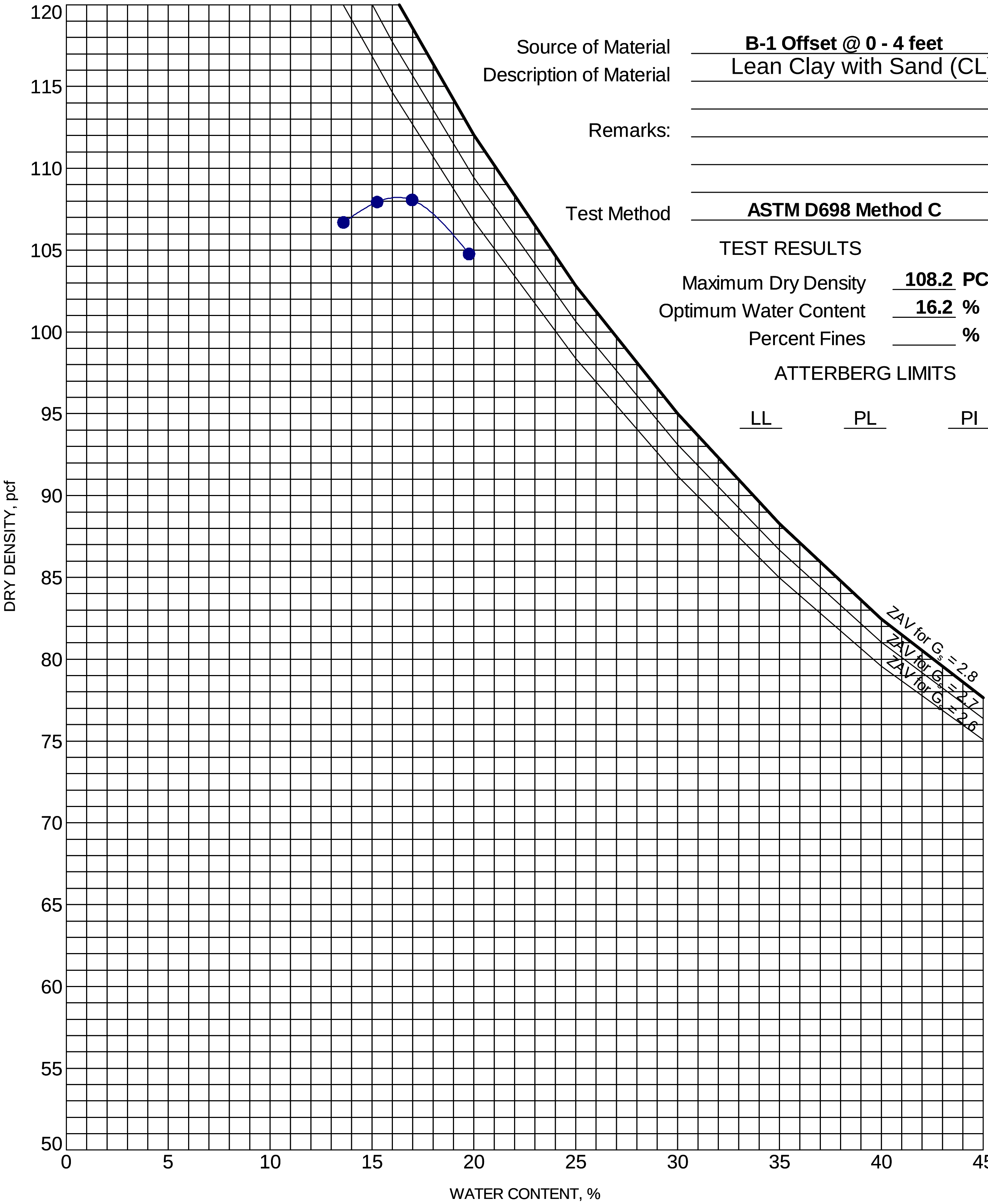
Maximum Dry Density **108.2** **PCF**

Optimum Water Content **16.2** **%**

Percent Fines **%**

ATTERBERG LIMITS

LL	PL	PI



PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

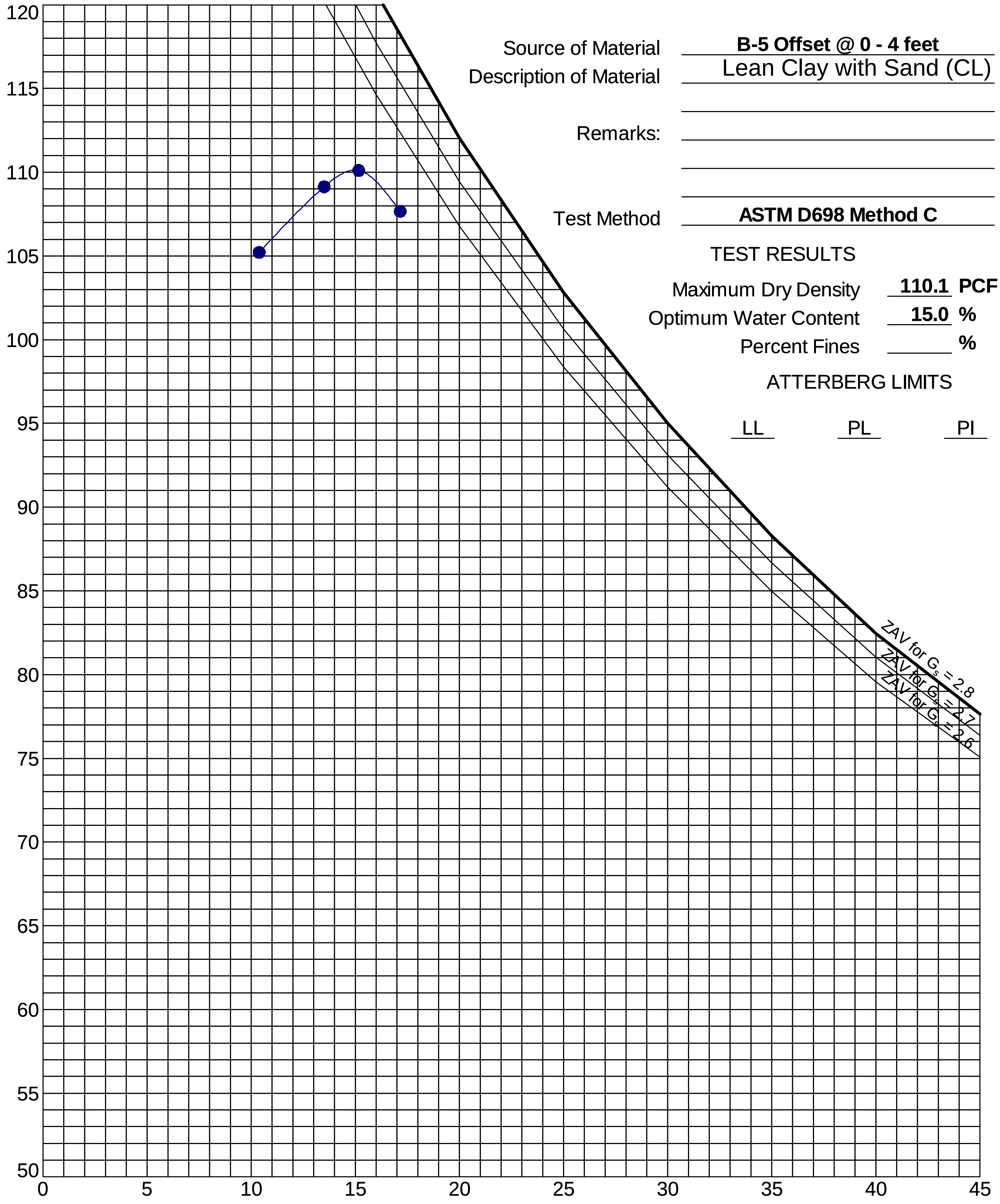
Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-5 Offset @ 0 - 4 feet**

Description of Material: Lean Clay with Sand (CL)

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **110.1 PCF**

Optimum Water Content **15.0 %**

Percent Fines %

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

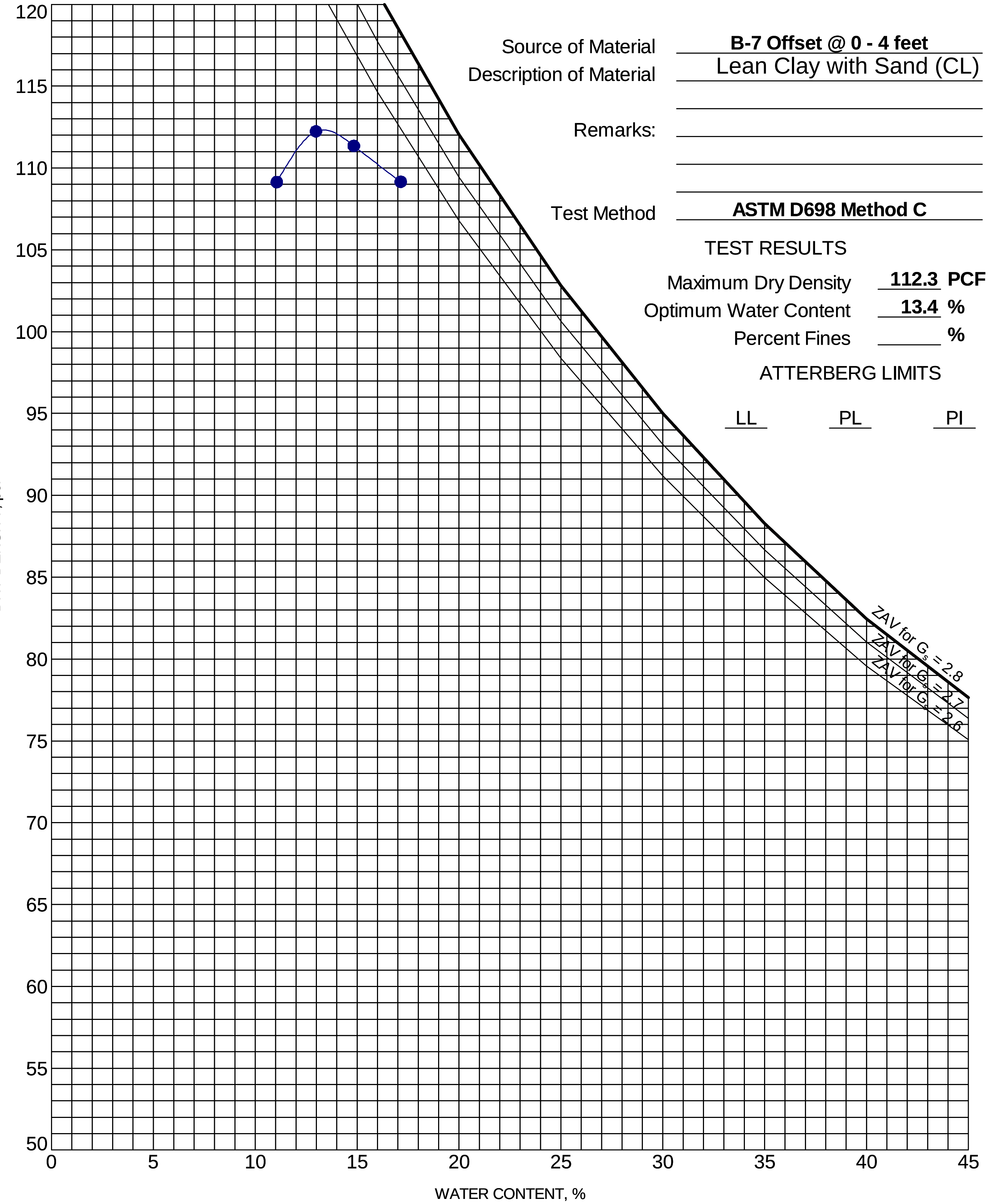
Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-7 Offset @ 0 - 4 feet**

Description of Material Lean Clay with Sand (CL)

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **112.3 PCF**

Optimum Water Content **13.4 %**

Percent Fines **%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

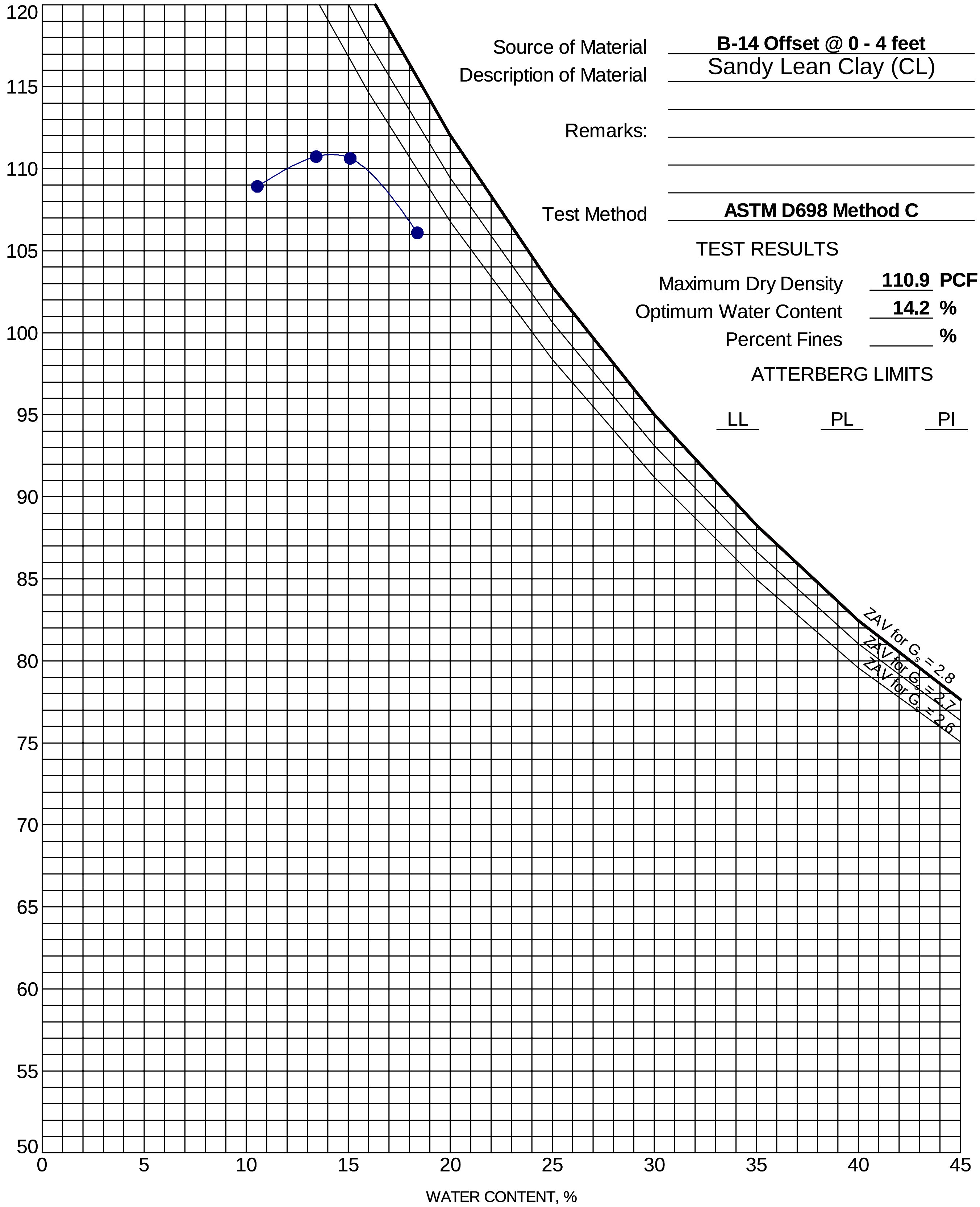
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-14 Offset @ 0 - 4 feet**

Description of Material: Sandy Lean Clay (CL)

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **110.9 PCF**

Optimum Water Content **14.2 %**

Percent Fines %

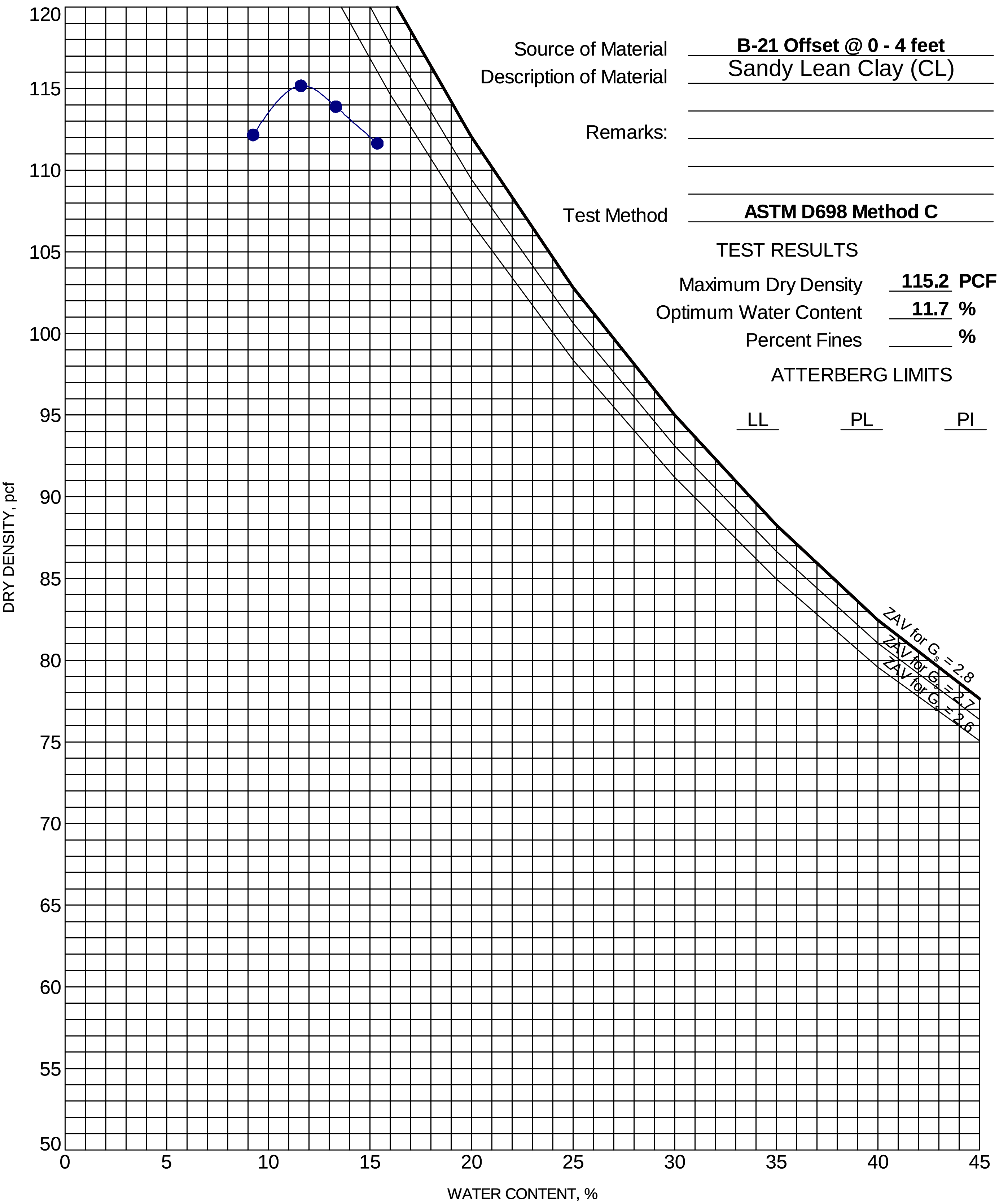
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm	Terracon 13050 Eastgate Park Way Ste 101 Louisville, KY	PROJECT NUMBER: 57215113
SITE: Thomas Cecilia Road Cecilia, KY		CLIENT: Ulteig Engineers, Inc. Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-21 Offset @ 0 - 4 feet**
Description of Material	Sandy Lean Clay (CL)
Remarks:	
Test Method	**ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density	**115.2**	**PCF**
Optimum Water Content	**11.7**	**%**
Percent Fines		**%**

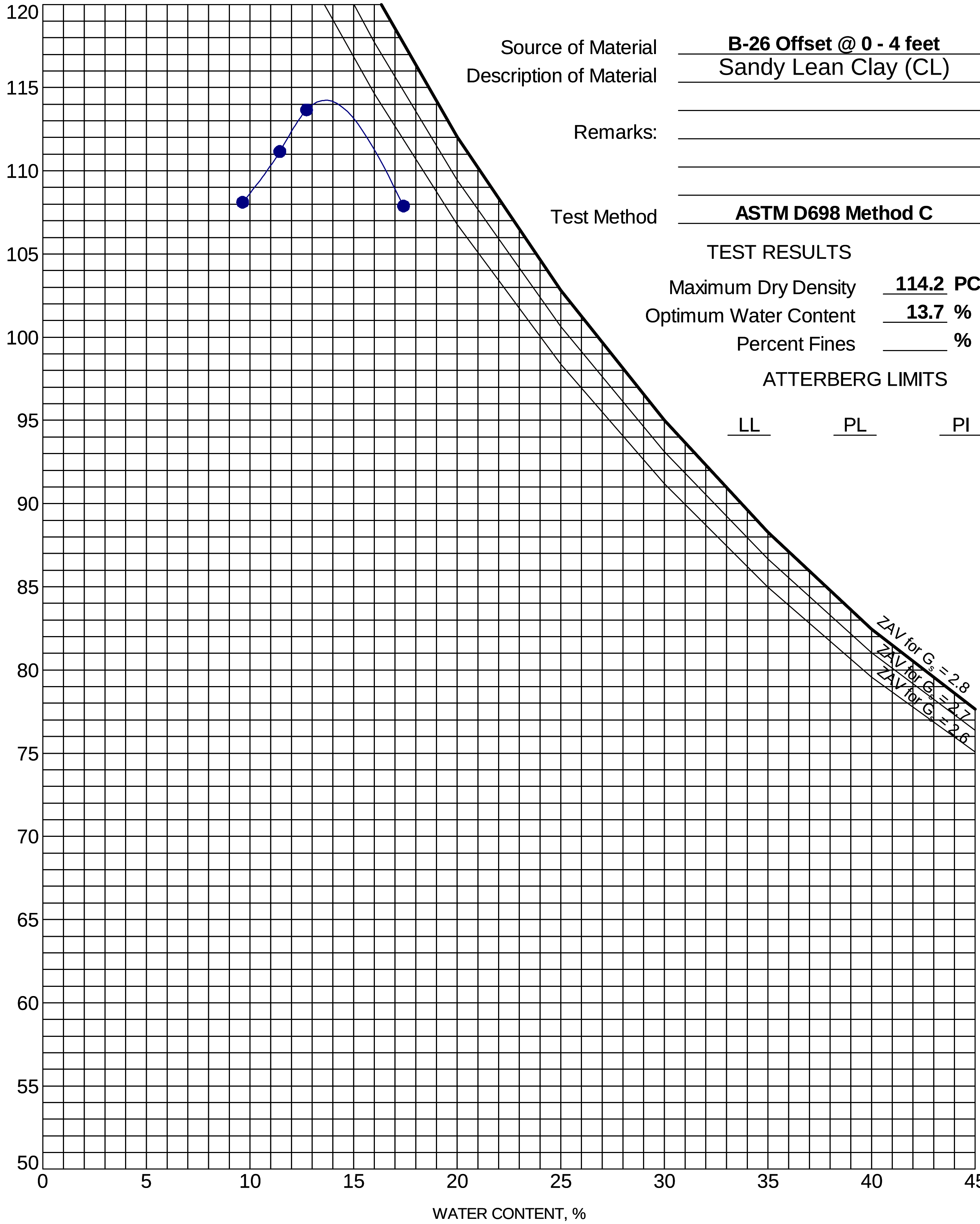
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm	Terracon 13050 Eastgate Park Way Ste 101 Louisville, KY	PROJECT NUMBER: 57215113
SITE: Thomas Cecilia Road Cecilia, KY		CLIENT: Ulteig Engineers, Inc. Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-26 Offset @ 0 - 4 feet**

Description of Material: Sandy Lean Clay (CL)

Remarks:

Test Method: **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **114.2 PCF**

Optimum Water Content **13.7 %**

Percent Fines %

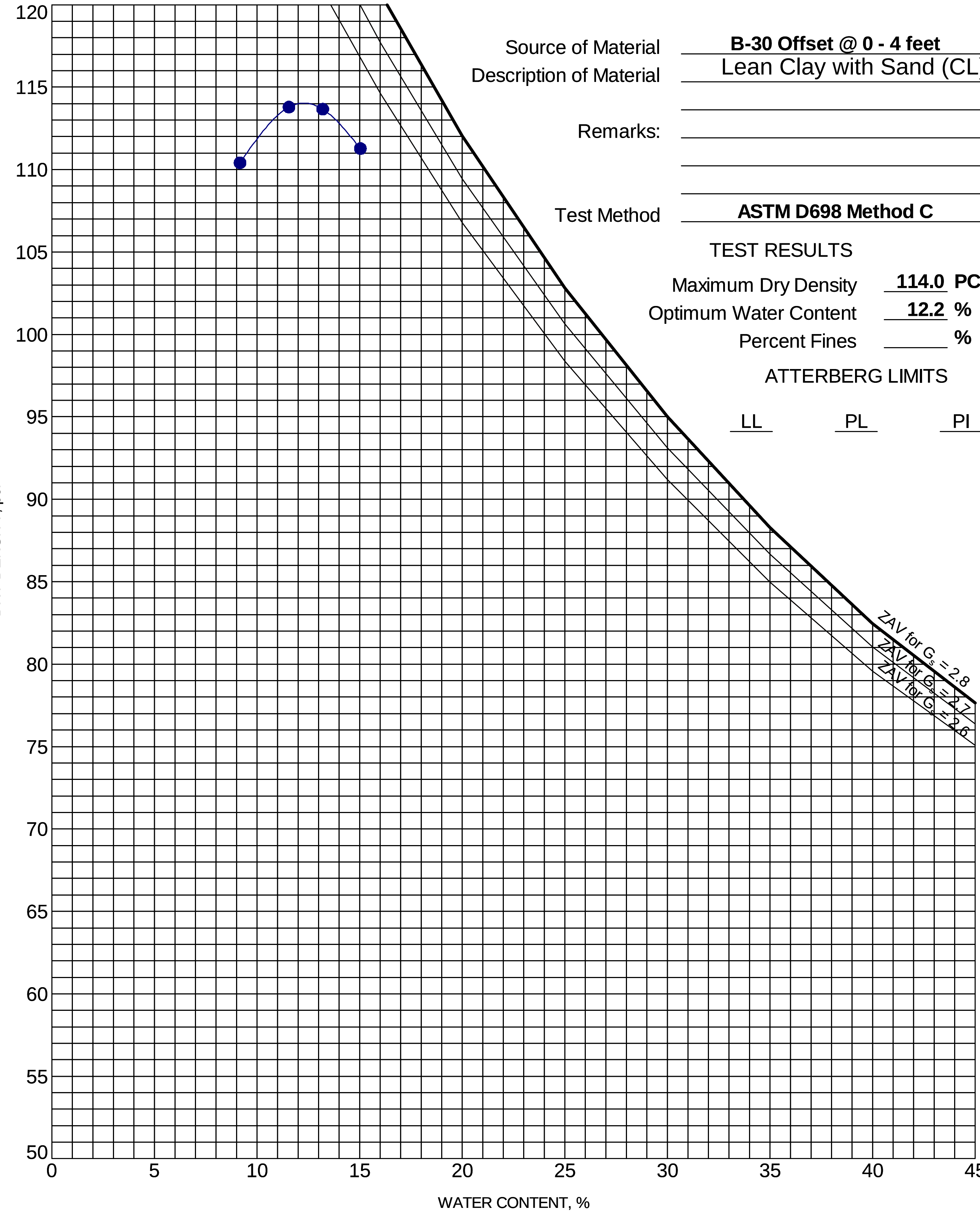
ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm	13050 Eastgate Park Way Ste 101 Louisville, KY	PROJECT NUMBER: 57215113
SITE: Thomas Cecilia Road Cecilia, KY		CLIENT: Ulteig Engineers, Inc. Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-30 Offset @ 0 - 4 feet**

Description of Material Lean Clay with Sand (CL)

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **114.0 PCF**

Optimum Water Content **12.2 %**

Percent Fines **%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

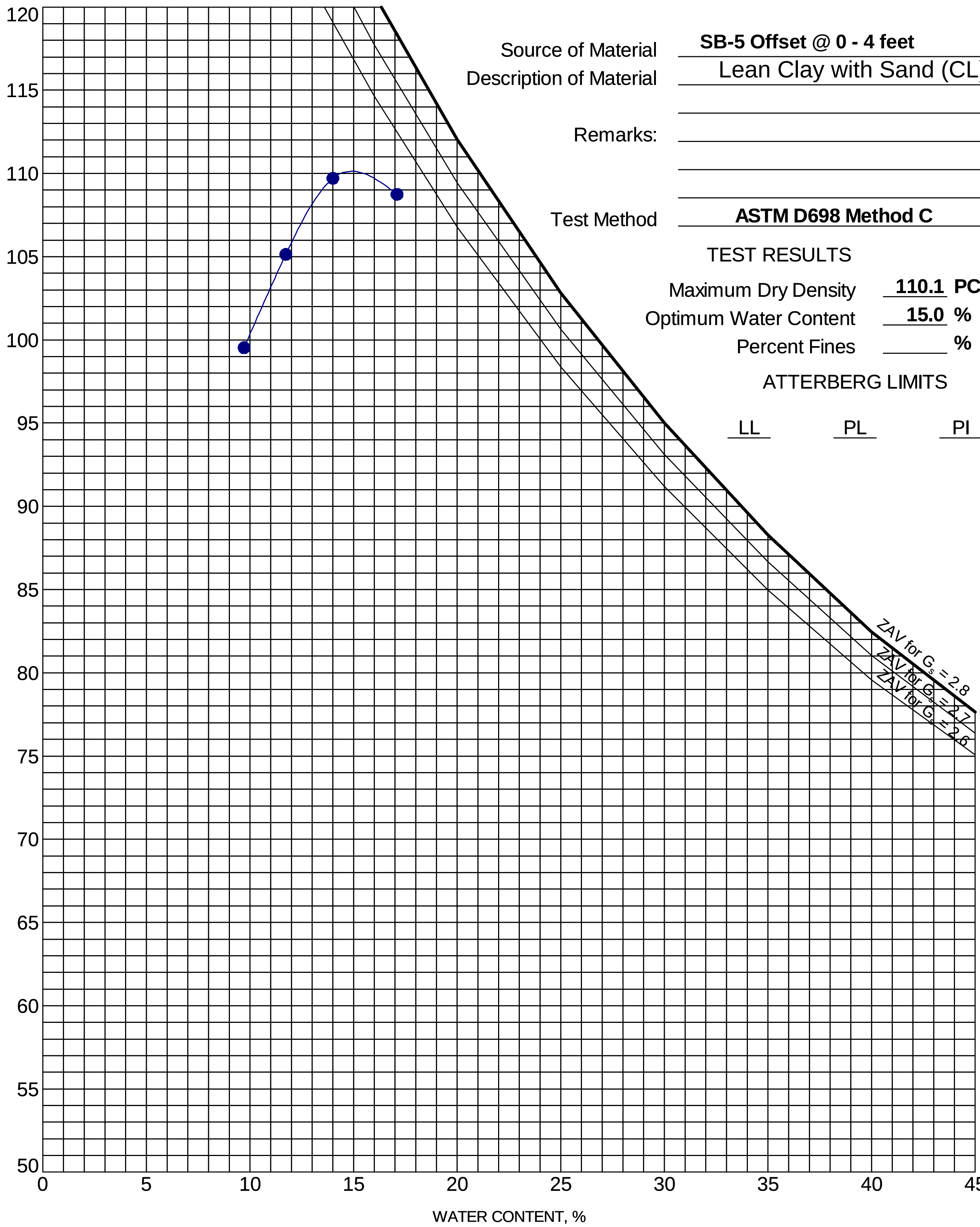
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **SB-5 Offset @ 0 - 4 feet**

Description of Material Lean Clay with Sand (CL)

Remarks:

Test Method **ASTM D698 Method C**

TEST RESULTS

Maximum Dry Density **110.1 PCF**

Optimum Water Content **15.0 %**

Percent Fines ____ **%**

ATTERBERG LIMITS

LL	PL	PI

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ZCOMPACTION_V3_OVERLAY 57215113 TELESTO SOLAR.GPJ TERRACON_DATATEMPLATE.GDT 3/24/22

PROJECT: Telesto Solar Farm

SITE: Thomas Cecilia Road
Cecilia, KY

Terracon
13050 Eastgate Park Way Ste 101
Louisville, KY

PROJECT NUMBER: 57215113

CLIENT: Ulteig Engineers, Inc.
Minneapolis, MN

APPENDIX C – FIELD ELECTRICAL RESISTIVITY DATA

Contents:

Note: All attachments are one page unless noted above.

Legend

Site Boundary

Field Electrical Soil Resistivity Test Location

DATA SOURCES:
ESRI World Imagery Hybrid Map base layer.

0 500 1,000 2,000 Feet

Project No.:	P57215113
Date:	May 2022
Drawn By:	KT
Reviewed By:	JNT

Terracon

13050 Eastgate Park Way #101 Louisville, Kentucky 40223

PH. (502) 456-1256 terracon.com

FIELD ELECTRICAL RESISTIVITY TEST PLAN

Telesto Solar
Cecilia, Harden County, Kentucky

Ulteig Engineers, Inc.
4285 Lexington Ave. N.
St. Paul, MN 55216

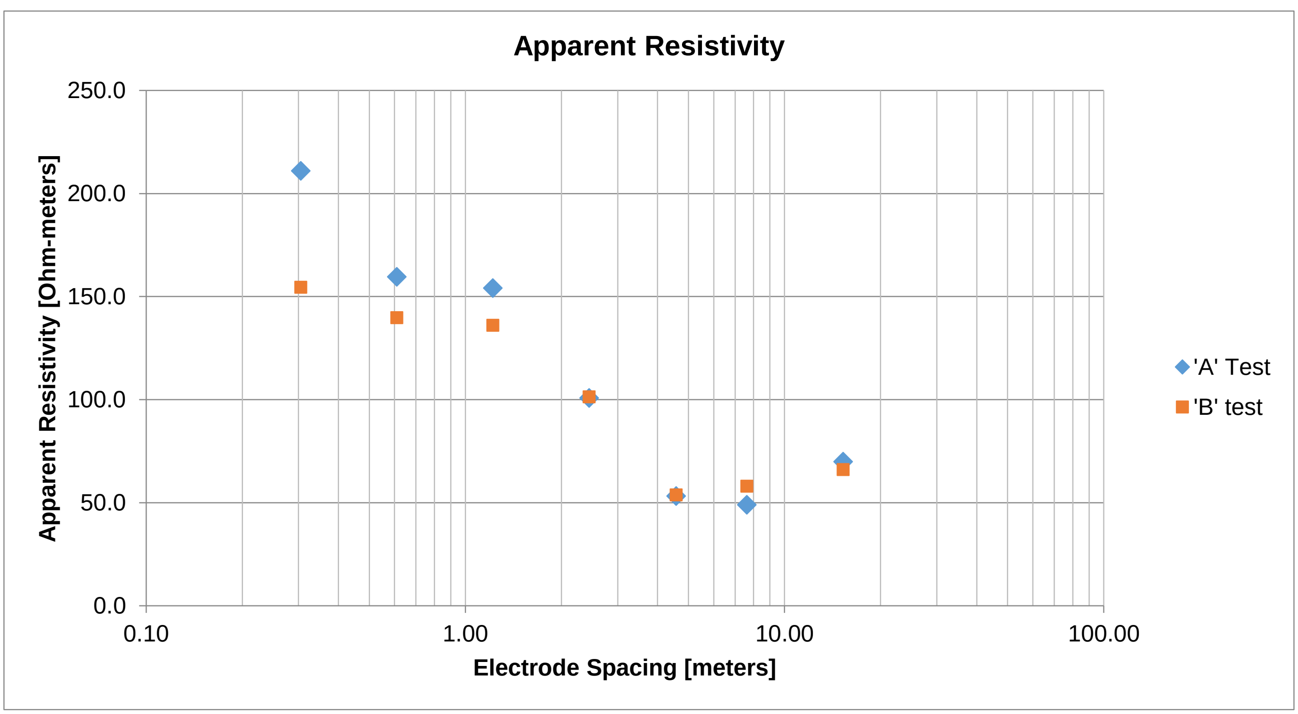
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-16 Substation location with approximate center point: 37.683105°, -85.953233°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 26, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	83.70	210.9	61.30	154.5
2	0.61	0.5	0.15	37.90	159.6	33.20	139.8
4	1.22	0.5	0.15	19.60	154.2	17.30	136.1
8	2.44	0.5	0.15	6.54	100.9	6.57	101.3
15	4.57	1	0.30	1.84	53.3	1.86	53.8
25	7.62	1	0.30	1.02	49.0	1.21	58.1
50	15.24	1	0.30	0.73	70.0	0.69	66.1
100	30.48	1	0.30	0.61	116.8	0.58	111.1
150	45.72	1	0.30	0.56	160.9	0.57	163.8
200	60.96	1	0.30	0.55	210.7	0.55	210.7
300	91.44	1	0.30	0.43	247.1	0.44	252.8

Apparent resistivity p is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$



FIELD ELECTRICAL RESISTIVITY TEST DATA

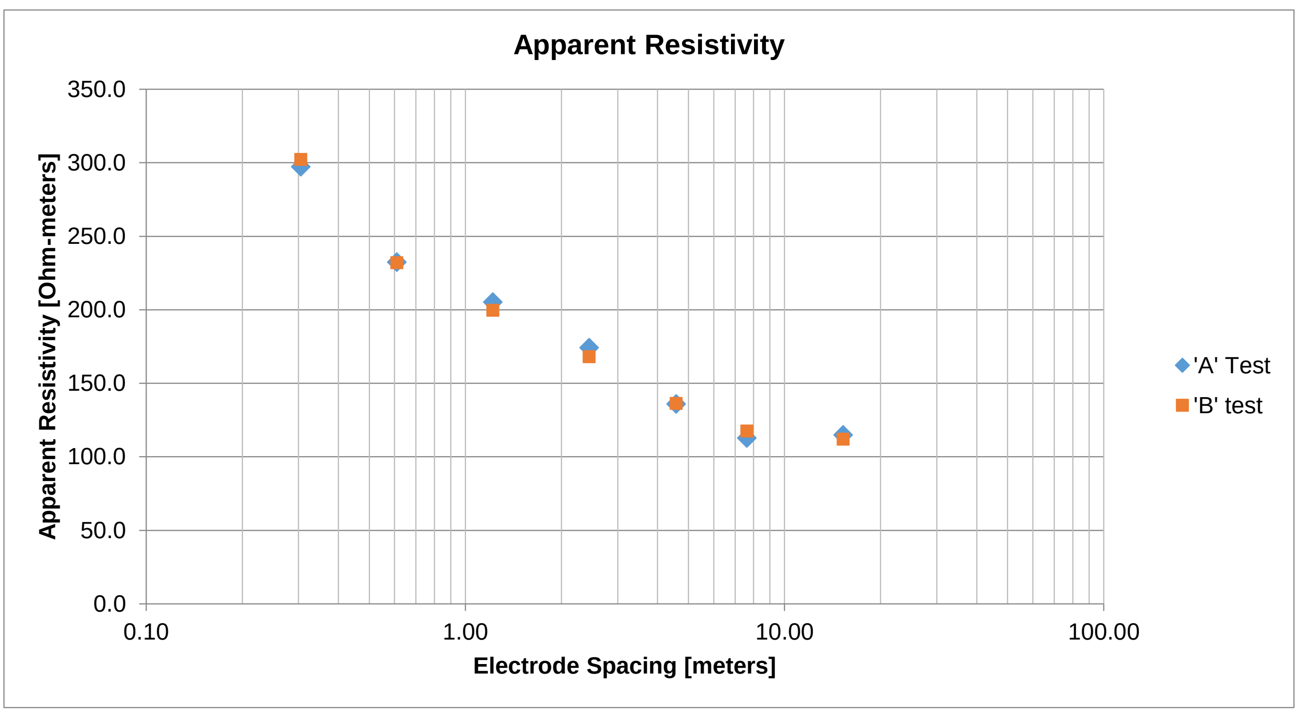
Test Line at FER-1 location with approximate center point: 37.676667°, -85.967502°

Project Telesto Solar
Location Elizabethtown, KY
Project # 57215113
Test Date January 25, 2022

Weather Cold and Sunny
Surface Soil
Instrument AEMC Model 6471
Tested By M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	118.00	297.4	120.00	302.4
2	0.61	0.5	0.15	55.20	232.5	55.10	232.1
4	1.22	0.5	0.15	26.10	205.3	25.40	199.8
8	2.44	0.5	0.15	11.30	174.3	10.90	168.1
15	4.57	1	0.30	4.70	136.1	4.71	136.3
25	7.62	1	0.30	2.35	112.8	2.45	117.6
50	15.24	1	0.30	1.20	115.0	1.17	112.1

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$



FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-2 location with approximate center point: 37.683518°, -85.969962°

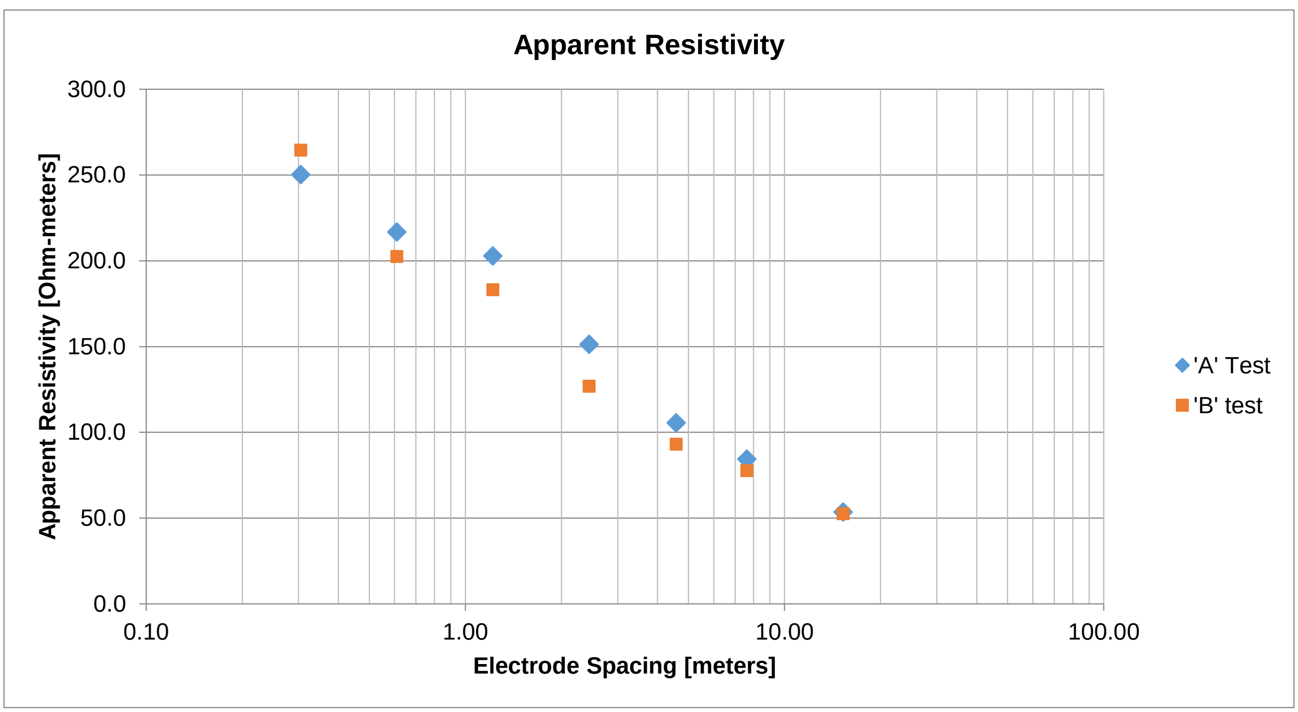
Project Telesto Solar
Location Elizabethtown, KY
Project # 57215113
Test Date January 25, 2022

Weather Cold and Sunny
Surface Soil
Instrument AEMC Model 6471
Tested By M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	99.30	250.3	105.00	264.6
2	0.61	0.5	0.15	51.50	216.9	48.10	202.6
4	1.22	0.5	0.15	25.80	202.9	23.30	183.3
8	2.44	0.5	0.15	9.82	151.5	8.23	126.9
15	4.57	1	0.30	3.65	105.7	3.22	93.2
25	7.62	1	0.30	1.76	84.5	1.62	77.8
50	15.24	1	0.30	0.56	53.7	0.55	52.7

Apparent resistivity p is calculated as :

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



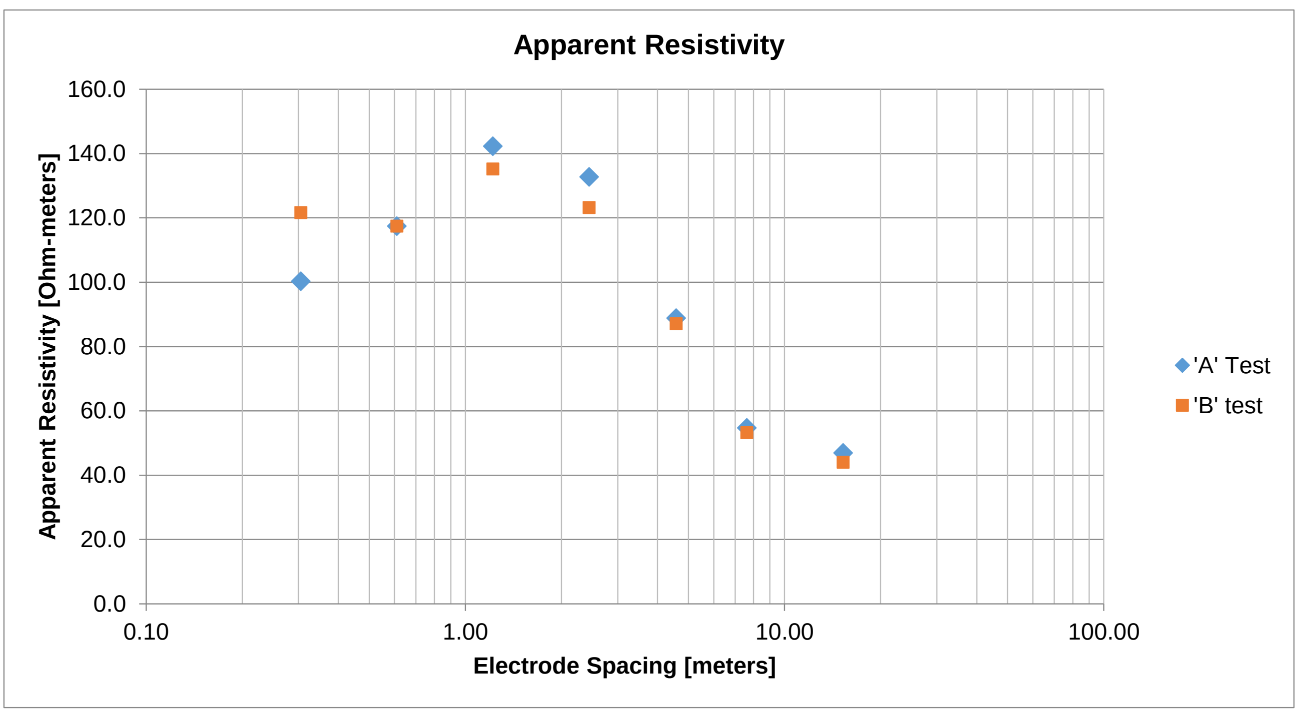
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-3 location with approximate center point: 37.679574°, -85.963282°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	39.80	100.3	48.30	121.7
2	0.61	0.5	0.15	27.90	117.5	27.90	117.5
4	1.22	0.5	0.15	18.10	142.4	17.20	135.3
8	2.44	0.5	0.15	8.61	132.8	7.99	123.2
15	4.57	1	0.30	3.07	88.9	3.01	87.1
25	7.62	1	0.30	1.14	54.7	1.11	53.3
50	15.24	1	0.30	0.49	47.0	0.46	44.1

Apparent resistivity p is calculated as :
$$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$



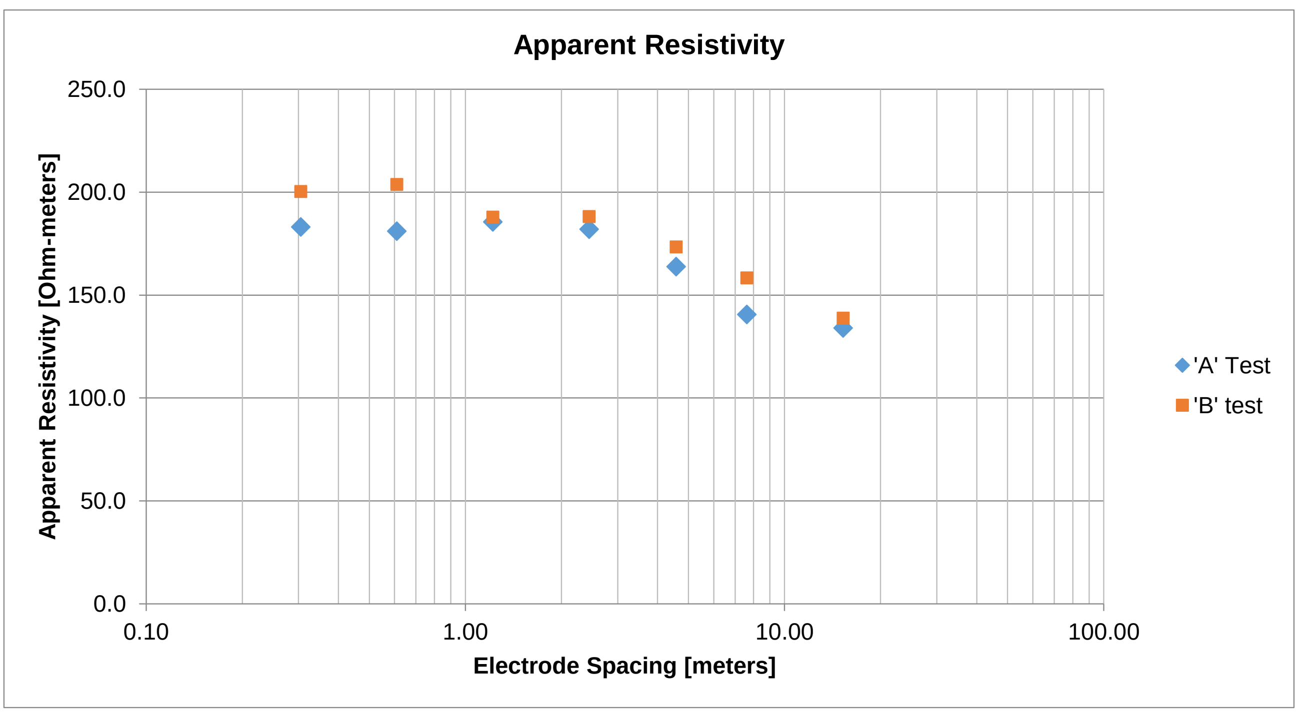
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-4 location with approximate center point: 37.685375°, -85.963796°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	72.70	183.2	79.50	200.4
2	0.61	0.5	0.15	43.00	181.1	48.40	203.9
4	1.22	0.5	0.15	23.60	185.6	23.90	188.0
8	2.44	0.5	0.15	11.80	182.0	12.20	188.2
15	4.57	1	0.30	5.66	163.8	5.99	173.4
25	7.62	1	0.30	2.93	140.7	3.30	158.4
50	15.24	1	0.30	1.40	134.2	1.45	138.9

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$



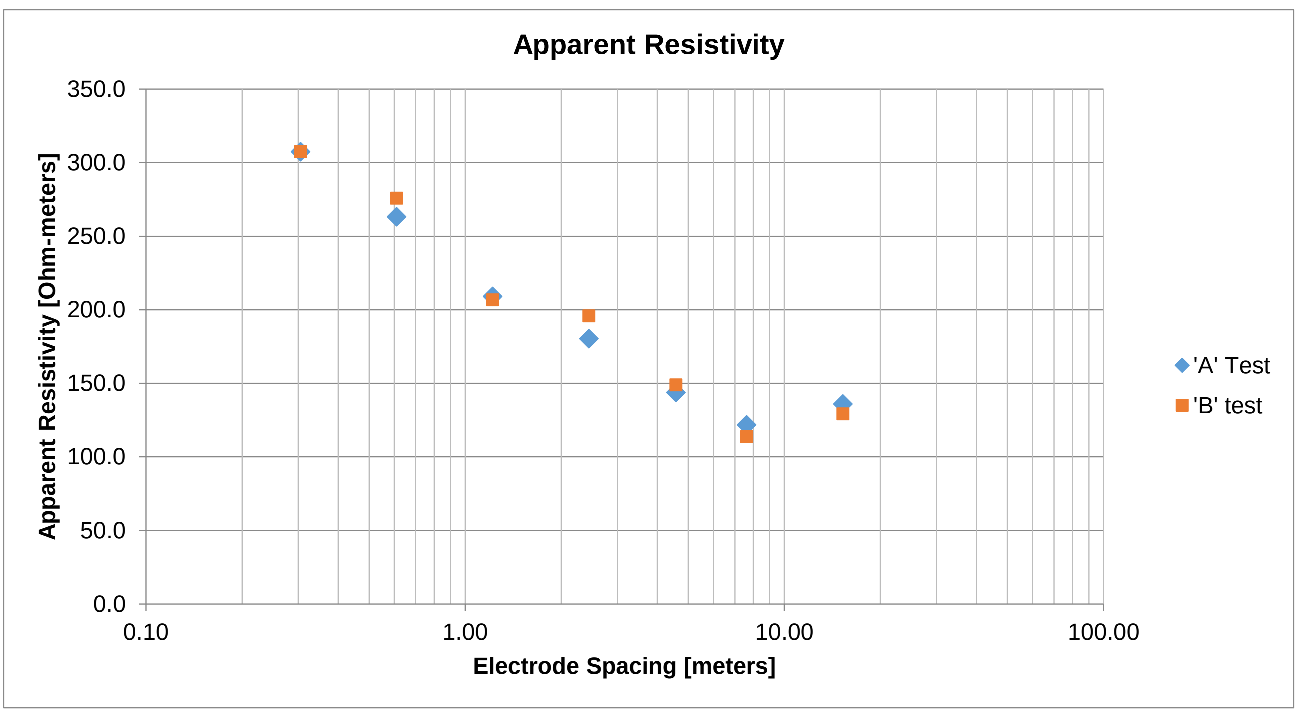
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-5 location with approximate center point: 37.680474°, -85.956262°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	122.00	307.5	122.00	307.5
2	0.61	0.5	0.15	62.50	263.3	65.50	275.9
4	1.22	0.5	0.15	26.60	209.2	26.30	206.8
8	2.44	0.5	0.15	11.70	180.5	12.70	195.9
15	4.57	1	0.30	4.97	143.9	5.15	149.1
25	7.62	1	0.30	2.54	121.9	2.37	113.8
50	15.24	1	0.30	1.42	136.1	1.35	129.4

Apparent resistivity p is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2+4b^2}} - \frac{a}{\sqrt{a^2+b^2}}}$$



FIELD ELECTRICAL RESISTIVITY TEST DATA

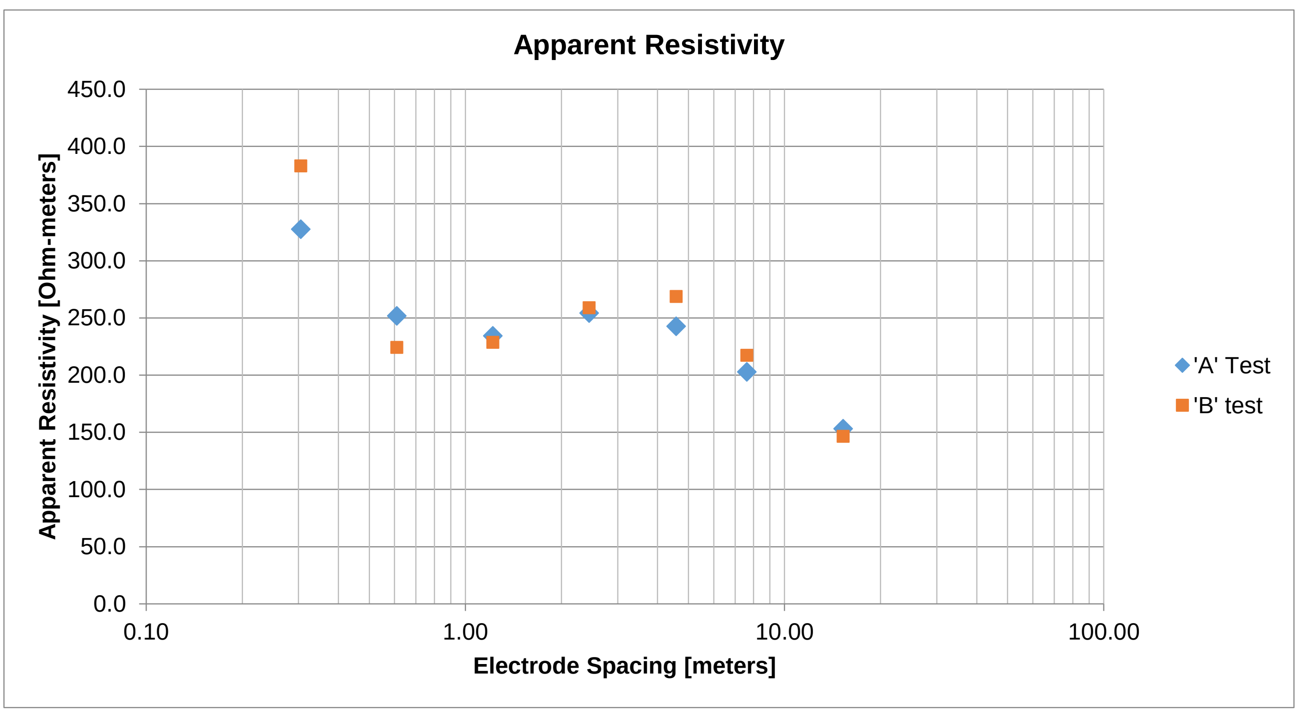
Test Line at FER-6 location with approximate center point: 37.678425°, -85.952551°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	130.00	327.6	152.00	383.1
2	0.61	0.5	0.15	59.80	251.9	53.30	224.5
4	1.22	0.5	0.15	29.80	234.4	29.10	228.9
8	2.44	0.5	0.15	16.50	254.5	16.80	259.1
15	4.57	1	0.30	8.39	242.9	9.29	268.9
25	7.62	1	0.30	4.23	203.1	4.53	217.5
50	15.24	1	0.30	1.60	153.3	1.53	146.6

Apparent resistivity p is calculated as :

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



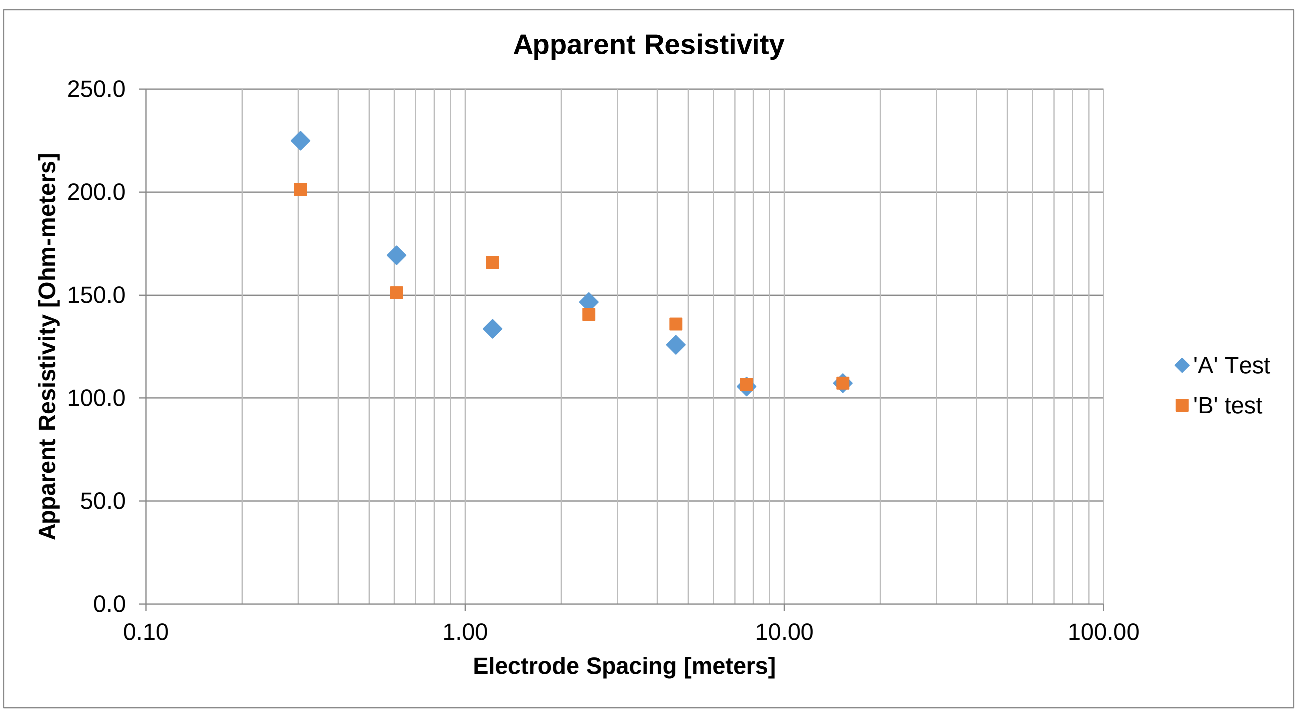
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-7 location with approximate center point: 37.685250°, -85.957419°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	89.30	225.1	79.90	201.4
2	0.61	0.5	0.15	40.20	169.3	35.90	151.2
4	1.22	0.5	0.15	17.00	133.7	21.10	165.9
8	2.44	0.5	0.15	9.51	146.7	9.12	140.7
15	4.57	1	0.30	4.35	125.9	4.70	136.1
25	7.62	1	0.30	2.20	105.6	2.22	106.6
50	15.24	1	0.30	1.12	107.3	1.12	107.3

Apparent resistivity p is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$



FIELD ELECTRICAL RESISTIVITY TEST DATA

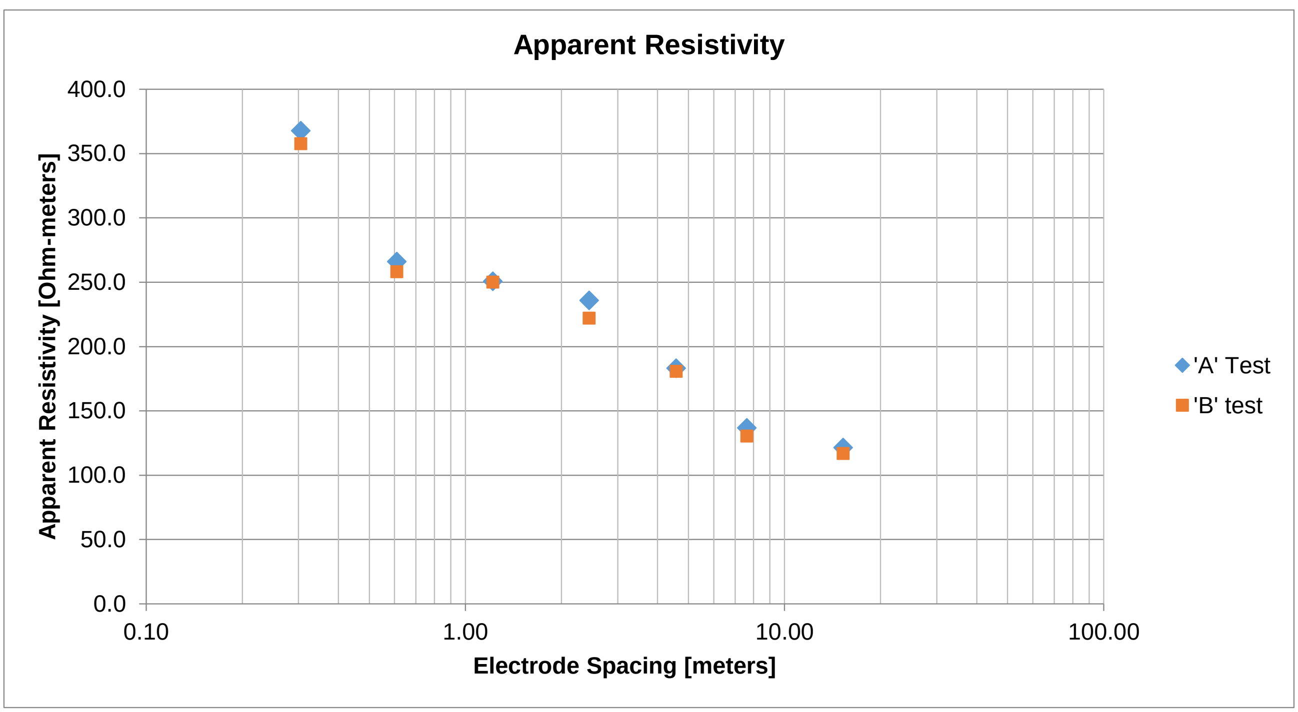
Test Line at FER-8 location with approximate center point: 37.684320°, -85.949131°

Project Telesto Solar
Location Elizabethtown, KY
Project # 57215113
Test Date January 25, 2022

Weather Cold and Sunny
Surface Soil
Instrument AEMC Model 6471
Tested By M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	146.00	368.0	142.00	357.9
2	0.61	0.5	0.15	63.20	266.2	61.30	258.2
4	1.22	0.5	0.15	31.90	250.9	31.80	250.1
8	2.44	0.5	0.15	15.30	236.0	14.40	222.1
15	4.57	1	0.30	6.33	183.2	6.25	180.9
25	7.62	1	0.30	2.85	136.8	2.72	130.6
50	15.24	1	0.30	1.27	121.7	1.22	116.9

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$



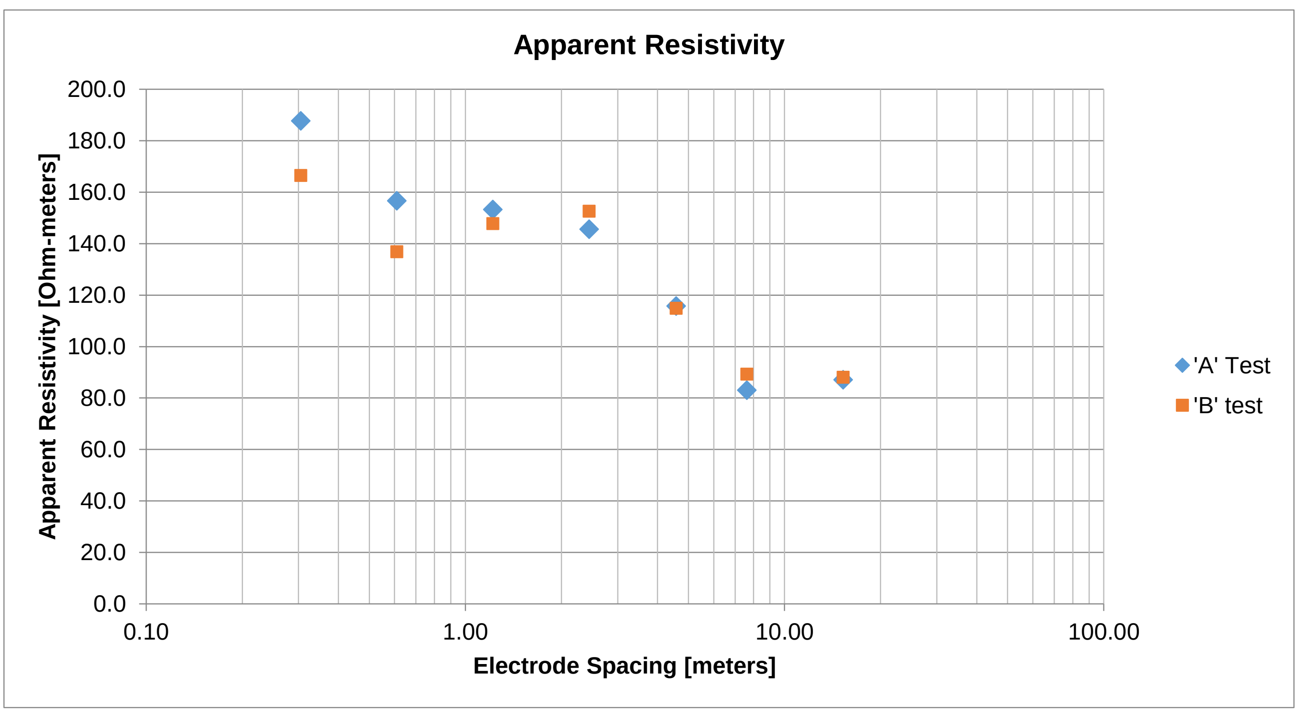
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-9 location with approximate center point: 37.688971°, -85.950824°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	74.50	187.8	66.10	166.6
2	0.61	0.5	0.15	37.20	156.7	32.50	136.9
4	1.22	0.5	0.15	19.50	153.4	18.80	147.9
8	2.44	0.5	0.15	9.44	145.6	9.90	152.7
15	4.57	1	0.30	4.00	115.8	3.97	114.9
25	7.62	1	0.30	1.73	83.1	1.86	89.3
50	15.24	1	0.30	0.91	87.2	0.92	88.2

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$



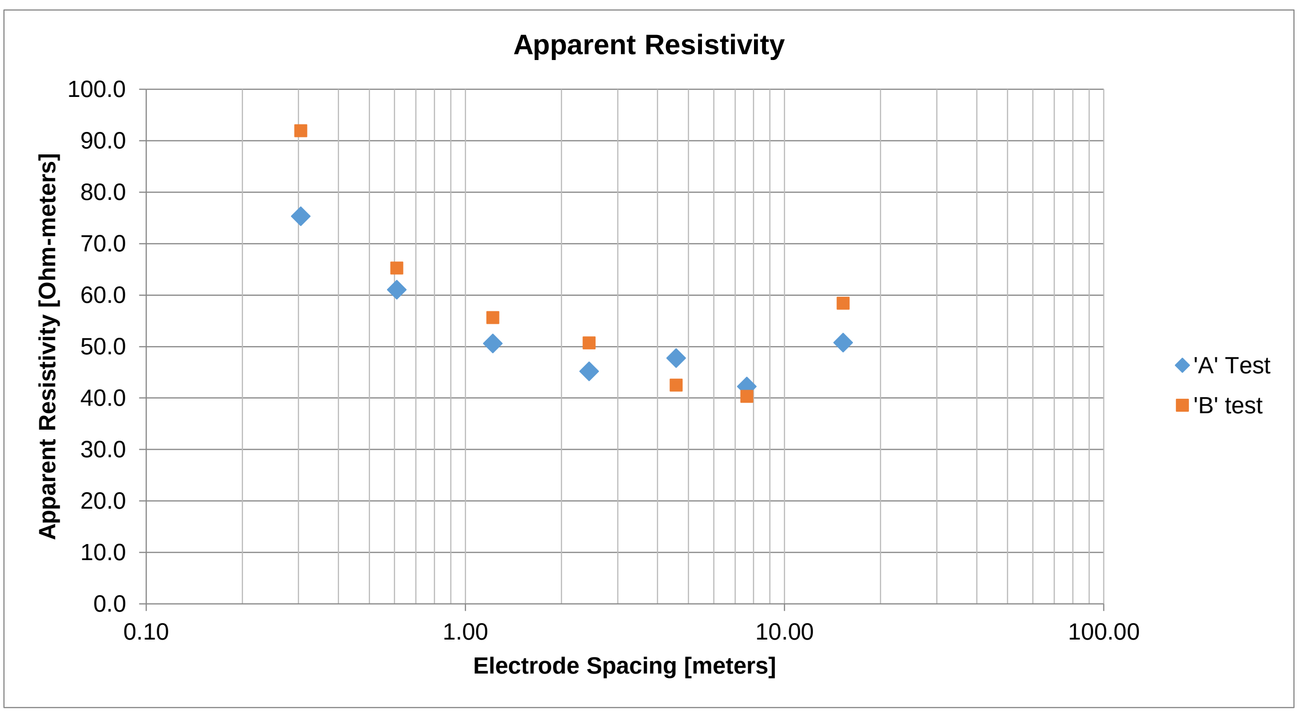
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-10 location with approximate center point: 37.690424°, -85.947062°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 25, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	29.90	75.4	36.50	92.0
2	0.61	0.5	0.15	14.50	61.1	15.50	65.3
4	1.22	0.5	0.15	6.44	50.7	7.08	55.7
8	2.44	0.5	0.15	2.93	45.2	3.29	50.7
15	4.57	1	0.30	1.65	47.8	1.47	42.6
25	7.62	1	0.30	0.88	42.3	0.84	40.3
50	15.24	1	0.30	0.53	50.8	0.61	58.5

Apparent resistivity p is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2+4b^2}} - \frac{a}{\sqrt{a^2+b^2}}}$$



Terracon

FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-11 location with approximate center point: 37.685467°, -85.942488°

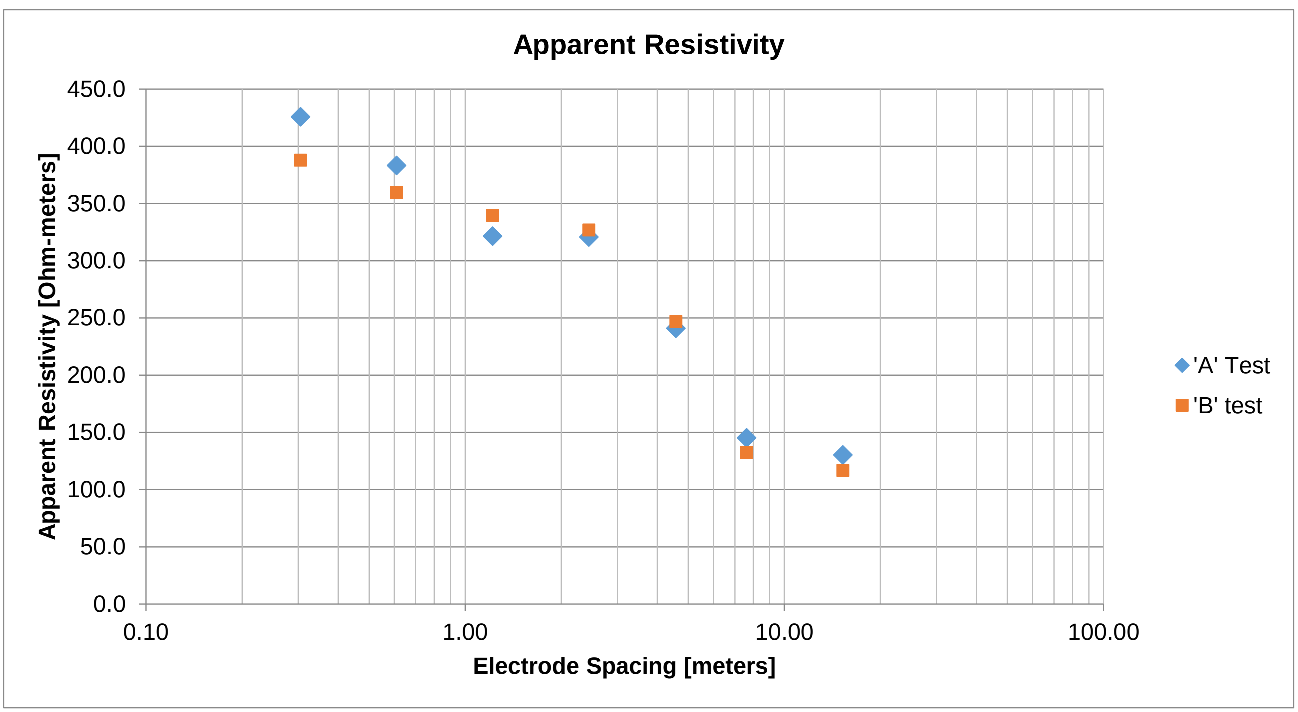
Project Telesto Solar
Location Elizabethtown, KY
Project # 57215113
Test Date January 26, 2022

Weather Cold and Sunny
Surface Soil
Instrument AEMC Model 6471
Tested By M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	169.00	425.9	154.00	388.1
2	0.61	0.5	0.15	91.00	383.3	85.40	359.7
4	1.22	0.5	0.15	40.90	321.7	43.20	339.8
8	2.44	0.5	0.15	20.80	320.8	21.20	327.0
15	4.57	1	0.30	8.33	241.1	8.53	246.9
25	7.62	1	0.30	3.03	145.5	2.76	132.5
50	15.24	1	0.30	1.36	130.3	1.22	116.9

Apparent resistivity p is calculated as :

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



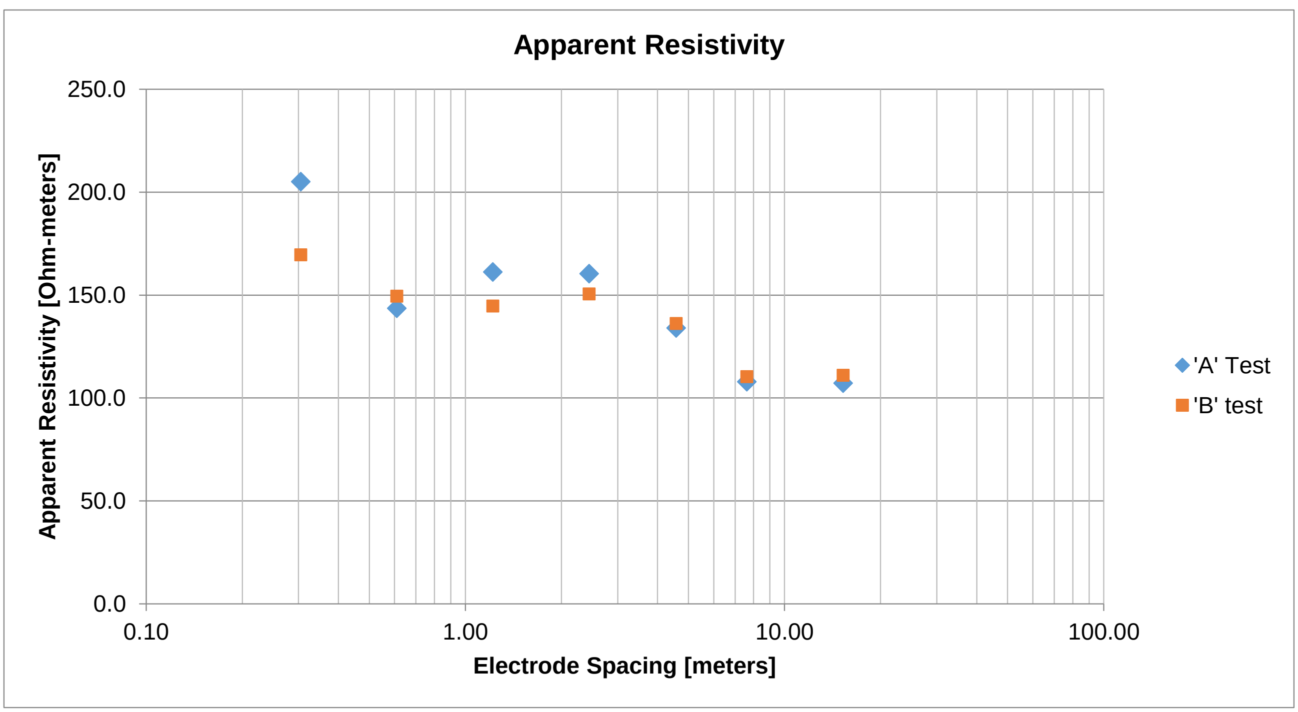
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-12 location with approximate center point: 37.686082°, -85.938856°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 26, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	81.40	205.1	67.30	169.6
2	0.61	0.5	0.15	34.10	143.6	35.50	149.5
4	1.22	0.5	0.15	20.50	161.2	18.40	144.7
8	2.44	0.5	0.15	10.40	160.4	9.77	150.7
15	4.57	1	0.30	4.63	134.0	4.71	136.3
25	7.62	1	0.30	2.25	108.0	2.30	110.4
50	15.24	1	0.30	1.12	107.3	1.16	111.2

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$



FIELD ELECTRICAL RESISTIVITY TEST DATA

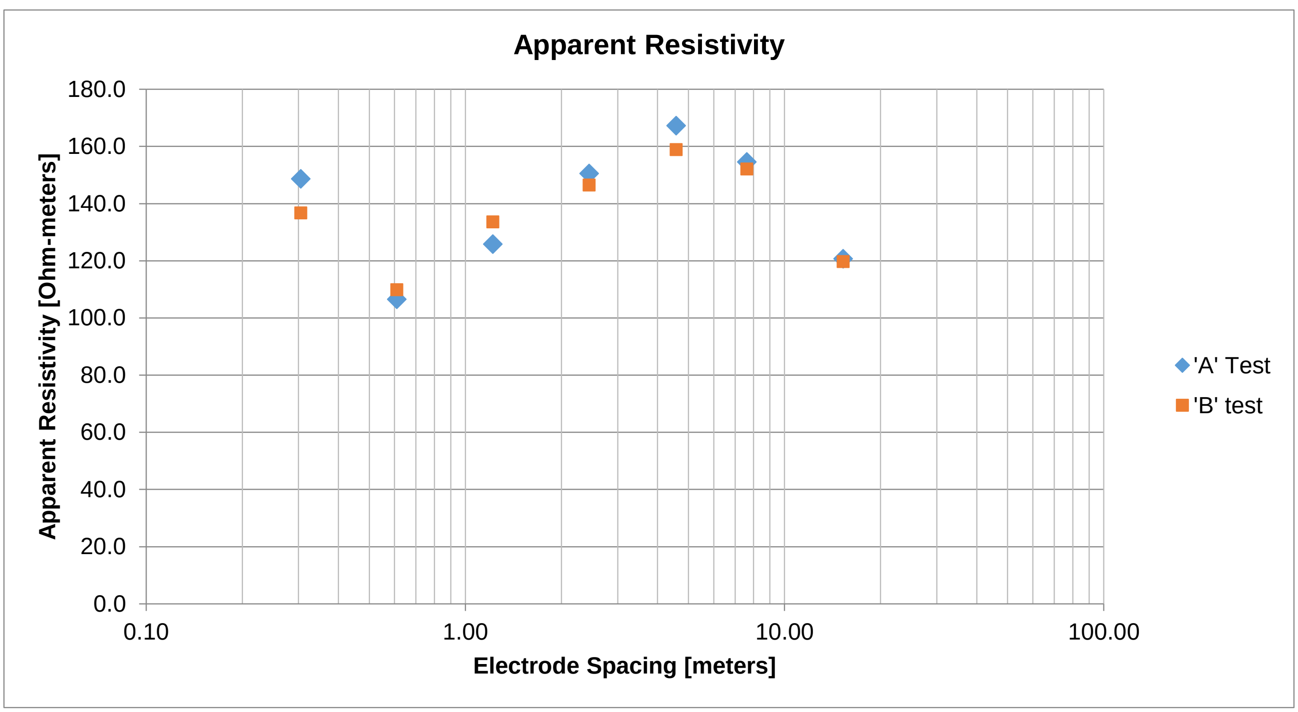
Test Line at FER-13 location with approximate center point: 37.689517°, -85.938946°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 26, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		**Electrode Depth "b"**		**"A" Test (Extended E-W)**		**"B" Test (Extended N-S)**	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	59.00	148.7	54.30	136.8
2	0.61	0.5	0.15	25.30	106.6	26.10	109.9
4	1.22	0.5	0.15	16.00	125.8	17.00	133.7
8	2.44	0.5	0.15	9.76	150.5	9.50	146.5
15	4.57	1	0.30	5.78	167.3	5.49	158.9
25	7.62	1	0.30	3.22	154.6	3.17	152.2
50	15.24	1	0.30	1.26	120.7	1.25	119.8

Apparent resistivity p is calculated as :

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



FIELD ELECTRICAL RESISTIVITY TEST DATA

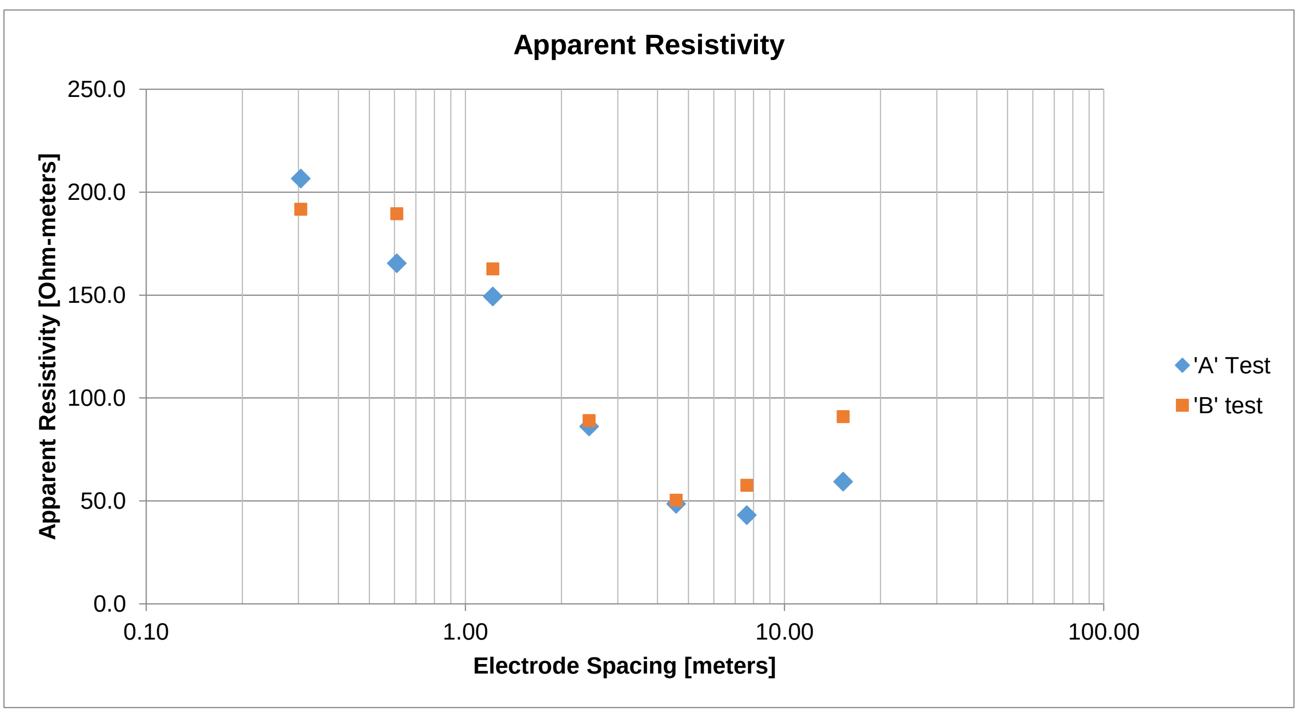
Test Line at FER-14 location with approximate center point: 37.688498°, -85.933862°

Project Telesto Solar
Location Elizabethtown, KY
Project # 57215113
Test Date January 26, 2022

Weather Cold and Sunny
Surface Soil
Instrument AEMC Model 6471
Tested By M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	82.00	206.7	76.10	191.8
2	0.61	0.5	0.15	39.30	165.5	45.00	189.5
4	1.22	0.5	0.15	19.00	149.4	20.70	162.8
8	2.44	0.5	0.15	5.59	86.2	5.78	89.2
15	4.57	1	0.30	1.68	48.6	1.74	50.4
25	7.62	1	0.30	0.90	43.2	1.20	57.6
50	15.24	1	0.30	0.62	59.4	0.95	91.0

Apparent resistivity p is calculated as :
$$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$



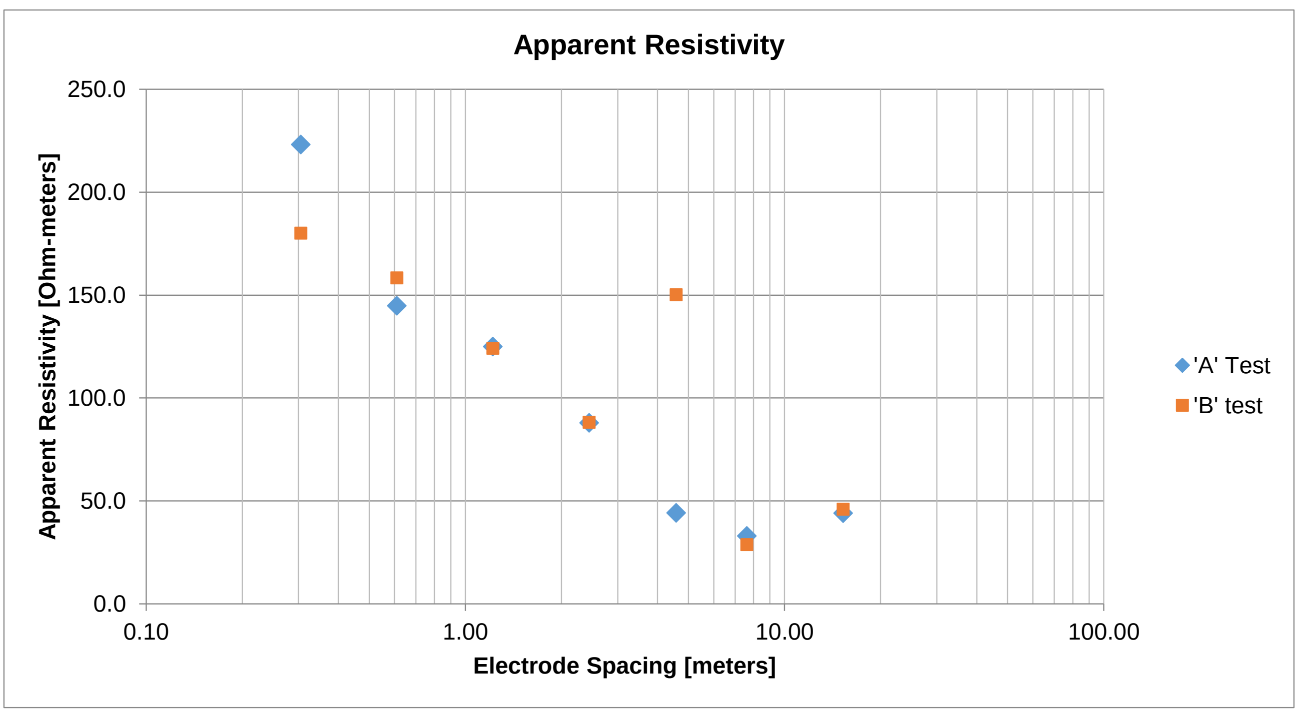
FIELD ELECTRICAL RESISTIVITY TEST DATA

Test Line at FER-15 location with approximate center point: 37.693043°, -85.930743°

Project	Telesto Solar	**Weather**	Cold and Sunny
Location	Elizabethtown, KY	**Surface Soil**	
Project #	57215113	**Instrument**	AEMC Model 6471
Test Date	January 26, 2022	**Tested By**	M. Pandey & J. Whitehouse

Electrode Spacing "a"		Electrode Depth "b"		"A" Test (Extended E-W)		"B" Test (Extended N-S)	
[feet]	[meters]	[feet]	[meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]	Measured Resistance "R" [Ohms]	Apparent Resistivity "ρ" [Ohm-meters]
1	0.30	0.5	0.15	88.60	223.3	71.50	180.2
2	0.61	0.5	0.15	34.40	144.9	37.60	158.4
4	1.22	0.5	0.15	15.90	125.1	15.80	124.3
8	2.44	0.5	0.15	5.71	88.1	5.72	88.2
15	4.57	1	0.30	1.53	44.3	5.19	150.2
25	7.62	1	0.30	0.69	33.1	0.60	28.8
50	15.24	1	0.30	0.46	44.1	0.48	46.0

Apparent resistivity p is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$



APPENDIX D – TEST PILE DRIVING DATA

Contents:

Note: All attachments are one page unless noted above.

Legend

- Site Boundary
- Pile Test Location 2022
- Pile Test Location 2022 (PLT Encountered Refusal)

DATA SOURCES:
ESRI World Imagery Hybrid Map base layer.

Feet
0 500 1,000 2,000

Project No.:	P57215113
Date:	May 2022
Drawn By:	KT
Reviewed By:	JNT

Terracon

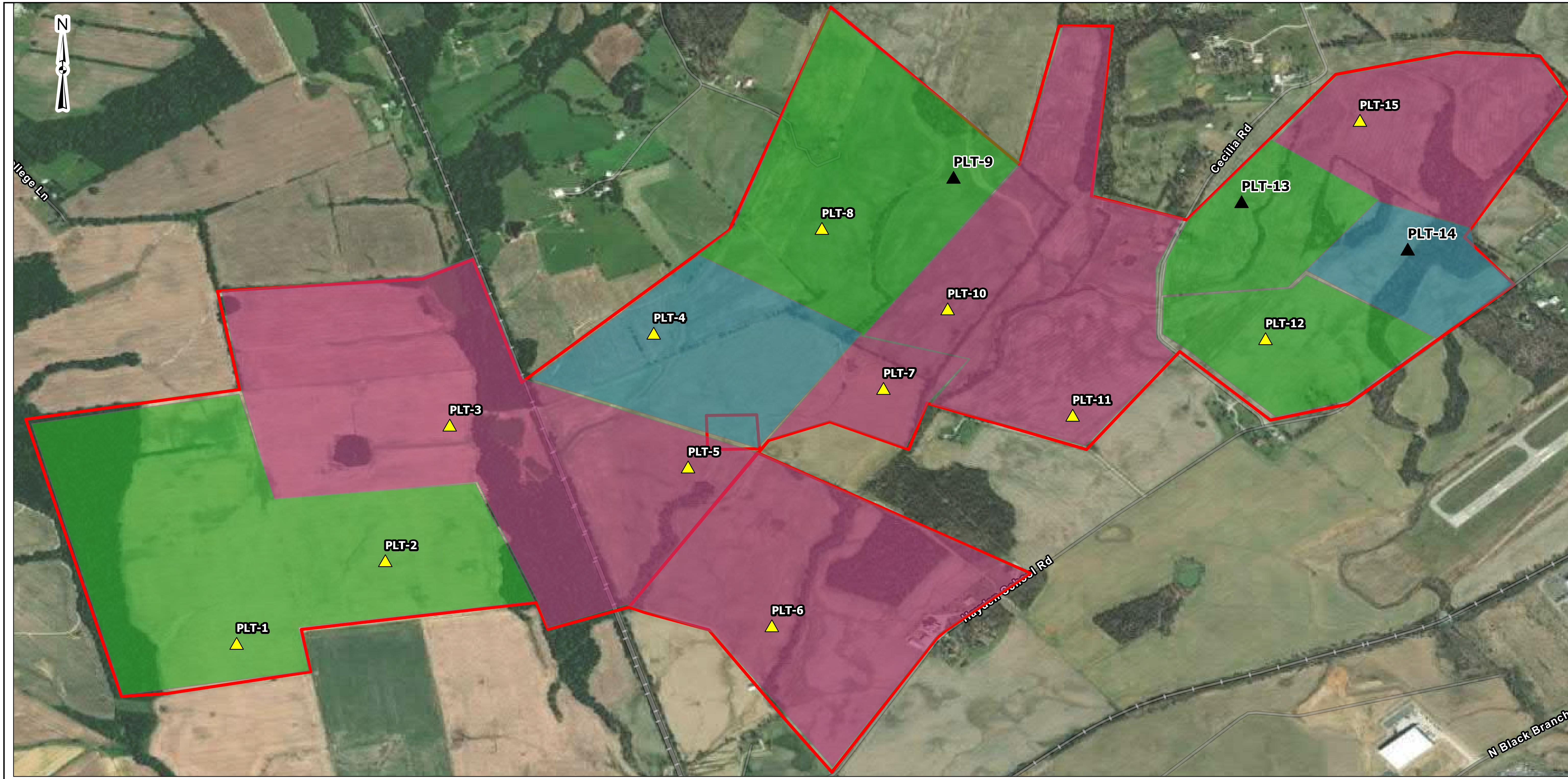
13050 Eastgate Park Way #101 Louisville, Kentucky 40223

PH. (502) 456-1256 terracon.com

PILE TEST LOCATION PLAN

Telesto Solar
Cecilia, Harden County, Kentucky

Ulteig Engineers, Inc.
4285 Lexington Ave. N.
St. Paul, MN 55216



Legend

- Site Boundary
- Pile Test Location 2022
- Pile Test Location 2022 (PLT Encountered Refusal)

Axial Zone

- Zone 1
- Zone 2
- Zone 3

DATA SOURCES:
ESRI World Imagery Hybrid Map base layer.

Feet
0 500 1,000 2,000

Project No.:	P57215113
Date:	May 2022
Drawn By:	KT
Reviewed By:	JNT

Terracon

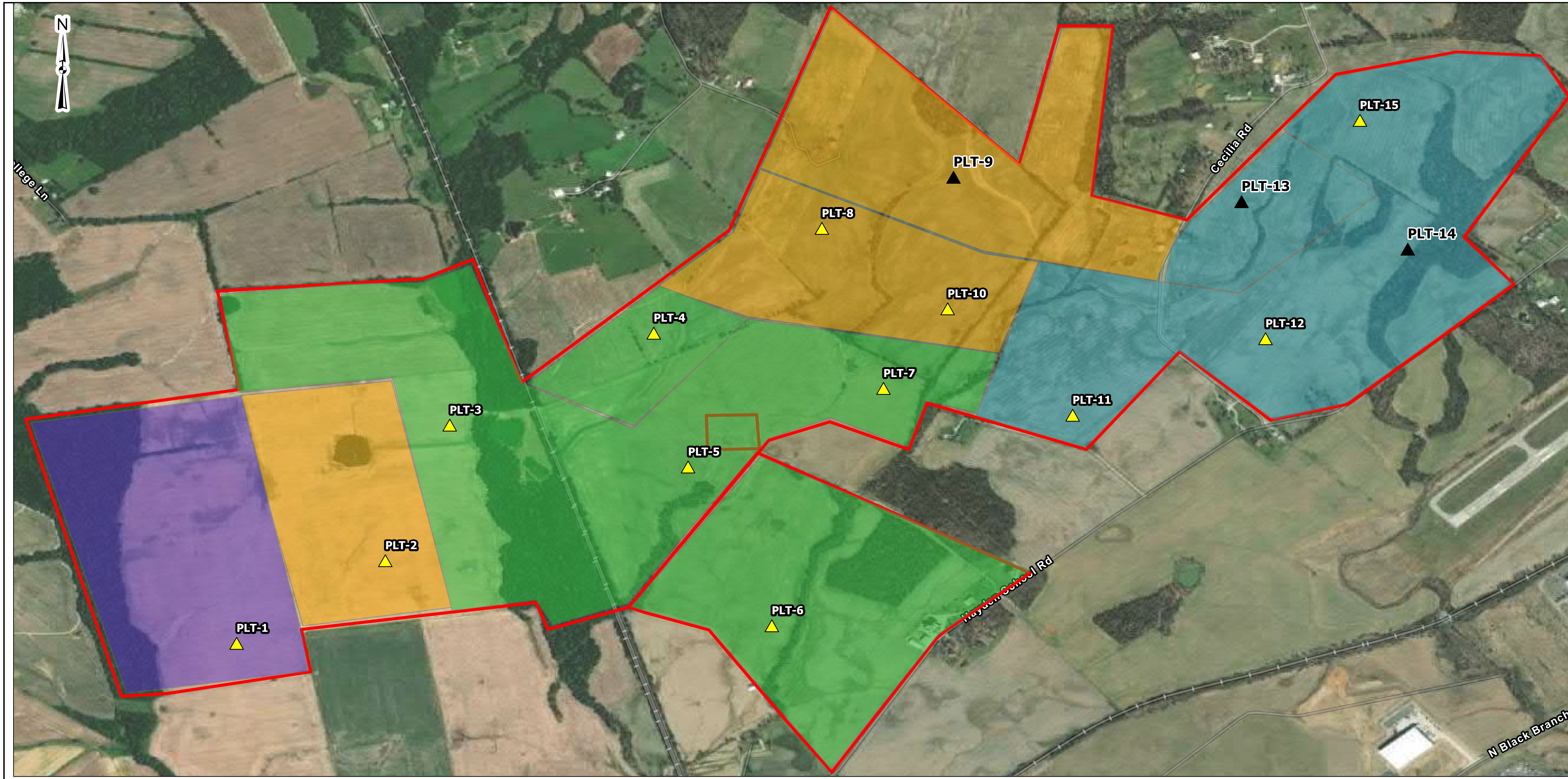
13050 Eastgate Park Way #101 Louisville, Kentucky 40223

PH. (502) 456-1256 terracon.com

AXIAL ZONE PLAN

Telesto Solar
Cecilia, Harden County, Kentucky

Ulteig Engineers, Inc.
4285 Lexington Ave. N.
St. Paul, MN 55216



Legend

- Site Boundary
- Pile Test Location 2022
- Pile Test Location 2022 (PLT Encountered Refusal)

Lateral Zone

- Zone 1
- Zone 2
- Zone 3
- Zone 4

DATA SOURCES:
ESRI World Imagery Hybrid Map base layer.

0 500 1,000 2,000 Feet

Project No.:	P57215113
Date:	May 2022
Drawn By:	KT
Reviewed By:	JNT

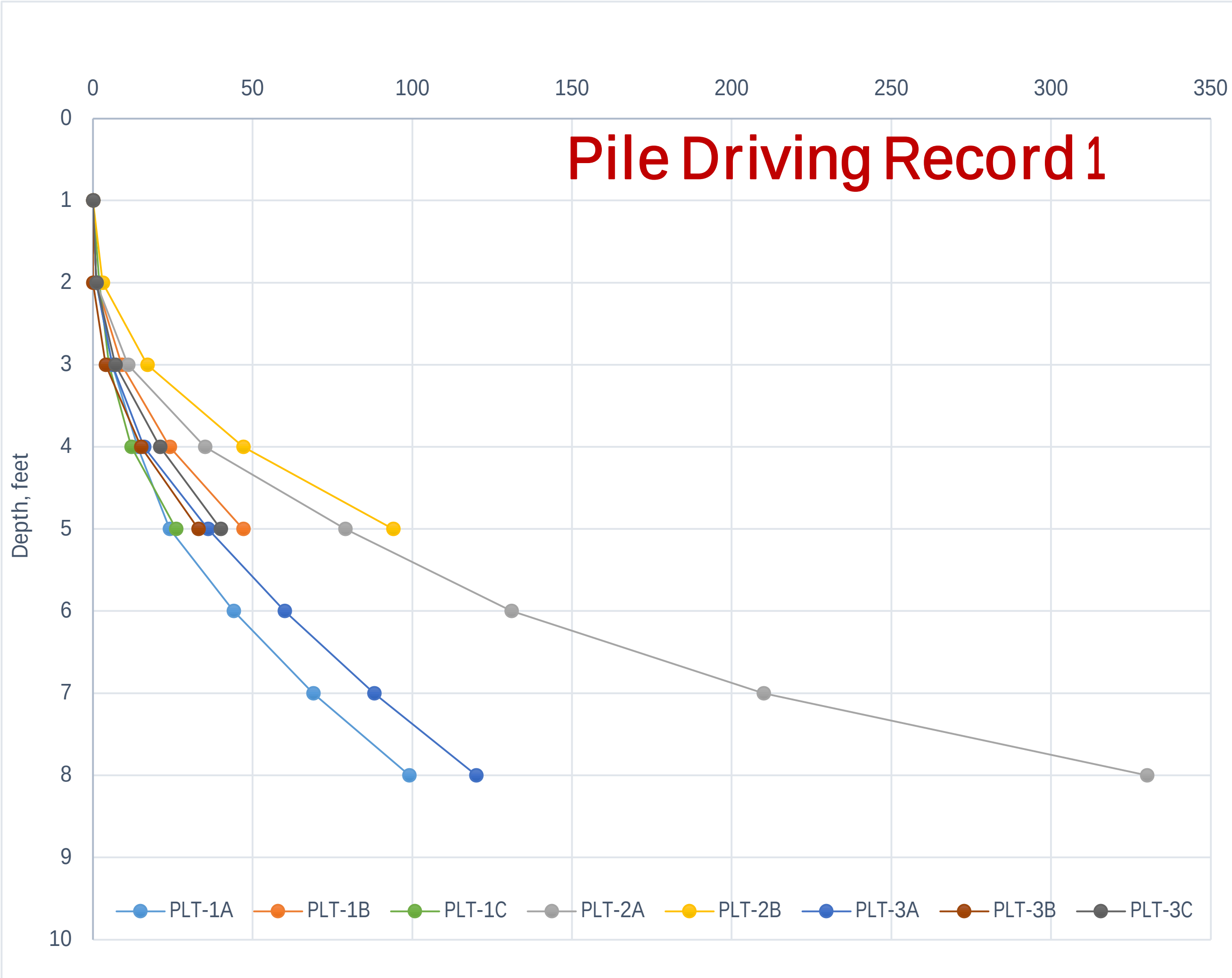
Terracon

13050 Eastgate Park Way #101 Louisville, Kentucky 40223
PH. (502) 456-1256 terracon.com

LATERAL ZONE PLAN

Telesto Solar
Cecilia, Harden County, Kentucky

Ulteig Engineers, Inc.
4285 Lexington Ave. N.
St. Paul, MN 55216



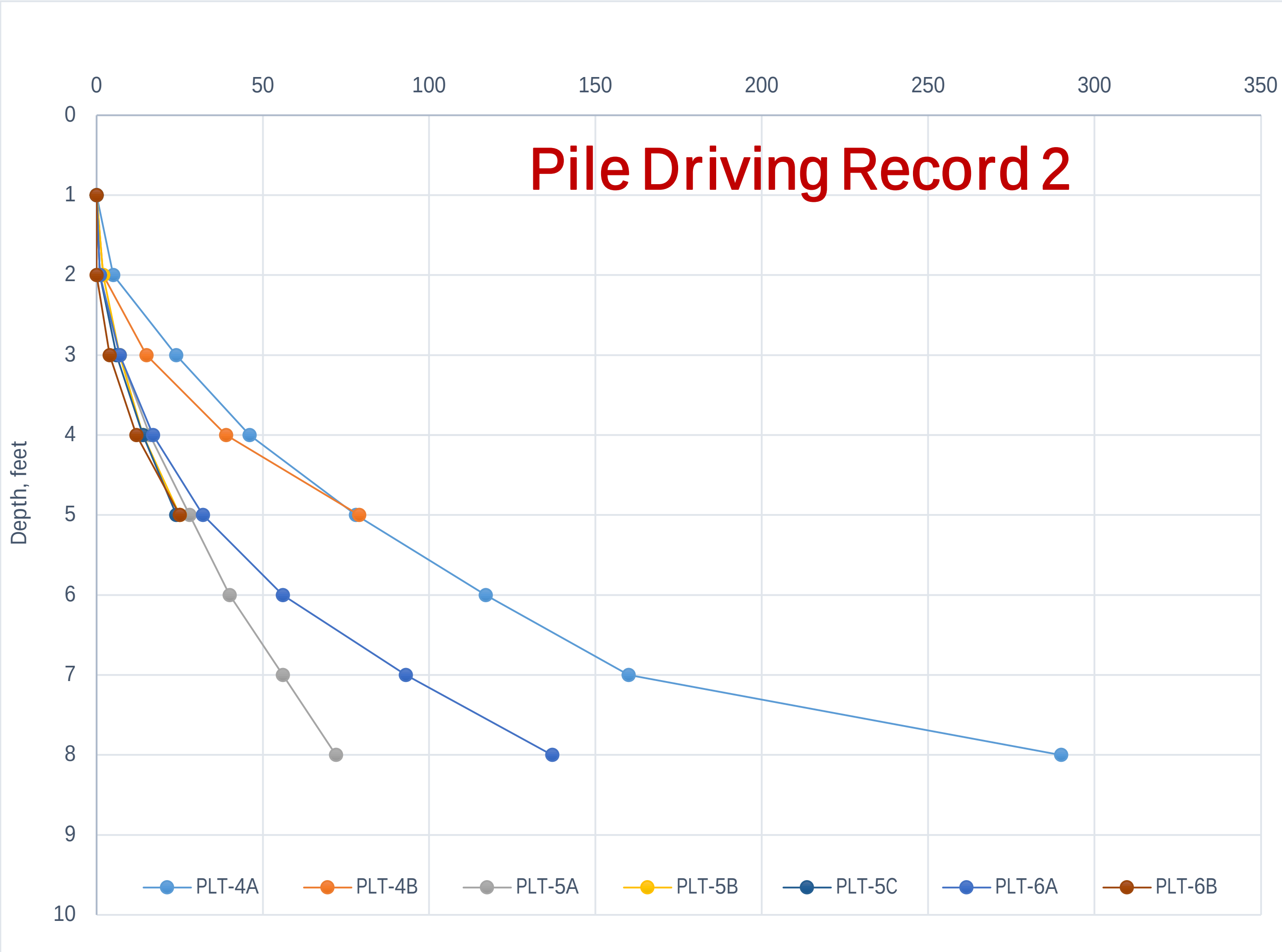
Depth (feet)	Cumulative Driving Time, seconds							
	PLT-1A	PLT-1B	PLT-1C	PLT-2A	PLT-2B	PLT-3A	PLT-3B	PLT-3C
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1.0	1.0	2.0	1.0	3.0	1.0	0.0	1.0
3	6.0	9.0	5.0	11.0	17.0	6.0	4.0	7.0
4	14.0	24.0	12.0	35.0	47.0	16.0	15.0	21.0
5	24.0	47.0	26.0	79.0	94.0	36.0	33.0	40.0
6	44.0			131.0		60.0		
7	69.0			210.0		88.0		
8	99.0			330.0		120.0		
Embedment Depth, ft	8.0	5.0	5.0	8.0	5.0	8.0	5.0	5.0
Total Drive Time, sec	99.0	47.0	26.0	330.0	94.0	120.0	33.0	40.0
Average, sec/ft	14.1	11.8	6.5	47.1	23.5	17.1	8.3	10.0

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

Exhibit D-4

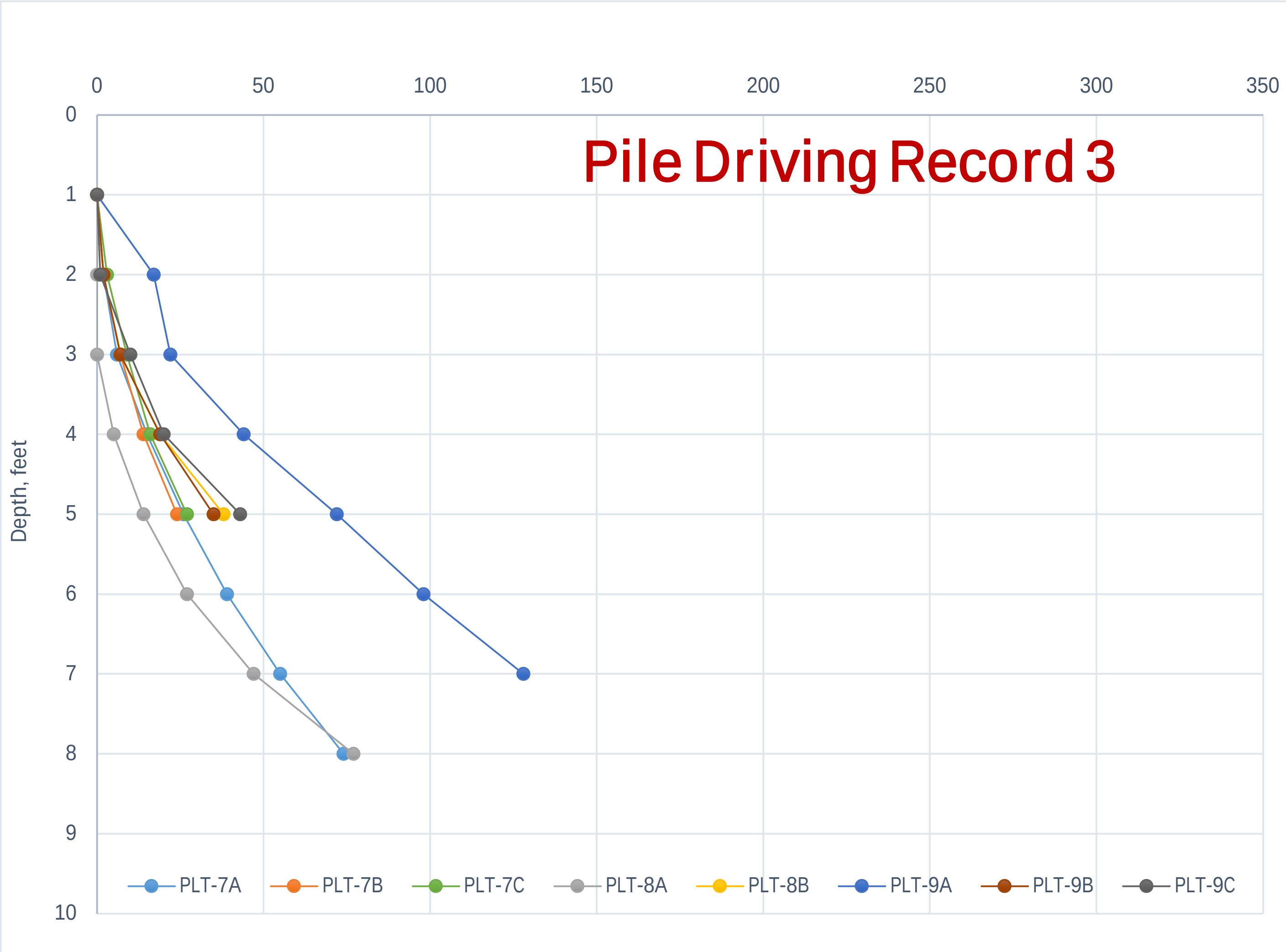


Depth (feet)	Cumulative Driving Time, seconds						
	PLT-4A	PLT-4B	PLT-5A	PLT-5B	PLT-5C	PLT-6A	PLT-6B
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5.0	2.0	1.0	2.0	1.0	1.0	0.0
3	24.0	15.0	7.0	7.0	6.0	7.0	4.0
4	46.0	39.0	16.0	14.0	14.0	17.0	12.0
5	78.0	79.0	28.0	25.0	24.0	32.0	25.0
6	117.0		40.0			56.0	
7	160.0		56.0			93.0	
8	290.0		72.0			137.0	
Embedment Depth, ft	8.0	5.0	8.0	5.0	5.0	8.0	5.0
Total Drive Time, sec	290.0	79.0	72.0	25.0	24.0	137.0	25.0
Average, sec/ft	41.4	19.8	10.3	6.3	6.0	19.6	6.3

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

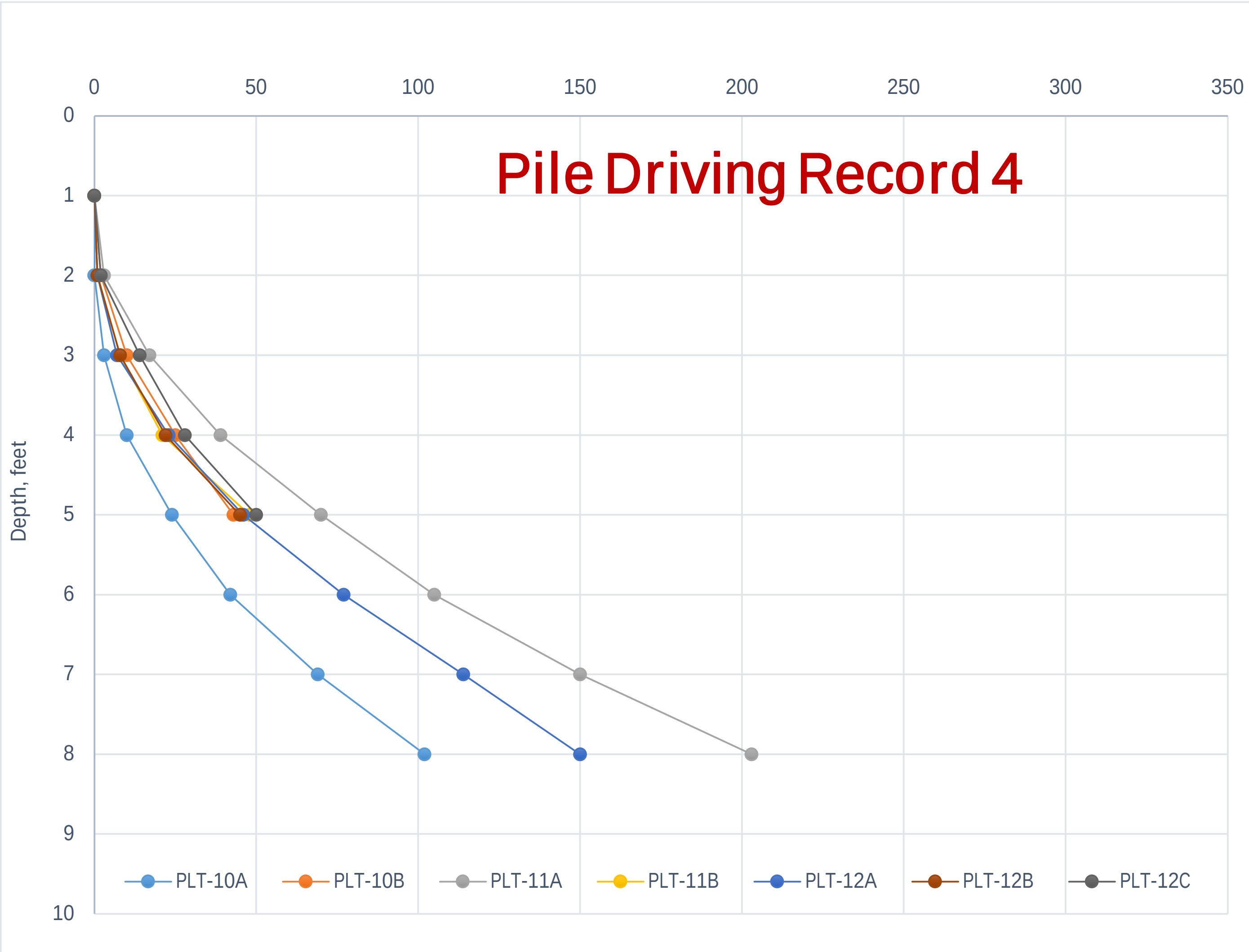


Depth (feet)	Cumulative Driving Time, seconds							
	PLT-7A	PLT-7B	PLT-7C	PLT-8A	PLT-8B	PLT-9A	PLT-9B	PLT-9C
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	2.0	3.0	0.0	2.0	17.0	2.0	1.0
3	6.0	7.0	9.0	0.0	7.0	22.0	7.0	10.0
4	15.0	14.0	16.0	5.0	19.0	44.0	19.0	20.0
5	26.0	24.0	27.0	14.0	38.0	72.0	35.0	43.0
6	39.0			27.0		98.0		
7	55.0			47.0		128.0		
8	74.0			77.0				
Embedment Depth, ft	8.0	5.0	5.0	8.0	5.0	7.0	5.0	5.0
Total Drive Time, sec	74.0	24.0	27.0	77.0	38.0	128.0	35.0	43.0
Average, sec/ft	10.6	6.0	6.8	11.0	9.5	21.3	8.8	10.8

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon



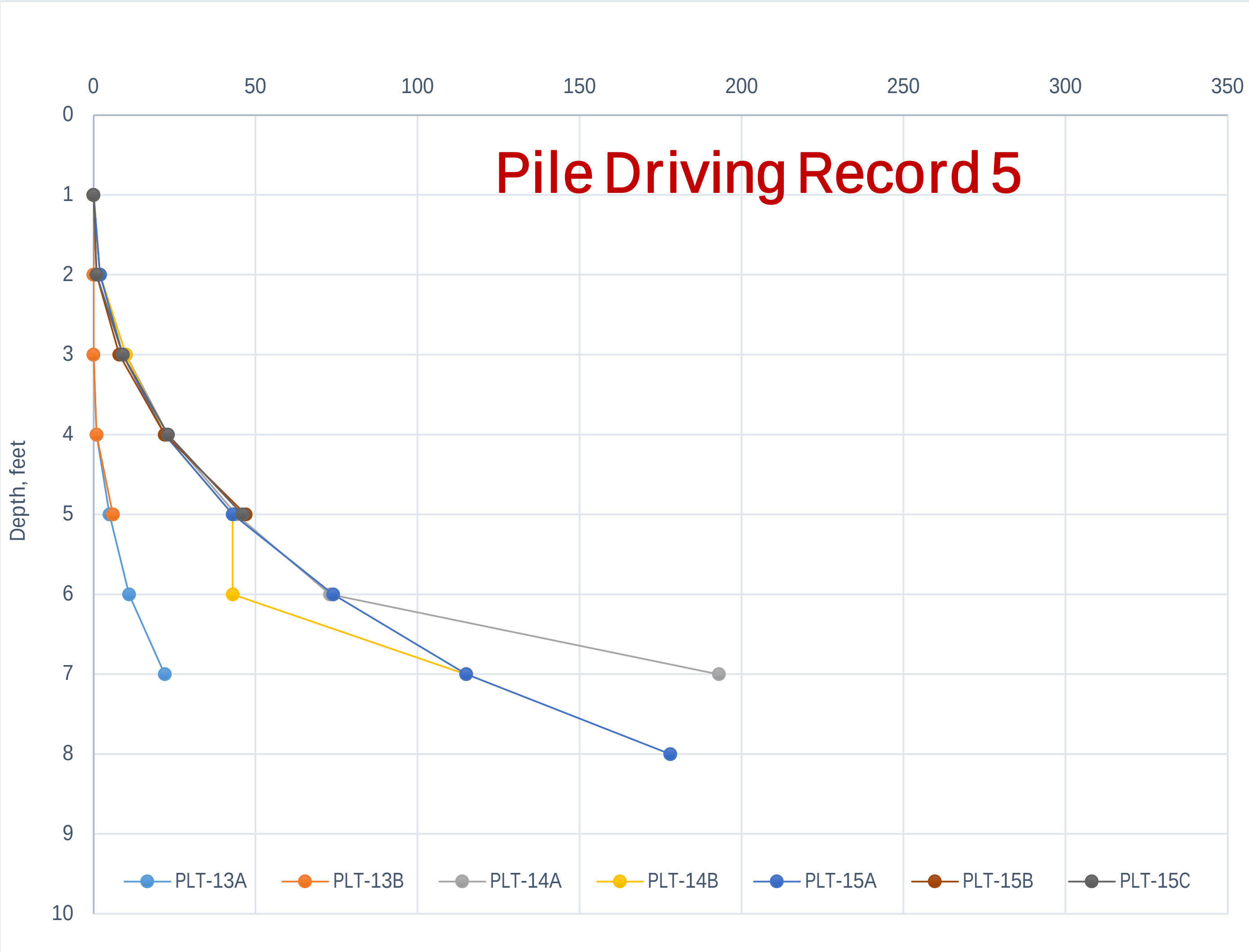
Depth (feet)	Cumulative Driving Time, seconds						
	PLT-10A	PLT-10B	PLT-11A	PLT-11B	PLT-12A	PLT-12B	PLT-12C
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	2.0	3.0	1.0	1.0	1.0	2.0
3	3.0	10.0	17.0	8.0	7.0	8.0	14.0
4	10.0	25.0	39.0	21.0	23.0	22.0	28.0
5	24.0	43.0	70.0	48.0	46.0	45.0	50.0
6	42.0		105.0		77.0		
7	69.0		150.0		114.0		
8	102.0		203.0		150.0		
Embedment Depth, ft	8.0	5.0	8.0	5.0	8.0	5.0	5.0
Total Drive Time, sec	102.0	43.0	203.0	48.0	150.0	45.0	50.0
Average, sec/ft	14.6	10.8	29.0	12.0	21.4	11.3	12.5

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram. Installation depth started at 24 inches below ground surface

Terracon

Exhibit D-4



Depth (feet)	Cumulative Driving Time, seconds						
	PLT-13A	PLT-13B	PLT-14A	PLT-14B	PLT-15A	PLT-15B	PLT-15C
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	2.0	2.0	2.0	1.0	1.0
3	0.0	0.0	10.0	10.0	9.0	8.0	9.0
4	1.0	1.0	23.0	22.0	22.0	22.0	23.0
5	5.0	6.0	44.0	43.0	43.0	47.0	46.0
6	11.0		73.0	43.0	74.0		
7	22.0		193.0	115.0	115.0		
8					178.0		
Embedment Depth, ft	7.0	5.0	6.5	7.0	8.0	5.0	5.0
Total Drive Time, sec	22.0	6.0	193.0	115.0	178.0	47.0	46.0
Average, sec/ft	3.7	1.5	35.1	19.2	25.4	11.8	11.5

NOTES:

Piles advanced with Vermeer PD-10 hydraulic ram.
Installation depth started at 24 inches below ground surface

APPENDIX E – PILE LOAD TEST RESULTS – AXIAL TENSION LOAD

Contents:

Tension Load Test Result for PLT-1A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

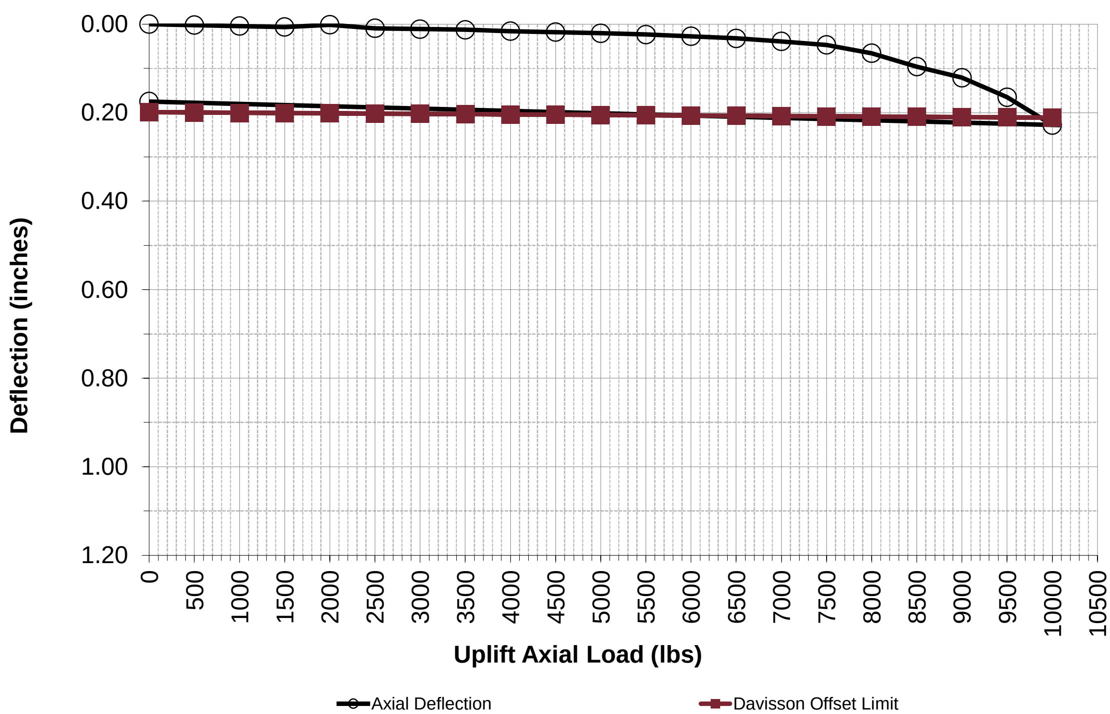
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-1A
Latitude:	37.67694
Longitude:	-85.96791
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	99

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	0.007	0.002	0.201	
20%	2000	0.002	0.002	0.202	
25%	2500	0.010	0.003	0.202	
30%	3000	0.011	0.004	0.203	
35%	3500	0.013	0.004	0.203	
40%	4000	0.016	0.005	0.204	
45%	4500	0.018	0.006	0.205	
50%	5000	0.021	0.006	0.205	
55%	5500	0.024	0.007	0.206	
60%	6000	0.028	0.007	0.207	
65%	6500	0.032	0.008	0.207	
70%	7000	0.039	0.009	0.208	
75%	7500	0.047	0.009	0.208	
80%	8000	0.066	0.010	0.209	
85%	8500	0.096	0.010	0.210	
90%	9000	0.121	0.011	0.210	
95%	9500	0.165	0.012	0.211	
100%	10000	0.228	0.012	0.212	
0%	0	0.175	0.000	0.199	



Tension Load Test Result for PLT-1B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

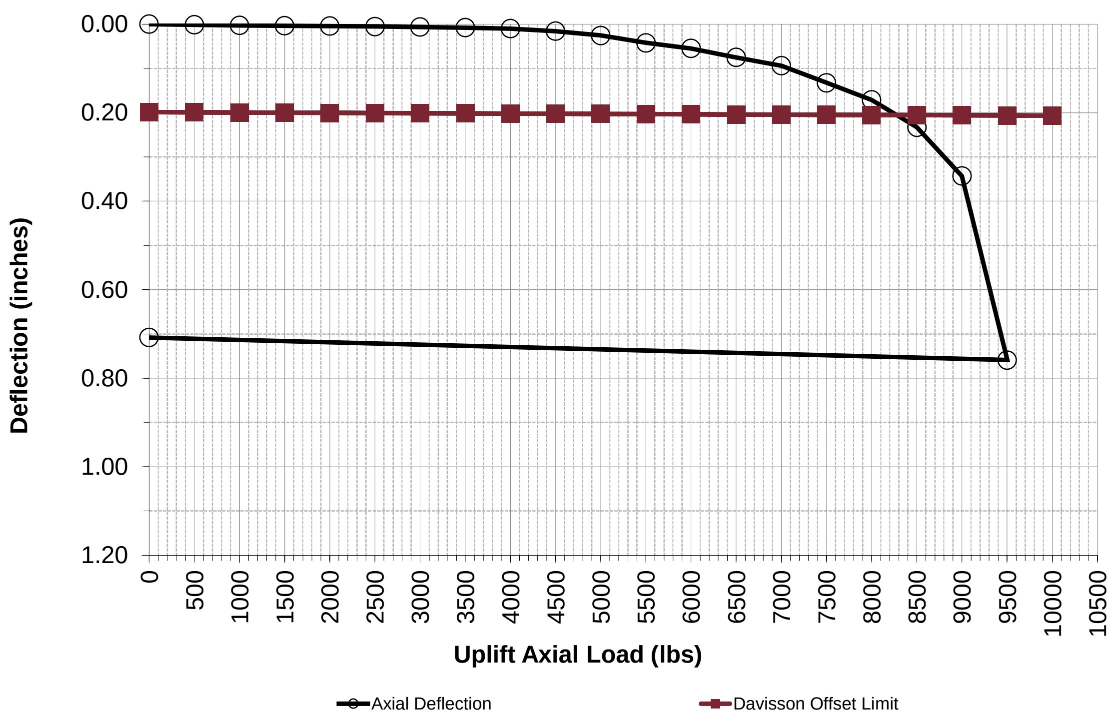
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-1B
Latitude:	37.67694
Longitude:	-85.96791
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	47

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	0.200	
20%	2000	0.005	0.002	0.201	
25%	2500	0.006	0.002	0.201	
30%	3000	0.007	0.002	0.201	
35%	3500	0.008	0.003	0.202	
40%	4000	0.011	0.003	0.202	
45%	4500	0.016	0.003	0.203	
50%	5000	0.026	0.004	0.203	
55%	5500	0.043	0.004	0.203	
60%	6000	0.055	0.005	0.204	
65%	6500	0.076	0.005	0.204	
70%	7000	0.094	0.005	0.205	
75%	7500	0.133	0.006	0.205	
80%	8000	0.172	0.006	0.205	
85%	8500	0.233	0.007	0.206	
90%	9000	0.343	0.007	0.206	
95%	9500	0.759	0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.708	0.000	0.199	



Tension Load Test Result for PLT-2A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

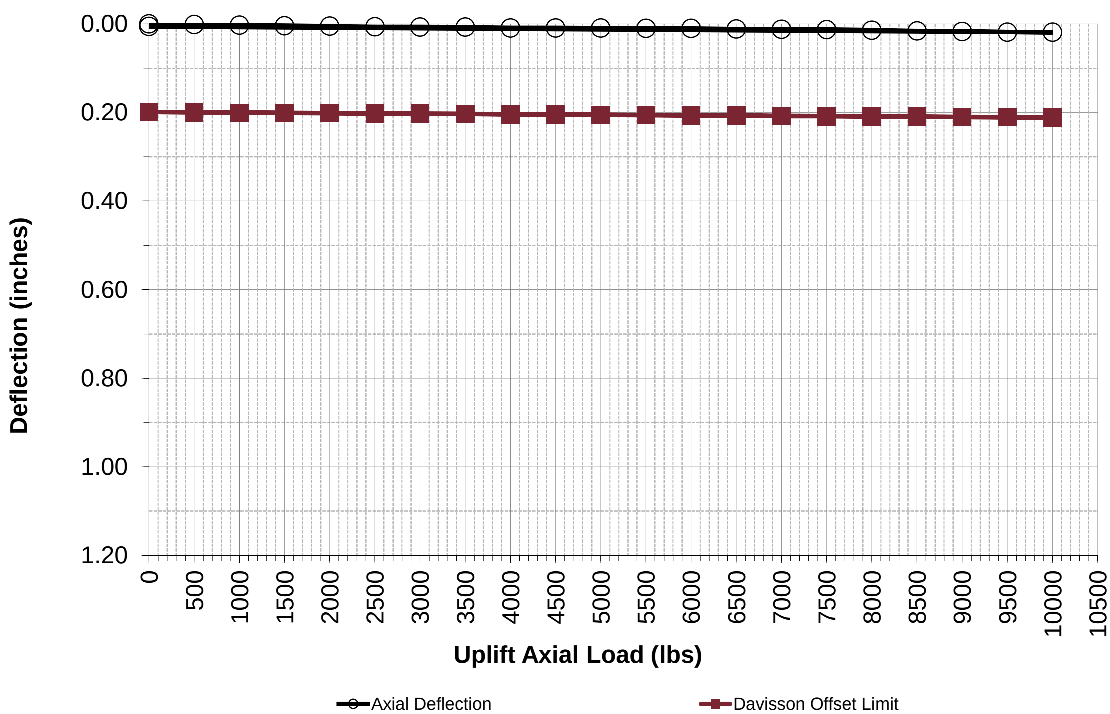
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-2A
Latitude:	37.67935
Longitude:	-85.96358
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	330

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	0.202	
25%	2500	0.007	0.003	0.202	
30%	3000	0.007	0.004	0.203	
35%	3500	0.008	0.004	0.203	
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	0.010	0.007	0.206	
60%	6000	0.011	0.007	0.207	
65%	6500	0.012	0.008	0.207	
70%	7000	0.012	0.009	0.208	
75%	7500	0.013	0.009	0.208	
80%	8000	0.014	0.010	0.209	
85%	8500	0.016	0.010	0.210	
90%	9000	0.017	0.011	0.210	
95%	9500	0.019	0.012	0.211	
100%	10000	0.019	0.012	0.212	
0%	0	0.006	0.000	0.199	



Tension Load Test Result for PLT-2B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

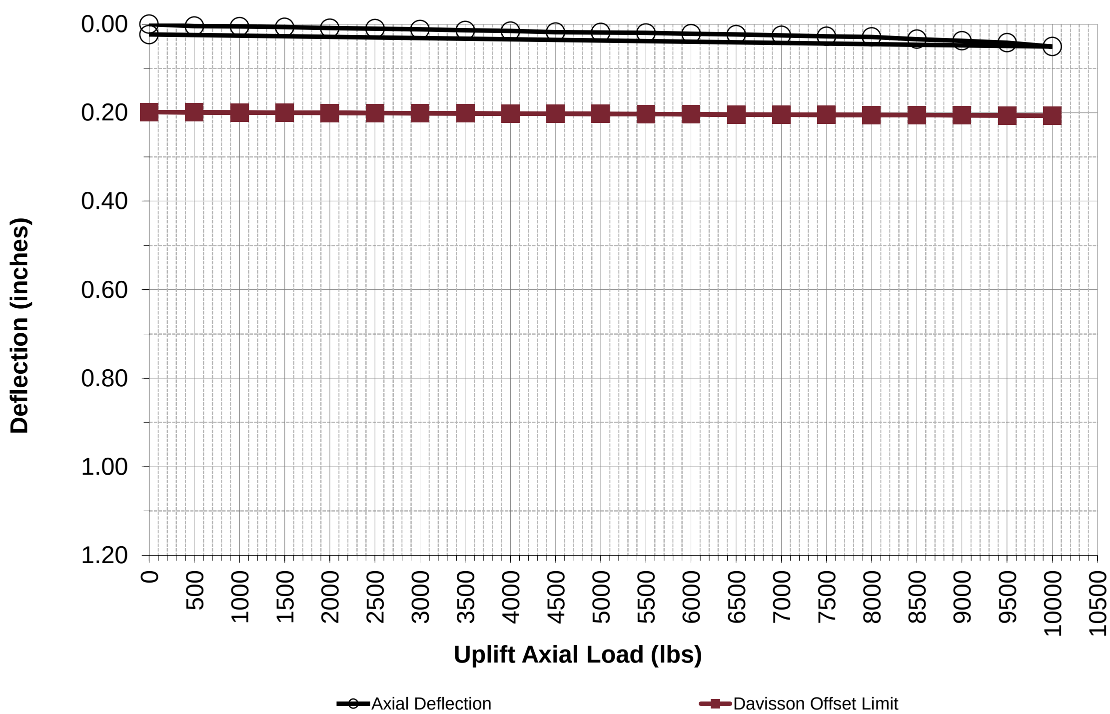
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-2B
Latitude:	37.67935
Longitude:	-85.96358
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	94

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	0.000	0.200	
10%	1000	0.006	0.001	0.200	
15%	1500	0.007	0.001	0.200	
20%	2000	0.009	0.002	0.201	
25%	2500	0.011	0.002	0.201	
30%	3000	0.012	0.002	0.201	
35%	3500	0.014	0.003	0.202	
40%	4000	0.016	0.003	0.202	
45%	4500	0.018	0.003	0.203	
50%	5000	0.019	0.004	0.203	
55%	5500	0.020	0.004	0.203	
60%	6000	0.022	0.005	0.204	
65%	6500	0.024	0.005	0.204	
70%	7000	0.025	0.005	0.205	
75%	7500	0.028	0.006	0.205	
80%	8000	0.029	0.006	0.205	
85%	8500	0.034	0.007	0.206	
90%	9000	0.038	0.007	0.206	
95%	9500	0.042	0.007	0.207	
100%	10000	0.051	0.008	0.207	
0%	0	0.024	0.000	0.199	



Tension Load Test Result for PLT-3A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

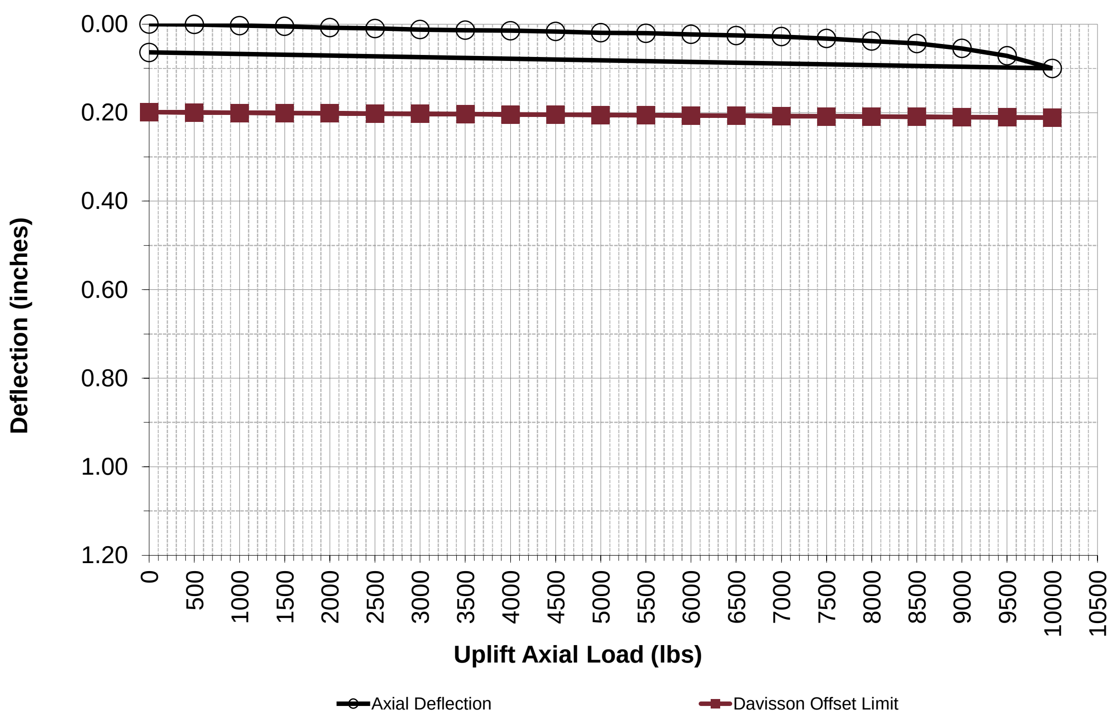
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-3A
Latitude:	37.68330
Longitude:	-85.96170
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	120

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	0.004	0.001	0.200	
15%	1500	0.005	0.002	0.201	
20%	2000	0.008	0.002	0.202	
25%	2500	0.010	0.003	0.202	
30%	3000	0.013	0.004	0.203	
35%	3500	0.014	0.004	0.203	
40%	4000	0.015	0.005	0.204	
45%	4500	0.017	0.006	0.205	
50%	5000	0.020	0.006	0.205	
55%	5500	0.021	0.007	0.206	
60%	6000	0.023	0.007	0.207	
65%	6500	0.026	0.008	0.207	
70%	7000	0.029	0.009	0.208	
75%	7500	0.033	0.009	0.208	
80%	8000	0.039	0.010	0.209	
85%	8500	0.044	0.010	0.210	
90%	9000	0.055	0.011	0.210	
95%	9500	0.072	0.012	0.211	
100%	10000	0.100	0.012	0.212	
0%	0	0.064	0.000	0.199	



Tension Load Test Result for PLT-3B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

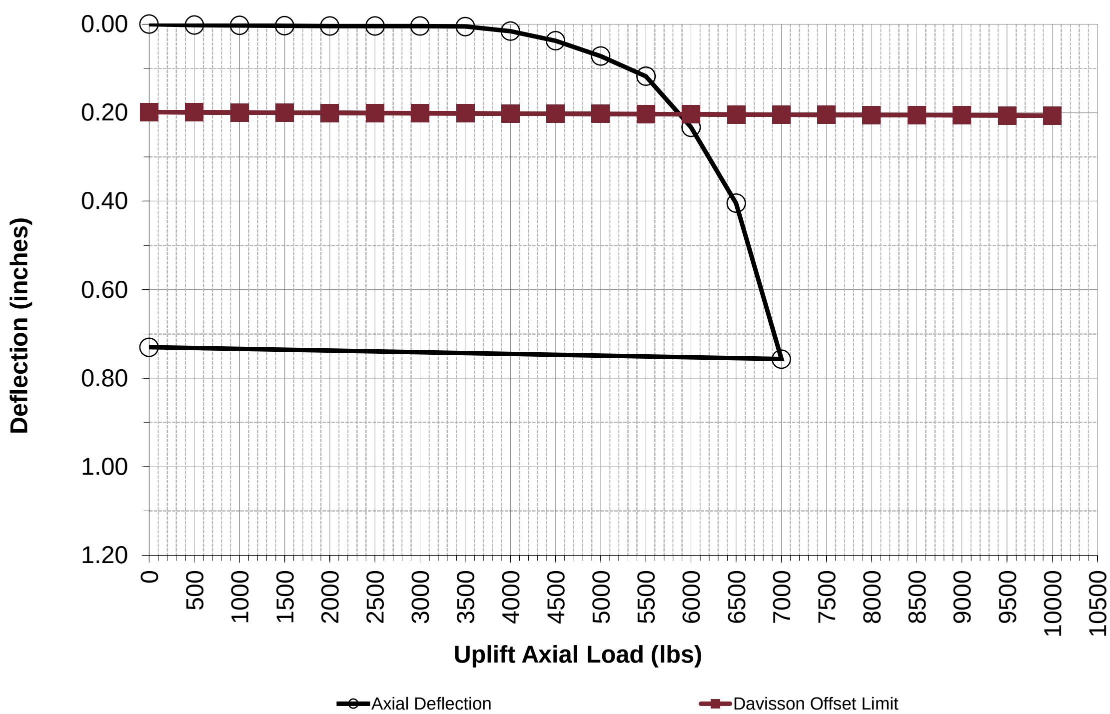
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-3B
Latitude:	37.68330
Longitude:	-85.96170
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	33

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	0.200	
20%	2000	0.005	0.002	0.201	
25%	2500	0.005	0.002	0.201	
30%	3000	0.005	0.002	0.201	
35%	3500	0.006	0.003	0.202	
40%	4000	0.016	0.003	0.202	
45%	4500	0.038	0.003	0.203	
50%	5000	0.072	0.004	0.203	
55%	5500	0.118	0.004	0.203	
60%	6000	0.233	0.005	0.204	
65%	6500	0.405	0.005	0.204	
70%	7000	0.757	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.730	0.000	0.199	



Tension Load Test Result for PLT-4A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

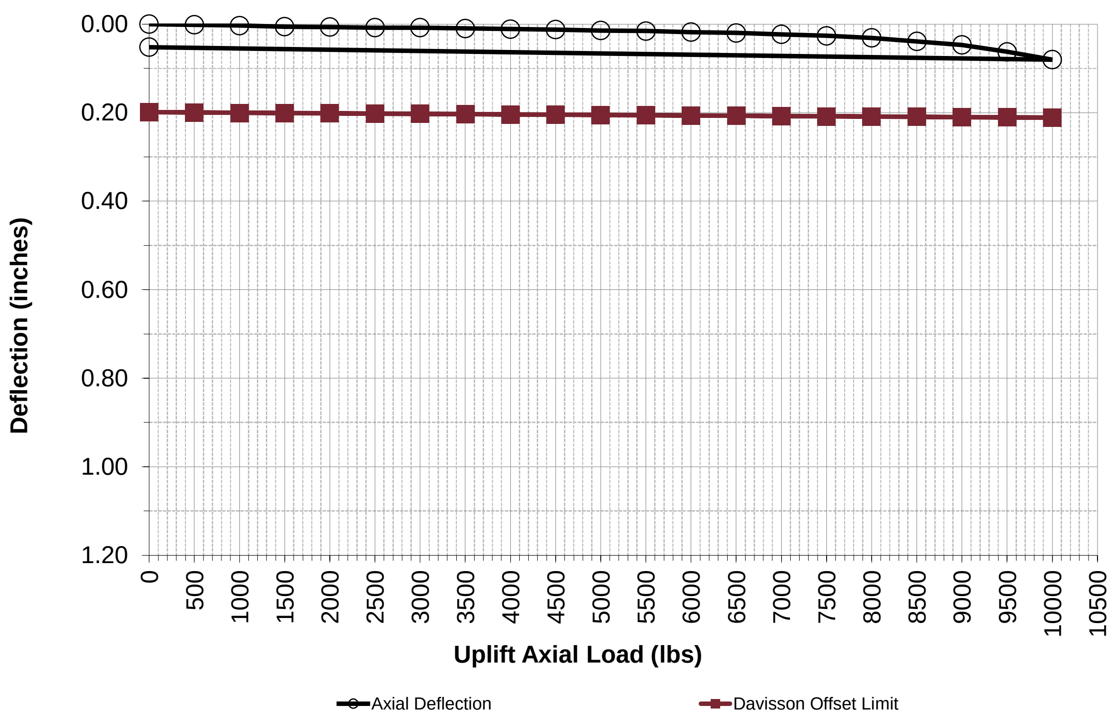
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-4A
Latitude:	37.68597
Longitude:	-85.95577
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	290

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	0.200	
15%	1500	0.006	0.002	0.201	
20%	2000	0.007	0.002	0.202	
25%	2500	0.008	0.003	0.202	
30%	3000	0.008	0.004	0.203	
35%	3500	0.010	0.004	0.203	
40%	4000	0.011	0.005	0.204	
45%	4500	0.013	0.006	0.205	
50%	5000	0.015	0.006	0.205	
55%	5500	0.016	0.007	0.206	
60%	6000	0.018	0.007	0.207	
65%	6500	0.020	0.008	0.207	
70%	7000	0.023	0.009	0.208	
75%	7500	0.027	0.009	0.208	
80%	8000	0.031	0.010	0.209	
85%	8500	0.039	0.010	0.210	
90%	9000	0.047	0.011	0.210	
95%	9500	0.063	0.012	0.211	
100%	10000	0.081	0.012	0.212	
0%	0	0.052	0.000	0.199	



Tension Load Test Result for PLT-4B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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:	3/14/2022

Pile Information

Pile ID:	PLT-4B
Latitude:	37.68597
Longitude:	-85.95577
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	79

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	0.003	0.001	0.200	
15%	1500	0.004	0.001	0.200	
20%	2000	0.005	0.002	0.201	
25%	2500	0.007	0.002	0.201	
30%	3000	0.008	0.002	0.201	
35%	3500	0.010	0.003	0.202	
40%	4000	0.012	0.003	0.202	
45%	4500	0.015	0.003	0.203	
50%	5000	0.019	0.004	0.203	
55%	5500	0.026	0.004	0.203	
60%	6000	0.035	0.005	0.204	
65%	6500	0.051	0.005	0.204	
70%	7000	0.079	0.005	0.205	
75%	7500	0.110	0.006	0.205	
80%	8000	0.162	0.006	0.205	
85%	8500	0.267	0.007	0.206	
90%	9000	0.384	0.007	0.206	
93%	9300	0.779	0.007	0.206	
100%	10000		0.008	0.207	
0%	0	0.732	0.000	0.199	

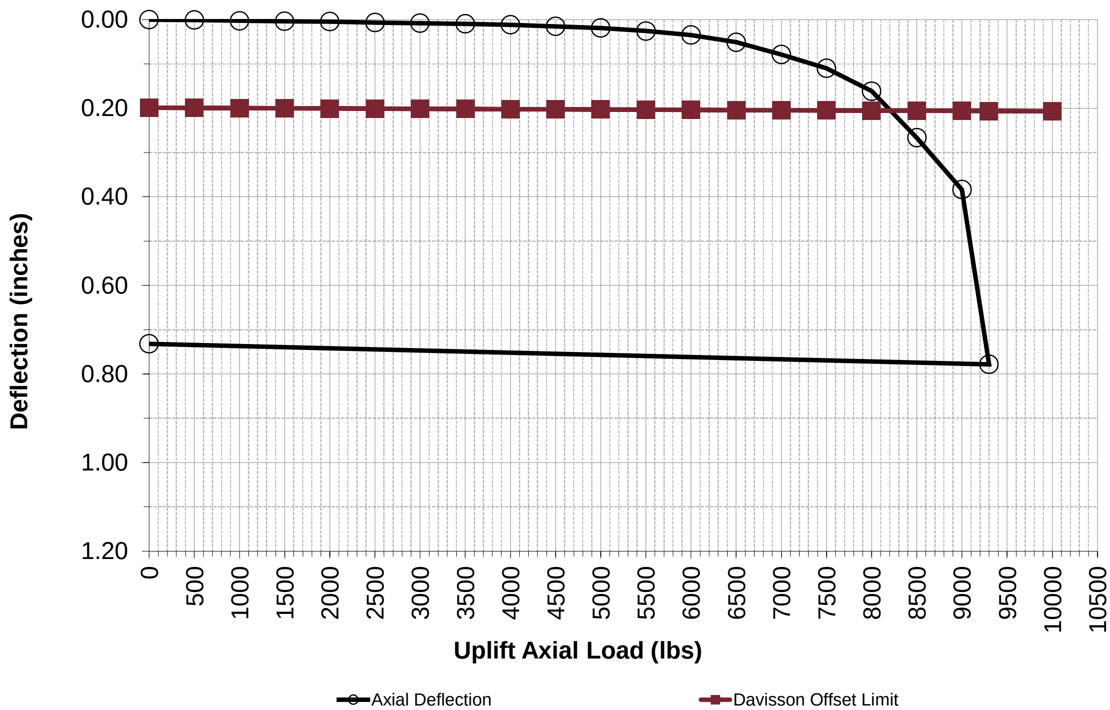


Exhibit E-8

Tension Load Test Result for PLT-5A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

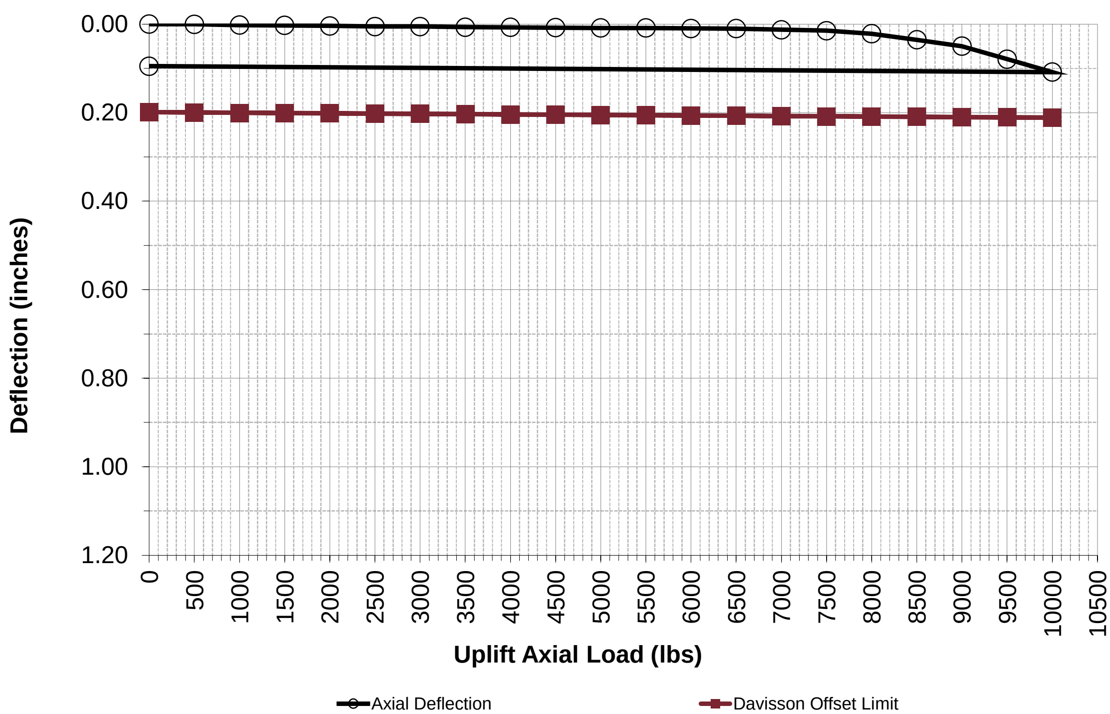
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-5A
Latitude:	37.68208
Longitude:	-85.95477
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	72

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	0.003	0.002	0.201	
20%	2000	0.004	0.002	0.202	
25%	2500	0.005	0.003	0.202	
30%	3000	0.006	0.004	0.203	
35%	3500	0.007	0.004	0.203	
40%	4000	0.008	0.005	0.204	
45%	4500	0.008	0.006	0.205	
50%	5000	0.009	0.006	0.205	
55%	5500	0.009	0.007	0.206	
60%	6000	0.010	0.007	0.207	
65%	6500	0.011	0.008	0.207	
70%	7000	0.013	0.009	0.208	
75%	7500	0.015	0.009	0.208	
80%	8000	0.022	0.010	0.209	
85%	8500	0.036	0.010	0.210	
90%	9000	0.050	0.011	0.210	
95%	9500	0.079	0.012	0.211	
100%	10000	0.109	0.012	0.212	
0%	0	0.095	0.000	0.199	



Tension Load Test Result for PLT-5B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

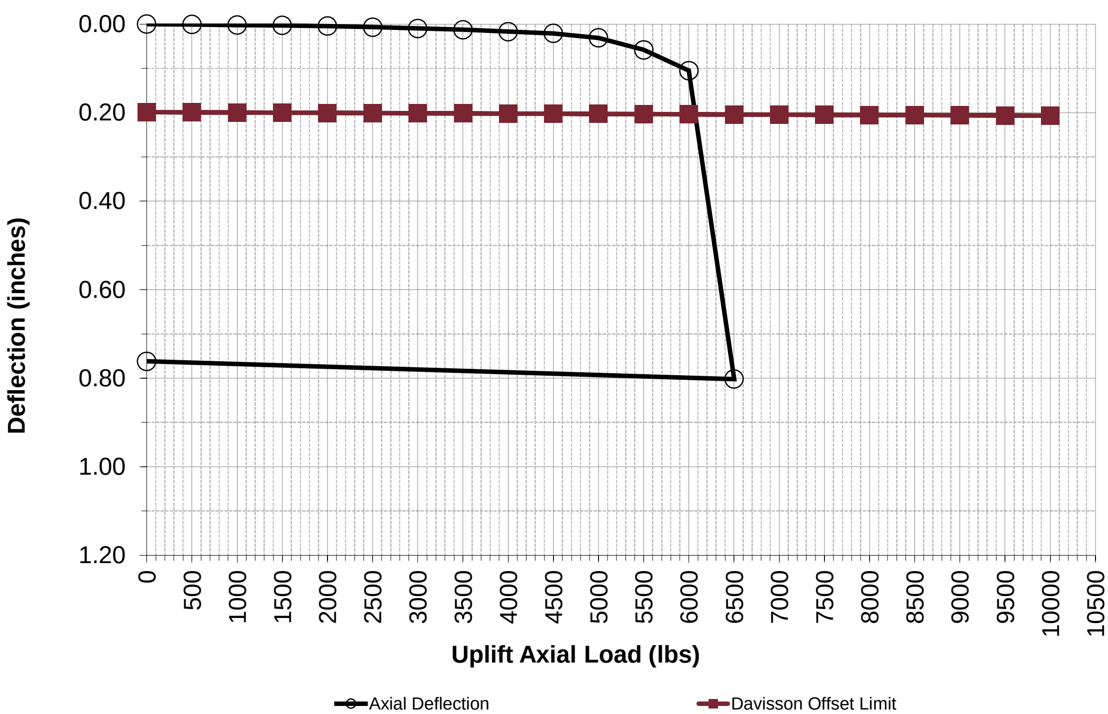
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-5B
Latitude:	37.68208
Longitude:	-85.95477
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	25

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	0.002	0.001	0.200	
15%	1500	0.003	0.001	0.200	
20%	2000	0.005	0.002	0.201	
25%	2500	0.007	0.002	0.201	
30%	3000	0.010	0.002	0.201	
35%	3500	0.013	0.003	0.202	
40%	4000	0.017	0.003	0.202	
45%	4500	0.021	0.003	0.203	
50%	5000	0.031	0.004	0.203	
55%	5500	0.058	0.004	0.203	
60%	6000	0.105	0.005	0.204	
65%	6500	0.802	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.762	0.000	0.199	



Tension Load Test Result for PLT-6A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

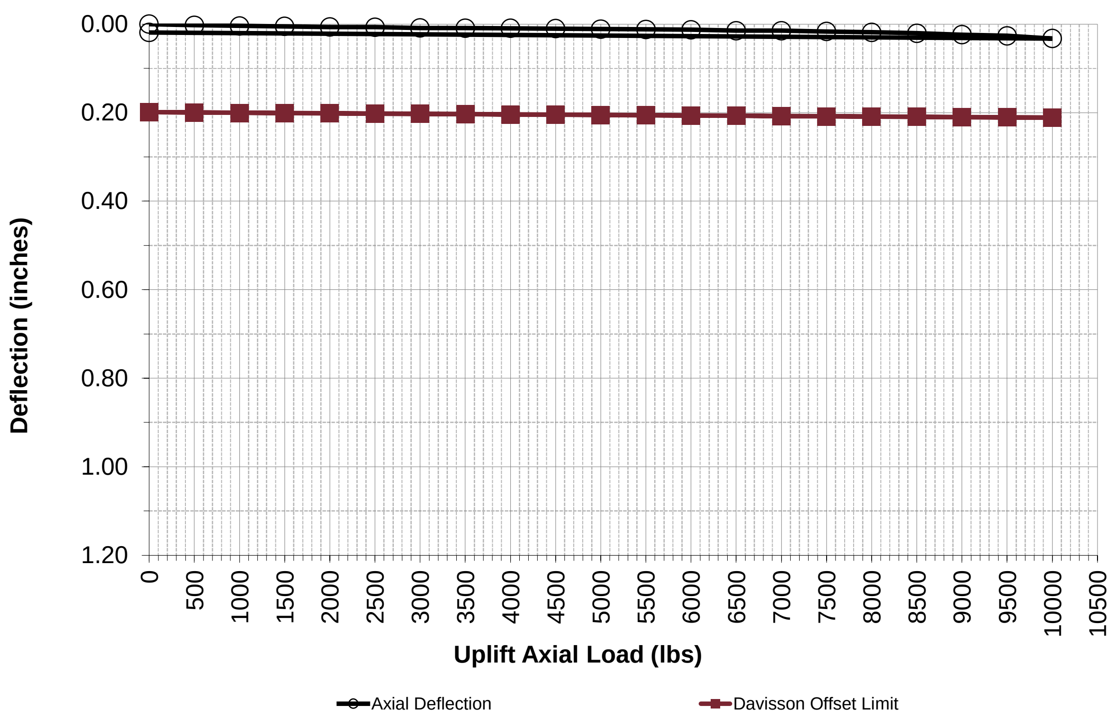
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-6A
Latitude:	37.67745
Longitude:	-85.95233
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	137

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	0.005	0.002	0.201	
20%	2000	0.007	0.002	0.202	
25%	2500	0.007	0.003	0.202	
30%	3000	0.009	0.004	0.203	
35%	3500	0.009	0.004	0.203	
40%	4000	0.010	0.005	0.204	
45%	4500	0.011	0.006	0.205	
50%	5000	0.011	0.006	0.205	
55%	5500	0.012	0.007	0.206	
60%	6000	0.013	0.007	0.207	
65%	6500	0.015	0.008	0.207	
70%	7000	0.015	0.009	0.208	
75%	7500	0.017	0.009	0.208	
80%	8000	0.019	0.010	0.209	
85%	8500	0.021	0.010	0.210	
90%	9000	0.024	0.011	0.210	
95%	9500	0.027	0.012	0.211	
100%	10000	0.033	0.012	0.212	
0%	0	0.019	0.000	0.199	



Tension Load Test Result for PLT-6B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

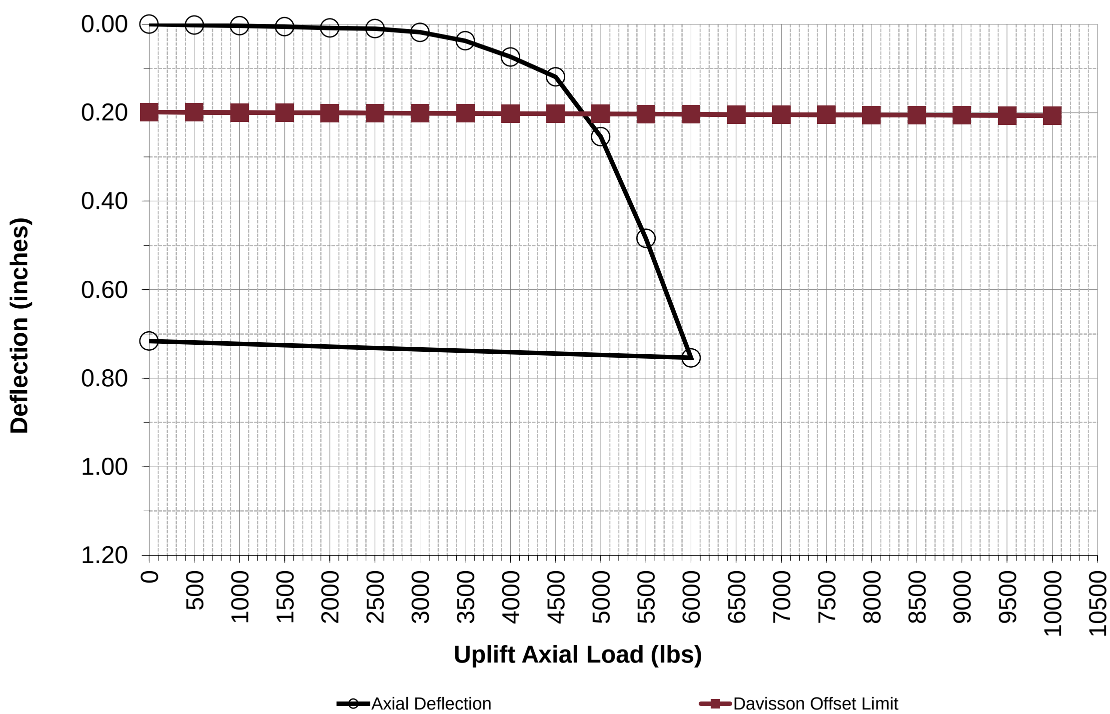
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-6B
Latitude:	37.67745
Longitude:	-85.95233
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	25

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	0.004	0.001	0.200	
15%	1500	0.006	0.001	0.200	
20%	2000	0.009	0.002	0.201	
25%	2500	0.010	0.002	0.201	
30%	3000	0.019	0.002	0.201	
35%	3500	0.038	0.003	0.202	
40%	4000	0.074	0.003	0.202	
45%	4500	0.119	0.003	0.203	
50%	5000	0.255	0.004	0.203	
55%	5500	0.484	0.004	0.203	
60%	6000	0.754	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.716	0.000	0.199	



Tension Load Test Result for PLT-7A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

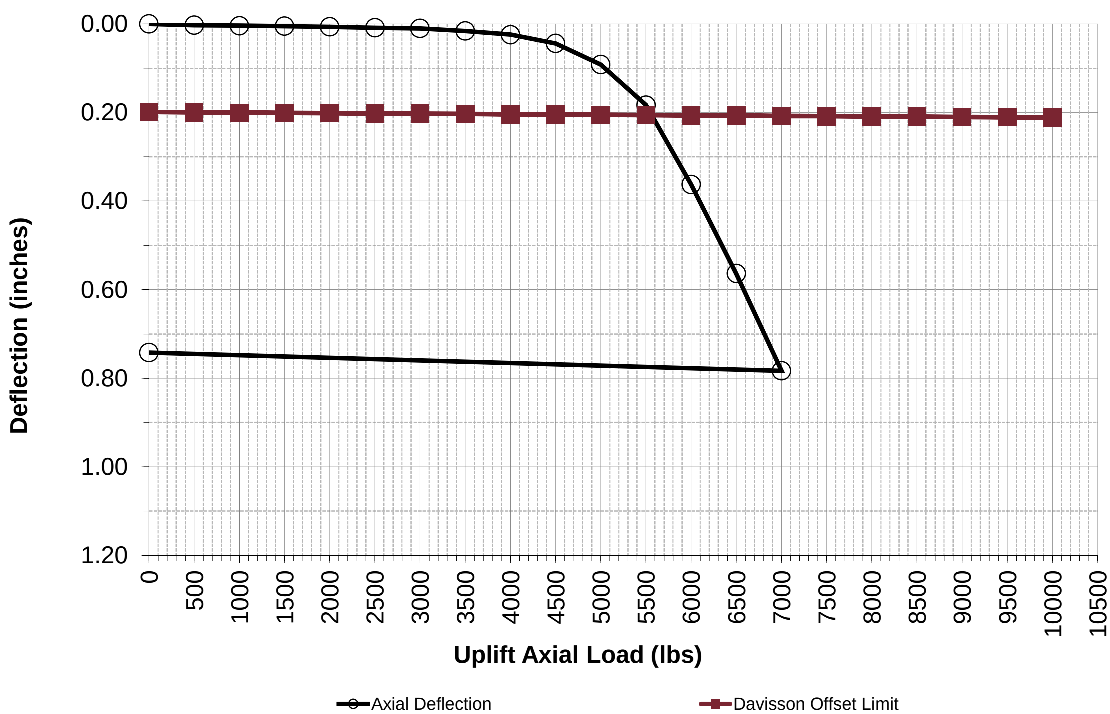
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-7A
Latitude:	37.68436
Longitude:	-85.94908
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	74

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	0.005	0.002	0.201	
20%	2000	0.007	0.002	0.202	
25%	2500	0.009	0.003	0.202	
30%	3000	0.011	0.004	0.203	
35%	3500	0.016	0.004	0.203	
40%	4000	0.025	0.005	0.204	
45%	4500	0.044	0.006	0.205	
50%	5000	0.092	0.006	0.205	
55%	5500	0.184	0.007	0.206	
60%	6000	0.363	0.007	0.207	
65%	6500	0.564	0.008	0.207	
70%	7000	0.783	0.009	0.208	
75%	7500		0.009	0.208	
80%	8000		0.010	0.209	
85%	8500		0.010	0.210	
90%	9000		0.011	0.210	
95%	9500		0.012	0.211	
100%	10000		0.012	0.212	
0%	0	0.742	0.000	0.199	



Tension Load Test Result for PLT-7B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

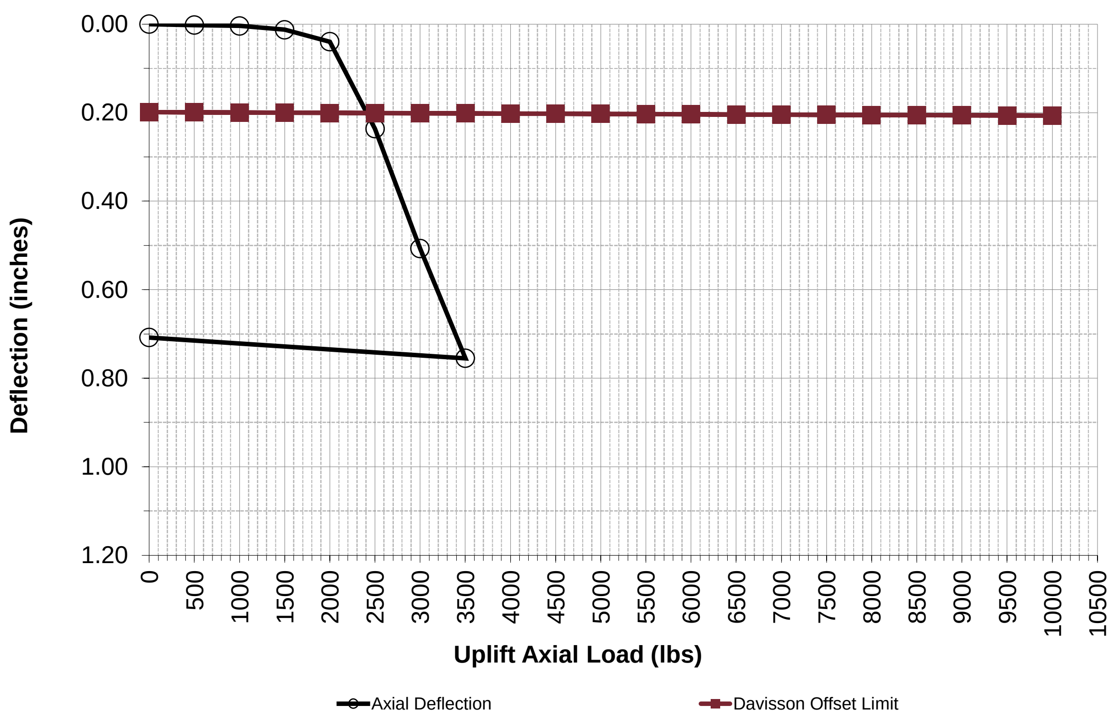
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-7B
Latitude:	37.68436
Longitude:	-85.94908
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	24

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	0.004	0.001	0.200	
15%	1500	0.013	0.001	0.200	
20%	2000	0.040	0.002	0.201	
25%	2500	0.237	0.002	0.201	
30%	3000	0.507	0.002	0.201	
35%	3500	0.755	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.708	0.000	0.199	



Tension Load Test Result for PLT-8A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

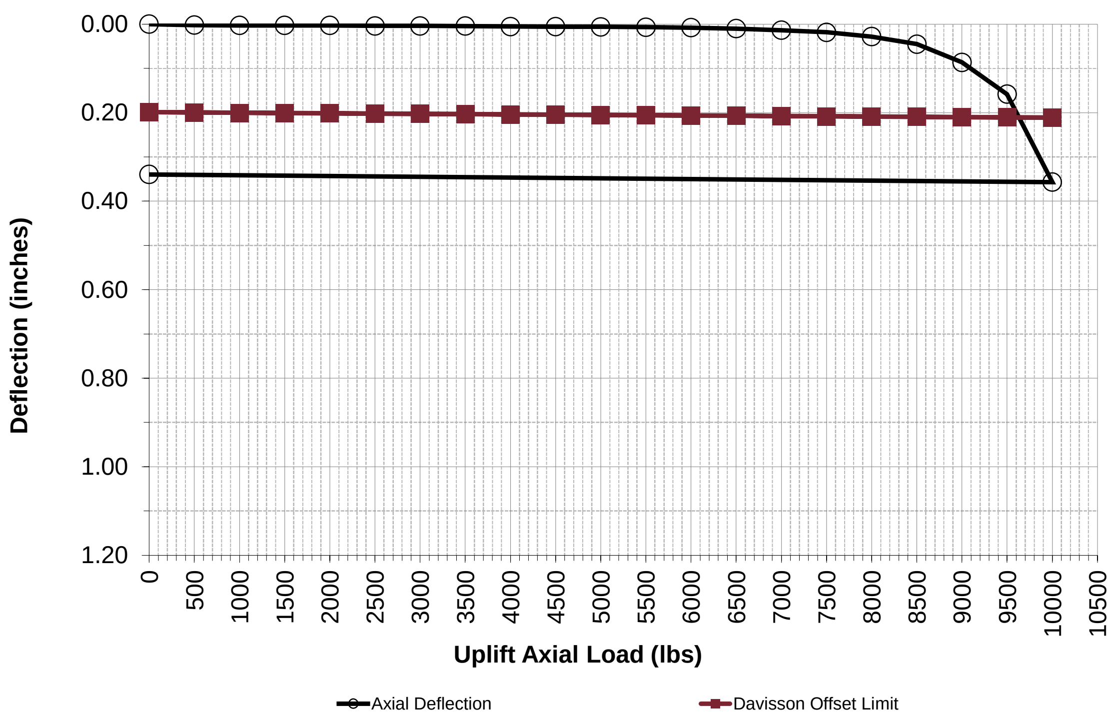
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-8A
Latitude:	37.68902
Longitude:	-85.95087
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	77

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	0.003	0.002	0.201	
20%	2000	0.003	0.002	0.202	
25%	2500	0.004	0.003	0.202	
30%	3000	0.004	0.004	0.203	
35%	3500	0.005	0.004	0.203	
40%	4000	0.006	0.005	0.204	
45%	4500	0.006	0.006	0.205	
50%	5000	0.006	0.006	0.205	
55%	5500	0.007	0.007	0.206	
60%	6000	0.008	0.007	0.207	
65%	6500	0.011	0.008	0.207	
70%	7000	0.014	0.009	0.208	
75%	7500	0.019	0.009	0.208	
80%	8000	0.029	0.010	0.209	
85%	8500	0.046	0.010	0.210	
90%	9000	0.087	0.011	0.210	
95%	9500	0.158	0.012	0.211	
100%	10000	0.357	0.012	0.212	
0%	0	0.340	0.000	0.199	



Tension Load Test Result for PLT-8B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

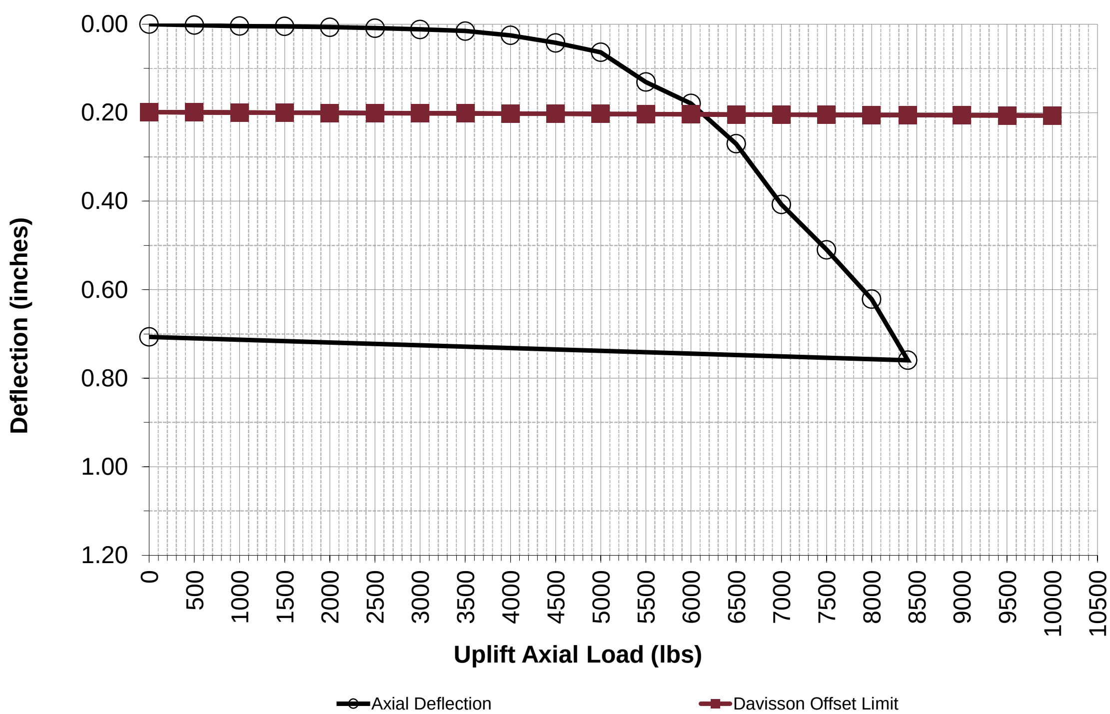
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-8B
Latitude:	37.68902
Longitude:	-85.95087
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	38

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	0.005	0.001	0.200	
20%	2000	0.007	0.002	0.201	
25%	2500	0.009	0.002	0.201	
30%	3000	0.012	0.002	0.201	
35%	3500	0.016	0.003	0.202	
40%	4000	0.025	0.003	0.202	
45%	4500	0.043	0.003	0.203	
50%	5000	0.064	0.004	0.203	
55%	5500	0.131	0.004	0.203	
60%	6000	0.179	0.005	0.204	
65%	6500	0.270	0.005	0.204	
70%	7000	0.408	0.005	0.205	
75%	7500	0.510	0.006	0.205	
80%	8000	0.622	0.006	0.205	
84%	8400	0.760	0.006	0.206	
90%	9000		0.007	0.206	
95%	9500		0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.707	0.000	0.199	



Tension Load Test Result for PLT-9A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

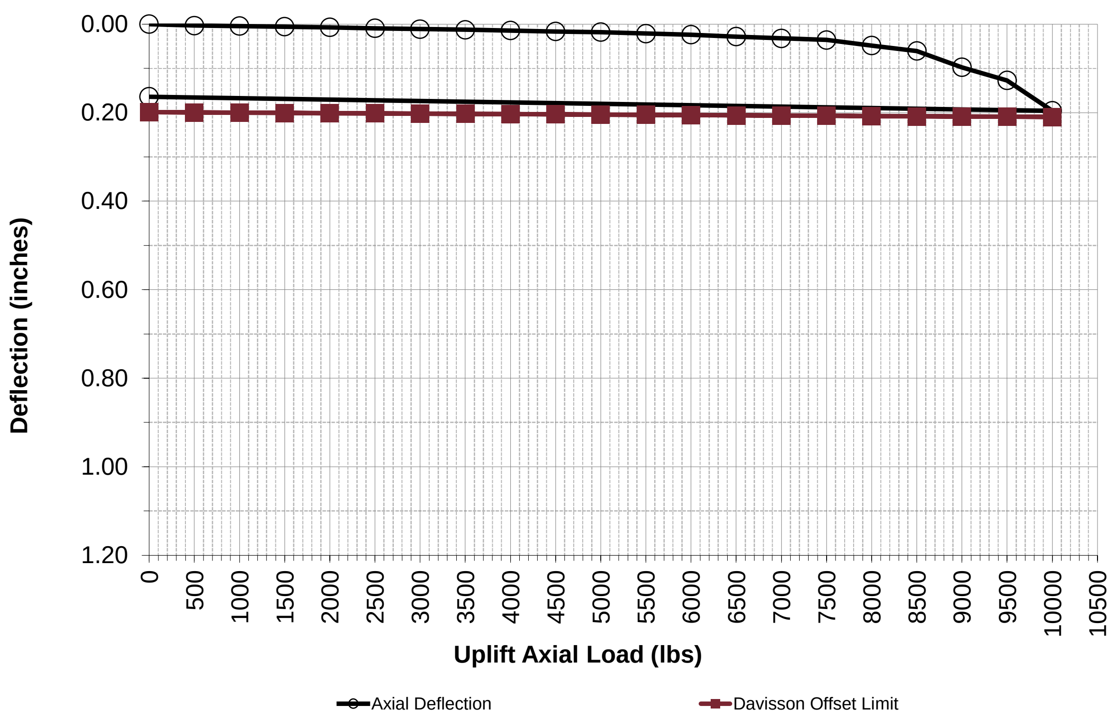
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-9A
Latitude:	37.69051
Longitude:	-85.94704
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	128

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	0.006	0.002	0.201	
20%	2000	0.008	0.002	0.201	
25%	2500	0.010	0.003	0.202	
30%	3000	0.011	0.003	0.202	
35%	3500	0.013	0.004	0.203	
40%	4000	0.015	0.004	0.203	
45%	4500	0.017	0.005	0.204	
50%	5000	0.018	0.005	0.205	
55%	5500	0.022	0.006	0.205	
60%	6000	0.024	0.006	0.206	
65%	6500	0.029	0.007	0.206	
70%	7000	0.032	0.008	0.207	
75%	7500	0.036	0.008	0.207	
80%	8000	0.049	0.009	0.208	
85%	8500	0.061	0.009	0.208	
90%	9000	0.098	0.010	0.209	
95%	9500	0.128	0.010	0.209	
100%	10000	0.196	0.011	0.210	
0%	0	0.164	0.000	0.199	



Tension Load Test Result for PLT-9B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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:	3/15/2022

Pile Information

Pile ID:	PLT-9B
Latitude:	37.69051
Longitude:	-85.94704
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	35

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	0.002	0.001	0.200	
15%	1500	0.003	0.001	0.200	
20%	2000	0.007	0.002	0.201	
25%	2500	0.011	0.002	0.201	
30%	3000	0.018	0.002	0.201	
35%	3500	0.036	0.003	0.202	
40%	4000	0.057	0.003	0.202	
45%	4500	0.150	0.003	0.203	
46%	4600	0.809	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.785	0.000	0.199	

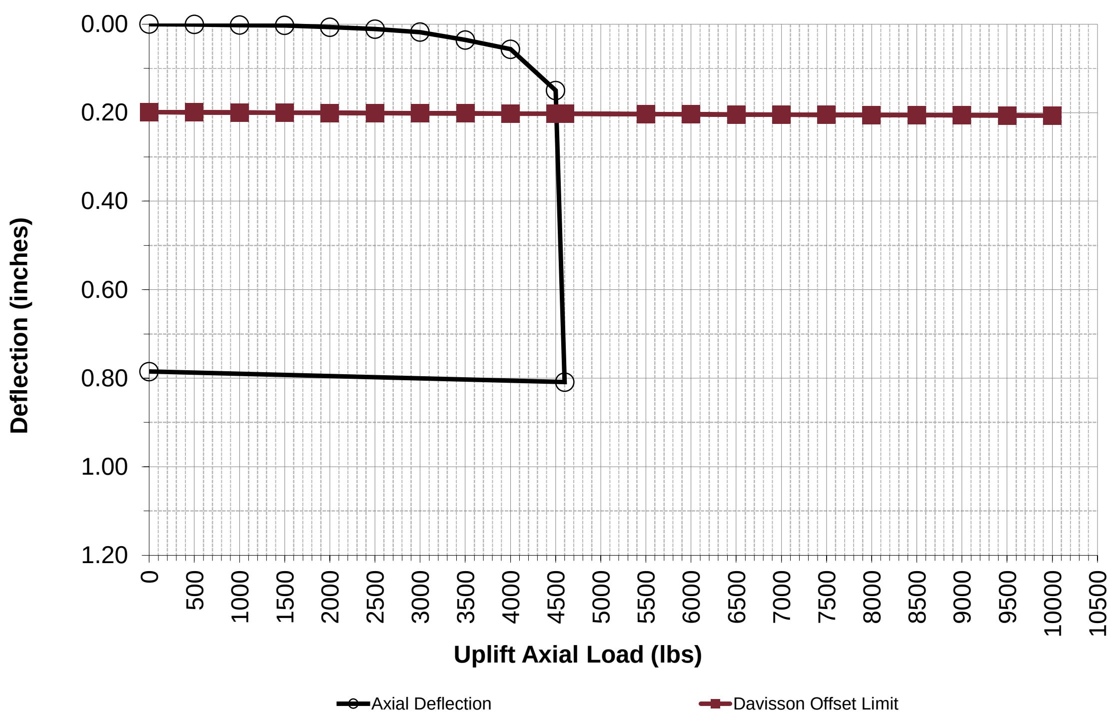


Exhibit E-18

Tension Load Test Result for PLT-10A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

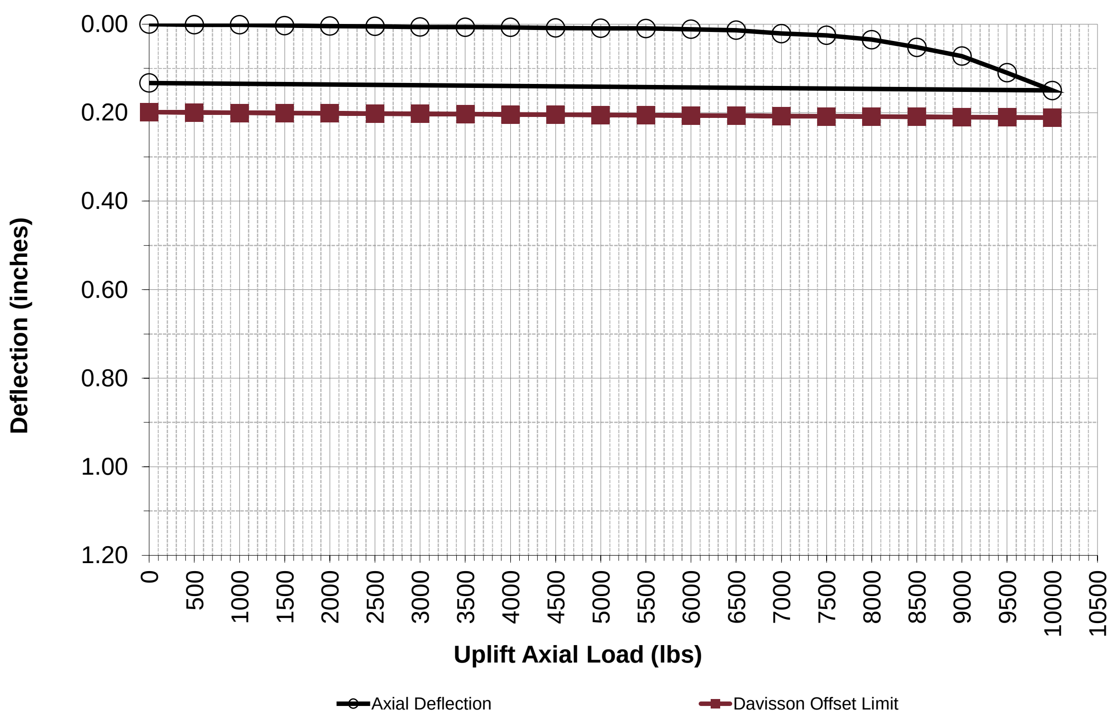
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-10A
Latitude:	37.68668
Longitude:	-85.94721
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	102

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	0.005	0.002	0.202	
25%	2500	0.005	0.003	0.202	
30%	3000	0.007	0.004	0.203	
35%	3500	0.007	0.004	0.203	
40%	4000	0.008	0.005	0.204	
45%	4500	0.009	0.006	0.205	
50%	5000	0.010	0.006	0.205	
55%	5500	0.010	0.007	0.206	
60%	6000	0.012	0.007	0.207	
65%	6500	0.014	0.008	0.207	
70%	7000	0.022	0.009	0.208	
75%	7500	0.025	0.009	0.208	
80%	8000	0.035	0.010	0.209	
85%	8500	0.052	0.010	0.210	
90%	9000	0.073	0.011	0.210	
95%	9500	0.110	0.012	0.211	
100%	10000	0.150	0.012	0.212	
0%	0	0.133	0.000	0.199	



Tension Load Test Result for PLT-10B

Project Information

Project Name: Telesto Solar
Project Location: Cecilia, Kentucky
Project Number: 57215113

Axial Load Test Set Up

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: 25k Ed Jr.

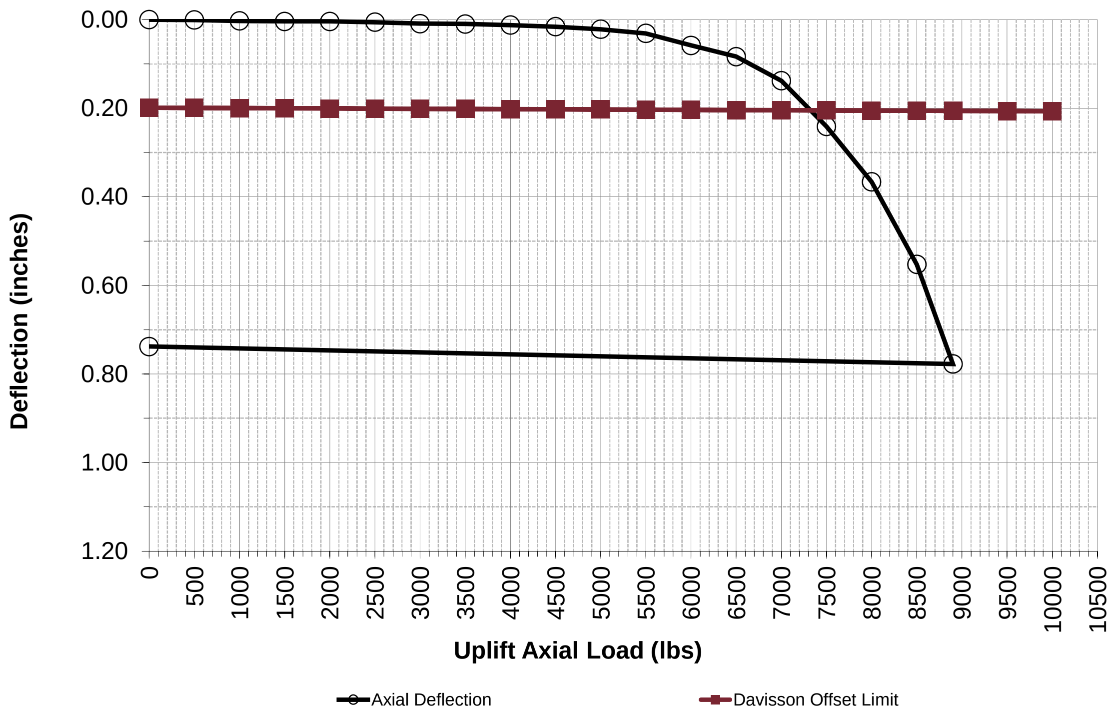
Test Date and Representative

Tested By Terracon Rep: I.McGougan
Date Tested: 3/16/2022

Pile Information

Pile ID: PLT-10B
Latitude: 37.68668
Longitude: -85.94721
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 43

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	0.003	0.001	0.200	
15%	1500	0.004	0.001	0.200	
20%	2000	0.004	0.002	0.201	
25%	2500	0.006	0.002	0.201	
30%	3000	0.009	0.002	0.201	
35%	3500	0.010	0.003	0.202	
40%	4000	0.013	0.003	0.202	
45%	4500	0.016	0.003	0.203	
50%	5000	0.022	0.004	0.203	
55%	5500	0.032	0.004	0.203	
60%	6000	0.058	0.005	0.204	
65%	6500	0.084	0.005	0.204	
70%	7000	0.138	0.005	0.205	
75%	7500	0.242	0.006	0.205	
80%	8000	0.367	0.006	0.205	
85%	8500	0.553	0.007	0.206	
89%	8900	0.778	0.007	0.206	
95%	9500		0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.738	0.000	0.199	



Tension Load Test Result for PLT-11A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

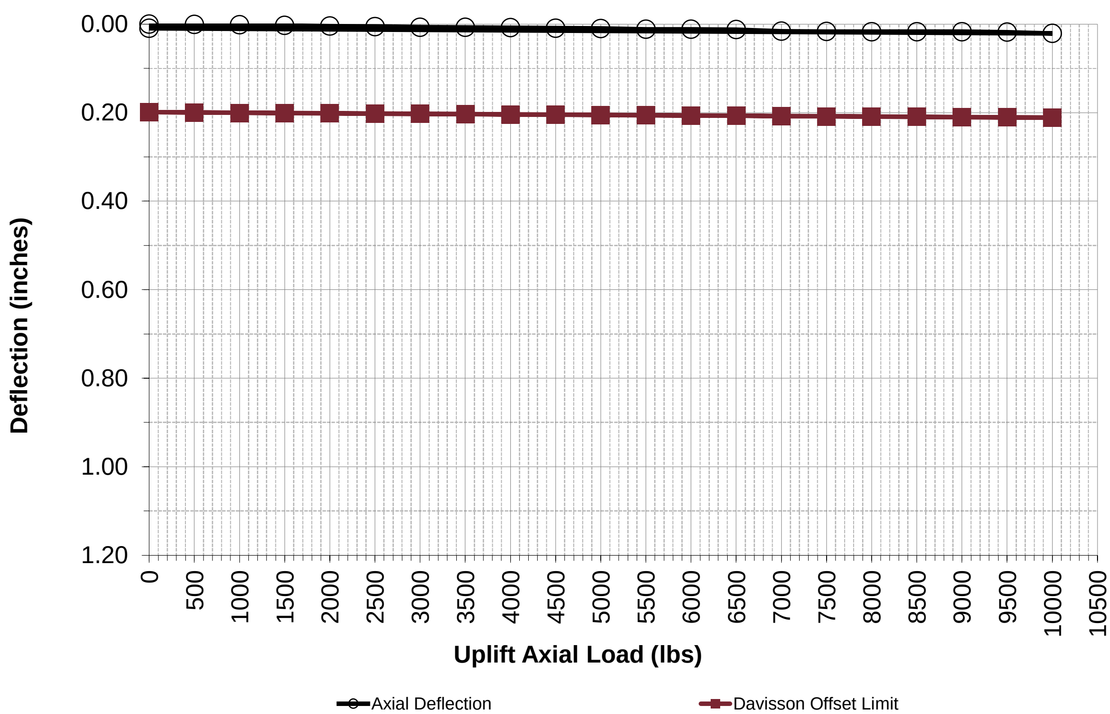
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-11A
Latitude:	37.68358
Longitude:	-85.94358
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	203

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	0.003	0.002	0.201	
20%	2000	0.005	0.002	0.202	
25%	2500	0.006	0.003	0.202	
30%	3000	0.007	0.004	0.203	
35%	3500	0.008	0.004	0.203	
40%	4000	0.008	0.005	0.204	
45%	4500	0.009	0.006	0.205	
50%	5000	0.010	0.006	0.205	
55%	5500	0.012	0.007	0.206	
60%	6000	0.012	0.007	0.207	
65%	6500	0.013	0.008	0.207	
70%	7000	0.016	0.009	0.208	
75%	7500	0.017	0.009	0.208	
80%	8000	0.017	0.010	0.209	
85%	8500	0.017	0.010	0.210	
90%	9000	0.017	0.011	0.210	
95%	9500	0.018	0.012	0.211	
100%	10000	0.021	0.012	0.212	
0%	0	0.010	0.000	0.199	



Tension Load Test Result for PLT-11B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

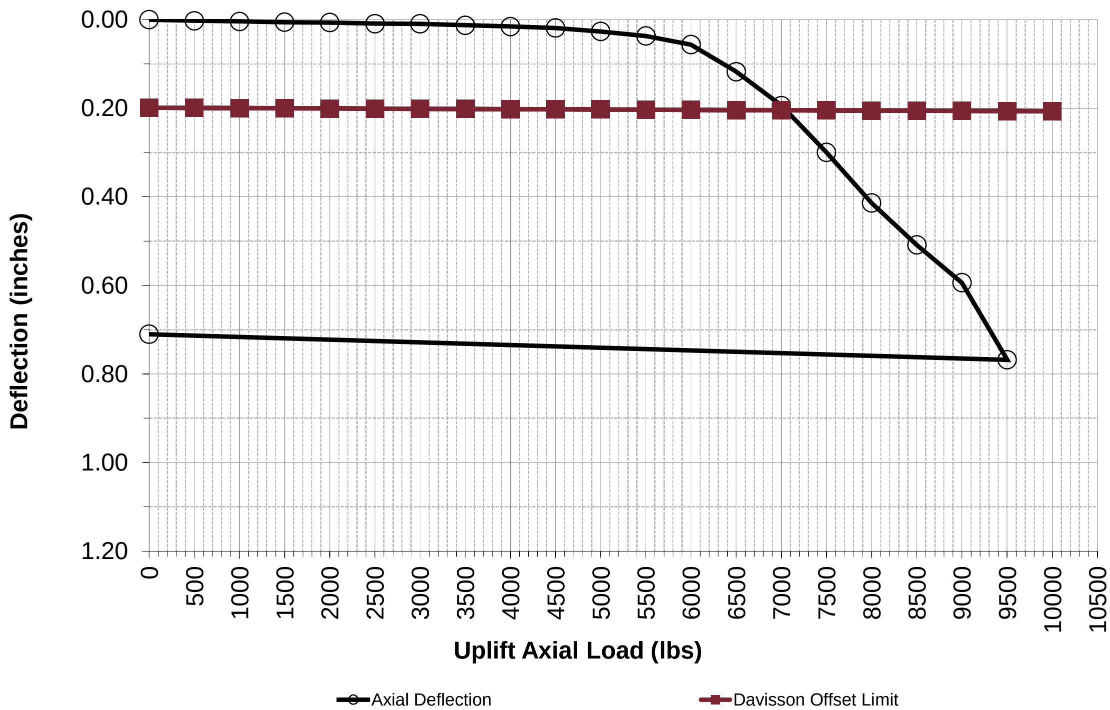
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-11B
Latitude:	37.68358
Longitude:	-85.94358
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	48

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	0.200	
20%	2000	0.007	0.002	0.201	
25%	2500	0.009	0.002	0.201	
30%	3000	0.010	0.002	0.201	
35%	3500	0.013	0.003	0.202	
40%	4000	0.016	0.003	0.202	
45%	4500	0.019	0.003	0.203	
50%	5000	0.027	0.004	0.203	
55%	5500	0.037	0.004	0.203	
60%	6000	0.057	0.005	0.204	
65%	6500	0.118	0.005	0.204	
70%	7000	0.194	0.005	0.205	
75%	7500	0.300	0.006	0.205	
80%	8000	0.414	0.006	0.205	
85%	8500	0.509	0.007	0.206	
90%	9000	0.594	0.007	0.206	
95%	9500	0.768	0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.711	0.000	0.199	



Tension Load Test Result for PLT-12A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

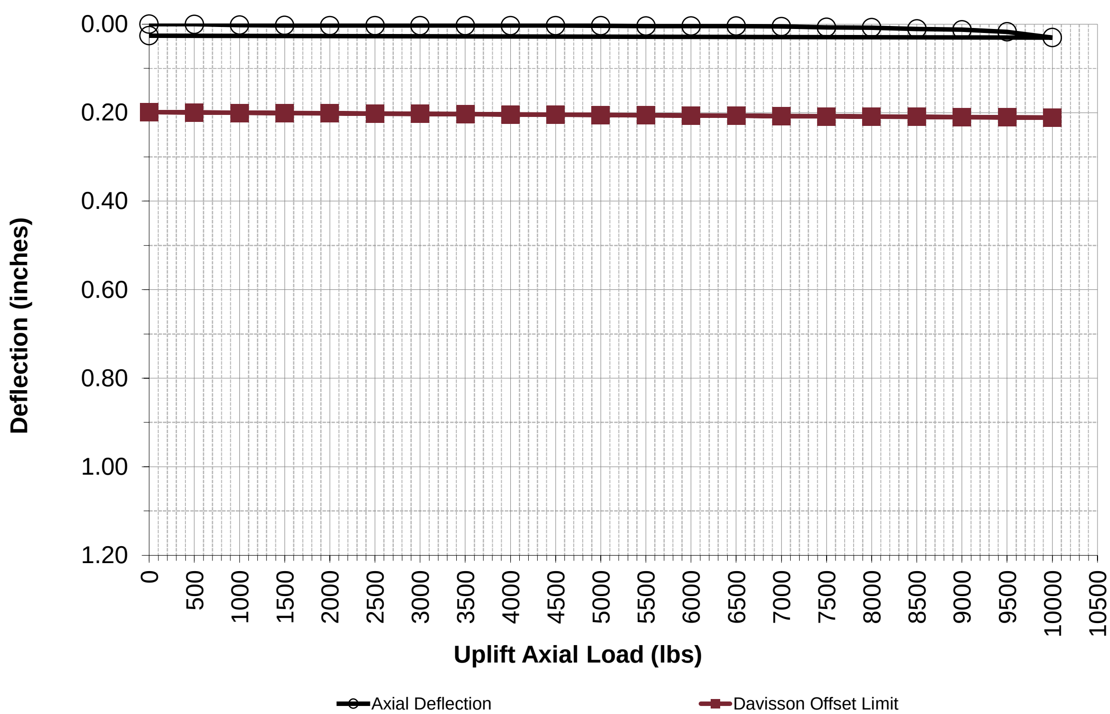
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-12A
Latitude:	37.68581
Longitude:	-85.93796
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	150

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	0.003	0.002	0.201	
20%	2000	0.003	0.002	0.202	
25%	2500	0.003	0.003	0.202	
30%	3000	0.004	0.004	0.203	
35%	3500	0.004	0.004	0.203	
40%	4000	0.004	0.005	0.204	
45%	4500	0.004	0.006	0.205	
50%	5000	0.004	0.006	0.205	
55%	5500	0.005	0.007	0.206	
60%	6000	0.005	0.007	0.207	
65%	6500	0.005	0.008	0.207	
70%	7000	0.006	0.009	0.208	
75%	7500	0.008	0.009	0.208	
80%	8000	0.008	0.010	0.209	
85%	8500	0.011	0.010	0.210	
90%	9000	0.013	0.011	0.210	
95%	9500	0.018	0.012	0.211	
100%	10000	0.031	0.012	0.212	
0%	0	0.026	0.000	0.199	



Tension Load Test Result for PLT-12B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

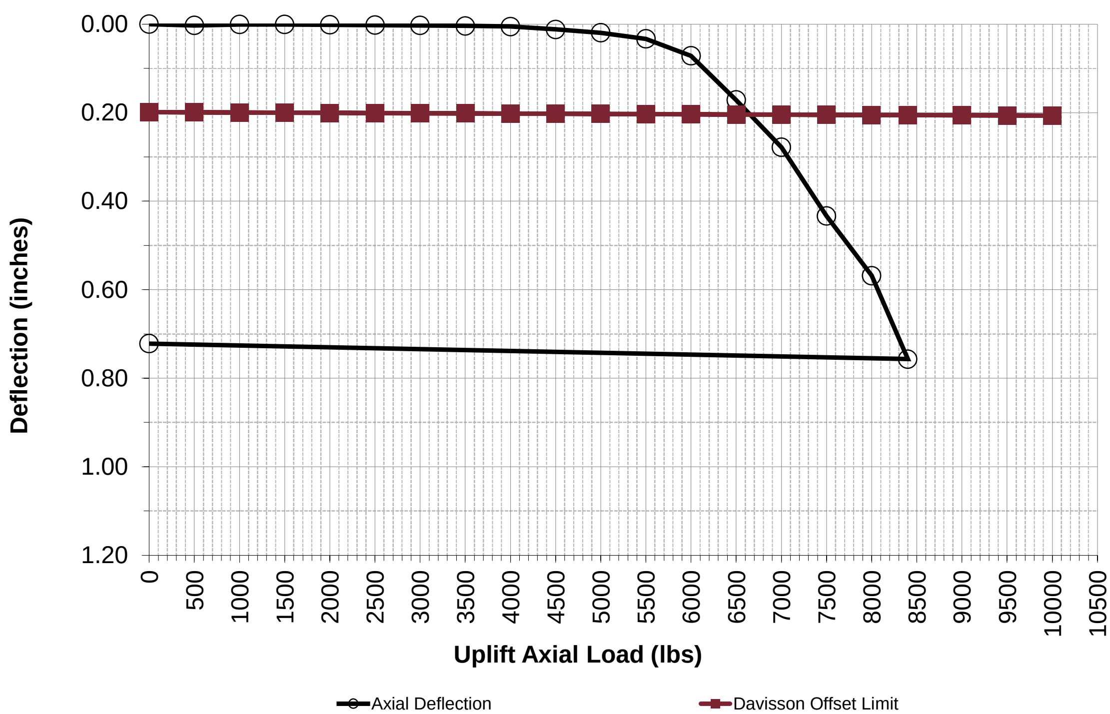
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-12B
Latitude:	37.68581
Longitude:	-85.93796
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	45

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	0.001	0.001	0.200	
15%	1500	0.001	0.001	0.200	
20%	2000	0.002	0.002	0.201	
25%	2500	0.002	0.002	0.201	
30%	3000	0.003	0.002	0.201	
35%	3500	0.004	0.003	0.202	
40%	4000	0.006	0.003	0.202	
45%	4500	0.012	0.003	0.203	
50%	5000	0.020	0.004	0.203	
55%	5500	0.034	0.004	0.203	
60%	6000	0.072	0.005	0.204	
65%	6500	0.172	0.005	0.204	
70%	7000	0.279	0.005	0.205	
75%	7500	0.434	0.006	0.205	
80%	8000	0.569	0.006	0.205	
84%	8400	0.757	0.006	0.206	
90%	9000		0.007	0.206	
95%	9500		0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.722	0.000	0.199	



Tension Load Test Result for PLT-13A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

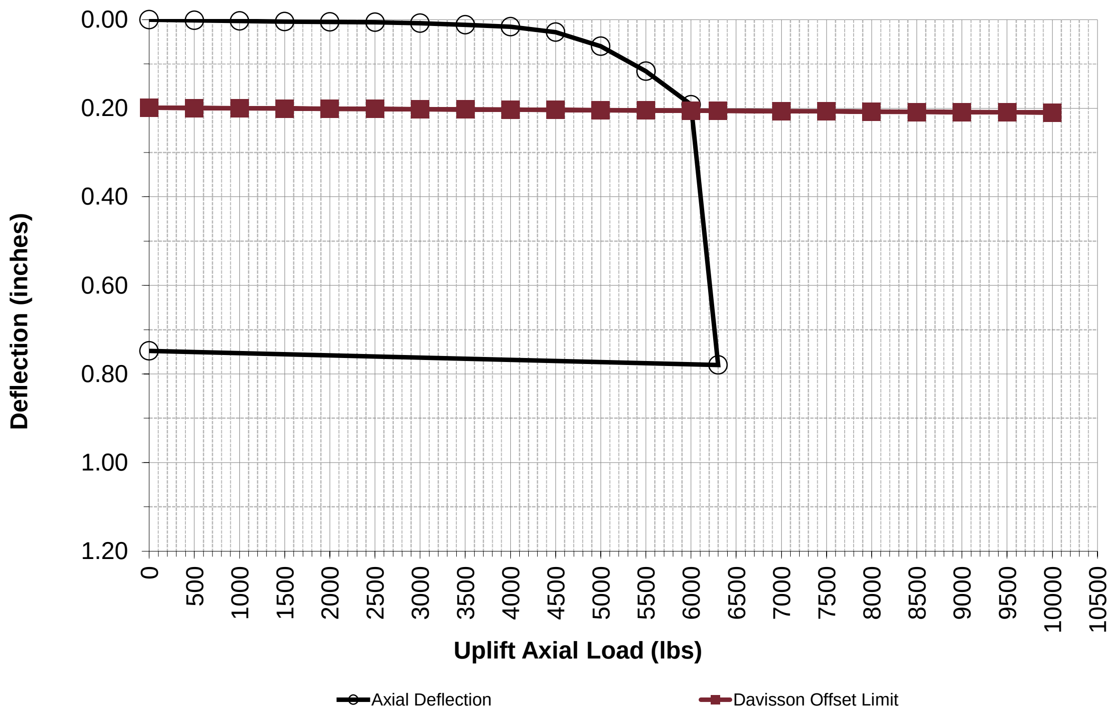
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-13A
Latitude:	37.68980
Longitude:	-85.93866
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	22

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	0.005	0.002	0.201	
20%	2000	0.005	0.002	0.201	
25%	2500	0.006	0.003	0.202	
30%	3000	0.008	0.003	0.202	
35%	3500	0.012	0.004	0.203	
40%	4000	0.016	0.004	0.203	
45%	4500	0.028	0.005	0.204	
50%	5000	0.060	0.005	0.205	
55%	5500	0.117	0.006	0.205	
60%	6000	0.192	0.006	0.206	
63%	6300	0.780	0.007	0.206	
70%	7000		0.008	0.207	
75%	7500		0.008	0.207	
80%	8000		0.009	0.208	
85%	8500		0.009	0.208	
90%	9000		0.010	0.209	
95%	9500		0.010	0.209	
100%	10000		0.011	0.210	
0%	0	0.748	0.000	0.199	



Tension Load Test Result for PLT-13B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

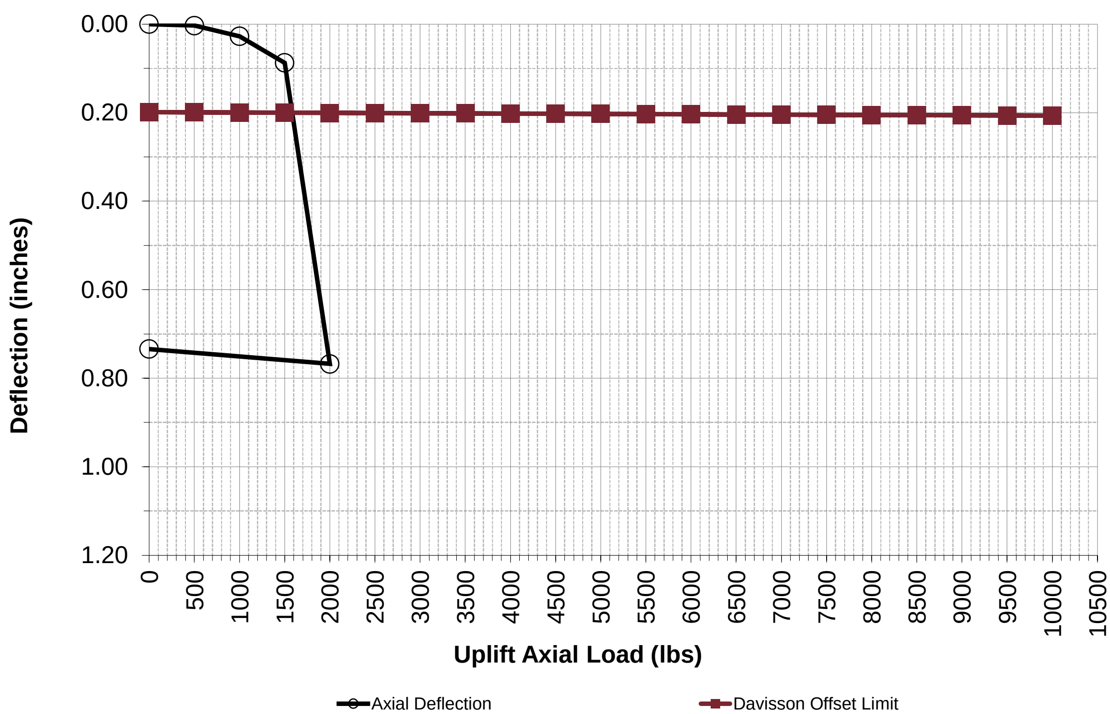
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-13B
Latitude:	37.68980
Longitude:	-85.93866
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	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	0.004	0.000	0.200	
10%	1000	0.028	0.001	0.200	
15%	1500	0.088	0.001	0.200	
20%	2000	0.768	0.002	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	0.207	
100%	10000		0.008	0.207	
0%	0	0.734	0.000	0.199	



Tension Load Test Result for PLT-14A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

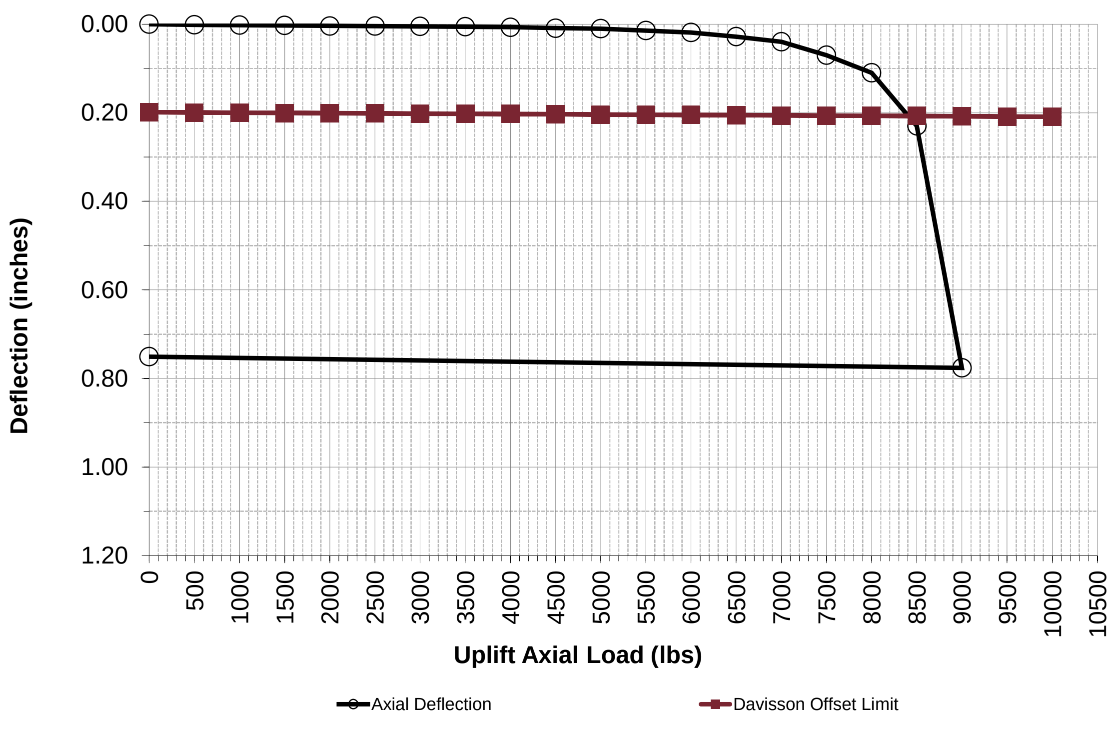
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-14A
Latitude:	37.68842
Longitude:	-85.93382
Pile Type:	W6X9
Pile Embedment Depth [in]:	78
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	193

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	0.003	0.002	0.201	
20%	2000	0.004	0.002	0.201	
25%	2500	0.005	0.003	0.202	
30%	3000	0.005	0.003	0.202	
35%	3500	0.006	0.004	0.203	
40%	4000	0.007	0.004	0.203	
45%	4500	0.009	0.005	0.204	
50%	5000	0.011	0.005	0.204	
55%	5500	0.015	0.006	0.205	
60%	6000	0.019	0.006	0.205	
65%	6500	0.028	0.007	0.206	
70%	7000	0.040	0.007	0.206	
75%	7500	0.070	0.008	0.207	
80%	8000	0.110	0.008	0.207	
85%	8500	0.230	0.009	0.208	
90%	9000	0.776	0.009	0.208	
95%	9500		0.010	0.209	
100%	10000		0.010	0.209	
0%	0	0.751	0.000	0.199	



Tension Load Test Result for PLT-14B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

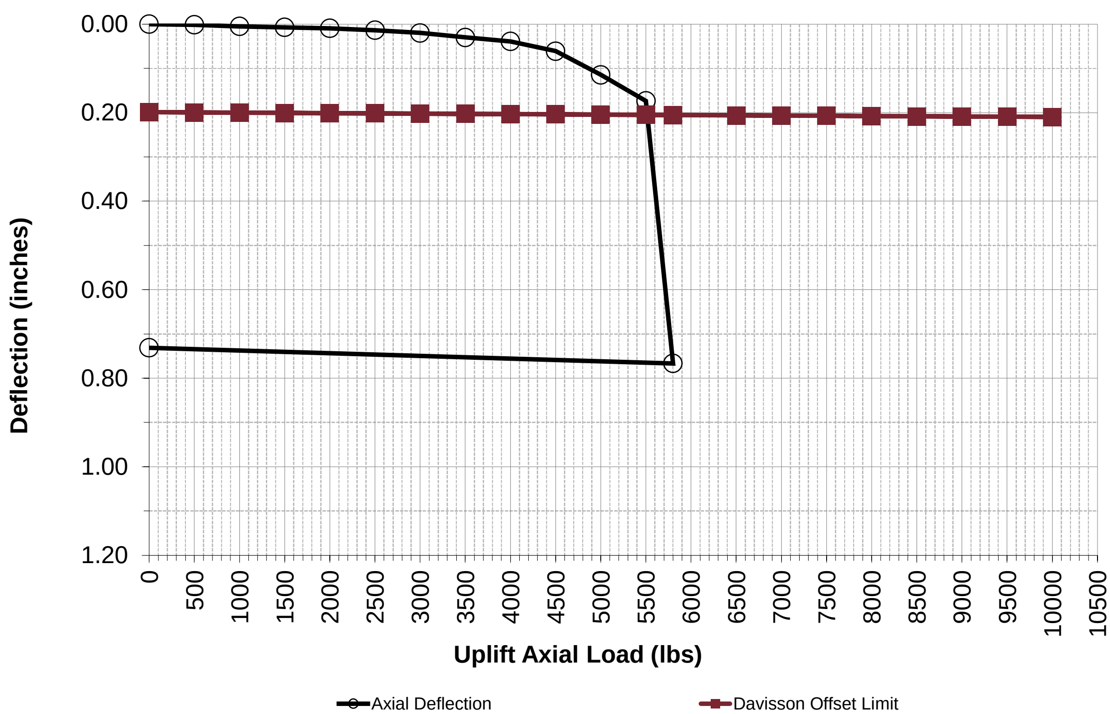
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-14B
Latitude:	37.68842
Longitude:	-85.93382
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	115

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	0.008	0.002	0.201	
20%	2000	0.010	0.002	0.201	
25%	2500	0.014	0.003	0.202	
30%	3000	0.020	0.003	0.202	
35%	3500	0.030	0.004	0.203	
40%	4000	0.039	0.004	0.203	
45%	4500	0.061	0.005	0.204	
50%	5000	0.115	0.005	0.205	
55%	5500	0.174	0.006	0.205	
58%	5800	0.767	0.006	0.205	
65%	6500		0.007	0.206	
70%	7000		0.008	0.207	
75%	7500		0.008	0.207	
80%	8000		0.009	0.208	
85%	8500		0.009	0.208	
90%	9000		0.010	0.209	
95%	9500		0.010	0.209	
100%	10000		0.011	0.210	
0%	0	0.732	0.000	0.199	



Tension Load Test Result for PLT-15A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

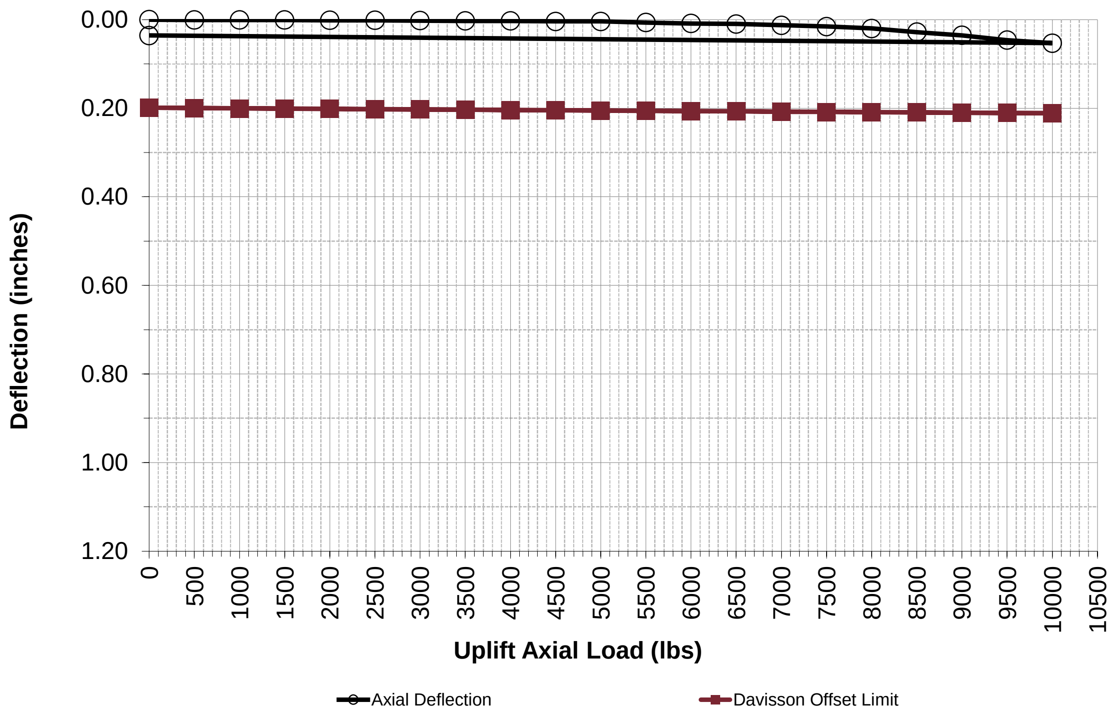
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-15A
Latitude:	37.69217
Longitude:	-85.93521
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]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	178

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	0.002	0.002	0.202	
25%	2500	0.002	0.003	0.202	
30%	3000	0.002	0.004	0.203	
35%	3500	0.003	0.004	0.203	
40%	4000	0.003	0.005	0.204	
45%	4500	0.004	0.006	0.205	
50%	5000	0.004	0.006	0.205	
55%	5500	0.007	0.007	0.206	
60%	6000	0.009	0.007	0.207	
65%	6500	0.010	0.008	0.207	
70%	7000	0.013	0.009	0.208	
75%	7500	0.016	0.009	0.208	
80%	8000	0.020	0.010	0.209	
85%	8500	0.028	0.010	0.210	
90%	9000	0.036	0.011	0.210	
95%	9500	0.046	0.012	0.211	
100%	10000	0.053	0.012	0.212	
0%	0	0.036	0.000	0.199	



Tension Load Test Result for PLT-15B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

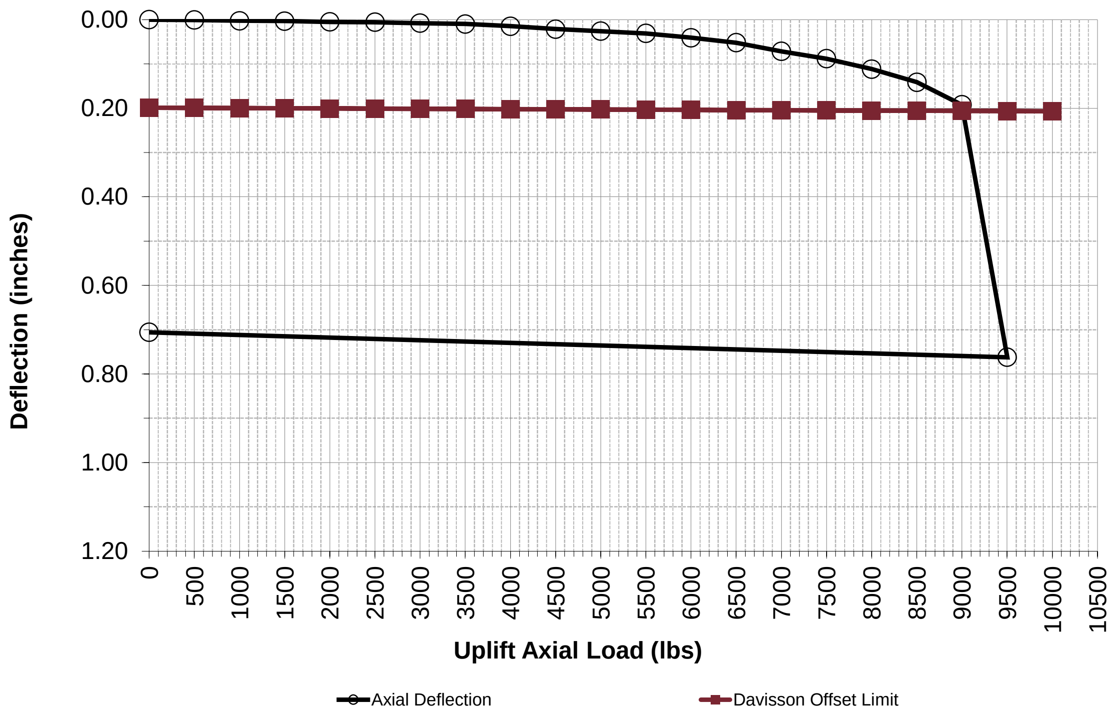
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-15B
Latitude:	37.69217
Longitude:	-85.93521
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	48
Axial Design Load [lbs]:	10000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	47

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	0.003	0.001	0.200	
15%	1500	0.004	0.001	0.200	
20%	2000	0.005	0.002	0.201	
25%	2500	0.006	0.002	0.201	
30%	3000	0.008	0.002	0.201	
35%	3500	0.010	0.003	0.202	
40%	4000	0.015	0.003	0.202	
45%	4500	0.022	0.003	0.203	
50%	5000	0.026	0.004	0.203	
55%	5500	0.031	0.004	0.203	
60%	6000	0.041	0.005	0.204	
65%	6500	0.052	0.005	0.204	
70%	7000	0.072	0.005	0.205	
75%	7500	0.088	0.006	0.205	
80%	8000	0.112	0.006	0.205	
85%	8500	0.142	0.007	0.206	
90%	9000	0.193	0.007	0.206	
95%	9500	0.763	0.007	0.207	
100%	10000		0.008	0.207	
0%	0	0.706	0.000	0.199	



APPENDIX F – PILE LOAD TEST RESULTS – LATERAL LOAD

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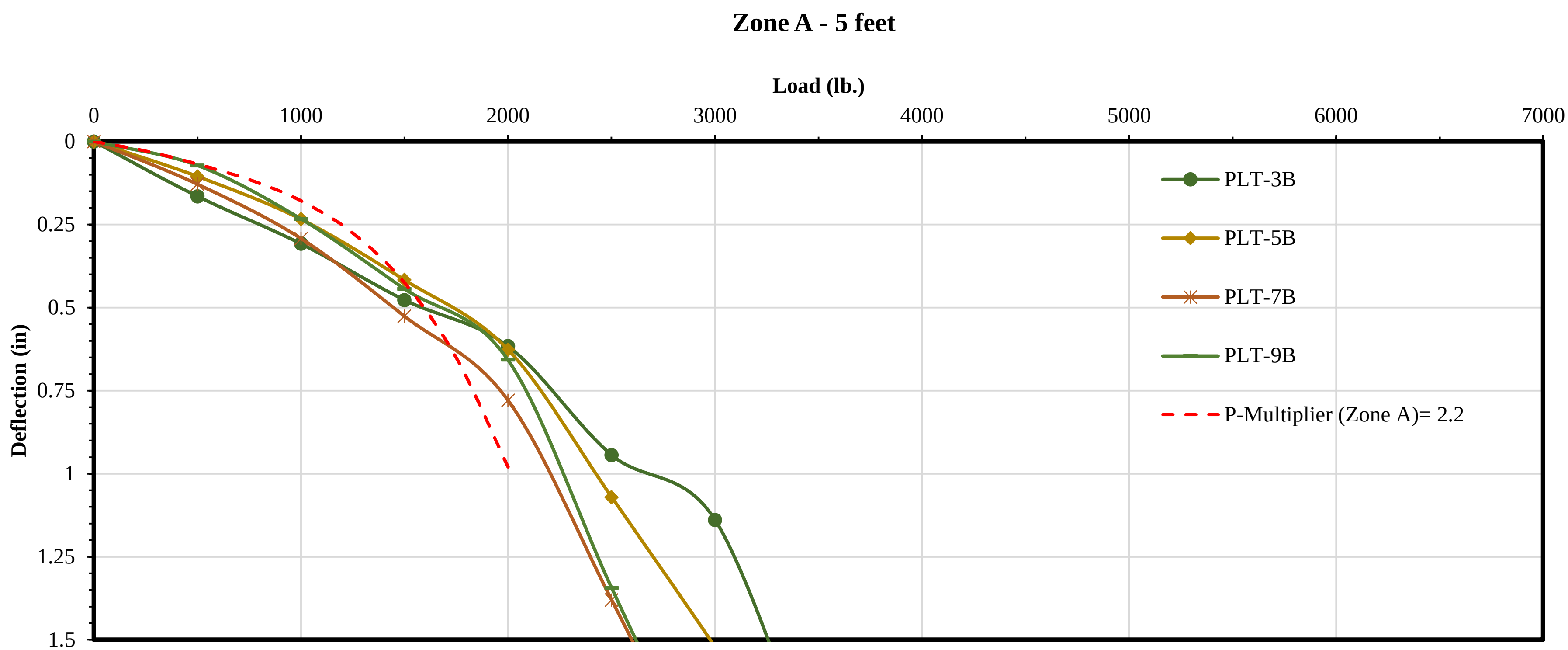
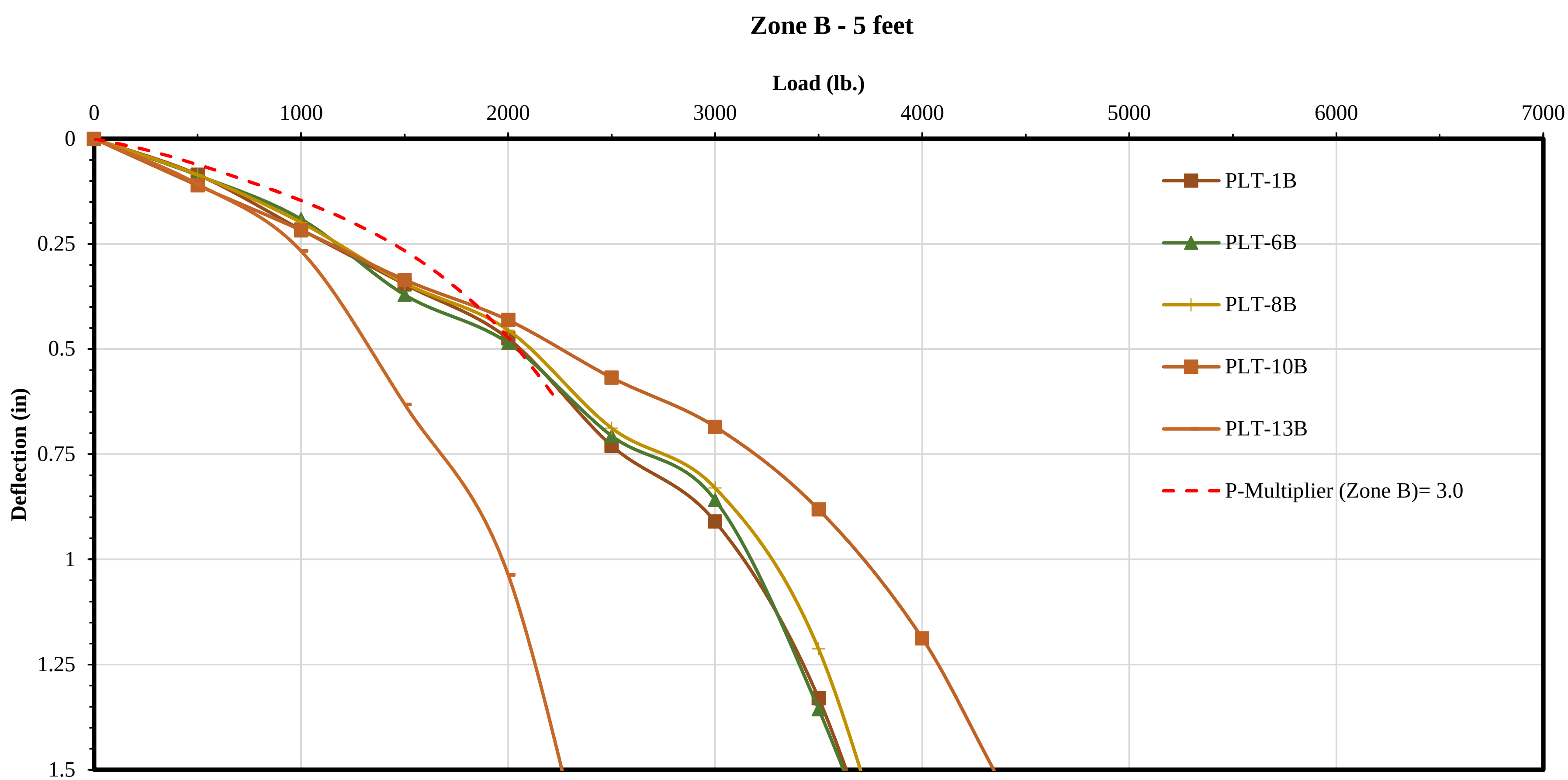
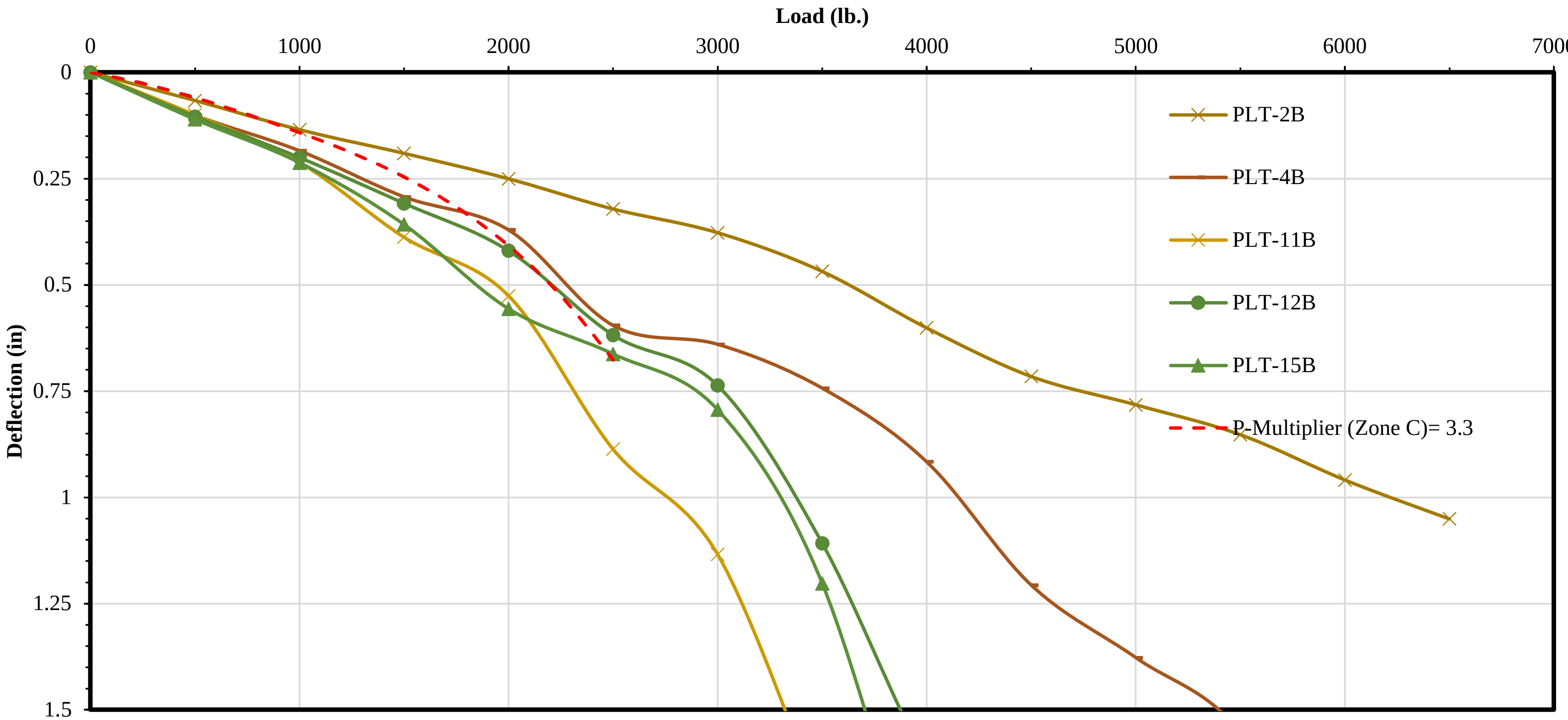
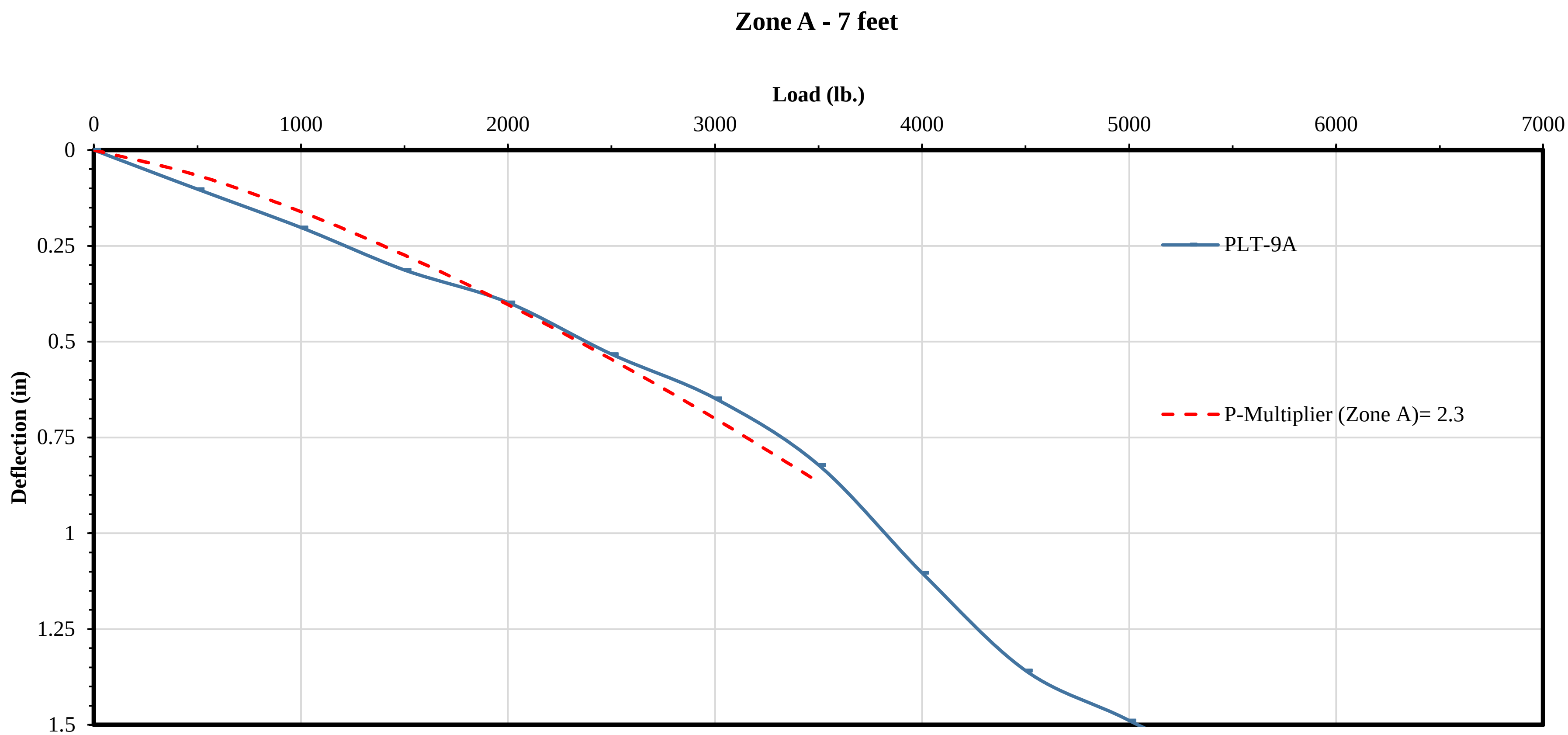

Zone A - 5 feet
Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-3B
PLT-5B
PLT-7B
PLT-9B
P-Multiplier (Zone A)= 2.2

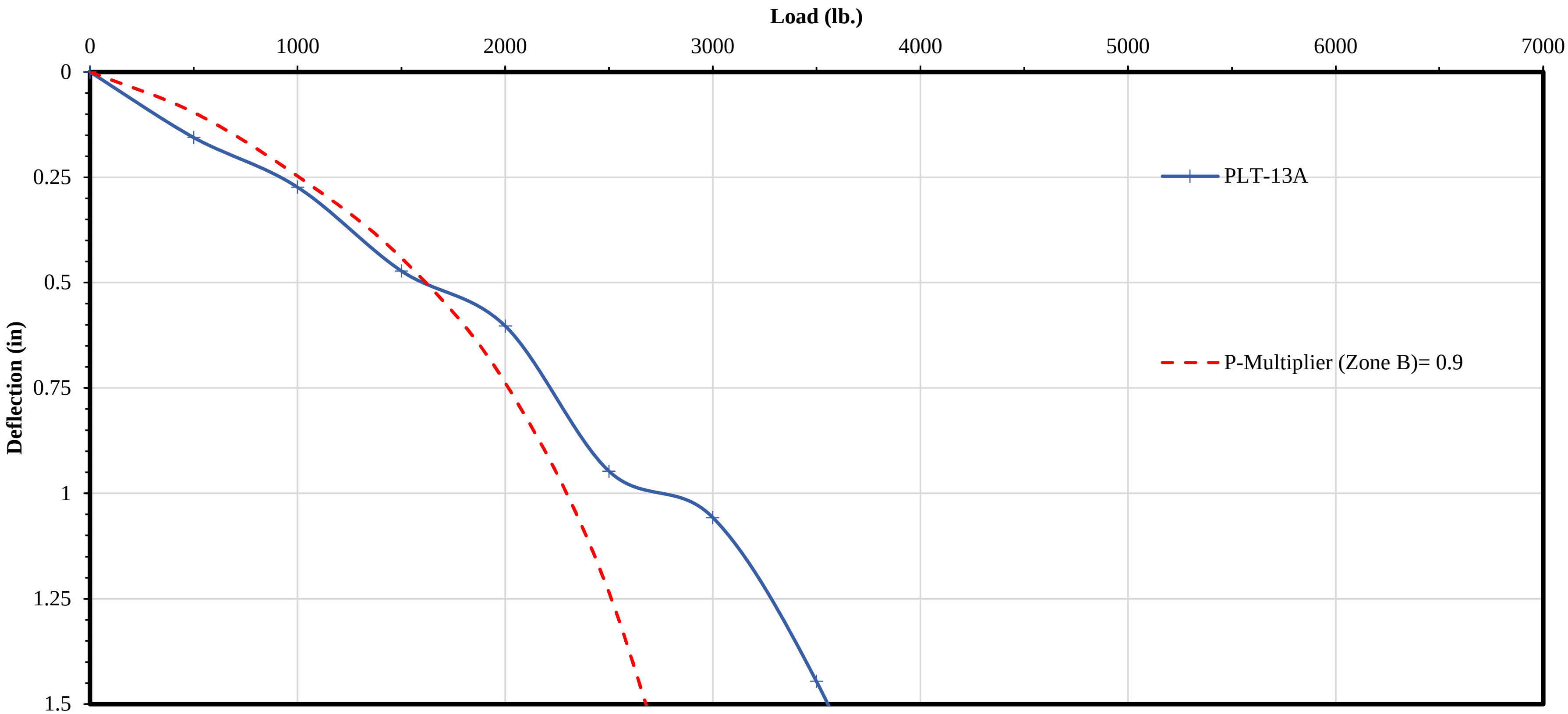

Zone B - 5 feet
Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-1B
PLT-6B
PLT-8B
PLT-10B
PLT-13B
P-Multiplier (Zone B)= 3.0

Zone C - 5 feet

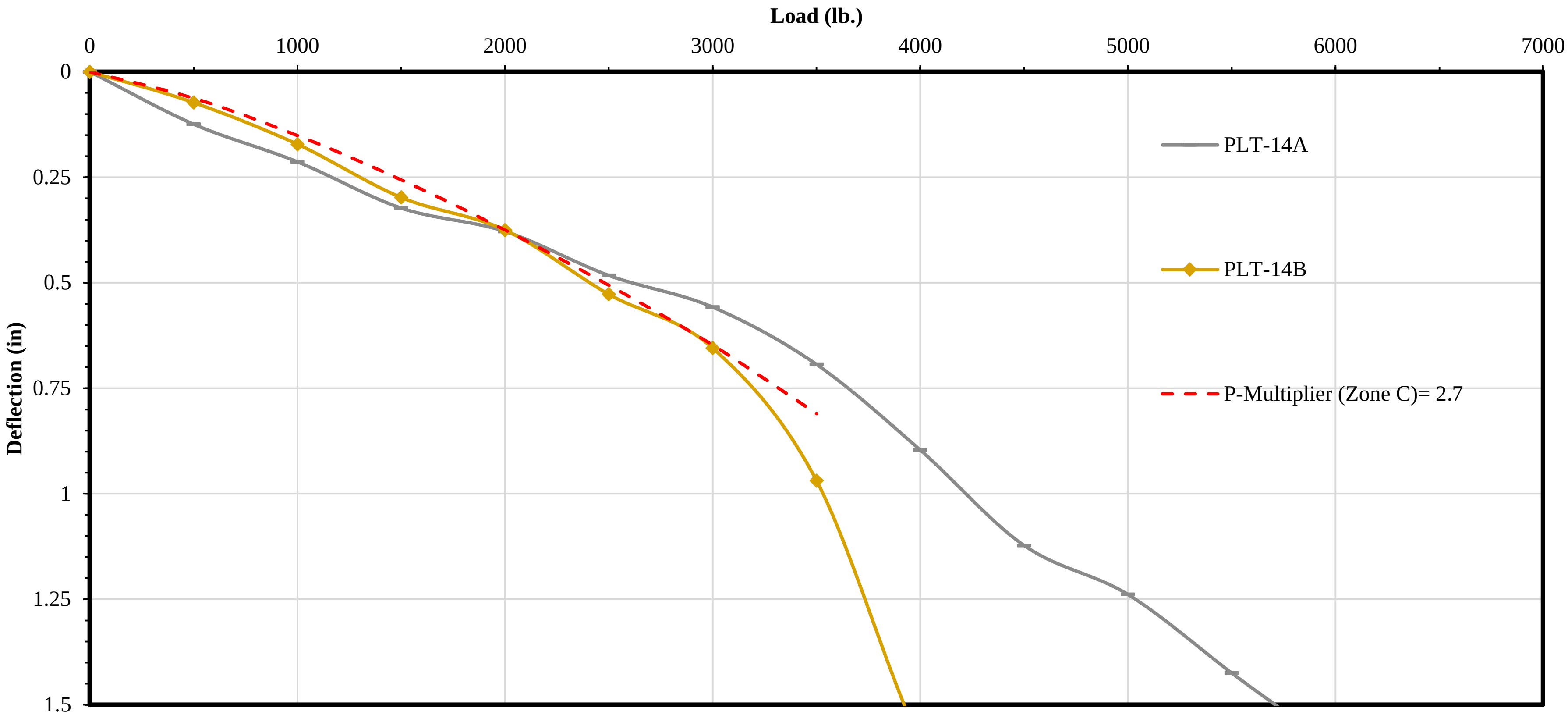

Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-2B
PLT-4B
PLT-11B
PLT-12B
PLT-15B
P-Multiplier (Zone C)= 3.3


Zone A - 7 feet
Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-9A
P-Multiplier (Zone A)= 2.3

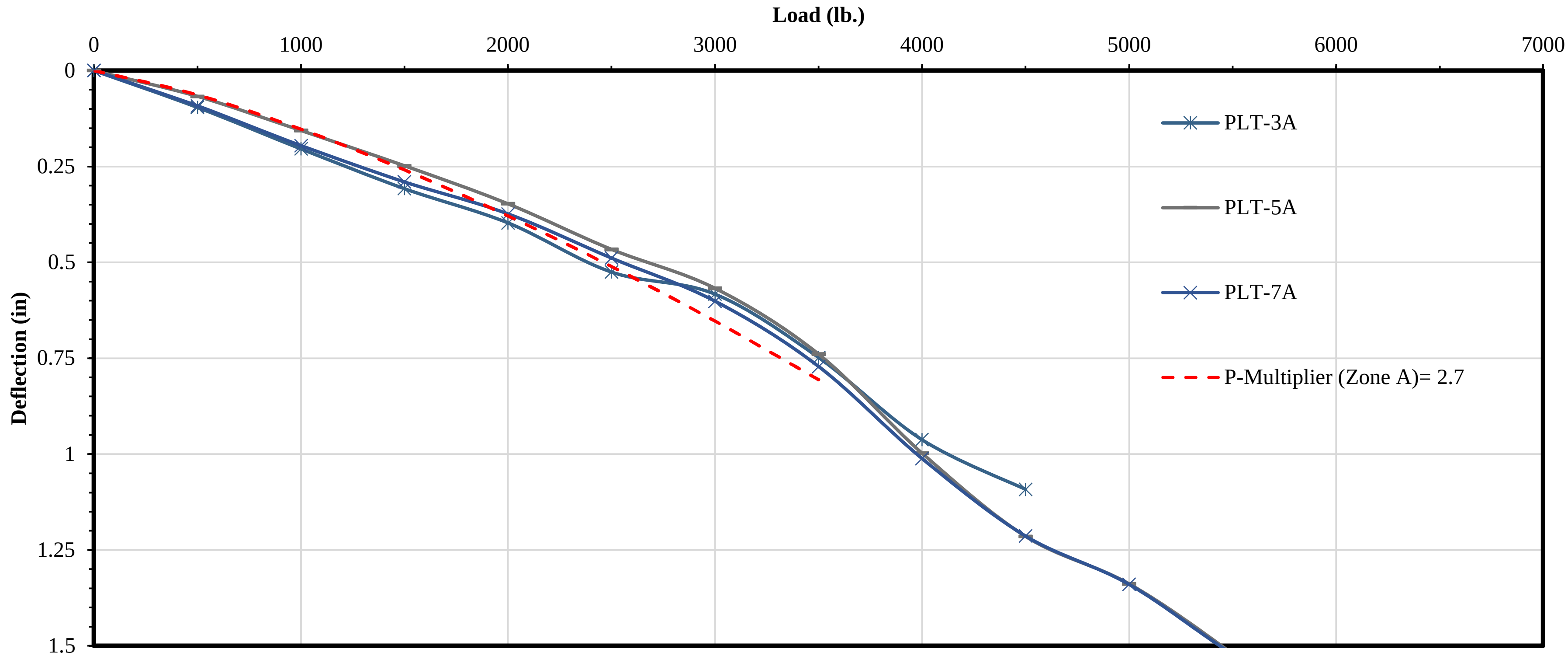
Zone B - 7 feet

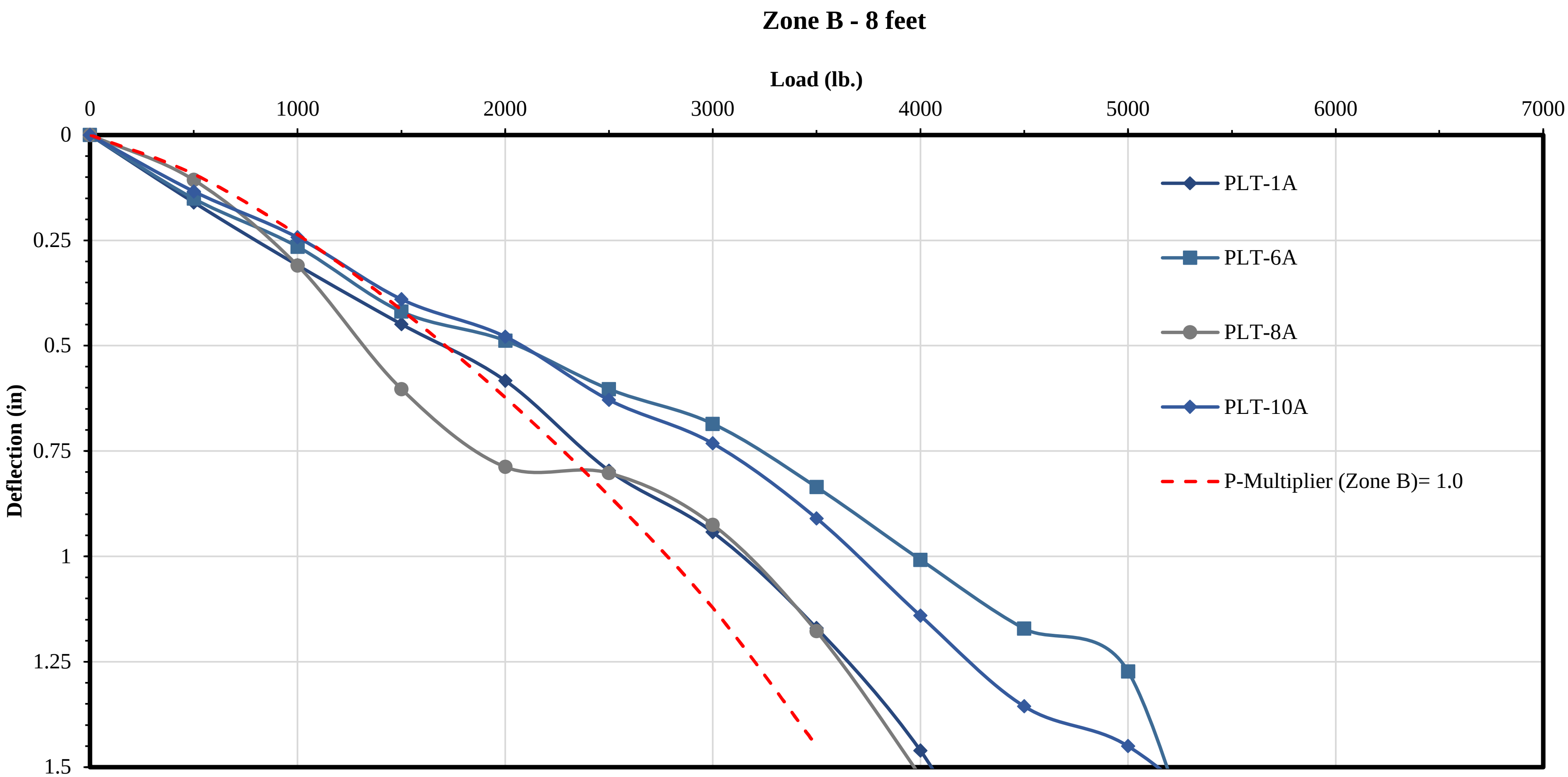

Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-13A
P-Multiplier (Zone B)= 0.9

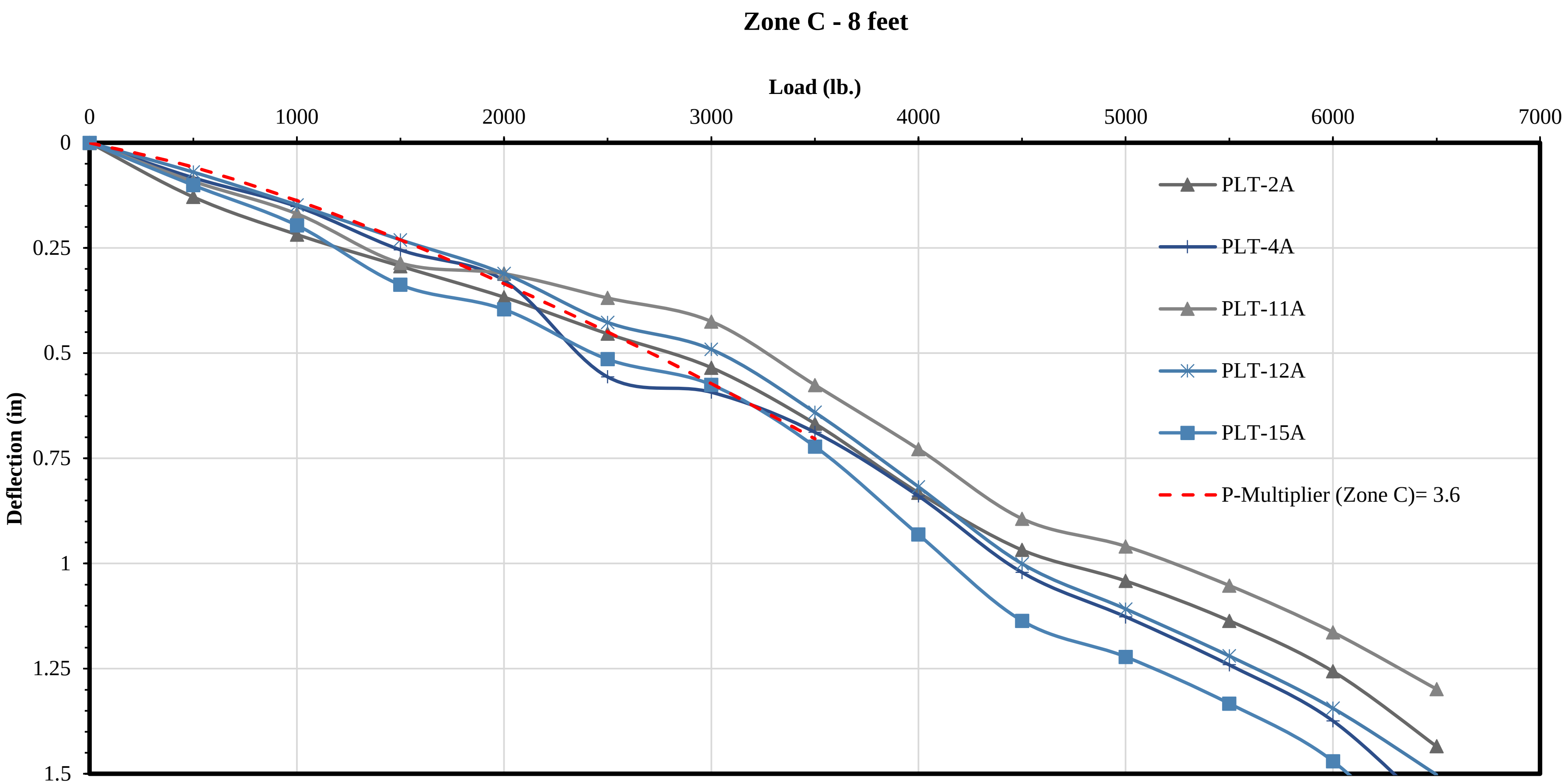
Zone C - 7 feet


Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-14A
PLT-14B
P-Multiplier (Zone C)= 2.7

Zone A - 8 feet


Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-3A
PLT-5A
PLT-7A
P-Multiplier (Zone A)= 2.7


Zone B - 8 feet
Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-1A
PLT-6A
PLT-8A
PLT-10A
P-Multiplier (Zone B)= 1.0


Zone C - 8 feet
Load (lb.)
0
1000
2000
3000
4000
5000
6000
7000
Deflection (in)
0
0.25
0.5
0.75
1
1.25
1.5
PLT-2A
PLT-4A
PLT-11A
PLT-12A
PLT-15A
P-Multiplier (Zone C)= 3.6

Lateral Load Test Result for PLT-1A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

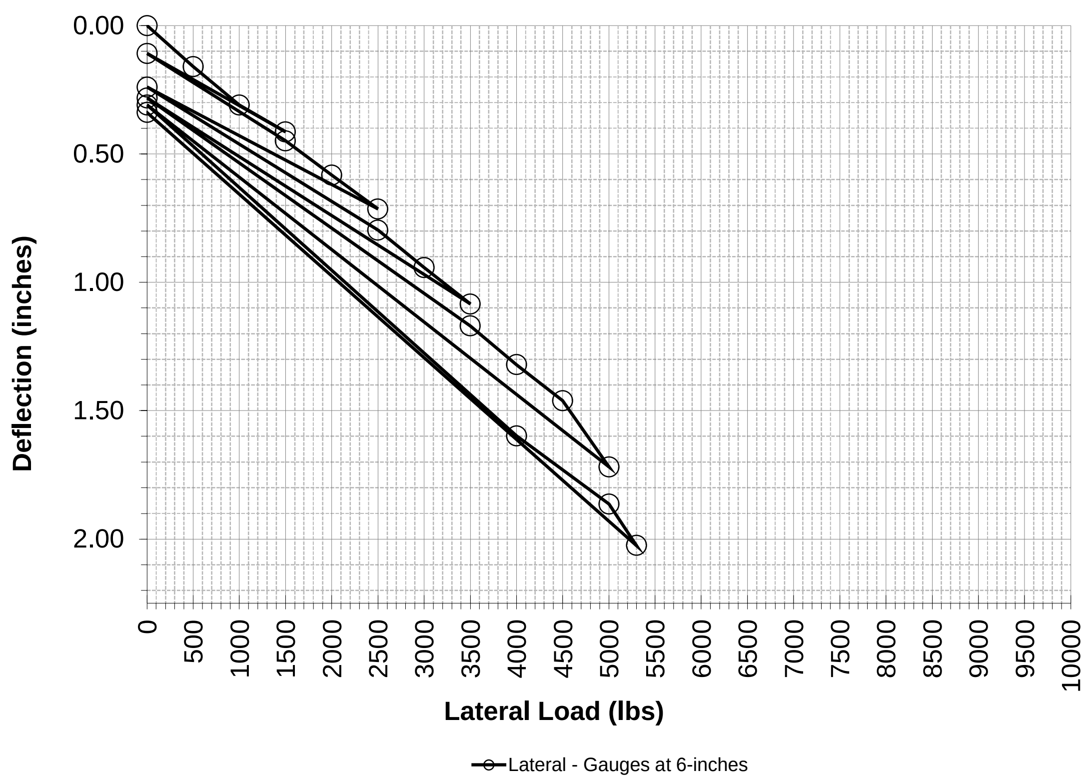
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-1A
Latitude:	37.67694
Longitude:	-85.96791
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	99

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.160	
10%	1000	0.309	
15%	1500	0.415	
0%	0	0.109	
15%	1500	0.449	
20%	2000	0.583	
25%	2500	0.714	
0%	0	0.240	
25%	2500	0.797	
30%	3000	0.943	
35%	3500	1.085	
0%	0	0.282	
35%	3500	1.170	
40%	4000	1.321	
45%	4500	1.461	
50%	5000	1.719	
0%	0	0.310	
40%	4000	1.599	
50%	5000	1.864	
53%	5300	2.025	
60%	6000		
65%	6500		
70%	7000		
0%	0	0.339	



Lateral Load Test Result for PLT-1B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

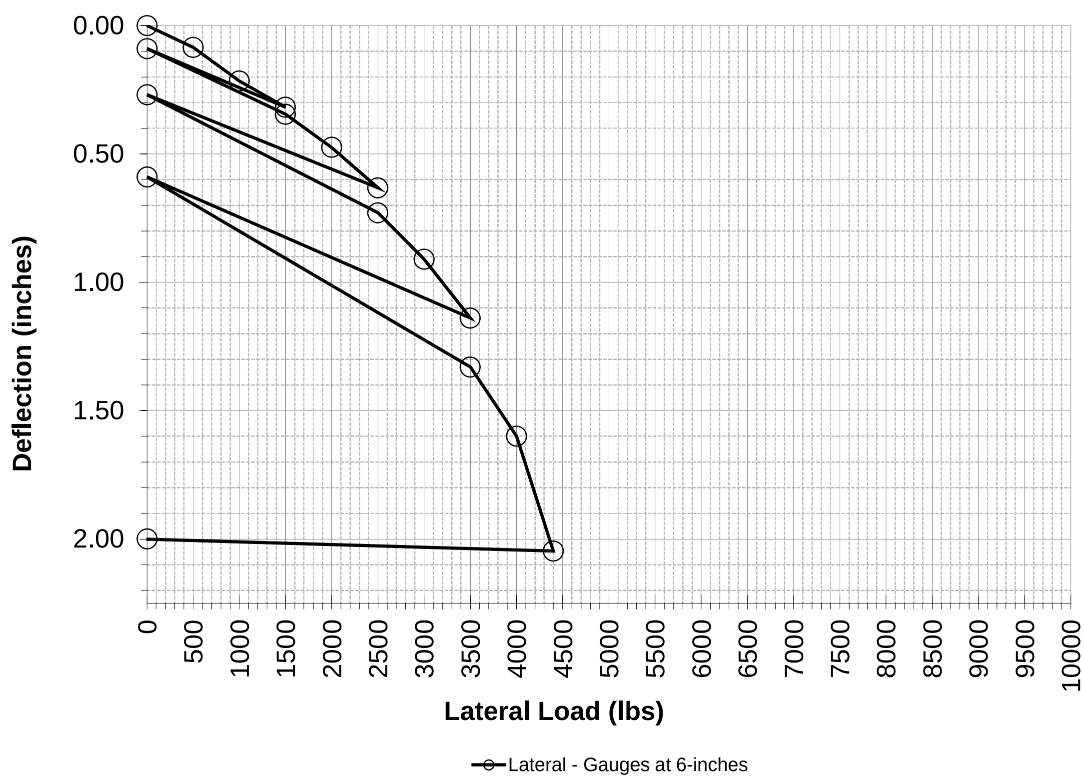
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-1B
Latitude:	37.67694
Longitude:	-85.96791
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	47

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.085	
10%	1000	0.216	
15%	1500	0.318	
0%	0	0.090	
15%	1500	0.346	
20%	2000	0.475	
25%	2500	0.632	
0%	0	0.270	
25%	2500	0.730	
30%	3000	0.910	
35%	3500	1.140	
0%	0	0.590	
35%	3500	1.330	
40%	4000	1.600	
44%	4400	2.047	
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.000	



Lateral Load Test Result for PLT-2A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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:	3/14/2022

Pile Information

Pile ID:	PLT-2A
Latitude:	37.67935
Longitude:	-85.96358
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	330

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.129	
10%	1000	0.218	
15%	1500	0.286	
0%	0	0.064	
15%	1500	0.293	
20%	2000	0.367	
25%	2500	0.434	
0%	0	0.110	
25%	2500	0.454	
30%	3000	0.535	
35%	3500	0.630	
0%	0	0.177	
35%	3500	0.668	
40%	4000	0.733	
45%	4500	0.832	
50%	5000	0.924	
0%	0	0.152	
40%	4000	0.823	
50%	5000	0.968	
55%	5500	1.042	
60%	6000	1.136	
65%	6500	1.256	
70%	7000	1.435	
0%	0	0.333	

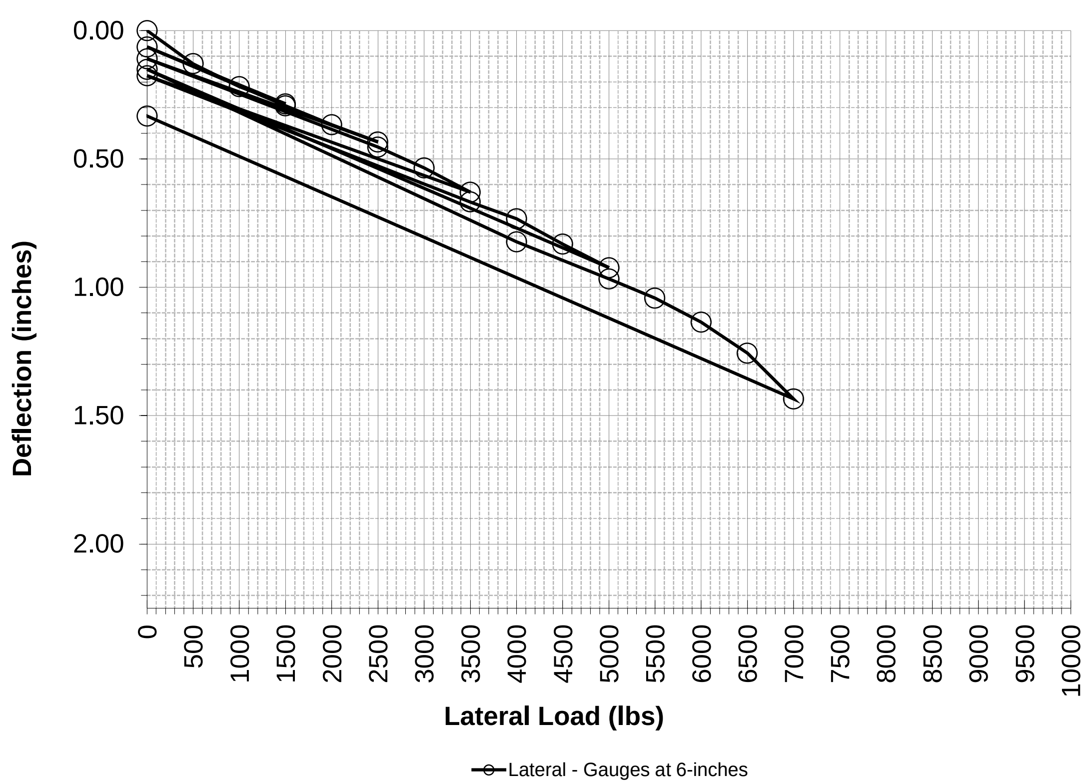


Exhibit F-12

Lateral Load Test Result for PLT-2B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

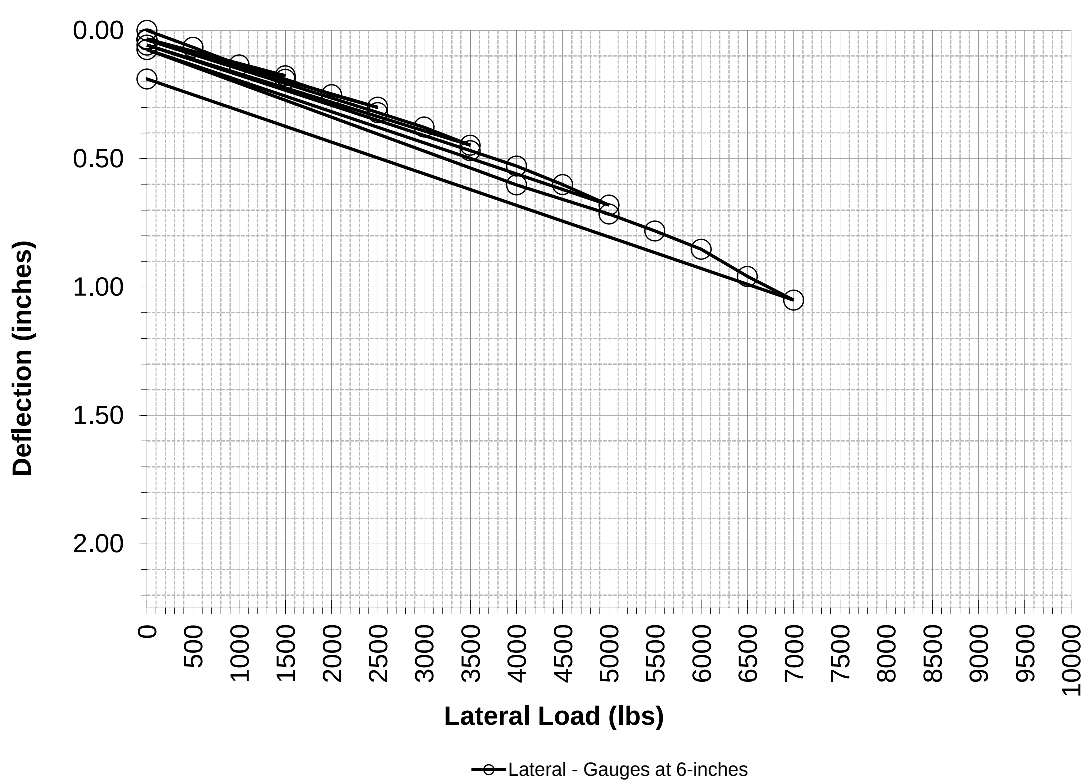
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-2B
Latitude:	37.67935
Longitude:	-85.96358
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	94

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.067	
10%	1000	0.135	
15%	1500	0.178	
0%	0	0.035	
15%	1500	0.191	
20%	2000	0.251	
25%	2500	0.300	
0%	0	0.038	
25%	2500	0.321	
30%	3000	0.378	
35%	3500	0.448	
0%	0	0.059	
35%	3500	0.469	
40%	4000	0.529	
45%	4500	0.602	
50%	5000	0.681	
0%	0	0.075	
40%	4000	0.602	
50%	5000	0.716	
55%	5500	0.783	
60%	6000	0.853	
65%	6500	0.959	
70%	7000	1.051	
0%	0	0.191	



Lateral Load Test Result for PLT-3A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

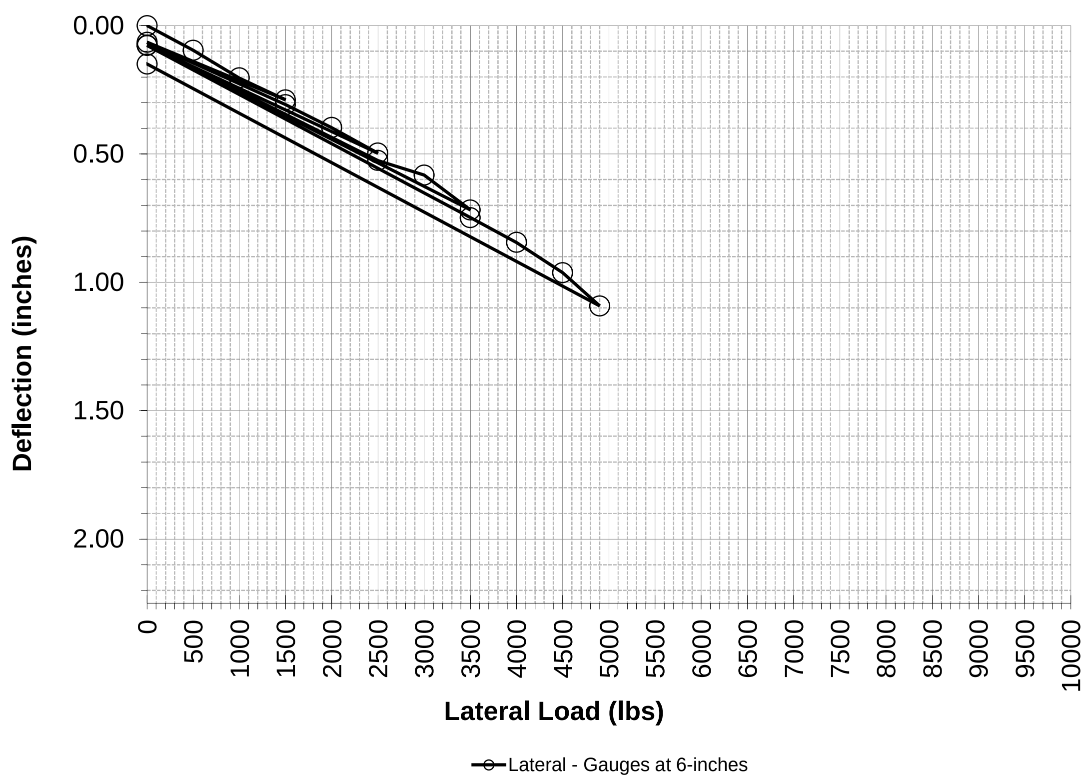
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-3A
Latitude:	37.68330
Longitude:	-85.96170
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	120

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.096	
10%	1000	0.204	
15%	1500	0.289	
0%	0	0.065	
15%	1500	0.308	
20%	2000	0.397	
25%	2500	0.497	
0%	0	0.077	
25%	2500	0.526	
30%	3000	0.583	
35%	3500	0.718	
0%	0	0.078	
35%	3500	0.748	
40%	4000	0.845	
45%	4500	0.962	
49%	4900	1.092	
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	0.150	



Lateral Load Test Result for PLT-3B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

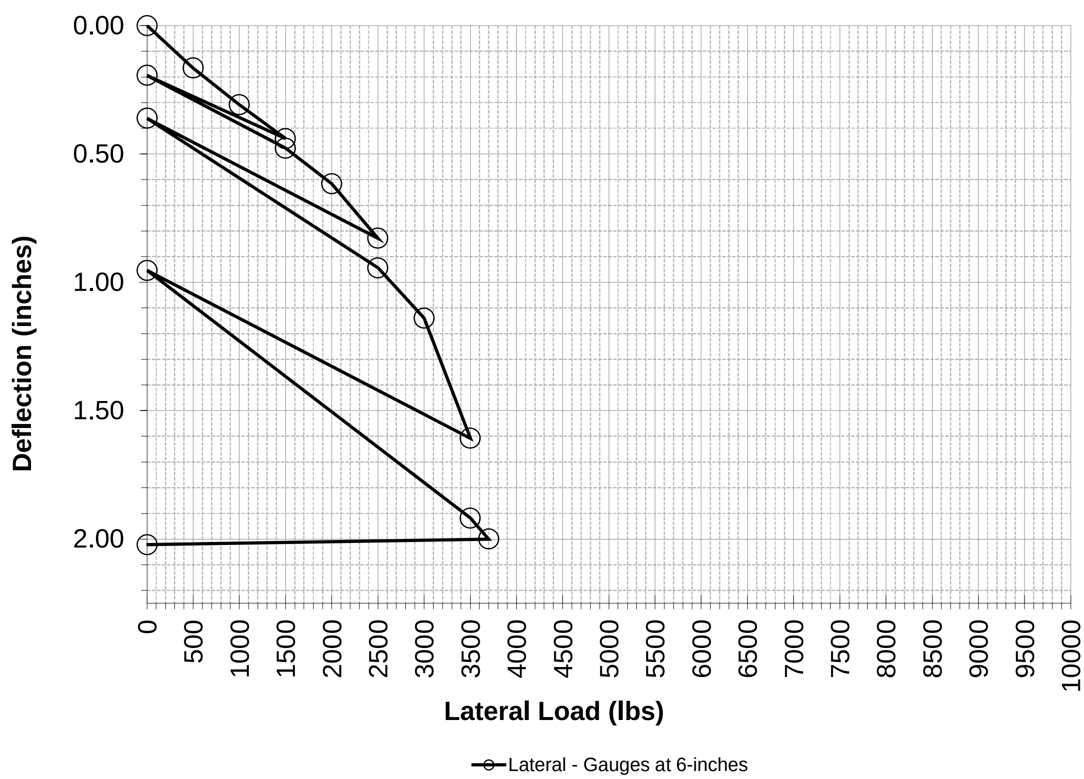
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-3B
Latitude:	37.68330
Longitude:	-85.96170
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	33

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.165	
10%	1000	0.308	
15%	1500	0.441	
0%	0	0.194	
15%	1500	0.478	
20%	2000	0.616	
25%	2500	0.828	
0%	0	0.361	
25%	2500	0.944	
30%	3000	1.140	
35%	3500	1.608	
0%	0	0.954	
35%	3500	1.918	
37%	3700	2.000	
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.022	



Lateral Load Test Result for PLT-4A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

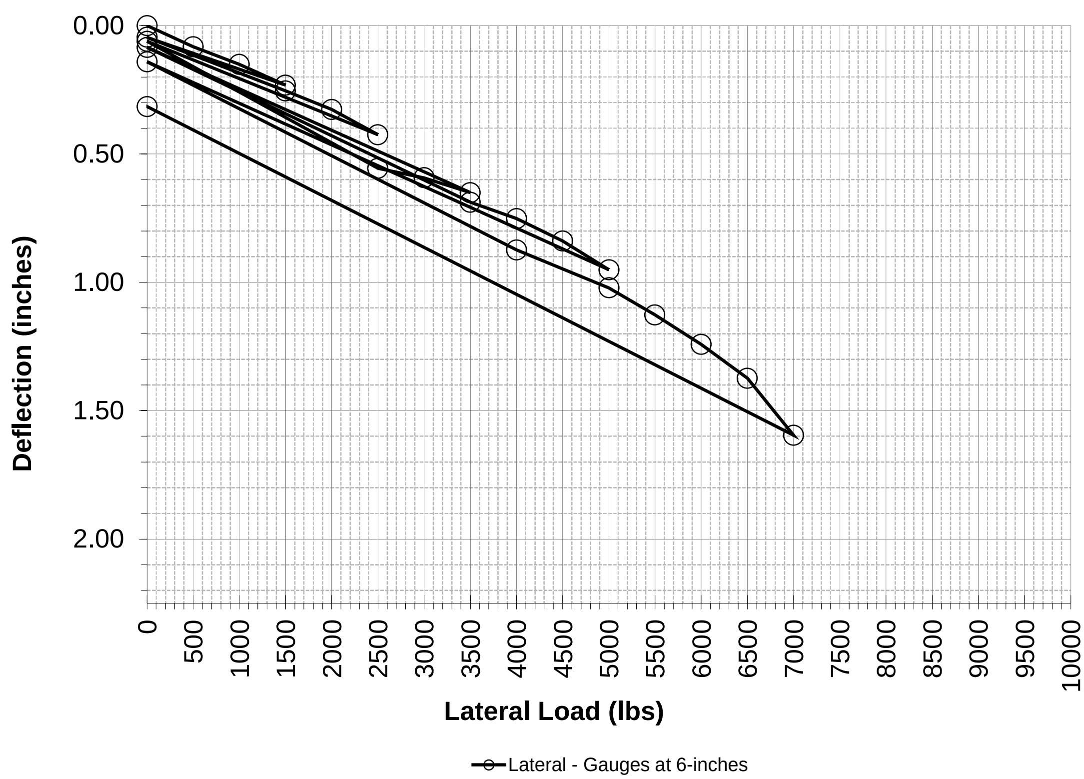
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-4A
Latitude:	37.68597
Longitude:	-85.95577
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	290

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.083	
10%	1000	0.151	
15%	1500	0.232	
0%	0	0.046	
15%	1500	0.255	
20%	2000	0.327	
25%	2500	0.425	
0%	0	0.062	
25%	2500	0.557	
30%	3000	0.593	
35%	3500	0.651	
0%	0	0.086	
35%	3500	0.688	
40%	4000	0.752	
45%	4500	0.840	
50%	5000	0.952	
0%	0	0.142	
40%	4000	0.874	
50%	5000	1.022	
55%	5500	1.127	
60%	6000	1.241	
65%	6500	1.374	
70%	7000	1.596	
0%	0	0.315	



Lateral Load Test Result for PLT-4B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

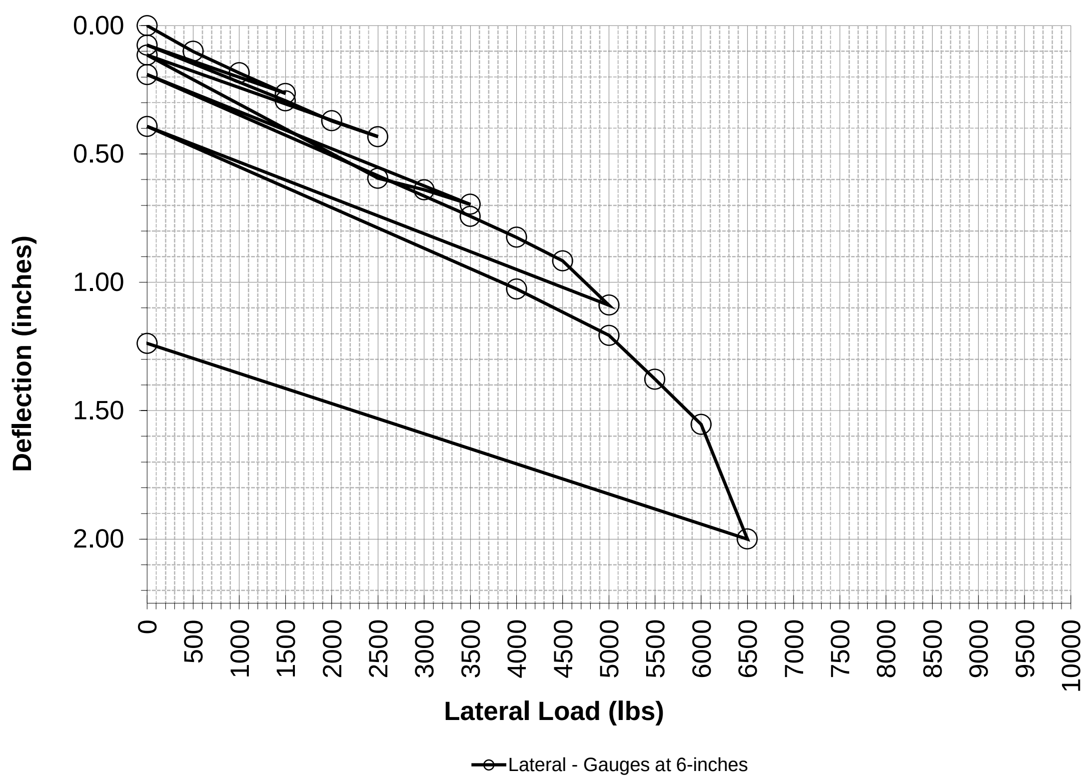
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-4B
Latitude:	37.68597
Longitude:	-85.95577
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	79

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.101	
10%	1000	0.184	
15%	1500	0.264	
0%	0	0.076	
15%	1500	0.293	
20%	2000	0.371	
25%	2500	0.433	
0%	0	0.116	
25%	2500	0.595	
30%	3000	0.640	
35%	3500	0.697	
0%	0	0.191	
35%	3500	0.743	
40%	4000	0.825	
45%	4500	0.916	
50%	5000	1.089	
0%	0	0.393	
40%	4000	1.026	
50%	5000	1.207	
55%	5500	1.378	
60%	6000	1.554	
65%	6500	2.000	
70%	7000		
0%	0	1.238	



Lateral Load Test Result for PLT-5A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

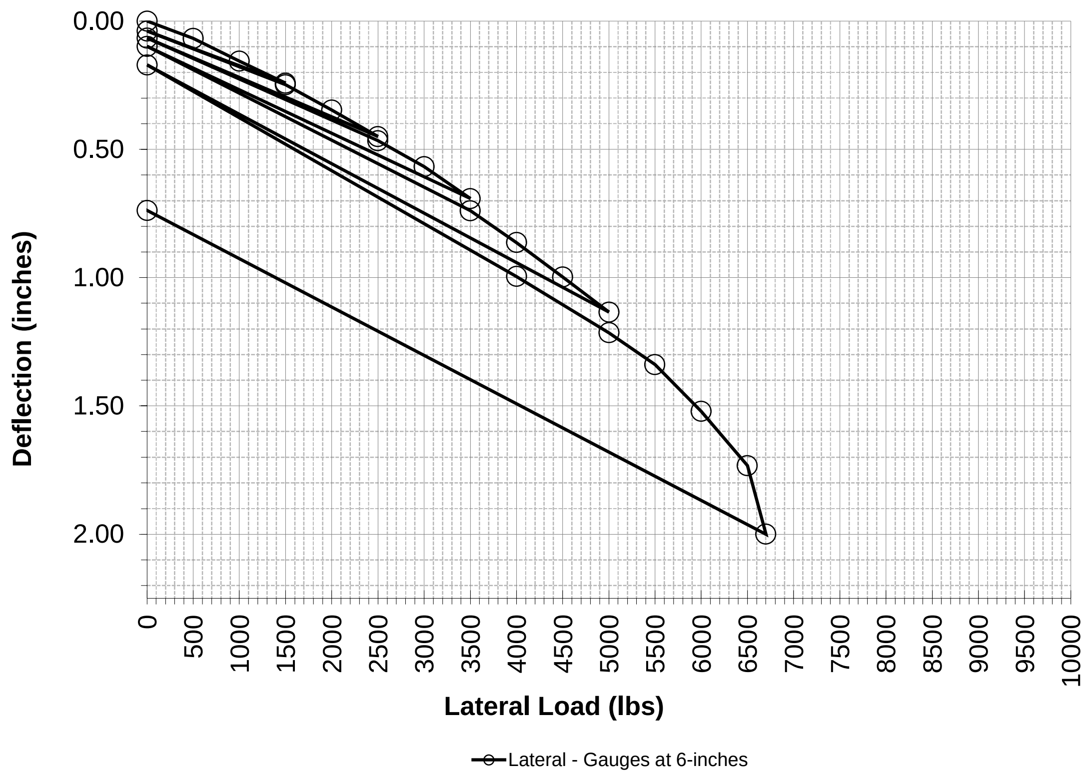
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-5A
Latitude:	37.68208
Longitude:	-85.95477
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	72

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.068	
10%	1000	0.157	
15%	1500	0.242	
0%	0	0.039	
15%	1500	0.249	
20%	2000	0.347	
25%	2500	0.450	
0%	0	0.067	
25%	2500	0.466	
30%	3000	0.568	
35%	3500	0.692	
0%	0	0.099	
35%	3500	0.739	
40%	4000	0.864	
45%	4500	0.998	
50%	5000	1.135	
0%	0	0.171	
40%	4000	0.996	
50%	5000	1.215	
55%	5500	1.339	
60%	6000	1.521	
65%	6500	1.733	
67%	6700	2.000	
0%	0	0.739	



Lateral Load Test Result for PLT-5B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

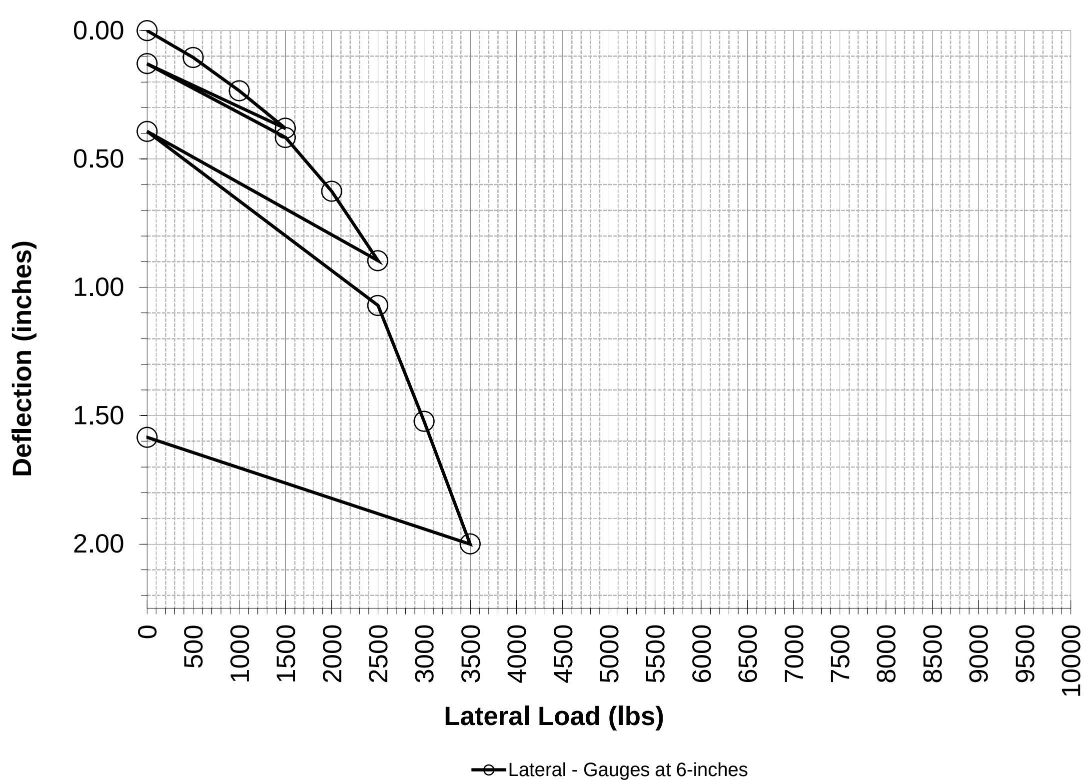
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-5B
Latitude:	37.68208
Longitude:	-85.95477
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	25

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.105	
10%	1000	0.234	
15%	1500	0.381	
0%	0	0.130	
15%	1500	0.417	
20%	2000	0.626	
25%	2500	0.897	
0%	0	0.393	
25%	2500	1.071	
30%	3000	1.522	
35%	3500	2.000	
0%	0		
35%	3500		
40%	4000		
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	1.584	



Lateral Load Test Result for PLT-6A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

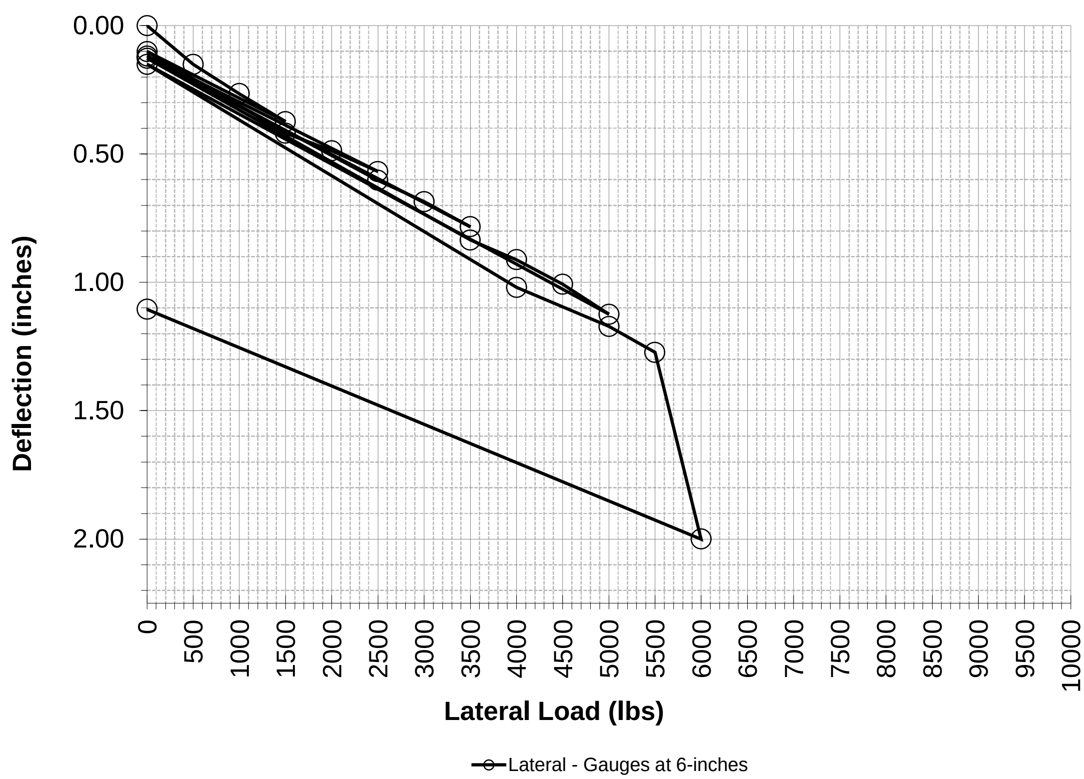
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-6A
Latitude:	37.67745
Longitude:	-85.95233
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	137

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.151	
10%	1000	0.265	
15%	1500	0.374	
0%	0	0.101	
15%	1500	0.419	
20%	2000	0.488	
25%	2500	0.568	
0%	0	0.119	
25%	2500	0.603	
30%	3000	0.686	
35%	3500	0.784	
0%	0	0.128	
35%	3500	0.836	
40%	4000	0.912	
45%	4500	1.008	
50%	5000	1.125	
0%	0	0.152	
40%	4000	1.020	
50%	5000	1.172	
55%	5500	1.273	
60%	6000	2.000	Pulling B pile
65%	6500		
70%	7000		
0%	0	1.105	



Lateral Load Test Result for PLT-6B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

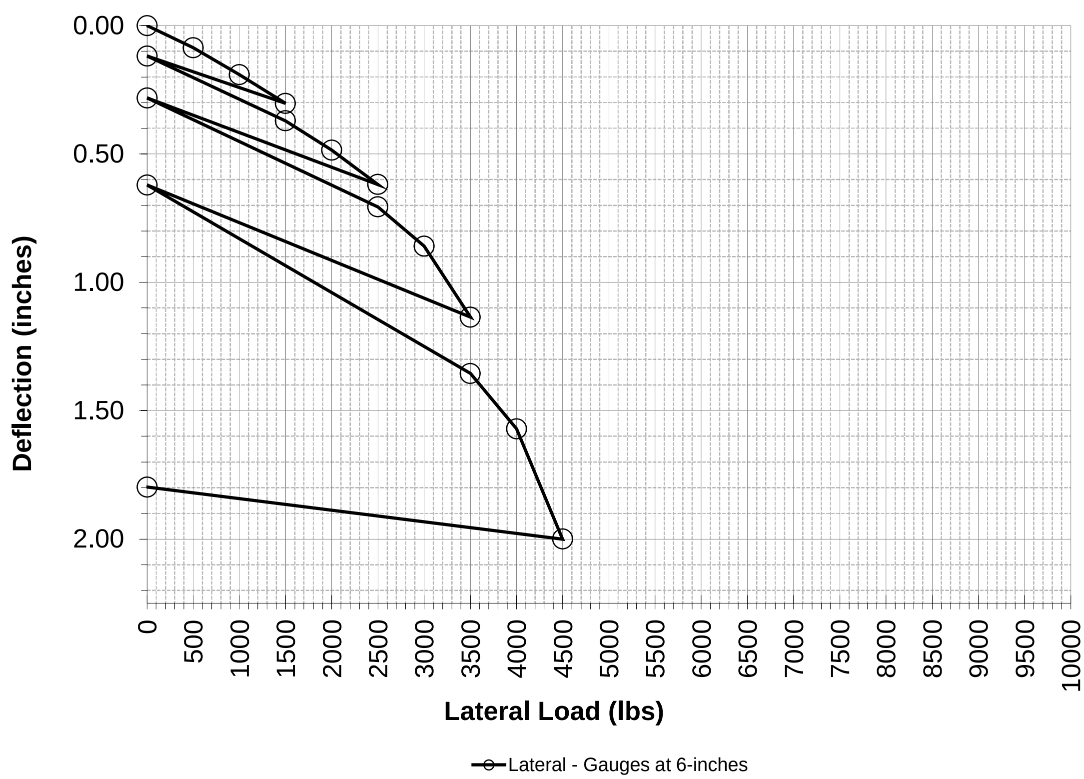
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-6B
Latitude:	37.67745
Longitude:	-85.95233
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	25

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.087	
10%	1000	0.191	
15%	1500	0.303	
0%	0	0.119	
15%	1500	0.371	
20%	2000	0.485	
25%	2500	0.619	
0%	0	0.282	
25%	2500	0.706	
30%	3000	0.859	
35%	3500	1.135	
0%	0	0.621	
35%	3500	1.356	
40%	4000	1.570	
45%	4500	2.000	
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	1.797	



Lateral Load Test Result for PLT-7A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

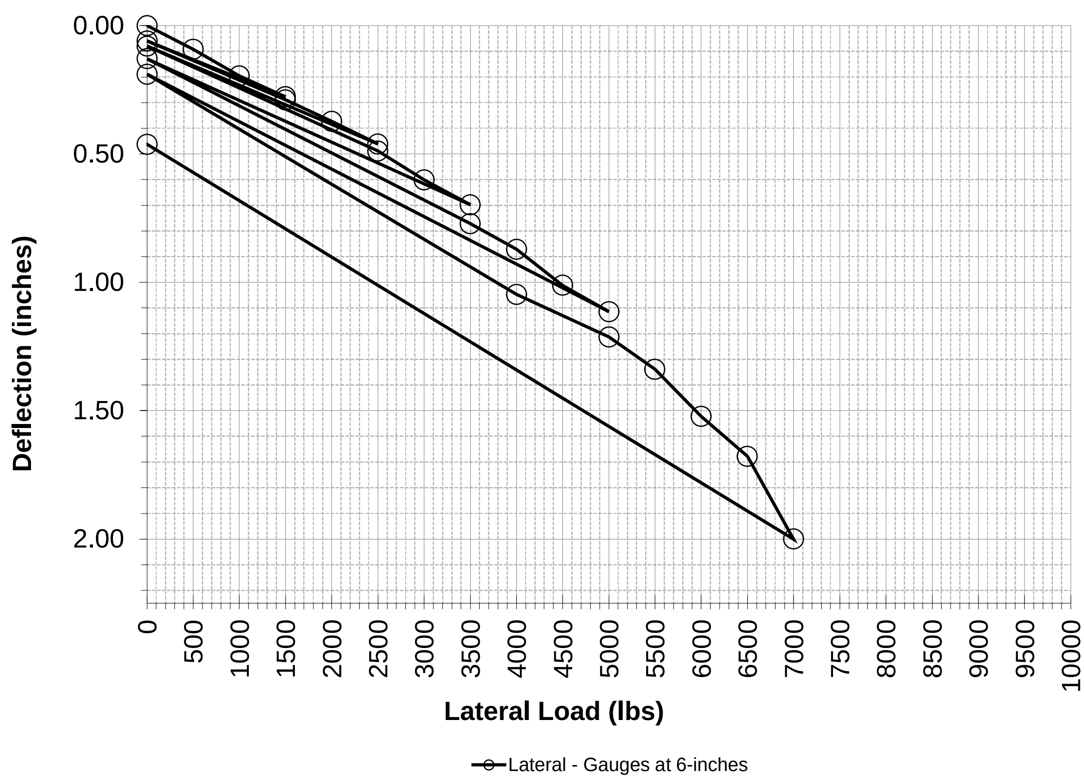
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-7A
Latitude:	37.68436
Longitude:	-85.94908
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	74

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.092	
10%	1000	0.196	
15%	1500	0.278	
0%	0	0.060	
15%	1500	0.290	
20%	2000	0.374	
25%	2500	0.461	
0%	0	0.080	
25%	2500	0.489	
30%	3000	0.601	
35%	3500	0.698	
0%	0	0.129	
35%	3500	0.772	
40%	4000	0.872	
45%	4500	1.012	
50%	5000	1.114	
0%	0	0.191	
40%	4000	1.048	
50%	5000	1.213	
55%	5500	1.340	
60%	6000	1.522	
65%	6500	1.678	
70%	7000	2.000	
0%	0	0.463	



Lateral Load Test Result for PLT-7B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

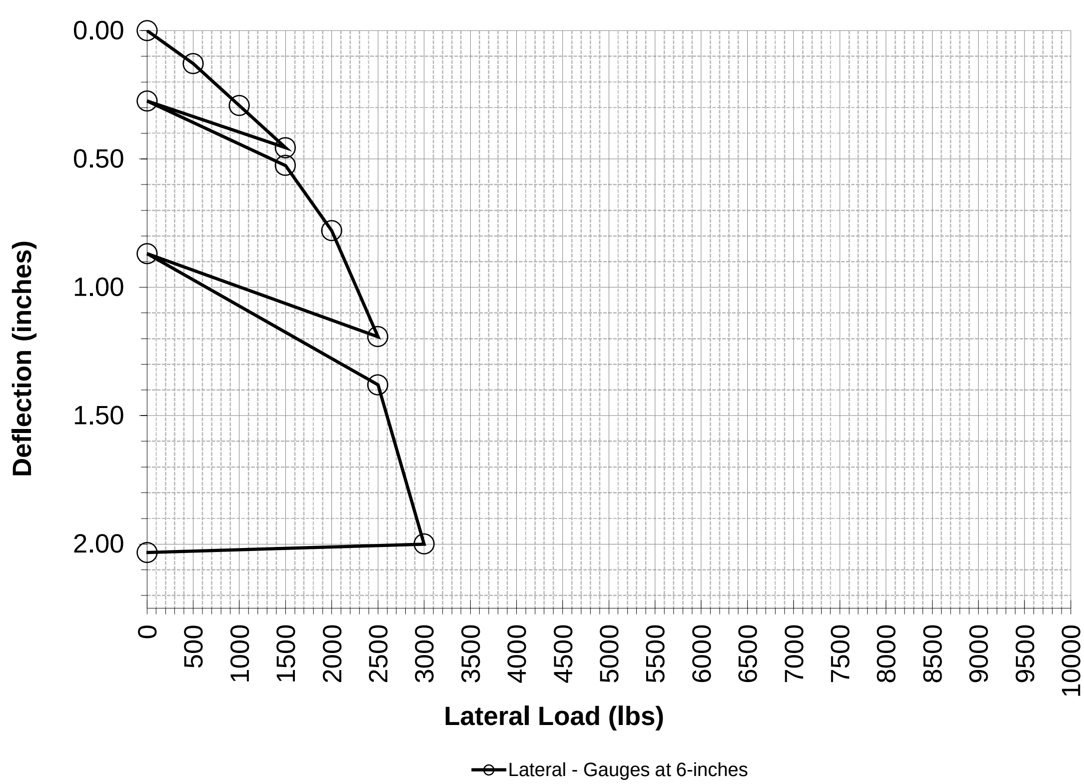
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-7B
Latitude:	37.68436
Longitude:	-85.94908
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	24

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.129	
10%	1000	0.292	
15%	1500	0.457	
0%	0	0.274	
15%	1500	0.526	
20%	2000	0.779	
25%	2500	1.192	
0%	0	0.869	
25%	2500	1.381	
30%	3000	2.000	
35%	3500		
0%	0		
35%	3500		
40%	4000		
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.034	



Lateral Load Test Result for PLT-8A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

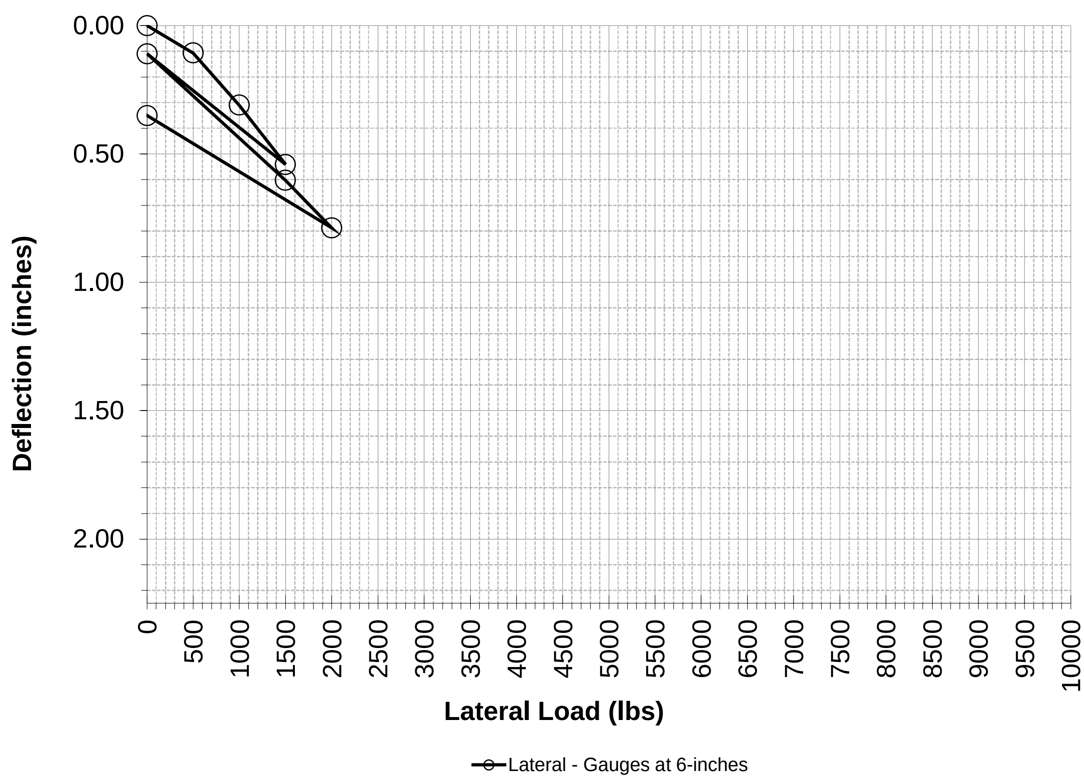
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-8A
Latitude:	37.68902
Longitude:	-85.95087
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	77

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.107	
10%	1000	0.310	
15%	1500	0.542	
0%	0	0.110	
15%	1500	0.603	
20%	2000	0.788	
25%	2500		
0%	0		
25%	2500		
30%	3000		
35%	3500		
0%	0		
35%	3500		
40%	4000		
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	0.351	



Lateral Load Test Result for PLT-8B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

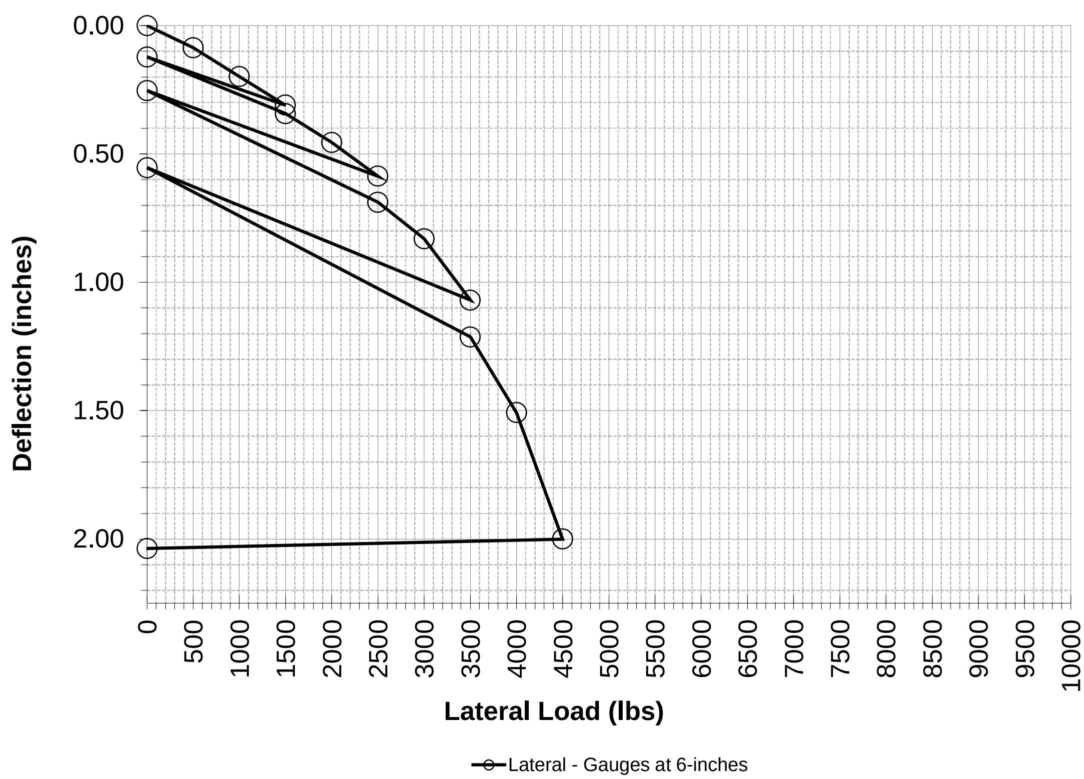
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-8B
Latitude:	37.68902
Longitude:	-85.95087
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	38

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.086	
10%	1000	0.199	
15%	1500	0.310	
0%	0	0.122	
15%	1500	0.343	
20%	2000	0.455	
25%	2500	0.587	
0%	0	0.253	
25%	2500	0.688	
30%	3000	0.830	
35%	3500	1.070	
0%	0	0.554	
35%	3500	1.213	
40%	4000	1.508	
45%	4500	2.000	
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.037	



Lateral Load Test Result for PLT-9A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

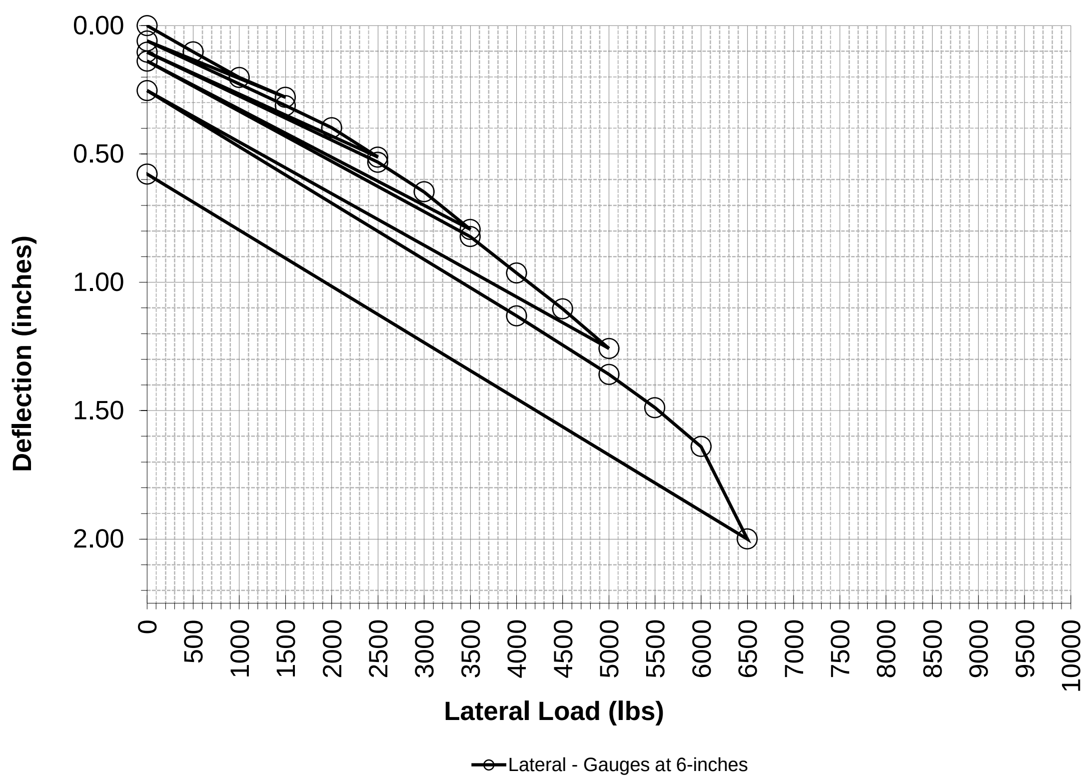
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-9A
Latitude:	37.69051
Longitude:	-85.94704
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	128

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.102	
10%	1000	0.202	
15%	1500	0.279	
0%	0	0.061	
15%	1500	0.313	
20%	2000	0.398	
25%	2500	0.513	
0%	0	0.104	
25%	2500	0.533	
30%	3000	0.648	
35%	3500	0.795	
0%	0	0.139	
35%	3500	0.822	
40%	4000	0.964	
45%	4500	1.103	
50%	5000	1.259	
0%	0	0.254	
40%	4000	1.131	
50%	5000	1.358	
55%	5500	1.489	
60%	6000	1.640	
65%	6500	2.000	
70%	7000		
0%	0	0.578	



Lateral Load Test Result for PLT-9B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

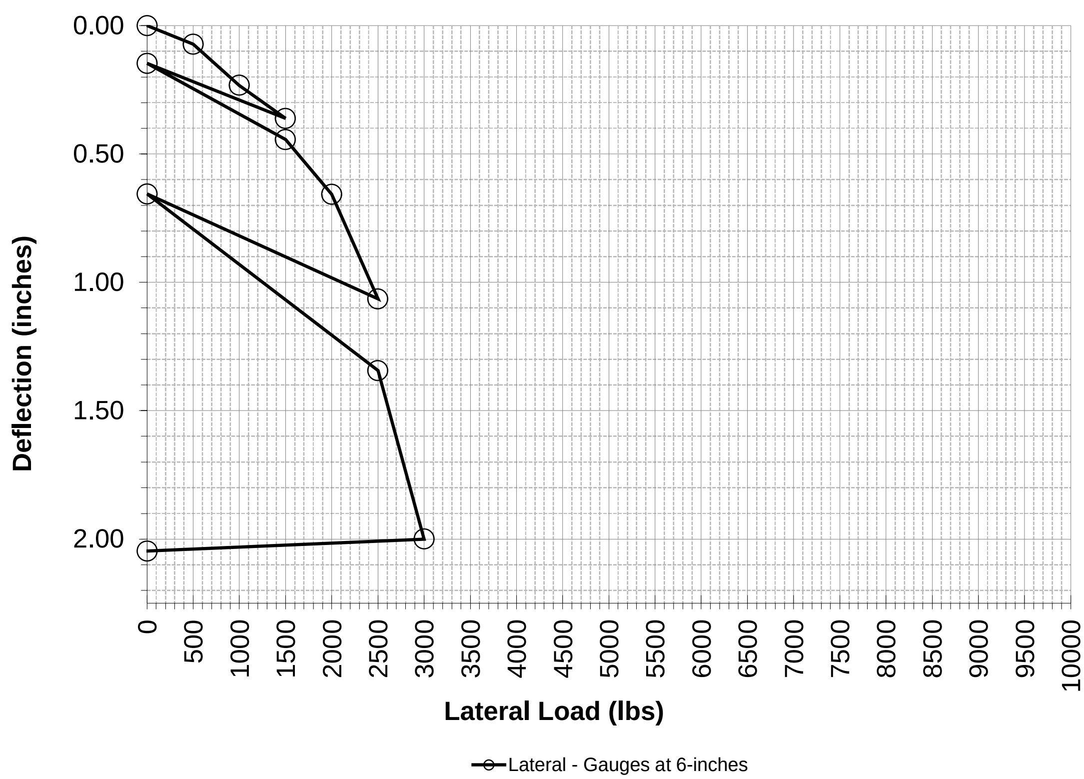
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-9B
Latitude:	37.69051
Longitude:	-85.94704
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	35

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.073	
10%	1000	0.233	
15%	1500	0.362	
0%	0	0.147	
15%	1500	0.444	
20%	2000	0.657	
25%	2500	1.065	
0%	0	0.656	
25%	2500	1.344	
30%	3000	2.000	
35%	3500		
0%	0		
35%	3500		
40%	4000		
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.047	



Lateral Load Test Result for PLT-10A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

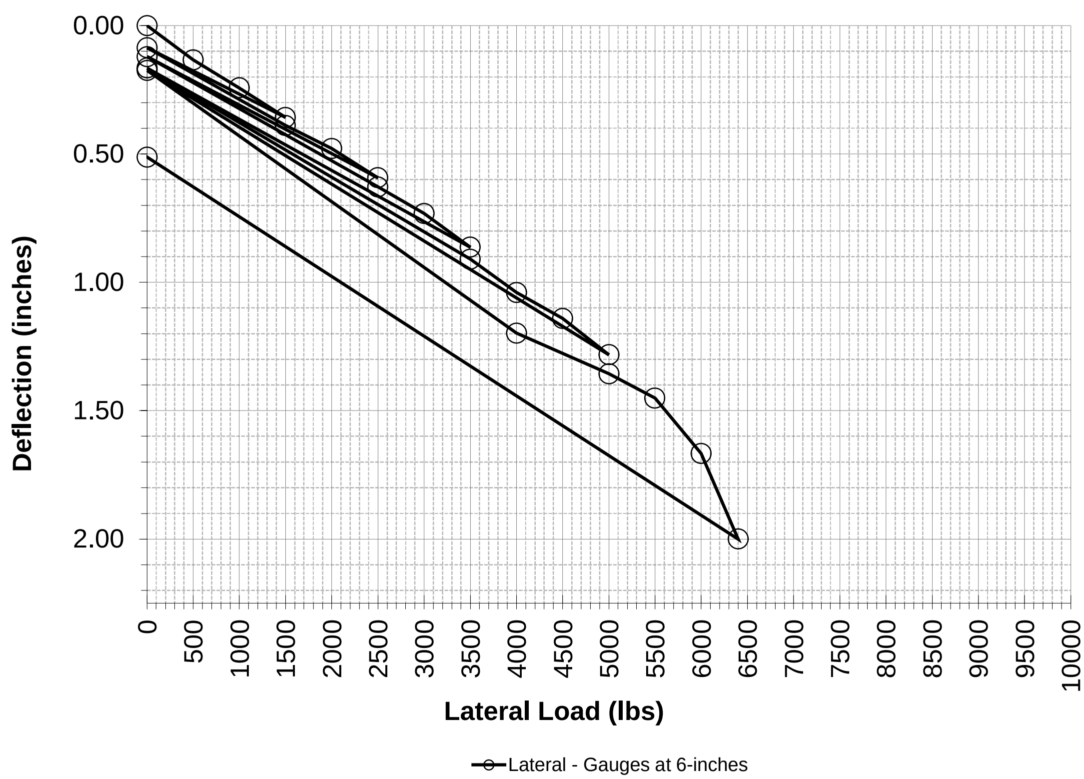
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-10A
Latitude:	37.68668
Longitude:	-85.94721
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	102

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.134	
10%	1000	0.243	
15%	1500	0.358	
0%	0	0.086	
15%	1500	0.390	
20%	2000	0.479	
25%	2500	0.593	
0%	0	0.121	
25%	2500	0.629	
30%	3000	0.732	
35%	3500	0.864	
0%	0	0.166	
35%	3500	0.910	
40%	4000	1.039	
45%	4500	1.141	
50%	5000	1.282	
0%	0	0.175	
40%	4000	1.198	
50%	5000	1.356	
55%	5500	1.450	
60%	6000	1.666	
64%	6400	2.000	
70%	7000		
0%	0	0.512	



Lateral Load Test Result for PLT-10B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

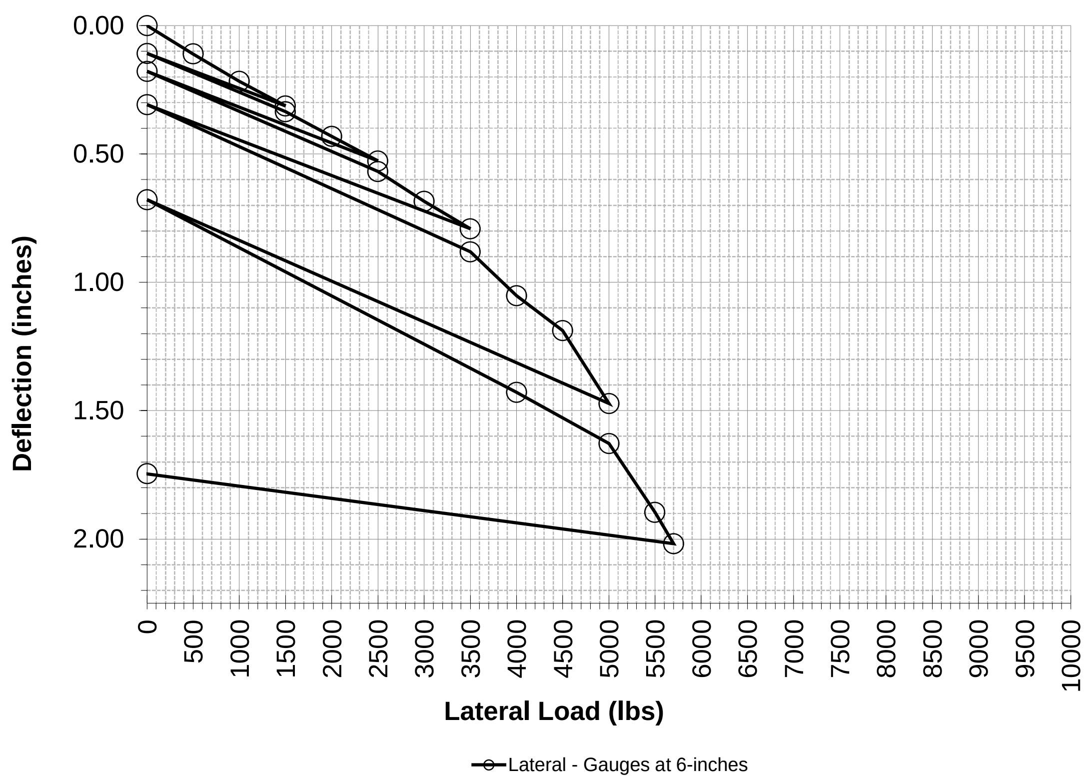
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-10B
Latitude:	37.68668
Longitude:	-85.94721
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	43

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.111	
10%	1000	0.218	
15%	1500	0.314	
0%	0	0.109	
15%	1500	0.335	
20%	2000	0.431	
25%	2500	0.528	
0%	0	0.179	
25%	2500	0.568	
30%	3000	0.685	
35%	3500	0.791	
0%	0	0.308	
35%	3500	0.881	
40%	4000	1.053	
45%	4500	1.188	
50%	5000	1.472	
0%	0	0.679	
40%	4000	1.428	
50%	5000	1.628	
55%	5500	1.896	
57%	5700	2.018	
65%	6500		
70%	7000		
0%	0	1.746	



Lateral Load Test Result for PLT-11A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

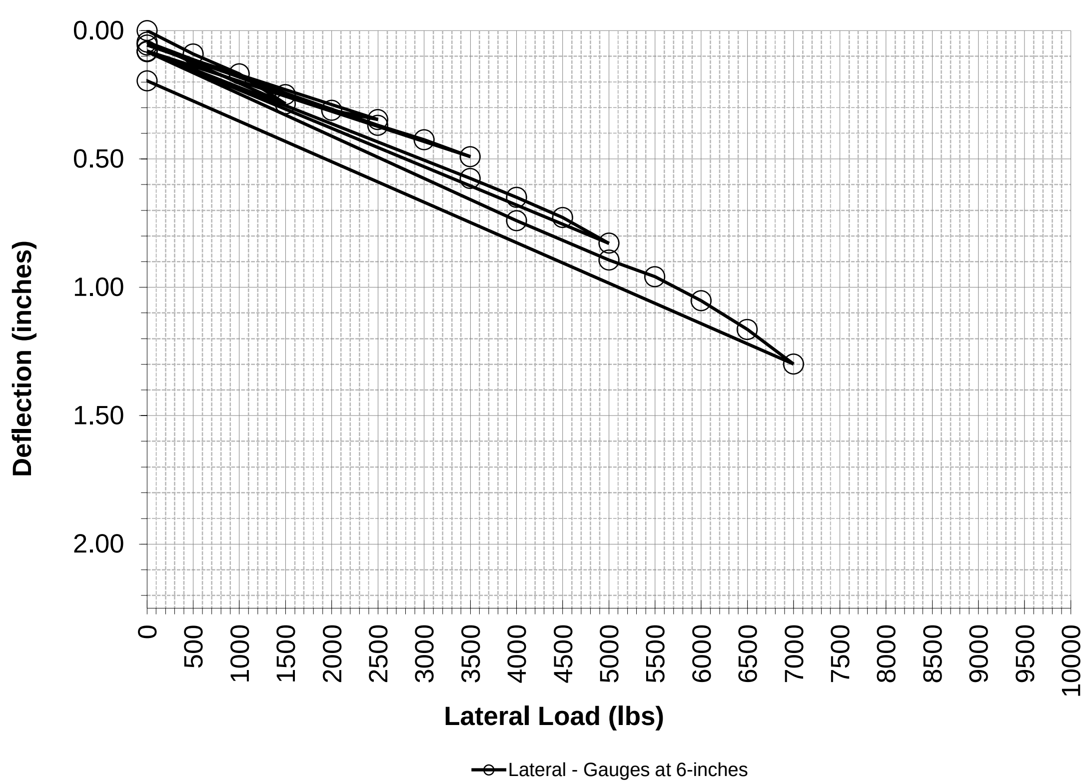
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-11A
Latitude:	37.68358
Longitude:	-85.94358
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	203

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.092	
10%	1000	0.169	
15%	1500	0.286	
0%	0	0.045	
15%	1500	0.250	
20%	2000	0.311	
25%	2500	0.347	
0%	0	0.057	
25%	2500	0.369	
30%	3000	0.425	
35%	3500	0.492	
0%	0	0.080	
35%	3500	0.576	
40%	4000	0.650	
45%	4500	0.728	
50%	5000	0.829	
0%	0	0.083	
40%	4000	0.740	
50%	5000	0.894	
55%	5500	0.959	
60%	6000	1.053	
65%	6500	1.164	
70%	7000	1.299	
0%	0	0.196	



Lateral Load Test Result for PLT-11B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

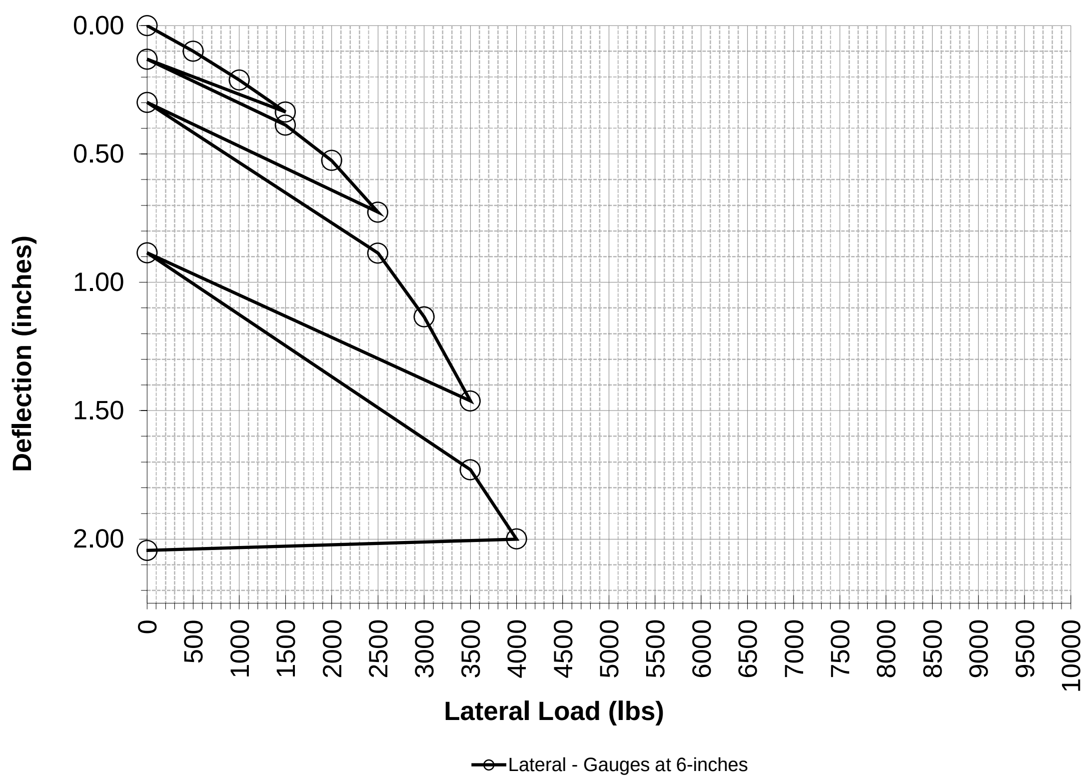
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-11B
Latitude:	37.68358
Longitude:	-85.94358
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	48

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.100	
10%	1000	0.212	
15%	1500	0.336	
0%	0	0.132	
15%	1500	0.388	
20%	2000	0.526	
25%	2500	0.727	
0%	0	0.300	
25%	2500	0.887	
30%	3000	1.135	
35%	3500	1.462	
0%	0	0.886	
35%	3500	1.730	
40%	4000	2.000	
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.045	



Lateral Load Test Result for PLT-12A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

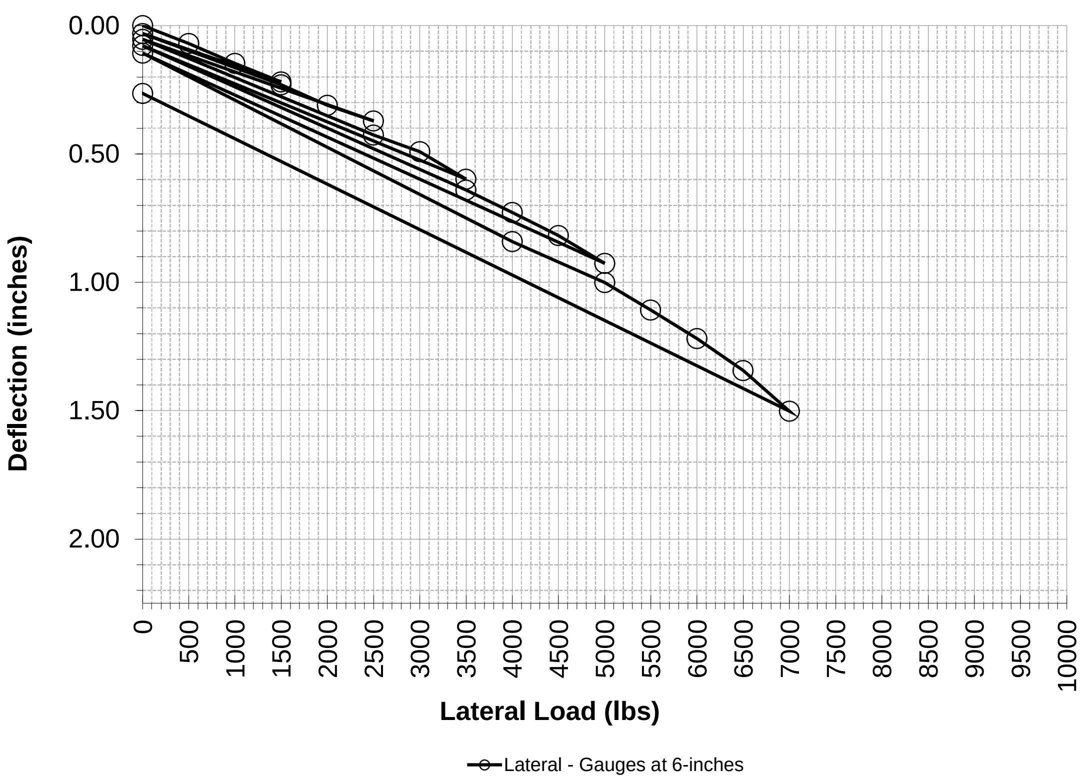
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-12A
Latitude:	37.68581
Longitude:	-85.93796
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	150

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.070	
10%	1000	0.148	
15%	1500	0.220	
0%	0	0.031	
15%	1500	0.231	
20%	2000	0.311	
25%	2500	0.372	
0%	0	0.055	
25%	2500	0.427	
30%	3000	0.491	
35%	3500	0.599	
0%	0	0.078	
35%	3500	0.641	
40%	4000	0.728	
45%	4500	0.818	
50%	5000	0.927	
0%	0	0.108	
40%	4000	0.842	
50%	5000	1.001	
55%	5500	1.109	
60%	6000	1.220	
65%	6500	1.344	
70%	7000	1.502	
0%	0	0.264	



Lateral Load Test Result for PLT-12B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

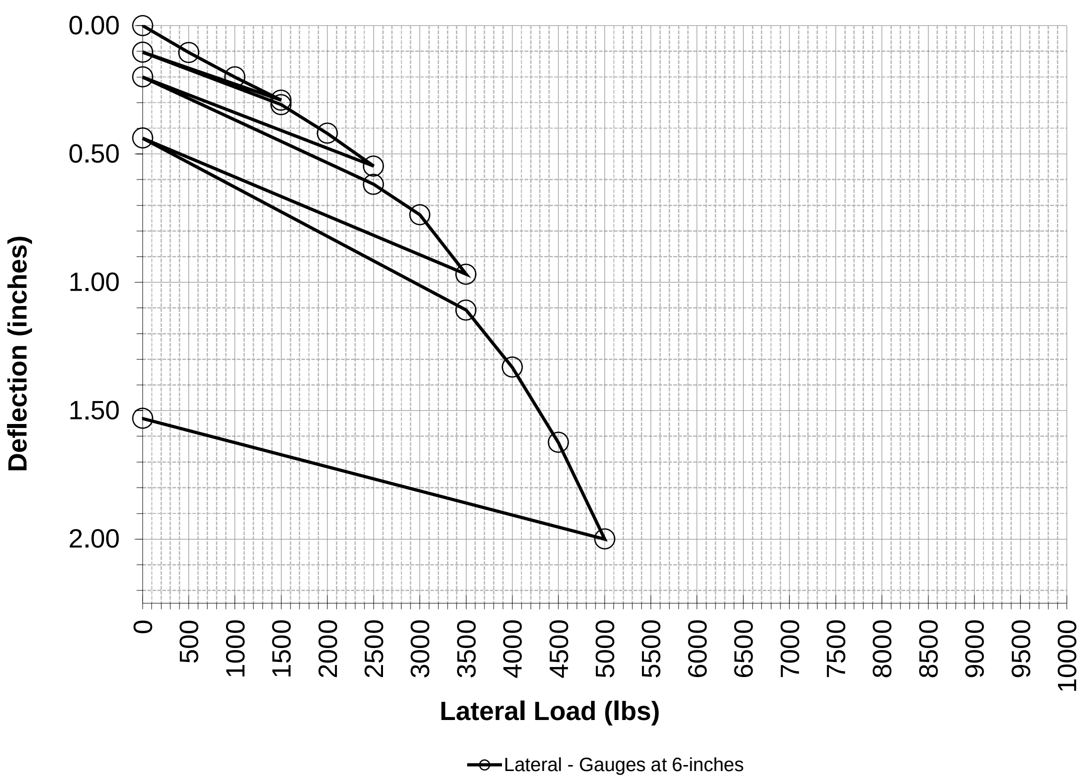
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-12B
Latitude:	37.68581
Longitude:	-85.93796
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	45

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.104	
10%	1000	0.200	
15%	1500	0.291	
0%	0	0.104	
15%	1500	0.308	
20%	2000	0.420	
25%	2500	0.547	
0%	0	0.200	
25%	2500	0.618	
30%	3000	0.737	
35%	3500	0.970	
0%	0	0.438	
35%	3500	1.108	
40%	4000	1.331	
45%	4500	1.624	
50%	5000	2.000	
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	1.530	



Lateral Load Test Result for PLT-13A

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.156	
10%	1000	0.273	
15%	1500	0.402	
0%	0	0.149	
15%	1500	0.472	
20%	2000	0.603	
25%	2500	0.843	
0%	0	0.271	
25%	2500	0.948	
30%	3000	1.057	
35%	3500	1.319	
0%	0	0.410	
35%	3500	1.446	
40%	4000	1.707	
45%	4500	2.000	
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	0.722	

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Lateral Load Test Set Up

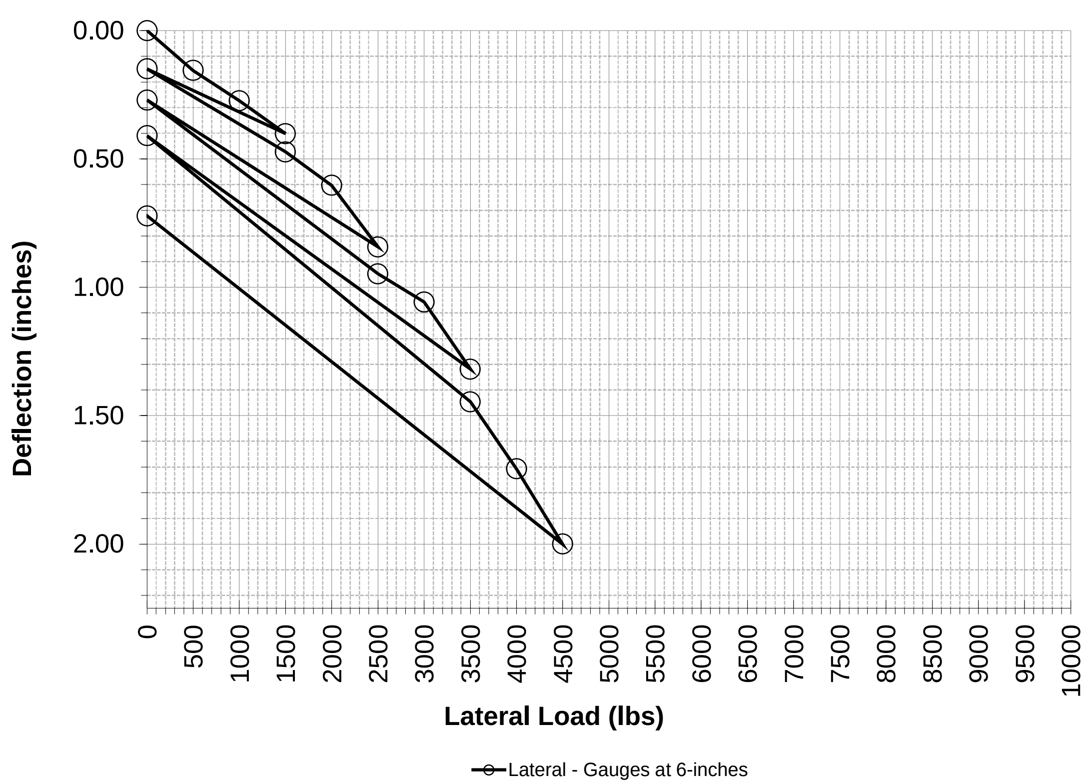
Number of Top Gauges:	0
Number of Bottom Gauges:	2
Height of Top Gauges [in]:	6
Height of Bottom Gauges [in]:	6
Height of Applied Load [in]:	36
Load Cell:	25k Ed Jr.

Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-13A
Latitude:	37.68980
Longitude:	-85.93866
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	22



Lateral Load Test Result for PLT-13B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

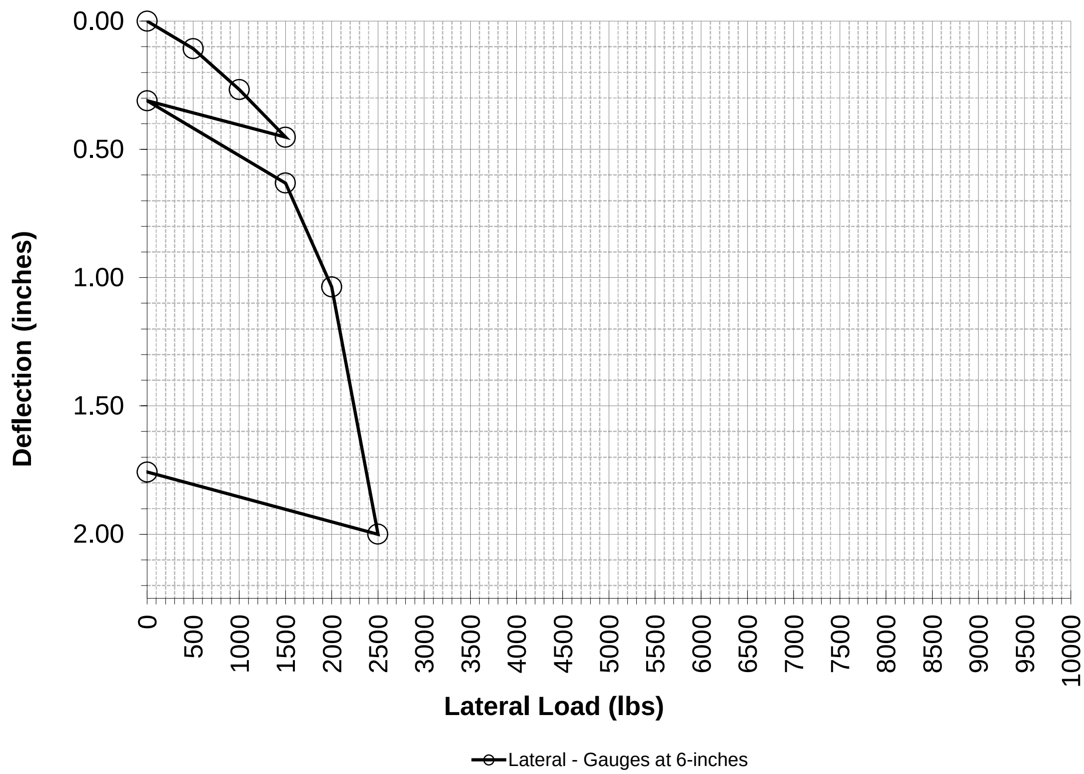
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-13B
Latitude:	37.68980
Longitude:	-85.93866
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	6

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.108	
10%	1000	0.267	
15%	1500	0.453	
0%	0	0.311	
15%	1500	0.632	
20%	2000	1.037	
25%	2500	2.000	
0%	0		
25%	2500		
30%	3000		
35%	3500		
0%	0		
35%	3500		
40%	4000		
45%	4500		
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	1.757	



Lateral Load Test Result for PLT-14A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

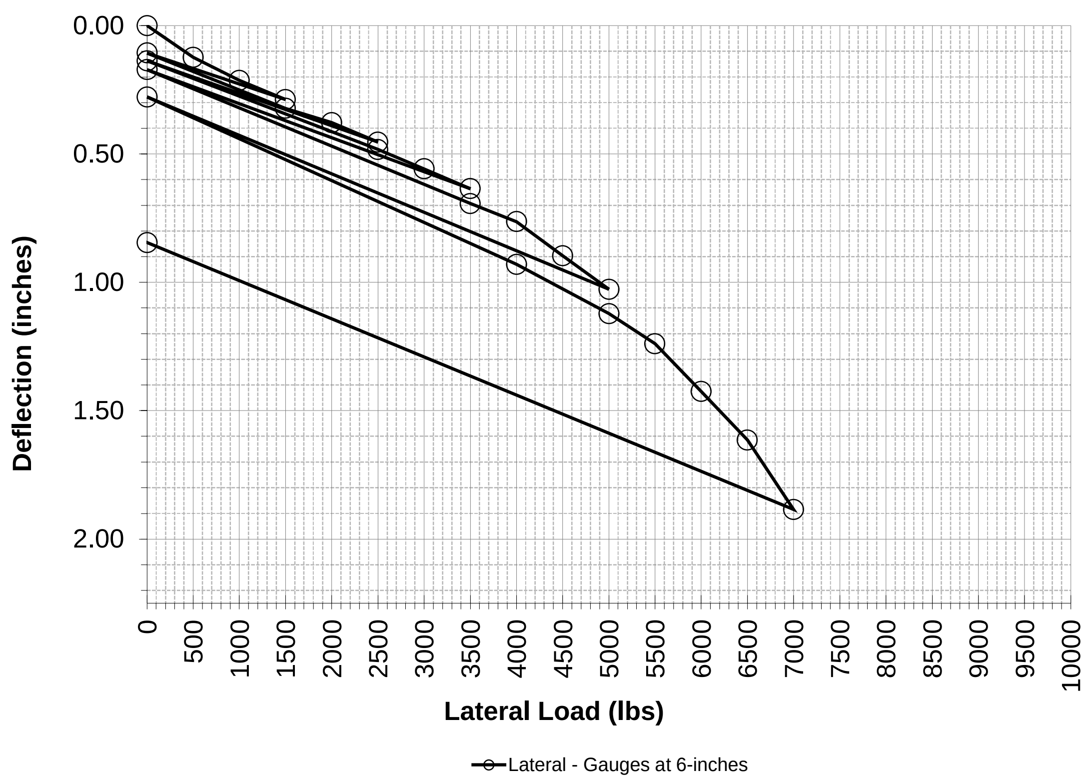
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-14A
Latitude:	37.68842
Longitude:	-85.93382
Pile Type:	W6X9
Pile Embedment Depth [in]:	78
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	193

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.124	
10%	1000	0.213	
15%	1500	0.288	
0%	0	0.107	
15%	1500	0.323	
20%	2000	0.378	
25%	2500	0.454	
0%	0	0.138	
25%	2500	0.483	
30%	3000	0.558	
35%	3500	0.636	
0%	0	0.172	
35%	3500	0.693	
40%	4000	0.764	
45%	4500	0.897	
50%	5000	1.027	
0%	0	0.279	
40%	4000	0.930	
50%	5000	1.123	
55%	5500	1.239	
60%	6000	1.425	
65%	6500	1.615	
70%	7000	1.885	
0%	0	0.846	



Lateral Load Test Result for PLT-14B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

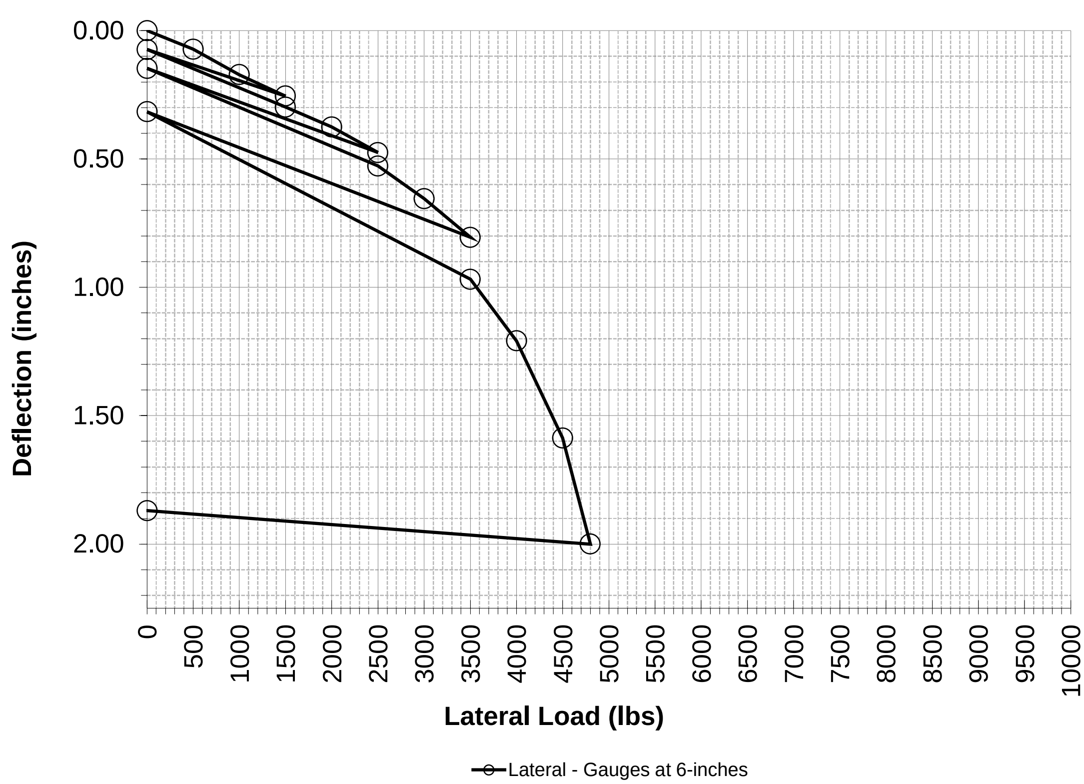
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-14B
Latitude:	37.68842
Longitude:	-85.93382
Pile Type:	W6X9
Pile Embedment Depth [in]:	84
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	115

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.073	
10%	1000	0.172	
15%	1500	0.255	
0%	0	0.074	
15%	1500	0.298	
20%	2000	0.375	
25%	2500	0.476	
0%	0	0.148	
25%	2500	0.527	
30%	3000	0.655	
35%	3500	0.806	
0%	0	0.317	
35%	3500	0.969	
40%	4000	1.209	
45%	4500	1.588	
48%	4800	2.000	
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	1.870	



Lateral Load Test Result for PLT-15A

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

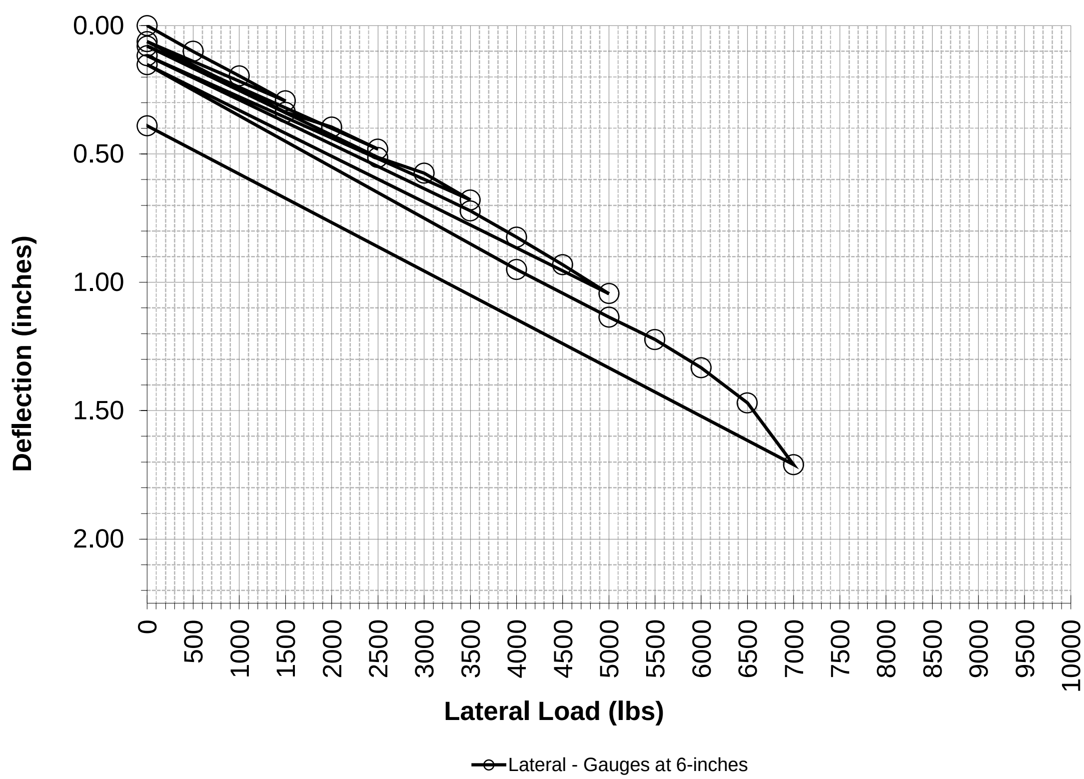
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-15A
Latitude:	37.69217
Longitude:	-85.93521
Pile Type:	W6X9
Pile Embedment Depth [in]:	96
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	178

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.101	
10%	1000	0.196	
15%	1500	0.294	
0%	0	0.063	
15%	1500	0.338	
20%	2000	0.396	
25%	2500	0.481	
0%	0	0.080	
25%	2500	0.514	
30%	3000	0.575	
35%	3500	0.680	
0%	0	0.118	
35%	3500	0.722	
40%	4000	0.824	
45%	4500	0.931	
50%	5000	1.044	
0%	0	0.152	
40%	4000	0.950	
50%	5000	1.136	
55%	5500	1.222	
60%	6000	1.333	
65%	6500	1.470	
70%	7000	1.710	
0%	0	0.391	



Lateral Load Test Result for PLT-15B

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

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.

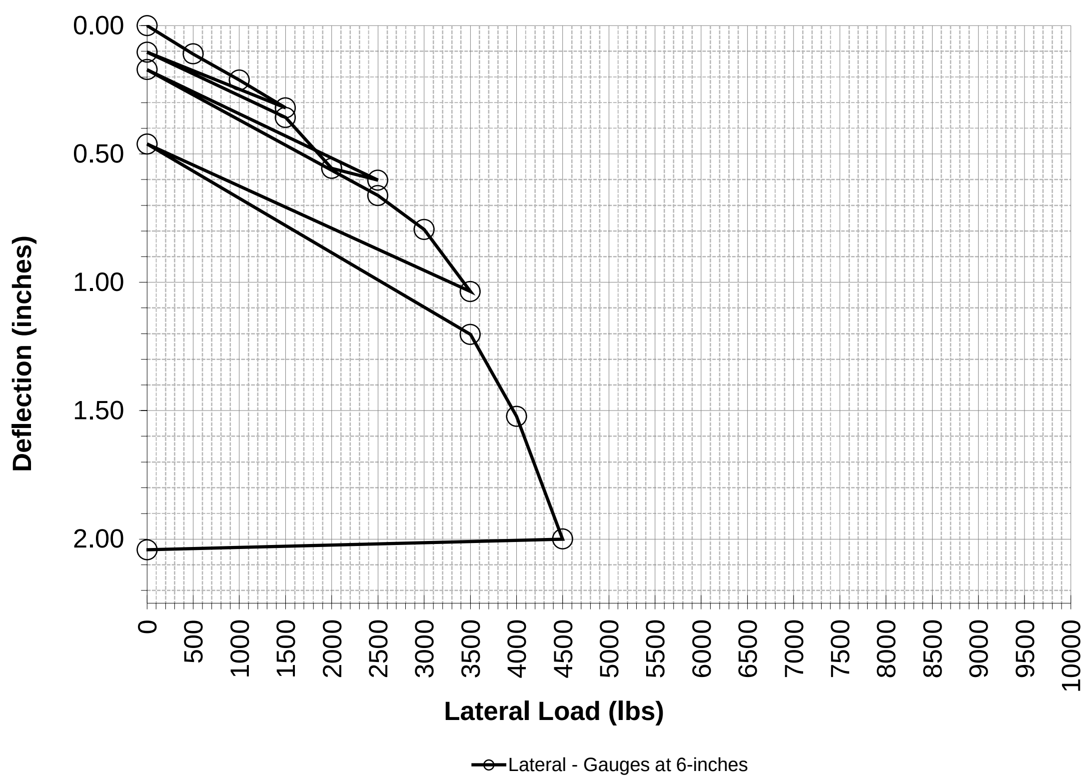
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-15B
Latitude:	37.69217
Longitude:	-85.93521
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Stick-Up [in]:	48
Lateral Design Load [lbs]:	10000
Drive Time [sec]:	47

% of Design Load	Lateral Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
5%	500	0.111	
10%	1000	0.213	
15%	1500	0.321	
0%	0	0.104	
15%	1500	0.358	
20%	2000	0.557	
25%	2500	0.603	
0%	0	0.172	
25%	2500	0.663	
30%	3000	0.794	
35%	3500	1.036	
0%	0	0.462	
35%	3500	1.203	
40%	4000	1.522	
45%	4500	2.000	
50%	5000		
0%	0		
40%	4000		
50%	5000		
55%	5500		
60%	6000		
65%	6500		
70%	7000		
0%	0	2.041	



APPENDIX G – PILE LOAD TEST RESULTS – AXIAL COMPRESSION LOAD

Contents:

Compression Load Test Result for PLT-1C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

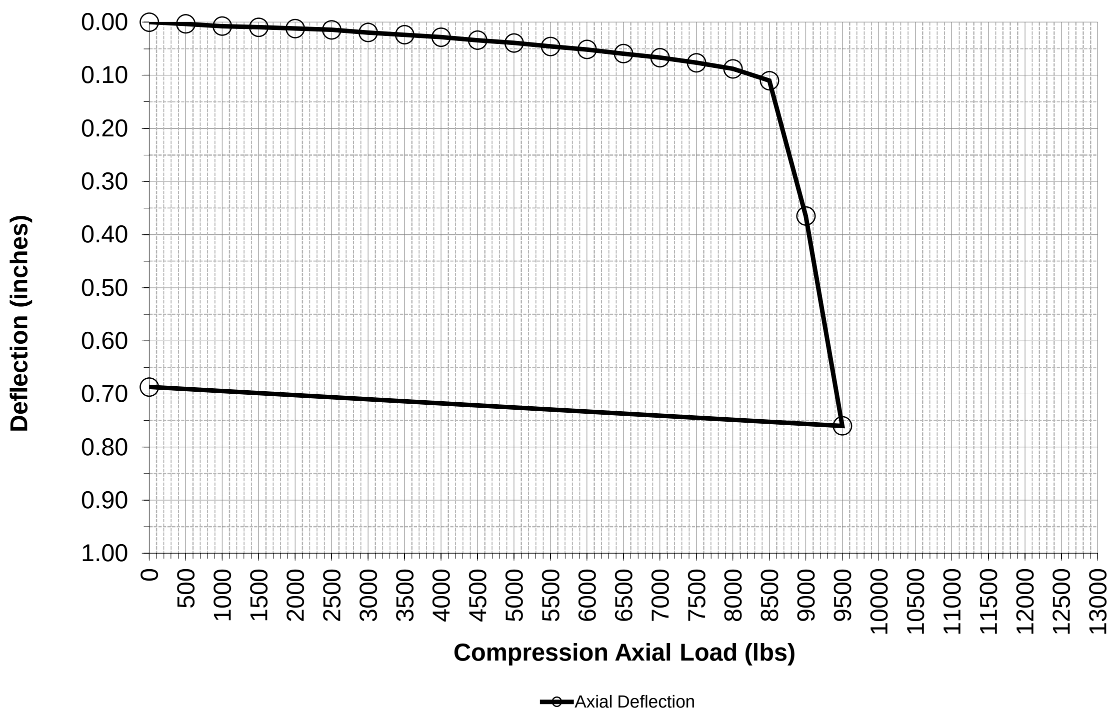
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-1C
Latitude:	37.67694
Longitude:	-85.96791
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	26

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.004	
8%	1000	0.008	
12%	1500	0.010	
15%	2000	0.012	
19%	2500	0.015	
23%	3000	0.020	
27%	3500	0.024	
31%	4000	0.028	
35%	4500	0.034	
38%	5000	0.039	
42%	5500	0.046	
46%	6000	0.052	
50%	6500	0.060	
54%	7000	0.067	
58%	7500	0.077	
62%	8000	0.088	
65%	8500	0.110	
69%	9000	0.365	
73%	9500	0.760	
77%	10000		
81%	10500		
85%	11000		
88%	11500		
92%	12000		
96%	12500		
100%	13000		
0%	0	0.687	



Compression Load Test Result for PLT-3C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

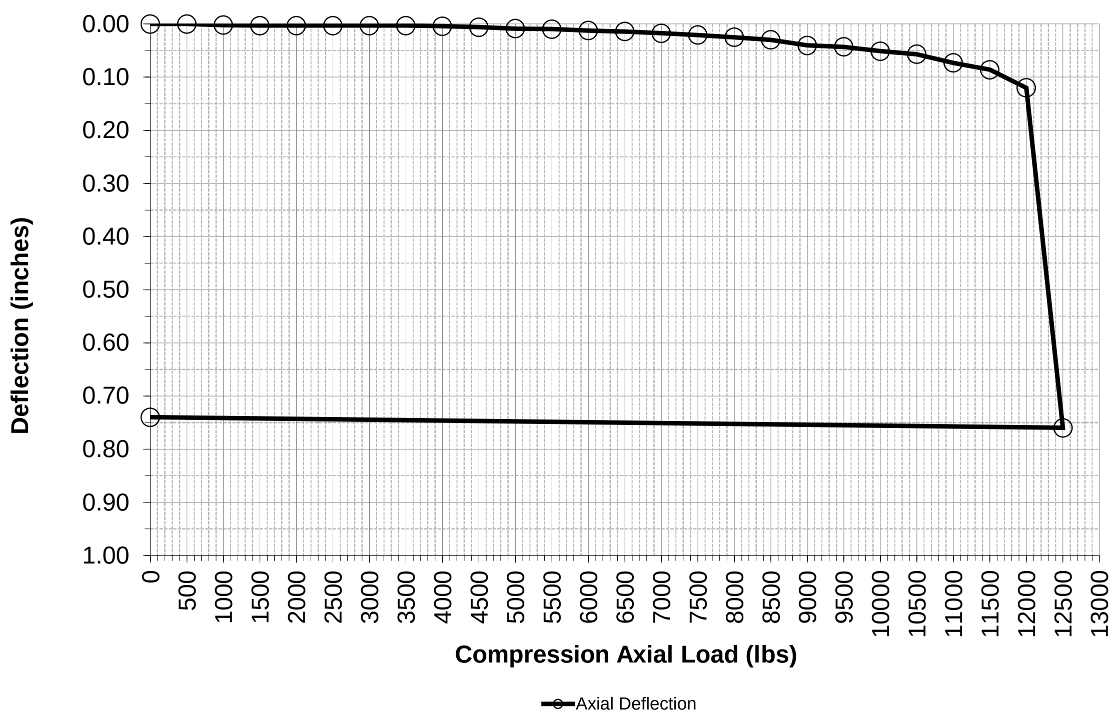
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/14/2022

Pile Information

Pile ID:	PLT-3C
Latitude:	37.68330
Longitude:	-85.96170
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	40

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.000	
8%	1000	0.002	
12%	1500	0.003	
15%	2000	0.003	
19%	2500	0.003	
23%	3000	0.003	
27%	3500	0.003	
31%	4000	0.004	
35%	4500	0.006	
38%	5000	0.009	
42%	5500	0.010	
46%	6000	0.013	
50%	6500	0.014	
54%	7000	0.018	
58%	7500	0.021	
62%	8000	0.025	
65%	8500	0.030	
69%	9000	0.040	
73%	9500	0.043	
77%	10000	0.051	
81%	10500	0.057	
85%	11000	0.073	
88%	11500	0.086	
92%	12000	0.120	
96%	12500	0.760	
100%	13000		
0%	0	0.740	



Compression Load Test Result for PLT-5C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

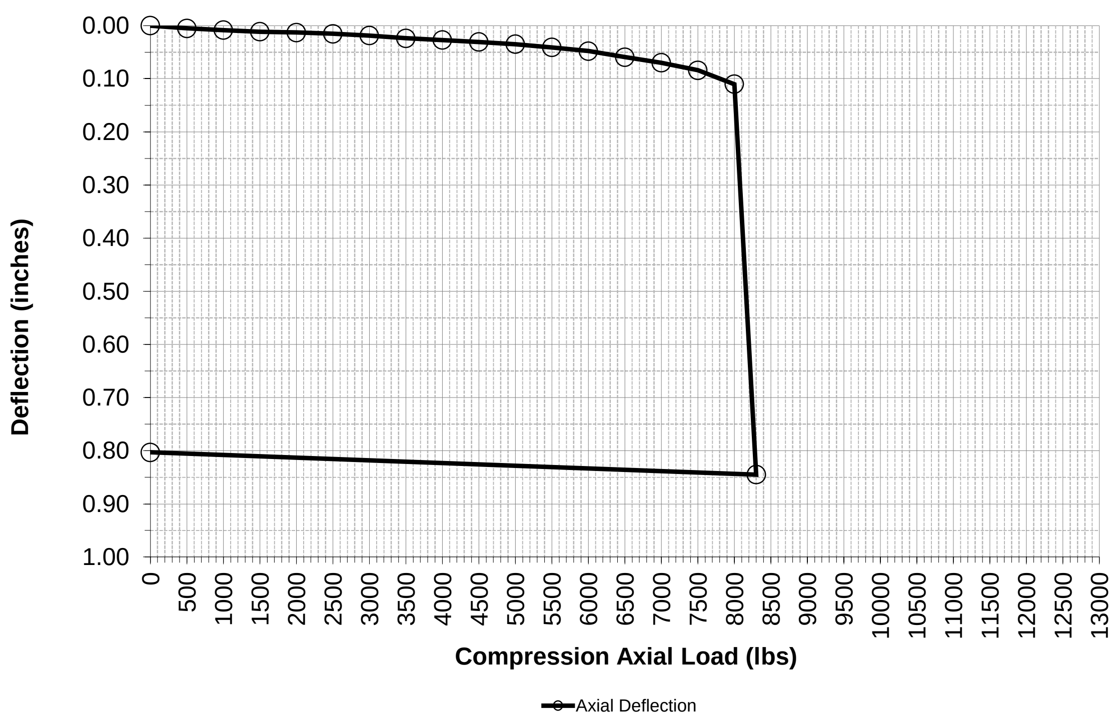
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-5C
Latitude:	37.68208
Longitude:	-85.95477
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	24

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.005	
8%	1000	0.009	
12%	1500	0.012	
15%	2000	0.013	
19%	2500	0.016	
23%	3000	0.019	
27%	3500	0.024	
31%	4000	0.027	
35%	4500	0.031	
38%	5000	0.035	
42%	5500	0.041	
46%	6000	0.048	
50%	6500	0.060	
54%	7000	0.070	
58%	7500	0.084	
62%	8000	0.110	
64%	8300	0.845	
69%	9000		
73%	9500		
77%	10000		
81%	10500		
85%	11000		
88%	11500		
92%	12000		
96%	12500		
100%	13000		
0%	0	0.803	



Compression Load Test Result for PLT-7C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

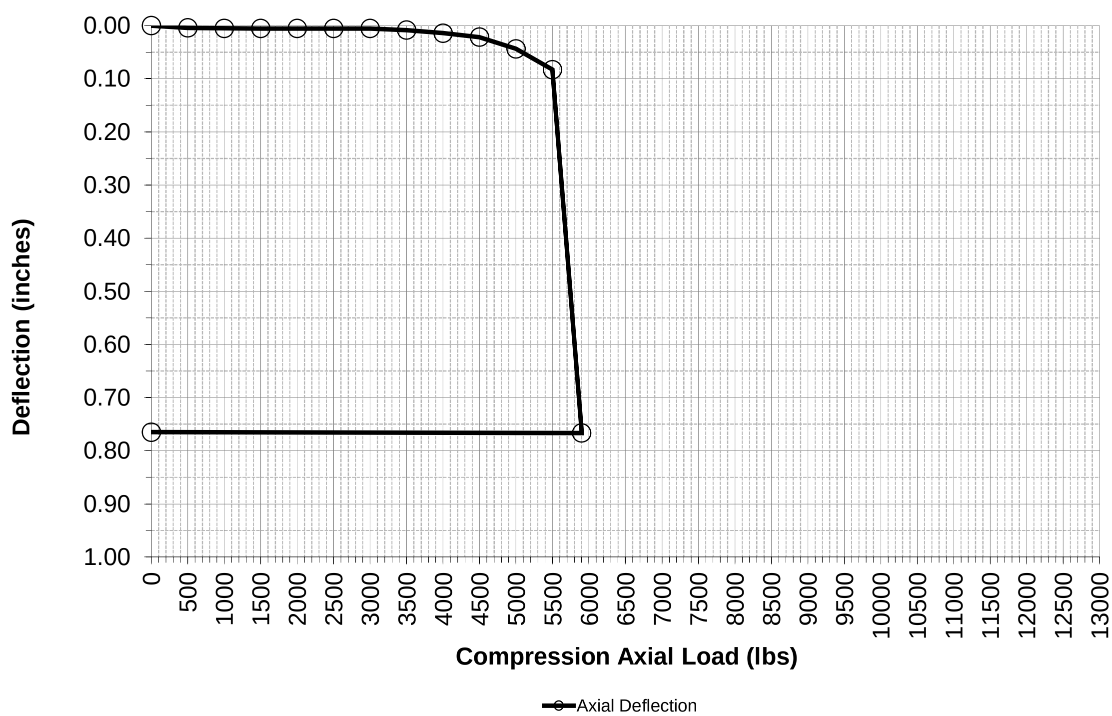
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-7C
Latitude:	37.68436
Longitude:	-85.94908
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	27

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.005	
8%	1000	0.005	
12%	1500	0.006	
15%	2000	0.006	
19%	2500	0.006	
23%	3000	0.006	
27%	3500	0.009	
31%	4000	0.014	
35%	4500	0.022	
38%	5000	0.044	
42%	5500	0.083	
45%	5900	0.767	
50%	6500		
54%	7000		
58%	7500		
62%	8000		
65%	8500		
69%	9000		
73%	9500		
77%	10000		
81%	10500		
85%	11000		
88%	11500		
92%	12000		
96%	12500		
100%	13000		
0%	0	0.765	



Compression Load Test Result for PLT-9C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

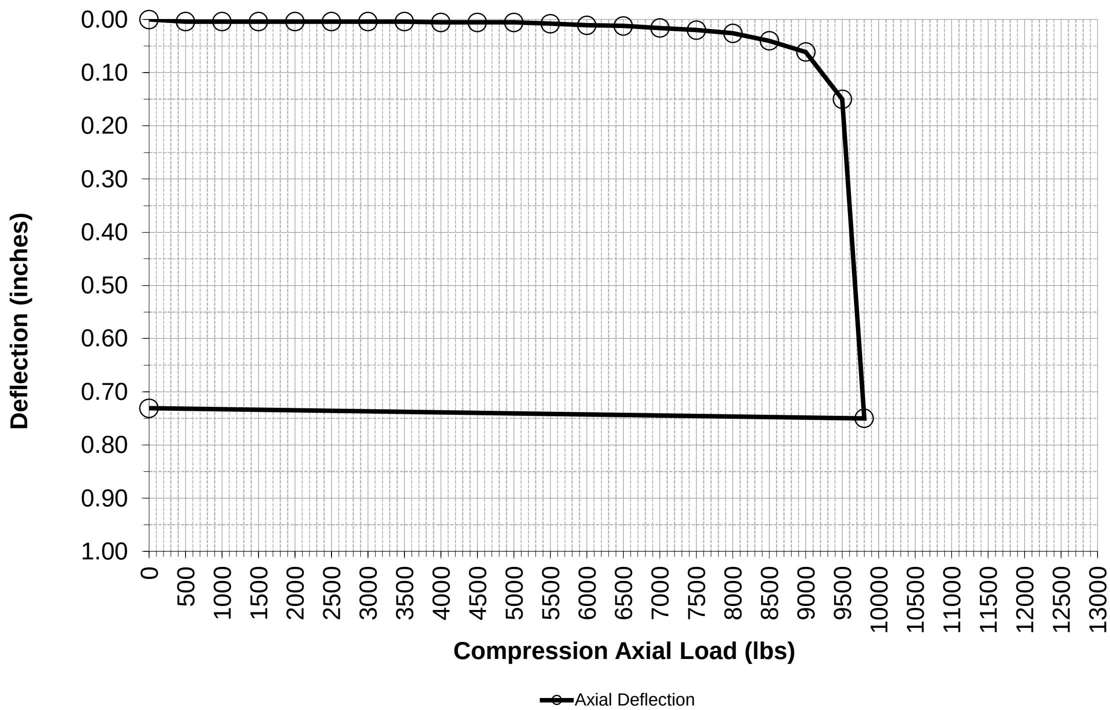
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/15/2022

Pile Information

Pile ID:	PLT-9C
Latitude:	37.69051
Longitude:	-85.94704
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	43

Compression Test Results

% of Design Load	Axial Load [lbs]	Deflection Δ (in.) Gauges #1 & #2	Comments
0%	0	0.000	
4%	500	0.004	
8%	1000	0.004	
12%	1500	0.004	
15%	2000	0.004	
19%	2500	0.004	
23%	3000	0.004	
27%	3500	0.004	
31%	4000	0.006	
35%	4500	0.006	
38%	5000	0.006	
42%	5500	0.008	
46%	6000	0.011	
50%	6500	0.012	
54%	7000	0.016	
58%	7500	0.020	
62%	8000	0.026	
65%	8500	0.040	
69%	9000	0.061	
73%	9500	0.150	
75%	9800	0.750	
81%	10500		
85%	11000		
88%	11500		
92%	12000		
96%	12500		
100%	13000		
0%	0	0.731	



Compression Load Test Result for PLT-12C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

Test Date and Representative

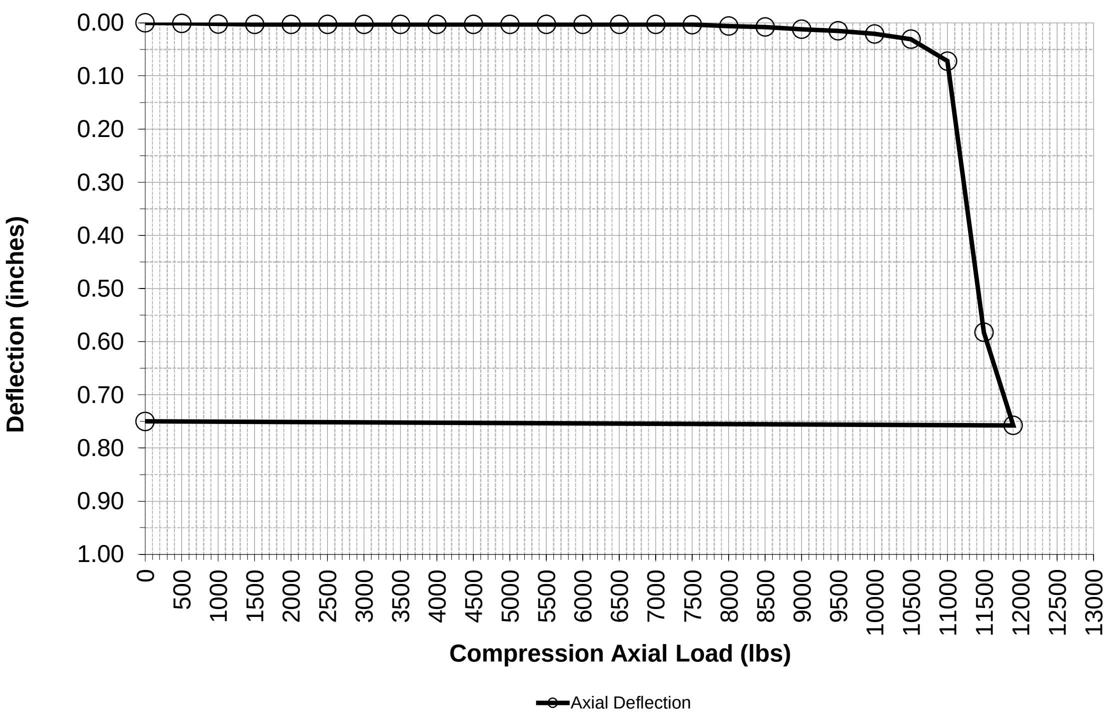
Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-12C
Latitude:	37.68581
Longitude:	-85.93796
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	50

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	0.002	
12%	1500	0.003	
15%	2000	0.003	
19%	2500	0.003	
23%	3000	0.003	
27%	3500	0.003	
31%	4000	0.003	
35%	4500	0.003	
38%	5000	0.003	
42%	5500	0.003	
46%	6000	0.003	
50%	6500	0.003	
54%	7000	0.003	
58%	7500	0.004	
62%	8000	0.006	
65%	8500	0.008	
69%	9000	0.012	
73%	9500	0.015	
77%	10000	0.021	
81%	10500	0.031	
85%	11000	0.072	
88%	11500	0.583	
92%	11900	0.758	
96%	12500		
100%	13000		
0%	0	0.750	



Compression Load Test Result for PLT-15C

Project Information

Project Name:	Telesto Solar
Project Location:	Cecilia, Kentucky
Project Number:	57215113

Axial Load Test Set Up

Number of Gauges:	2
Height of Gauges [in]:	6
Load Cell:	25k Ed Jr.

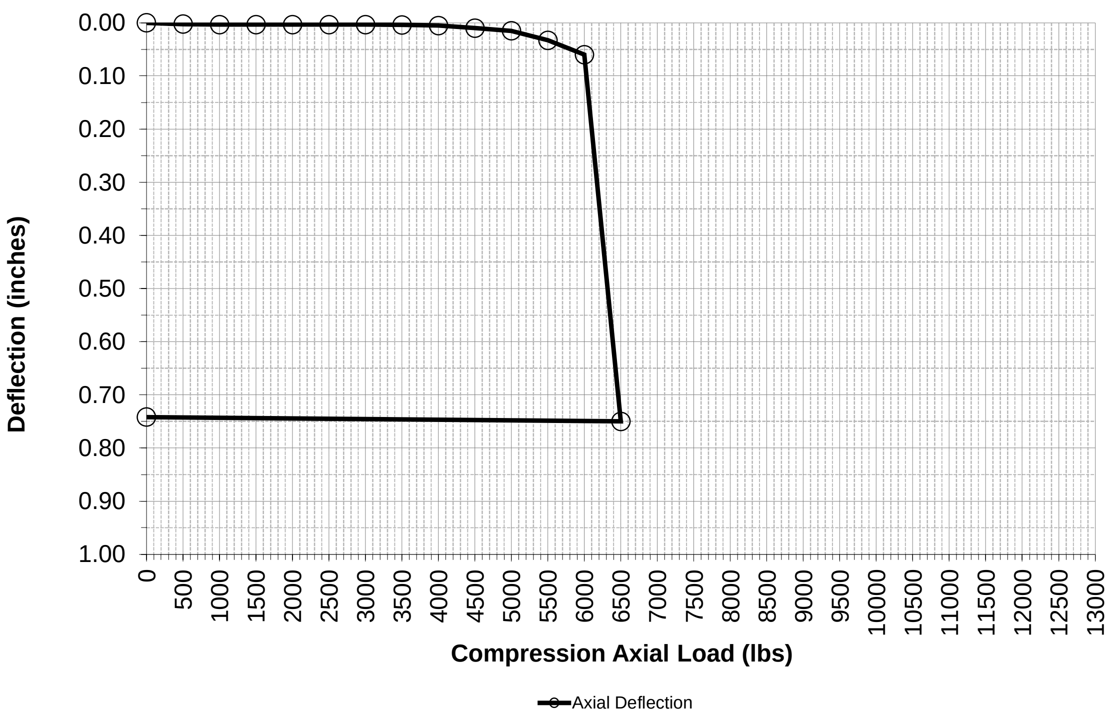
Test Date and Representative

Tested By Terracon Rep:	I.McGougan
Date Tested:	3/16/2022

Pile Information

Pile ID:	PLT-15C
Latitude:	37.69217
Longitude:	-85.93521
Pile Type:	W6X9
Pile Embedment Depth [in]:	60
Pile Diameter [in]:	5.9
Pile Stick-Up [in]:	30
Axial Design Load [lbs]:	13000
Pile Area [sq. in]:	2.68
Elastic Modulus [ksi]:	29,000
Drive Time [sec]:	46

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	0.004	
15%	2000	0.004	
19%	2500	0.004	
23%	3000	0.004	
27%	3500	0.004	
31%	4000	0.005	
35%	4500	0.010	
38%	5000	0.015	
42%	5500	0.033	
46%	6000	0.060	
50%	6500	0.750	
54%	7000		
58%	7500		
62%	8000		
65%	8500		
69%	9000		
73%	9500		
77%	10000		
81%	10500		
85%	11000		
88%	11500		
92%	12000		
96%	12500		
100%	13000		
0%	0	0.742	



APPENDIX H – ACCESS ROAD DESIGN CALCULATIONS

Contents:

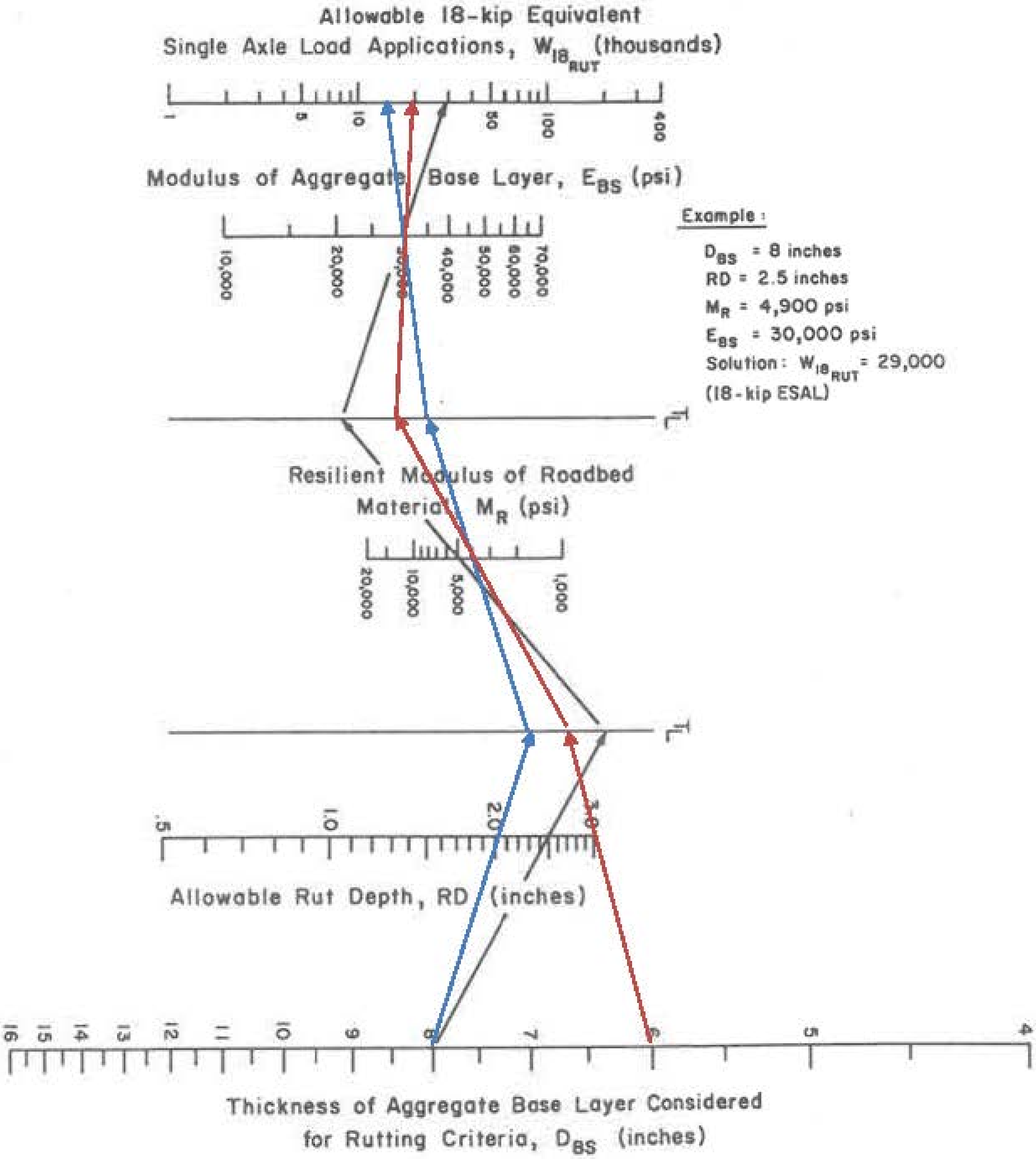


Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

2" Rut Design is based on the blue arrow. 3" Rut Design is based on the red arrow.

Request

27. Provide a map of any karst features within the project boundaries and within the 2-mile radius. Also provide any mitigation measures proposed for karst features during construction.

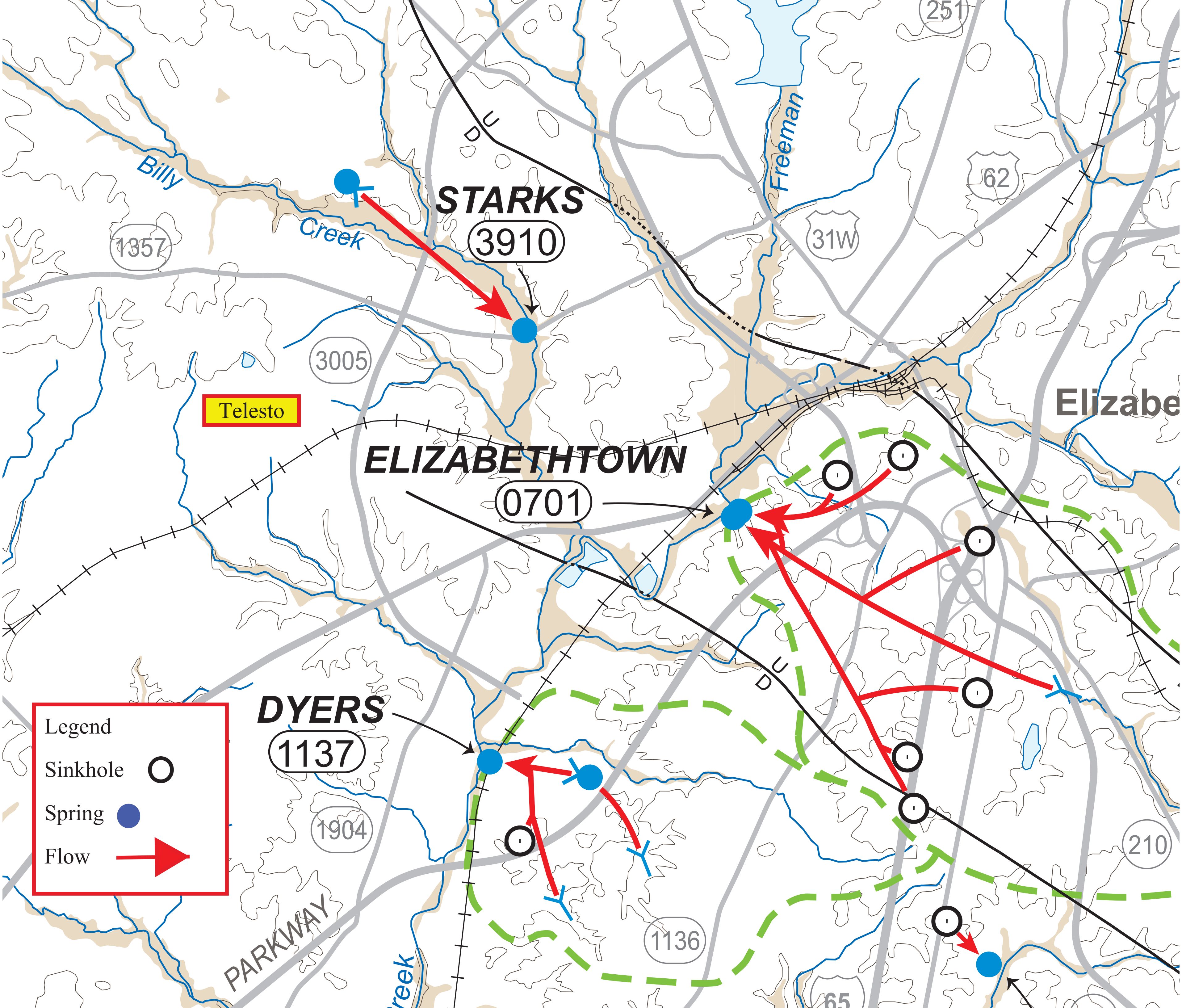
Response

Please Refer to the Design Level Geotechnical Engineering Report provided in Response to RFI 1, Request 26, pages 5 and 15-16. The Report states that the Project site has very high karst potential and indications of karst activity in some borings, but does not report karst features or activity within the Project boundaries. The Report recommends certain precautions during and following construction, given the site karst risk.

Cardno performed a search for karst and potential sinkhole areas using GIS data from the Kentucky Geological Survey. No sinkholes were identified within the Project boundary. See the attached map showing springs and sinkholes identified in this search.

If unknown karst voids are encountered during excavation in previously undisturbed bedrock or road cuts, Telesto will evaluate the void for the presence of karst invertebrate habitat, based on how and when the void is encountered during the construction process. For the purpose of this protocol, a void to be evaluated shall be defined as any void greater than six inches across in any direction or greater than one square foot along any plane, or any void which blows air, continually receives water during a rain event, or has water flowing through or out of it. If a void is discovered during excavation, the following protocol will be followed:

1. All activity within a 50-foot radius of the void would immediately stop and construction equipment prohibited from driving near the void.



STARKS
3910
ELIZABETHTOWN
0701
DYERS
1137
Telesto
Billy
Creek
Freeman
Elizabe
1357
3005
1904
1136
210
251
62
31W
65
PARKWAY
reek
Legend
Sinkhole
Spring
Flow

2. The void would be covered using tarps and plywood, or similar materials as appropriate and available to prevent contamination and changes in ambient conditions and an erosion control log would wrap the surface perimeter of the void.
3. Telesto should provide for the evaluation of the void by a qualified geoscientist.
4. Work would cease in the area until assessment of the void can be completed.
5. Temporary protections would remain in place until final mitigation and protection measures are approved by the state and the feature is closed.

Request

28. The Cecilia Gas Storage Field that is owned by the city of Elizabethtown, is near the project boundaries. Detail any conversations with the city of Elizabethtown or the Energy and Environment Cabinet's Division of Oil and Gas regarding whether there are any limitations to boring or pile driving within the Project due to the proximity of the gas storage field.

Response

No discussions have been had to date. No oil and gas storage infrastructure has been determined to impact the proposed design of the Project. Telesto will confer with the city of Elizabethtown and the Energy and Environment Cabinet's Division of Oil and Gas to confirm that there are no limitations as a result of the Project's proximity to the gas storage field.

Request

29. The Mid-Valley Pipeline Company has a 22" pipeline carrying liquid crude oil within the project boundaries. The access road to the project substation will cross the pipeline. Provide any communication with Mid-Valley Pipeline Company about construction of the access road.

Response

Telesto has attempted to contact representatives at Energy Transfer Partners (current owner of Mid-Valley Pipeline Company) on multiple occasions to coordinate about Project construction and operation (not limited to any access road crossing) but has not yet been able to make contact. Outreach will continue.

Request

30. Detail the status of any applications for zoning changes or conditional use permits that are required for the project.

Response

Although Telesto planned to apply for a zoning change (to an Industrial or Agricultural category) and a conditional use permit the June 23, 2022, declaratory judgment in *Hardin Solar, LLC et al. v. The Hardin County Planning and Development Commission et al.,* Hardin Cir. Case No. 22-CI-00197, has forced Telesto to reassess its options. While Hardin County still has applicable setbacks for Industrial zoned properties, Telesto has not yet made a decision how to proceed with securing zoning approvals in Hardin County. Telesto will update the Siting Board when a decision is made on how best to proceed with local approvals.

Request

31. Detail the status of any litigation in state or federal court, or before an administrative agency other than the Siting Board involving this project.

Response

Telesto does not know of any litigation in state or federal court or before an administrative agency (other than the Siting Board) involving this Project.

Request

32. Refer to the Application, Exhibit M, page 4. Explain how the economic impact analysis would differ if the analysis for Hardin County was conducted using county level data as opposed to state level data scaled down to Hardin.

Response

Without running the model at the county level, it is impossible to say with certainty what results would look like and how the analysis would differ. However, it is likely that all measures of economic impacts for the county would be materially greater than those reported in Exhibit M. Similar projects in Ohio have estimated creation of at least 150 jobs at the county level during construction.

Request

33. Refer to the Application, Exhibit M, pages 4-5. The model indicates approximately 335.9 construction phase jobs, and .08 operation phase jobs will be created in the state. The model indicates approximately 8.4 construction phase jobs, and zero operation phase jobs will be created in Hardin County.
    a. Confirm that the estimated economic impacts for the project are based upon accurate inputs.
    b. If the inputs are accurate, explain why there will only 8.4 jobs will be created in Hardin County.
    c. Confirm that Telesto intends to hire from within Hardin County to the extent possible.
    d. Provide the JEDI model results for Hardin County only.

Response

The request preface correctly states the direct jobs outputs from the model; however, approximately three operation phase jobs (direct and indirect) will be created, and it is anticipated that these will be filled by residents within the county. The number of jobs cited in this data request item are jobs resulting from direct impacts only, and do not include indirect and induced increases in employment that are anticipated from additional spending and supply chain demand. Although the direct operational phase jobs may seem low, these are a function of the few direct hire workers required for ongoing operations, and the deliberate choice to specify assumptions that tend to understate impacts when faced with uncertain input variables.

a. The JEDI estimated economic impacts for the Project are based on accurate inputs.

b. The total number of jobs created during construction in the county is estimated to be 12.6. Of these, 8.4 are direct jobs while an additional 4.2 jobs are anticipated through indirect and induced demand created by construction activities and the ripple effects of associated spending in the economy. These economic impacts estimated for Hardin County are simply scaled down from state estimates, “by a factor determined by the relative GDP of Hardin County, KY to the GDP of Kentucky. For operational phase impacts in particular, this scaling methodology is likely to yield an estimate that under-predicts actual economic impacts.” App. Exh. M p.6 fn.5. Hardin County has a low GDP when compared to that of Kentucky, and as a result, the estimated number of county jobs is lower in proportion to that of the state.

c. Though there are no explicit requirements to do so, Telesto intends to hire from within Hardin County to the greatest extent possible. When working with construction contractor partners, it is Telesto’s policy to ensure local hiring is prioritized. This priority should increase the actual proportion of the projected 335 direct construction jobs created that will be filled by county residents.

d. As stated in the report (App. Exh. M p.4/8), the JEDI model was performed at the Commonwealth level, not at the county or regional level. JEDI could not be natively run at the county level. County level results are estimated by a scaling factor applied to state level estimates. As a result, Applicant does not have JEDI model results for economic impacts in Hardin County beyond those found in the existing analysis.

Request

34. Explain whether Telesto intends to pursue an Industrial Revenue Bond (IRB) and a Payment In Lieu Of Taxes (PILOT) Agreement with Hardin County. If yes, explain if the IRB and PILOT Agreement will change the government revenue impact.

Response

No, Telesto does not intend to pursue an IRB or PILOT Agreement.

Request

35. Refer to Exhibit H, Appendix A, pages 16-17. Provide the distances from the source of sound to each noise receptor within 1,000 feet using the receptor IDs in Appendix A.
    a. Distance from each receptor to its nearest inverter.
    b. Distance from each receptor to its nearest solar panel.
    c. Distance from each receptor to the substation.

Response

This document is in production and will be produced within two weeks.

Request

36. Refer to Exhibit H, page 14. Update the map to include labels for receptor IDs found in Exhibit H, Appendix A.

Response

This document is in production and will be produced within two weeks.

Request

37. Refer to section D.31 on page 12 of the SAR. State the distance (e.g., 50 feet) at which the noise levels for the transformer and central inverters were measured, according to manufacturer specifications.

Response

As stated in SAR ¶31 (p.12), the Sound Study modeled operation sound of the transformer and central inverters at maximum daytime operation sound according to manufacturer specifications. As noted in the Sound Study § 4.0 (App. Exh. H p. 5/7), the manufacturer specification for maximum sound pressure level from each inverter of less than 79.0 dBA was measured one (1) meter from the source; the Sound Study used a derived level of 95.5 dBA at the source. Transformer sound of 107.7 dBA at source was also measured at (1) meter per manufacturer specifications.

Request

38. Refer to the SAR, page 13, paragraph 32. Provide a description of the tracking motor operation for both the monofacial and bifacial modules. Include how frequently the motor engages per hour and how the tracking motor operation changes throughout the day as the panels follow the sun.

Response

The PV arrays for both the mono-facial and bi-facial modules would use a single-axis tracking system with a 120-degree range with rotating gear drive. Tracking movement would occur approximately five times per hour over a 12-hour period as the panels follow the sun.

Request

39. Refer to the SAR, page 14, paragraph 36. Also refer to Exhibit H, page 4. Provide the distance at which pile driving noise levels of 110 to 117 dBA were estimated.

Response

Noise levels of 110 and 117 dBA are estimated at 1 meter based on manufacturer data.

Request

40. Refer to the Application, Exhibit H, page 5. Provide the distance from the sound and the noise receptor for the measurement of 30dBA for the normal conversation and 60 dBA for household appliances.

Response

Distances would fluctuate due to the variance in what constitutes normal conversation or household appliances. Guidance from the EPA for construction activity noise provides that levels of 55 decibels outdoors and 45 decibels indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation, which are part of the daily human condition. (EPA 1974).

Request

41. Refer to the Application, Exhibit H, Figure 1.
    a. Confirm the 55 dBA/1,000 ft contour is calculated from the nearest pile-driving locations.
    b. Provide an updated Figure 1 that identifies which noise receptors are non-participating and a 63 dBA/1,000 ft contour boundary.

Response

a. Not necessarily. The 55 dBA/1,000-foot contour is based on analysis by Cardno which determined the approximate distance from a pile driver measured at 117dBA at 3 feet to decrease to the 55dBA level. This analysis produced a result of approximately 1,000 feet from the source. Therefore, a 1,000-foot buffer was placed on all corners of the project solar arrays to determine the 55dBA contour.

b. Cardno reports that it cannot create the requested contour boundary because its analysis showed a decibel reading of 62.7 dBA at 903 feet from a pile driver. For further explanation, please see the Response to RFI 1, Request 35.

Request

42. Refer to the SAR, page 17. Also refer to the Application, Exhibit H. Neither notes any proposed noise mitigation during construction. Explain why Telesto believes noise mitigation for construction is not necessary. If Telesto does anticipate noise mitigation, explain what methods will be used.

Response

Telesto does not anticipate that construction or operation of the Project site will cause significant noise impacts. Telesto has planned significant buffer and vegetation zones around the entirety of the Project. For example, pile driving will only be intermittent and will not cause significant noise pollution that would require additional noise mitigation measures. Furthermore, there is no evidence or support showing that other possible noise mitigation measures (sound blankets, etc.) suppress noise in any effective manner.

Request

43. Refer to the Application, Exhibit H, page 5. The sound study stated there are no state or local sound regulations for solar facilities. Explain if any other sound regulations were considered, including regulations for construction noise generally.

Response

EPA guidelines for construction activity noise were considered and adhered to (EPA 1974). These guidelines identify a 24-hour exposure level of 70 decibels as the level of environmental noise which will prevent any measurable hearing loss over a lifetime. Likewise, levels of 55 decibels outdoors and 45 decibels indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation, which are all activities of daily life.

Additionally, Telesto is aware of local and state regulations concerning nuisances, which include qualitative limits for noise. Telesto anticipates maintaining compliance with the relevant nuisance laws during both construction and operation.

Request

44. Refer to the Application, Exhibit H, page 6. Explain the basis for the sound power levels used in the Computer Aided Noise Abatement (CadnaA) modeling.

Response

Sound power levels were determined using manufacturer specification datasheets for proposed project inverters and transformers.

Request

45. Refer to the SAR, pages 15, paragraphs 39-40. Also refer to SAR, Exhibit I, Traffic Impact Study.
    a. Provide an estimate of the number and approximate weight classes of the heavy and light duty trucks anticipated on site per day during the construction phase.
    b. Provide the estimated weight of the project's required substation transformer and the truck class necessary for its delivery.
    c. Provide estimates of anticipated peaks times in equipment deliveries, traffic to the site, and number of workers on site across the duration of the construction phase.

Response

a. Telesto estimates that there will be 15-20 semi-trucks (80,000 pounds max.) per day for a total of 3 months during module delivery along with 5-10 light duty trucks. There will be 5-10 semi-trucks and 5-10 light duty trucks per day during the ramp up of construction and after module delivery.

b. The total weight of the substation transformer with oil is approximately 280,000 pounds; it would need a truck with a 170-foot trailer for its delivery. Telesto now plans that the substation will be located adjacent to the EKPC Hardin County substation rather than on the Project site.

c. Telesto estimates peak equipment deliveries and traffic to the site in 4Q2023 and the beginning of 1Q2024. Peak delivery times will be between 7am and 3pm local time. The number of workers during the construction phase will average about 200 per day and may peak around 400 per day during module installation.

Request

46. Describe any discussions that Telesto has held with the Kentucky Transportation Cabinet and the Hardin County Road Department regarding the projects impact on roadways.

Response

Telesto has had one conversation with Michael Steck, Hardin County's Assistant Road Supervisor. Telesto will confer and coordinate with Mr. Steck and the Kentucky Transportation Cabinet regarding impact on roadways as needed and as design and construction plans become more finalized.

Request

47. Submit a copy of the leases or purchase agreements, including options, separate agreements, or deeds which Telesto has entered into in connection with the proposed solar facility, including the agreements for each of the parcels of the Project.

Response

See attached.

Request

48. Detail any contracts by which Telesto has paid, has negotiated to pay, or any compensation paid to non-participating landowners, whether cash or otherwise, near the project. Include the terms of the agreements and which properties are involved in terms of distance to the project boundaries.

Response

Telesto has not made any such agreements or payments to non-participating landowners.