Jesse A. Langer
(t) 203.786.8317
(f) 203.772.2037
jlanger@uks.com

April 29, 2021

VIA ELECTRONIC MAIL
AND FEDERAL EXPRESS

Melanie.bachman@ct.gov
Siting.council@ct.gov

Ms. Melanie A. Bachman, Esq., Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1444

Dear Attorney Bachman:

This office represents CP NB Solar I, LLC and CP NB Solar II, LLC ("Petitioners"). On behalf of Petitioners, I have enclosed one hardcopy of Petitioners' response to the first set of interrogatories issued by the Connecticut Siting Council.

Please do not hesitate to contact me with any questions.

Very truly yours,

Jesse A. Langer

Enclosure

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

PETITION OF CP NB SOLAR I, LLC	:	PETITION NO. 1444
AND CP NB SOLAR II, LLC FOR A	:	
DECLARATORY RULING THAT A	:	
CERTIFICATE OF ENVIRONMENTAL	:	
COMPATIBILITY AND PUBLIC NEED	:	
IS NOT REQUIRED	:	April 29, 2020

PETITIONERS' RESPONSES TO THE FIRST SET OF
INTERROGATORIES BY THE CONNECTICUT SITING COUNCIL

CP NB Solar I, LLC and CP NB Solar II, LLC (collectively "Petitioners") respectfully submit the following responses and non-privileged documentation to the First Set of Interrogatories issued by the Connecticut Siting Council ("Council") in connection with the above-captioned matter.

Project Development

1. If the project is approved, identify all permits necessary for construction and operation, and indicate which entity will hold the permit(s).

   In the event the Council approves the Project, then Petitioners would need to obtain the following permits: (1) Connecticut Department of Energy & Environmental Protection ("DEEP") General Stormwater Permit, for which Petitioners filed an application on April 2, 2021 (Filing 73275); (2) general building and electric permits from the Town of North Branford ("Town"); and (3) a driveway encroachment permit from the Connecticut Department of Transportation.

2. What is the length of the lease agreement with the landowner? Is there an option for an extension?

   Petitioners respectfully object to this interrogatory as it exceeds the scope of a petition under General Statutes § 16-50k. Subject to this objection, Petitioners respond as follows: The lease term is twenty-five years with two options for five year extensions.

3. Referring to Petition p. 6, approximately what percentage of the VNM credits are being allocated to Page Farm and the Town? What is the length of the agreements?

   Petitioners respectfully object to this interrogatory as it exceeds the scope of a petition under General Statutes § 16-50k. Subject to this objection, Petitioners respond as follows: Page Farm will receive VNM credits equal to 100 percent of their consumption but less than 1 percent of the total Project VNM credits with the remainder of the credits allocated to the Town.

4. Referring to Petition p. 6, what is the term of the LREC contracts? Are there options for an extension?

Petitioners respectfully object to this interrogatory as it exceeds the scope of a petition under General Statutes § 16-50k. Subject to this objection, Petitioners respond as follows: the LREC contracts are for the standard term of fifteen years. Although the operation date can be postponed, the end date is fixed.

5. What other revenue mechanisms are anticipated for the power produced by the facility in the event the VNM and or LREC agreements expire?

Petitioners respectfully object to this interrogatory as it exceeds the scope of a petition under General Statutes § 16-50k. Subject to this objection, Petitioners respond as follows: currently, to Petitioners' knowledge, there are no other available revenue mechanisms in Connecticut for a project of this scale aside from the VNM and LREC programs.

6. Would the Petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

Petitioners do not intend to participate in the ISO-NE Forward Capacity Auction.

7. Approximately how many residents attended the February 17 and 18, 2021 virtual informational sessions and the March 4, 2021 information P&Z meeting? What were their concerns and how were these concerns addressed?

The virtual meetings held on February 17 and 18, 2021, were for the property owners immediately abutting the proposed Project. Petitioners also invited the Town to participate, with several Town representatives attending and participating in the discussion. Seven abutters, including the Town and the North Branford Land Trust, attended the two Zoom sessions. Petitioners presented the photograph simulations including in the Petition, which depict the proposed Project, including the proposed fencing and plantings. The abutters asked questions about the height of the panels, the fencing, the plantings, and general distances from the nearest fence lines. Generally, the abutters did not have any adverse comments.

Petitioners provided an overview of the Project to the Town's Planning and Zoning Commission ("Commission") and the Town Engineer at a virtual public informational meeting. The Commission members and the Town Engineer asked questions similar to those posed during the abutter Zoom sessions. There were no adverse comments. No residents attended the virtual informational meeting.

Proposed Site

8. Is the site parcel, or any portion thereof, part of the Public Act 490 Program? If so, how does the municipal land use code classify the parcel(s)? How would the project affect the use classification?

The site parcel is designated Farm Land (Municipal Code 6-1). The Property is part of the PA 490 program. The portion of the site parcel within the Project area would no longer be eligible for PA 490 classification. The remaining portion of the subject property would retain PA 490 status. Petitioners would not remove any farmland soil from the site parcel. Upon the end of the Project's useful life, Petitioners would decommission the Project and revert the Project area to its previous condition. Additionally, from the operation date of the Project, the portions of the site parcel within the Project area would be stabilized with a seed mixture to preserve the soils for future agricultural use.

9. Is the entire 19.68 parcel under lease by the Petitioner or is the lease for a portion of the parcel? Provide details.

Petitioners' lease area is limited to the Limits of Disturbance as reflected on a revised Site Plan EC-4, which is approximately ten acres. Please see Petitioners' response to No. 35, *infra*. To the best of Petitioners' knowledge, the Property owner would use the remainder of the parcel for agricultural purposes.

10. Are any portions of the "Project Area" under lease by another party? If yes, when does this lease expire?

Petitioners have exclusive leasehold rights to the Project Area.

11. Provide the distance, direction and address to the nearest off-site residence from the solar field perimeter fence.

The nearest residence, 148 Forest Road, is located about 130 feet to the west of the solar field perimeter fence. Please see an aerial appended hereto as <u>Attachment 1</u>.

Energy Output

12. Is the project being designed to accommodate a potential future battery storage system? If so, please indicate the anticipated size of the system, where it may be located on the site, and the impact it may have on the PPAs.

Petitioners have not designed the Project to accommodate a potential future battery storage system.

13. Does the design of the Project, including the method of interconnection, allow it to serve as a microgrid?

The current design of the Project would not allow it to serve as a microgrid. A microgrid would require a battery storage capability to be coupled with solar, which is not contemplated under the current design.

14. What is the projected capacity factor (expressed as a percentage) for the proposed project? Would the power output of the facility decline over time? If so, estimate the anticipated annual loss.

The projected capacity factor for the proposed Project is approximately 19.7 percent. The power output would decline over time with an anticipated annual power output loss of approximately 0.5 percent.

15. Do solar facilities present a challenge for the independent system operator for balancing loads and generation (to maintain the system frequency) due to the changing (but not controlled) megawatt output of a solar facility? What technology or operational protocols could be employed to mitigate such challenges?

Solar facilities of the size proposed by Petitioners do not present a challenge to the ISO NE as small systems are interconnected at the local distribution level. The local Electric Distribution Company, United Illuminating ("UI"), completed an Impact Study and Facilities Study to understand and, if necessary, implement mitigation measures for the interconnection of the proposed Project to UI's distribution system. A component of these studies included an assessment to determine whether the Project would impact ISO NE's system. UI concluded that the Project would not have an adverse impact on ISO NE's system, including the aggregated generation on the applicable substation. UI filed these results with ISO NE.

Site Components and Solar Equipment

16. Is the wiring from the panels to the inverters installed on the racking? If a portion of the wiring is external, how would it be protected from potential damage from weather exposure, vegetation maintenance, or animals?

Yes, the wiring from the panels to the inverters would be installed on the racking. Petitioners do not have any concerns regarding external wiring as proper wire management would be used to keep all wiring and conductors away from the ground level to avoid any interaction with animals and mowing equipment. Wires and conductors would be tightly secured above ground behind the panels in conduit sleeves and would be in the shade away from direct sunlight and other weather elements.

17. Referring to Petition p. 8, does the remote monitoring system have the ability to fully and/or partially shut down facility operation?

Yes, the remote monitoring system has a relay-controlled breaker that can be tripped remotely. The monitoring system would also have a gang operated air break switch near the entrance to the site which would enable the entire AC side of the system to be de-energized in the event of an emergency. This would include the transformers, medium voltage switchgear, low voltage switchgear, and inverters.

Interconnection

18. Is the project interconnection required to be reviewed by ISO-NE?

UI is coordinating the review of the Project with ISO-NE. Petitioners do not anticipate any objection by ISO-NE to the studies listed in Response No. 15 given the size of the Project.

19. Is the existing distribution three-phase or would it have to be upgraded from single-phase to three-phase?

The existing distribution line on Forest Road would be upgraded to three-phase.

20. What is the status of the Interconnection Study referenced on p. 7 of the Petition?

As referenced in response to No. 15, *supra*, UI completed Impact and Facilities Studies and concluded that the proposed Project would not have an adverse impact on the existing distribution system. UI has outlined the costs associated with the three-phase upgrade, which are acceptable to Petitioners. Petitioners are finalizing their interconnection agreements with UI.

21. Is it possible to install an underground feeder line rather than an overhead line supported on 5 new utility poles?

UI dictates the interconnection infrastructure which, in this case, would involve an overhead line. Assuming an underground feeder line is possible, Petitioners could not accommodate that request given the economics associated with a project of this size.

Public Safety

22. Is the project designed to comply with CT State Fire Prevention Code, Ground Mounted Photovoltaic System Installations section 11.12.3? Has the Petitioner had any discussions with the local Fire Marshal regarding the site design?

Yes, Petitioners designed the Project to comply with the Connecticut State Fire Prevention Code. Petitioners submitted the design to the Town's Fire Marshal.

23. Are there any drinking water wells on the site or in the vicinity of the site? If so, how would the Petitioner ensure wells and/or water quality are not impacted from construction activities?

To Petitioners' knowledge, there are no potable water wells on the Property. Petitioners are not aware of any potable water wells within the vicinity of the Property. Petitioners understand that the immediate vicinity of the Property is not served by a municipal water system. Regardless, Petitioners designed the Project to meet DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. During construction, Petitioner would install and maintain E&S controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. Once operative, the stormwater generated by the Project would be handled and treated in accordance with the *2004 Connecticut Stormwater Quality Manual*. Additionally, the Project area, taking up a large portion of the Property, would be converted from cultivated land, with exposed soils, to a meadow which would increase the amount of stormwater runoff that infiltrates into the soil. Therefore, Petitioners do not anticipate potential impacts to wells and/or water quality.

24. What is the length of the racking support posts and to what depth would the posts be driven into the ground? Are any impacts to groundwater quality anticipated from the installation of the posts? If so, how would the Petitioner manage and/or mitigate these impacts?

The racking posts would be approximately fourteen to sixteen feet in length, with seven to ten feet embedded in the ground. Petitioners do not anticipate any impacts to groundwater quality resulting from the driven posts, which are made of galvanized steel. The portion of the galvanized post most exposed to oxidation would be that section from the ground surface to a depth of three to four feet. Below that depth, the soil and underground water quickly become deficient in oxygen. The lack of oxygen inhibits oxidation reduction reactions, which would mitigate any potential zinc level contribution that could impact groundwater.

25. Describe fluid leak/spill containment for the proposed transformer equipment.

The oil for the proposed transformer equipment is Envirotemp FR3 fluid, which is made of vegetable oil that does not require spill containment. Additionally, the transformer equipment would be mounted on a concrete slab.

26. Referring to the Petition Environmental Assessment pp. 24-25, what would be the calculated noise level at the nearest property line?

The Project would comply with the DEEP noise control standards at the Property boundaries. The solar panels do not emit any sound. Based on the equipment specifications, the sound generated by an inverter ebbs to approximately less than 60 dBA within one meter of that inverter. The closest property line to either transformer is approximately thirty-two feet to the south (currently undeveloped agricultural land) while the nearest residence, located at 148 Forest Road, is located approximately 225 feet to the northeast. Both parcels are zoned Residential (R-40).

Utilizing the Inverse Square Law[1] to evaluate the relative sound level of transformers at the nearest property lines, it is anticipated that noise levels should not exceed 31.9 dB at the southern property line and 15 dB at 148 Forest Road.

27. In the event of a brush or electrical fire, how would the Petitioner mitigate potential electric hazards that could be encountered by emergency response personnel? Could the entire facility be shut down and de-energized in the event of a fire? If so, how?

Petitioners do not anticipate that the components of the Project would result in an increased risk of brush or electrical fire. However, Petitioners have prepared an Emergency Response Procedure, which is appended to the Petition as Attachment 3. In the unlikely event of a fire, the arrays can be de-energized via a system disconnect located at the equipment pad proposed on the southern portion of the arrays. The subcontractor retained by Petitioners to operate and maintain the Project could engage the system disconnect, as well as UI or first responders. Petitioners would ensure that the first responders are trained properly to engage the system disconnect as set forth in the Emergency Response Procedure.

Environmental

28. Petition p. 19 mentions tree clearing. In what areas of the site would trees be removed?

This was an inadvertent error. Petitioners would not remove any trees as set forth in Section 3.2.2 of the Environmental Assessment, which is appended to the Petition as Attachment 1.

29. Referring to Petition p. 20, what is the status of the *Phase 1B Professional Cultural Resources Assessment and Reconnaissance Survey?*

Petitioners commissioned a Phase 1B Professional Cultural Resources Assessment and Reconnaissance Survey ("Phase 1B"), which was completed on March 24, 2021, and subsequently filed with the State Historic Preservation Office ("SHPO") on March 25, 2021. A copy of the Phase 1B is appended hereto as Attachment 2.

The Phase 1B did not identify any cultural material or cultural features within the study area encompassing the Project area. As a result, the Phase 1B determined that the proposed Project would not impact any cultural resources and, therefore, did not recommend additional testing. Petitioners will forward SHPO's response to the Phase 1B to the Council upon receipt.

[1] Inverse Square Law states that *the intensity of a force is inversely proportional to the square of the distance from that force*. With respect to sound, this means that any a noise will have a drastic drop-off in volume as it moves away from the source and then shallows out.

30. Referring to Site Plan OP-1, can the proposed landscaping in the northwest corner of the site be extended further east and south?

Petitioners discussed the landscaping plan during the abutters' meetings and the public informational meeting with the Commission and Town Engineer. The participants in those meetings found the strategically placed plantings and landscaping acceptable.

31. What is the height of the proposed junipers at planting? At what height would the junipers be maintained?

At the time of planting, the height of the junipers would be three to six feet. At full height, the junipers are expected to be fifteen feet. They do not require any maintenance for shading purposes.

32. Is it feasible to locate part of the facility in the western portion of the site to avoid disturbance to some of the prime farmland soils in the current proposed project footprint?

It is not feasible to locate part of the Project to the western portion of the Property because that would be closer to wetlands 1 and 2, as well as closer to the existing residences. The current location of the Project minimizes impacts to the wetlands and potential visual impacts to the proximate residences. Furthermore, the abutting property owners to the northwest of the Project were pleased to learn that the Project was located further away than expected.

33. The Greenhouse Gas (GHG) Assessment in Appendix M of Council Petition No. 1352 compared the life cycle GHG emissions from a solar project to a scenario where the solar project is avoided and an equivalent amount of natural gas-fired electric generation operated for the estimated life of the solar facility. For the proposed project, how would the net GHG emissions (or reduction) over the life of the solar facility and carbon debt payback be affected under this natural gas-fired generation versus proposed solar generation scenario?

Although there may be some value in comparing a twenty megawatt ("MW") solar project to a natural gas generator, Petitioners do not think that comparison is relevant to a solar project under two MWs. Assuming a direct correlation from the assessment provided in Council Petition No. 1352, Petitioners estimate that the Project would generate 65,000 MWh of electricity, while emitting approximately 13,255 tons of CO2 over twenty years. To achieve the equivalent MWh production over twenty years as the Project, a natural gas generator would emit an estimated 111,478 tons of CO2. Thus, the proposed Project would be an approximately 88 percent reduction of GHG compared to the same generating capacity of a natural gas-fired facility.

34. Please submit photographic site documentation with notations linked to the site plans or a detailed aerial image that identify locations of site-specific and representative site features. The submission should include photographs of the site from public road(s) or publicly accessible area(s) as well as Site-specific locations depicting site features including, but not necessarily limited to, the following locations as applicable:
For each photo, please indicate the photo viewpoint direction and stake or flag the locations of site-specific and representative site features. Site-specific and representative site features include, but are not limited to, as applicable:

    1. wetlands, watercourses and vernal pools;
    2. forest/forest edge areas;
    3. agricultural soil areas;
    4. sloping terrain;
    5. proposed stormwater control features;
    6. nearest residences;
    7. Site access and interior access road(s);
    8. utility pads/electrical interconnection(s);
    9. clearing limits/property lines;
    10. mitigation areas; and
    11. any other noteworthy features relative to the Project.

    A photolog graphic must accompany the submission, using a site plan or a detailed aerial image, depicting each numbered photograph for reference. For each photo, indicate the photo location number and viewpoint direction, and clearly identify the locations of site-specific and representative site features show (e.g., physical staking/flagging or other means of marking the subject area).

    The submission shall be delivered electronically in a legible portable document format (PDF) with a maximum file size of <20MB. If necessary, multiple files may be submitted and clearly marked in terms of sequence.

    On behalf of Petitioners, All-Points Technology Corporation, P.C. ("APT") prepared a remote field review of the Project. The remote field review is appended hereto as Attachment 3 (via box link). On April 20, 2021, APT performed an additional in-field reconnaissance to confirm the most appropriate locations to depict site-specific and representative site features responsive to this interrogatory request. APT took photographs from the selected locations depicting viewpoints of the special features requested in this interrogatory. A photolog map, which consists of an aerial view of the proposed Project and specific features, is included within the remote field review as well as inset mapping within each photograph to provide greater detail concerning each representative location. APT used GPS coordinates to locate the photograph locations included within the remote field review and marked those locations with stakes. APT also captured photographs of flagged wetland areas.

    The individual photographs provide the viewer with orientation relative to the Project site and nearby features as well as detailed site-specific and representative features, including those listed in this interrogatory to the extent applicable.

Additionally, Figures 2 and 3 of the Environmental Assessment also depict the existing conditions of the interior of the Project site, along with the surrounding features, where the modules would be situated.

Facility Construction

35. Site Plan EC-4 shows a soil stockpile adjacent to the excavated temporary sediment trap. Does this stockpile represent the 1,313 cubic yards of cut shown on Site Plan T-1?

Petitioners have increased the anticipated size of the stockpile to account for the approximate 1,313 cubic yards of uncompressed cut with an approximate height of ten to twelve feet. Petitioners have adjusted the Limit of Disturbance to accommodate the stockpile change, which is now approximately ten acres. A revised Site Plan EC-4 is appended hereto as Attachment 4.

36. The soil stockpile is shown immediately adjacent to the temporary sediment trap emergency outlet. Is there another location for the stockpile that is away from and upgradient of the emergency outlet?

Petitioners have relocated the emergency outlet so it would not discharge towards the stockpile. See Attachment 4.

37. Referring to Petition p. 5, Figure 1- Existing Conditions Map, a possible underground drainage pipe is shown extending into the project footprint. Is the pipe still functional? If so, how will the Project be constructed without disturbing the pipe? If not, would the pipe be removed from the Project area?

During the construction of the temporary sedimentation basin, Petitioners would assess the possible underground drainage pipe and identify whether it is still functional. If it is functional, Petitioners would repair and/or replace it as required upon the removal of the temporary sedimentation basin.

38. Referring to Petition p. 16, what was the result of the meeting with the DEEP Stormwater Program on March 11, 2021? Were there any recommended modifications to the proposed facility layout?

The DEEP Stormwater Meeting did not produce any specific recommendations based on the proposed Project layout.

39. Referring to Petition p. 15, would the selected seed mix included pollinator species? If so, what seed mix is proposed?

The proposed seed mix is the Ernst Solar Farm Seed Mix, which does not include pollinator species. Please see https://www.ernstseed.com/product/ernst-solar-farm-seed-mix/.

Petitioners would promote pollinator species through their partnership with the Town's annual Sunflower Project. The Town hosts an annual pollinator path project whereby the Town distributes sunflower seed packets for planting by the general public in a variety of locations to create a Town-wide pollinator path. Petitioners have already partnered with the Town in distributing seed packets in 2021, with approximately 4000 seed packets distributed. Annually, Petitioners would allow the Town's Public Works Department, students and the general public to plant and create an extension of the sunflower pollinator path along the periphery of the Project's perimeter fence. This sunflower pollinator path would also generate a seasonal visual enhancement around the Project, particularly as sunflowers can grow to a height of twelve to fourteen feet.

40. Please respond to the Regional Water Authority comments to the Council dated March 31, 2021.

Petitioners address each of the comments in the Regional Water Authority's ("RWA") letter separately below.

1. We recommend the applicant develop a Spill Prevention Control and Countermeasure (SPCC) Plan for the construction phase of the project to minimize the risks associated with hazardous material spills, including but not limited to the following Best Management Practices . . . (including subparts a through d)

Petitioners included a SPCC in their SWPCP submission to DEEP taking into account the recommendations contained in Part 1 of the RWA comments. Petitioners submitted the SWPCP to DEEP in connection with their General Stormwater permit application on April 2, 2021. Some excerpts from the SWPCP outlining the SPCC Plan are appended hereto as <u>Attachment 5</u>.

2. Section 19-13-B102(b) of the Connecticut Public Health Code requires water companies to perform inspections of properties within public water supply watersheds and aquifers. We request that any project approval be conditioned upon the RWA receiving notification of the construction start date and being granted reasonable access to the property for watershed inspection purposes;

Petitioners are comfortable with this recommendation and would comply with any such condition if the Council is so inclined.

3. The most significant soil disturbance proposed for project construction appears to be associated with the temporary sediment basin on the northwest corner of the site. This in itself could be a source of erosion and sedimentation, unless it can be fully vegetated and stabilized before any significant storm events following installation. The topography in this location forms a natural depression and it may be feasible to use near or above-grade materials to construct the walls of the basin with lesser need for soil excavation and grading. We would support efforts by the applicant for such an alternate design provided it meets the intent of the Connecticut Guidelines for Sediment and Erosion Control.

Petitioners current design adheres to the *2002 Connecticut Guidelines for Sediment and Erosion Control.* Petitioners would adopt the best management practices during construction. They will also evaluate the feasibility of alternative designs provided such designs meet the intent of the *Guidelines*.

4. We endorse the efforts of the property owner to use the revenue from the lease of the property to investigate and remediate the solid waste violations located on the parcel to west of the project site. In support of our ongoing watershed management efforts, we would appreciate receiving copies of future reports and relevant correspondence documenting the progress of such actions.

Petitioners have notified the Property owner of this request. Petitioners recommend that the RWA communicate directly with DEEP as the agency overseeing the solid waste investigation and remediation as that enforcement action is unrelated to Petitioners' development and, if approved, operation of the Project.

Maintenance/Decommissioning

41. Would the Petitioner store any replacement modules on-site in the event solar panels are damaged or are not functioning properly? If so, identify the storage location.

Petitioners would not store replacement modules on-site. In the event a panel is damaged, Petitioners and the O&M contractors would receive automated alerts from the installed monitoring systems at the Property and they would dispatch a crew to replace the panel within forty-eight to seventy-two hours.

42. In the lease agreement with the landowner, are there any provisions related to site restoration at the end of the project's useful life? If so, please provide such provisions.

Petitioners respectfully object to this interrogatory as it exceeds the scope of a petition under General Statutes § 16-50k. Subject to this objection, Petitioners respond in the affirmative. The provision is as follows:

<u>Removal of Facility at End of Term</u>. Lessee shall, within one-hundred and eighty (180) days following the end of the Term, and at Lessee's cost and expense, be required to deconstruct, dismantle and remove the Facility from the Premises restore the Premises to its original condition at the Effective Date of this Lease, except for ordinary wear and tear and damages by the elements or damages over which Lessee had no control. During such removal, Lessee, its Affiliates and any employees, agents, representatives, contractors, subcontractors and other designees of any of the foregoing and any local electric utility personnel shall continue to have access to the Premises and the Facility as otherwise provided in this Lease with Operating Rent due Lessor through the date upon which Lessee completes decommissioning, deconstruction, dismantling and removal of the Facility from the Premises

43. Is a livestock/agricultural co-use plan proposed for the site? If so, submit details.

Petitioners do not intend to implement a livestock/agricultural plan, but they encourage the Property owner to engage in agricultural activities on the remainder of the Property.

44. Has the manufacturer of the selected solar panels conducted Toxicity Characteristic Leaching Procedure (TCLP) testing to determine if the panels would be characterized as hazardous waste at the time of disposal under current regulatory criteria? Please submit information that indicates the proposed solar modules would not be characterized as hazardous waste.

Yes, the manufacturer has conducted TCLP testing. The modules proposed for the Project would not be characterized as hazardous waste. Please see the report appended hereto as <u>Attachment 6.</u>

Respectfully submitted by,

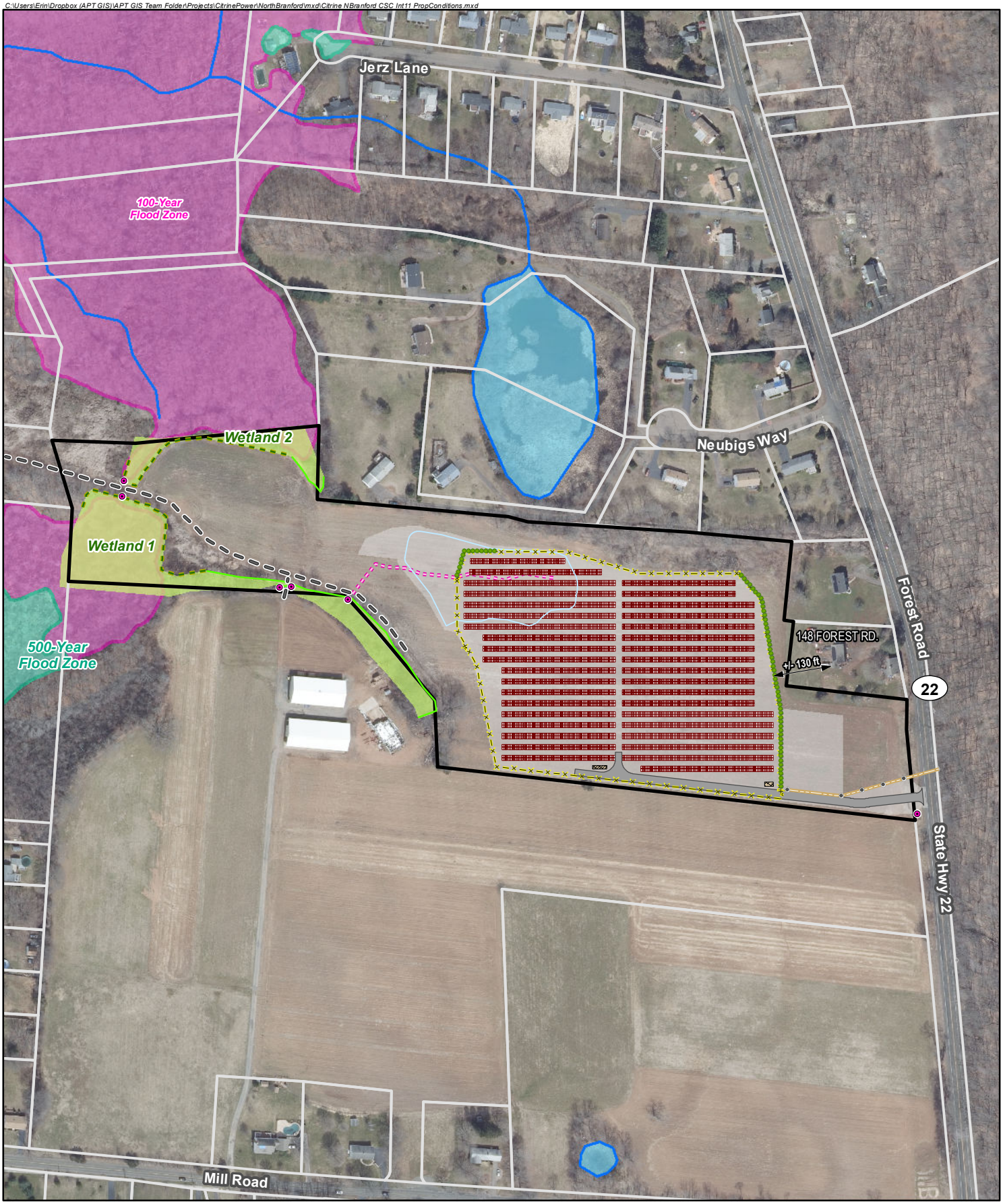
CP NB SOLAR I, LLC and CP NB SOLAR II, LLC

By: _____

Jesse A. Langer
UPDIKE, KELLY & SPELLACY, P.C.
8 Frontage Road
East Haven, CT 06512
(203) 786-8317
Email: jlanger@uks.com

ATTACHMENT 1

(Abutter Distance Map)



Legend

- Site
- Approx. Parcel Boundary
- Farm Road
- Existing Culvert
- Possible Underground Pipe
- Watercourse (CTDEEP)
- Open Water (CTDEEP)
- Surveyed Wetland Boundary
- Approximate Wetland Boundary
- Forested Wetland Area
- 100-Year Flood Zone
- 500-Year Flood Zone
- Floodway
- Limit of Disturbance
- Solar Modules
- Conc. Equip. Pad
- Gravel Access Road
- Temp. Sedimentation Basin
- Interconnection Path (OVH)
- Perimeter Fence
- Utility Pole
- Landscape Screening

N

300 150 0 300 Feet

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: April 2021

Response to Interrogatory #11
Proposed Conditions Map

Proposed Sunflower Solar Facility
127 Forest Road
North Branford, CT

CITRINE

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 2

(Phase 1B)

MARCH 2021

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE PROPOSED CP NB SOLAR I AND CP NB SOLAR II (SUNFLOWER SOLAR) PROJECTS IN NORTH BRANFORD, CONNECTICUT

PREPARED FOR:

567 VAUXHALL STREET EXTENSION – SUITE 311
WATERFORD, CONNECTICUT 06385

PREPARED BY:

P.O. BOX 310249
NEWINGTON, CONNECTICUT 06131

ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey of a portion of the proposed CP NB Solar I and CP NB II (Sunflower Solar) Projects in North Branford, Connecticut. This area was assessed as a moderate/high sensitivity zone for archaeological resources in a previously completed Phase IA assessment survey. The remainder of the project has been subjected to sand and gravel removal and no longer retains the potential to yield intact archaeological deposits. During Phase IB examination of the survey area, 49 of 49 (100 percent) planned shovel tests were excavated successfully. The excavation of all of the shovel tests failed to result in the identification of any cultural material or cultural features dating from either the prehistoric or historical periods. As a result, it was determined that the planned construction will not impact any cultural resources. No additional testing of land associated with the proposed CP NB Solar I and CP NB II (Sunflower Solar) Projects is recommended.

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CHAPTER I
INTRODUCTION

This report summarizes the results of a Phase IB cultural resources reconnaissance survey of the proposed CP NB Solar I and CP NB II (Sunflower Solar) Projects (Solar Project), Connecticut. Heritage Consultants, LLC (Heritage) completed the field investigation portion of this project on behalf of All-Points Technology Corporation (All-Points) in March of 2021. It consisted of a Phase IB cultural resources reconnaissance survey of a single archaeologically sensitive area within the proposed solar center; this area was assessed as sensitive during a previously completed Phase IA cultural resources assessment survey. All work completed for this project was conducted in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources*, which is promulgated by the Connecticut State Historic Preservation Office (CT-SHPO; Poirier 1987). The remainder of this report presents a description of the proposed Solar Project location, the methods by which the current Phase IB cultural resources reconnaissance survey was completed, results of the investigation, and management recommendations for the project.

Project Description and Methods Overview

The proposed Solar Project is located at 127 Forest Road in North Branford (Figures 1 and 2). The project parcel was previously subjected to a Phase IA cultural resources assessment survey in 2020, during which it was determined that the vast majority of the project parcel had been subjected to sand and gravel removal, eliminating the potential for intact archaeological deposits in the areas containing most of the proposed solar array. However, the Phase IA cultural resources assessment survey suggested that smaller areas to the south and southeast of the proposed array location may have contained undisturbed soils (see Figure 2). As a result, the current Phase IB survey was recommended by Heritage.

The area subjected to Phase IB cultural resources reconnaissance survey was positioned at an approximate elevation of 30.4 m (100 ft) NGVD. It is contained within the area outlined by the dashed purple line in Figure 2. At the time of survey, this was characterized by an agricultural field used for the cultivation of corn and sunflowers. Field methodologies employed during the current investigation consisted of pedestrian survey, mapping, photo-documentation, and subsurface testing throughout the area that was perceived to possess undisturbed soil deposits.

Project Results and Summary

During examination of the proposed Solar Project area, 49 of 49 (100 percent) planned shovel tests were excavated successfully throughout the proposed survey area. Phase IB cultural resources reconnaissance pedestrian survey and subsurface testing failed to result in the identification of any cultural material or cultural features dating from either the prehistoric or historical periods. As a result, it was determined that the planned construction in this area will not impact any cultural resources. No additional archaeological examination is recommended prior to construction of the proposed Solar Project.

Project Personnel

Key personnel for this project included Mr. David R. George, M.A., R.P.A, who served as Principal Investigator for this effort; he was assisted by Ms. Kelsey Tuller, M.A. who completed the fieldwork portion of the project. Mr. William Keegan, B.A., and Mr. Tevin Jourdain, B.A., provided support services and project mapping. Ms. Christina Volpe, B.A., completed the historic background research of the project and Mr. Antonio Medina, B.A., who compiled this report.

Organization of the Report

The natural setting of the region encompassing the project area is presented in Chapter II; it includes a brief overview of the geology, hydrology, and soils of the project region. The prehistory of the project region is outlined briefly in Chapter III. The history of the region encompassing the survey area is chronicled in Chapter IV, while a discussion of previous archaeological investigations in the vicinity of the survey area is presented in Chapter V. The methods used to complete this investigation are discussed in Chapter VI. Finally, the results of this investigation and a summary for the survey area are presented in Chapter VII.

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the project area. Previous archaeological research has documented that a few specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources and soils present. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the project area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has very different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "an area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only one of the ecoregions is germane to the current investigation: South Central Lowlands ecoregion. A brief summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the study area.

<u>South Central Lowlands Ecoregion</u>

The South-Central Lowlands ecoregion consists of "a rolling area of low average elevation, crossed by several north-trending ridge systems; streams and river systems with broad, well developed flood plains, from which the land surface generally rises to the bases of the ridges" (Dowhan and Craig 1976). Elevations average less than 60 m (200 ft), but can reach approximately 300 m (1,000 ft) in height. The region's bedrock is sedimentary, consisting of sandstones, basalt, and traprock. Soils vary from "clayey glacial till in the uplands of the region, to sand, gravel, silt, and clay in the lowlands."

Hydrology in the Vicinity of the Project Area

The project area is situated within a region that contains to several sources of freshwater, including the Farm River, Burrs Brook, and Lake Gaillard, as well as numerous unnamed streams, ponds, and wetlands. With the exception of and Lake Gaillard, which is manmade, these freshwater sources may have served as resource extraction areas for Native American and historic populations. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were

focal points for prehistoric occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources.

Soils Comprising the Project Area

Soil formation is the direct result of the interaction of a number of variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to a number of diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present in the current project area. In contrast, acidic soils enhance the preservation of charred plant remains.

A review of the soils within the project area is presented below. The project area is characterized by the presence of one major soil type, Branford (30A), as well as pits and quarries (303). Pits and quarries are too disturbed to contain significant archaeological resources. A review of Branford soil shows that it consists of well drained loams; they are the types of soils that are typically correlated with prehistoric and historic use and occupation. A descriptive profile for the Branford soil type is presented below; it was gathered from the National Resources Conservation Service.

Branford Soils (Soil Code 30A)

The Branford series consists of consists of very deep, well drained soils formed in loamy over sandy and gravelly outwash. They are nearly level to strongly sloping soils on outwash plains and terraces. Slope ranges from 0 to 15 percent. A typical soil profile for Branford soils is as follows: **Ap--**0 to 8 inches; dark reddish brown (5YR 3/3) silt loam, light reddish brown (5YR 6/3) dry; weak medium granular structure; friable; common very fine and fine roots; 10 percent gravel; moderately acid; clear smooth boundary; **Bw1--**8 to 18 inches; reddish brown (5YR 4/4) loam; weak medium subangular blocky structure; friable; few fine roots; common earthworm holes and worm casts; 10 percent gravel; strongly acid; gradual wavy boundary; **Bw2--**18 to 24 inches; reddish brown (5YR 4/4) loam; weak coarse subangular blocky structure; very friable; few fine roots; 14 percent gravel; strongly acid; clear wavy boundary, and; **2C--**24 to 65 inches; reddish brown (5YR 4/3) stratified sand and gravel; single grain; loose; 25 percent gravel; strongly acid.

Summary

The natural setting of the area containing the proposed Solar Project is common throughout the South Central Lowlands ecoregion. Streams and rivers of this area empty into the Long Island Sound. Further, the landscape in general is dominated by sandy loamy soil types. In addition, moderate hills interspersed with locally steep areas dominate the region. Thus, in general, the project region was well suited to Native American occupation throughout the prehistoric era. As a result, archaeological sites have been documented in the larger project region, and additional prehistoric cultural deposits may be expected within the undisturbed portions of the proposed project area. This portion of North Branford also was used throughout the historic era, as evidenced by the presence of numerous historic residences and agricultural fields throughout the region; thus, archaeological deposits dating from the last 350 years or so may also be expected near or within the proposed project area.

CHAPTER III
PREHISTORIC SETTING

Introduction

Prior to the late 1970s and early 1980s, few systematic archaeological surveys of large portions of the state of Connecticut had been undertaken. Rather, the prehistory of the region was studied at the site level. Sites chosen for excavation were highly visible and located in the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the prehistory of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by prehistoric Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the prehistoric era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the prehistory of Connecticut. The remainder of this chapter provides an overview of the prehistoric setting of the region encompassing the project area.

Paleo-Indian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca., 12,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleo-Indians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals.

While there have been numerous surface finds of Paleo-Indian projectile points throughout the State of Connecticut, only two sites, the Templeton Site (6-LF-21) in Washington, Connecticut and the Hidden Creek Site (72-163) in Ledyard, Connecticut, have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980). The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and

rejuvenation areas were present.

While archaeological evidence for Paleo-Indian occupation is scarce in Connecticut, it, combined with data from the West Athens Road and King's Road Site in the Hudson drainage and the Davis and Potts Sites in northern New York, supports the hypothesis that there was human occupation of the area not long after ca. 12,000 B.P. (Snow 1980). Further, site types currently known suggest that the Paleo-Indian settlement pattern was characterized by a high degree of mobility, with groups moving from region to region in search of seasonally abundant food resources, as well as for the procurement of high-quality raw materials from which to fashion stone tools.

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleo-Indian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final "transitional" Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleo-Indian Period, as well as a population decrease from earlier times. However, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleo-Indian predecessors, Early Archaic sites tend to be small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified recognized on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, finds of these projectile points have rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, an area represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period, essentially modern deciduous forests had developed in the region (Davis 1969). It is at this time that increased numbers and types of sites are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site, which is in Manchester, New Hampshire and studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between ca., 7,700 and 6,000 years ago. In fact, Dincauze (1976) obtained several radiocarbon dates from the Middle Archaic component of the

Neville Site. The dates, associated with the then-newly named Neville type projectile point, ranged from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England prehistory. Originally termed the “Transitional Archaic” by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different

technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points, while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by the use Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern still was diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and it has thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper.

Careful archaeological investigations of Early Woodland sites in southern New England have resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of White-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination

of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicates that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types indicative of the Middle Woodland Period includes Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are

more diverse stylistically than their predecessors, with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Prehistory

The prehistory of Connecticut spans from ca., 12,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of the prehistoric era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering wild plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the prehistoric era shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region containing the proposed project area, a variety of prehistoric site types may be expected. These range from seasonal camps utilized by Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
HISTORIC OVERVIEW

Introduction

The proposed project parcel and survey area are located within the southwestern area of the town of North Branford in New Haven County, Connecticut. Historically, North Branford was a small agricultural community that witnessed a population increase following land development in the early 1950s. Below is a historical overview outlining the history of North Branford and the village of Northford, as well as historical data related to the proposed project parcel and survey area.

Native American History

In 1695, the General Court of the Colony of Connecticut granted the town of New Haven the right to sell Quinnipiac lands throughout the limits of the New Haven Colony, much of which was sold by 1720 (Menta 2003). The area known today as North Branford was part of land known as the Totoket Territory purchased from the Quinnipiac Indigenous Peoples of the region in 1638 by Theophilus Eaton and John Davenport. The Quinnipiac occupied nearly 300 square miles, much of present-day New Haven County, extending 20 miles from present day Long Island Sound in the south, to approximately the center of Meriden in the north. When colonists arrived to settle the region in 1638, the Quinnipiac were comprised of several distinct groups including the Totoket community located within the contemporary bounds of Branford (Menta 2003). However, most of them left the region early on after colonists started to settle there.

Eighteenth Century

The first house constructed in North Branford was built by colonist Captain Jonathan Rose in 1680 in the section formally known as Hop Yard Plain. By 1715, the population of the North Branford settlement had grown around what was then known as Sibbie's Hill and was removed from Branford center. In 1717, the "Northern farmers living removed from the meeting house" petitioned the General Court in Hartford to become their own society. Their request was denied with the stipulation that Branford send a minister during the winter months each year for three years to provide for the Northern Farm society; town boundaries were formally noted at this time. In 1722, the question of starting a Second Society in North Farms arose once again, with some dispute regarding the boundaries from 1717, settlers voted to construct a meeting house in May of 1724 (Hill 1918). The Second Society also voted to include a full-time minister, paid for by Branford for the Second Society's agreement to the town's original boundaries (Hill 1918). By 1725, the Second Society was independently established, and Reverend Jonathan Merrick became the first minister (Hill 1918). Following the establishment of the meetinghouse and church, more settlers came to live in North Farms, with some moving there from far away from the Second Society meetinghouse location.

Members of those settled too far away from the Second Society meetinghouse and certainly the Branford meetinghouse, began to petition to become their own society in 1736 but were met with opposition from the Second Society members due to their hesitation in losing the tax money (Hill 1918). In 1745, the northern farmers in the Second Society won their petition and were able to form the Third Society of Branford, known then as it is now as Northford (Gregan 1998). The Northford meetinghouse was built in 1747 with Warham Williams as the first minister and boundaries between the Second Society and Northford were drawn from west to east leading to Totoket Mountain's north and east ridge (Hill 1918).

By the late 1770s, those living north of Branford in the Second and Third societies totaled a population of about 1,000 residents (Hill 1918). The Connecticut General Assembly increasingly suggested the formation of local militias to combat rebellion against the British. William Douglas, a wealthy merchant and resident of Northford became the leader of a unit of nearly 800 men defending Fort Sterling in Brooklyn, New York. Douglas was later elected to be a representative in the Connecticut Assembly but was called away to New York at the onset of the American Revolution to serve as a Colonel known later as the "Leather Caps" for their locally tanned leather caps (Miller 1982). Approximately 115 men from the Second and Third Societies of Branford served during the American Revolution (Miller 1982).

Nineteenth Century

Following the Revolutionary War, residents in Branford, North Branford, and Northford adjusted their lives to the New Republic, some moving west to new lands while others continued to expand upon their homesteads and enterprises in the area. Branford Harbor was a vital part of this growth as it served as a trading point for merchants in the West Indies, including those dealing in the Transatlantic Slave Trade (Miller 1982). The primary economy for those living in the Second (North Branford) and Third (Northford) Societies relied on agricultural production mainly that of wheat, rye, corn, and apples (Gregan 1998). North Branford began to further itself separately from its parent town of Branford in 1797 when leaders of the North Branford kept their school records separate from Branford. Several years later Second Society residents in North Branford petitioned the General Assembly to separate from Branford to become their own town. Their autonomy was denied however residents in North Branford persisted on fostering individuality and in 1812 elected to form an Episcopal church, with the church itself erected by 1820 (Miller 1982).

North Branford did not have the advantage of Branford Harbor to facilitate economic growth, and new roads were needed to reach the town. In 1812, the Middletown Turnpike was built from New Haven through Northford to Middletown. Passing through the center of North Branford, the Fair Haven Turnpike was built between New Haven and Essex in 1824 (Wood 1919). These routes also provided a means for new residents to establish themselves and between 1820 and 1870. North Branford and Northford witnessed tremendous growth, witnessed by the many new Greek Revival style buildings erected throughout town during that time period. Like many northern towns, the American Civil War promoted industrial growth in North Branford which by this time included a paper mill and brass furnishing company (Miller 1982). North Branford residents did participate in the war, sending approximately 50 men to serve in the Union Army; the memorial on the Green commemorating those soldiers were one of the first to be erected in the nation in 1867 (Miller 1982).

Northford's industry witnessed a slow decline following the completion of the railroad in 1871 which passed west of the village, two miles too short (Wood 1919). The only business that seemed to sustain and thrive in Northford was the paper mill which became known for being an early center for the production of greeting cards, dubbed the "Christmas card capital of the world" (Miller 1982). With the railroad being at an inconvenient distance, most of North Branford and the village of Northford reverted to farming and as the twentieth century approached the population declined going from 1,025 in 1880 to 825 in 1900 (Miller 1982).

Twenty and Twenty-First Century

The early twentieth century brought renewed prosperity to North Branford and the village of Northford. In 1910, the Shoreline Electric Railroad built a line through North Branford center, bringing in the whole of New Haven County. The trolley system thrived there for a short period of time but ultimately failed in

1919 following a fatal accident that killed 19 people (Miller 1982). The establishment of the New Haven Trap Rock Company quarry in North Branford in 1914 facilitated population growth by providing worker housing. Many of the new residents working there were migrants from western and central Europe; many were practicing Catholics. In 1920, the Catholic population had swelled and warranted the construction of a church which was completed in 1925 adjacent to North Branford center (Miller 1982). The year 1925 was a pivotal year in the town's history and makeup. In 1925, the New Haven Water Company acquired land between Totoket Mountain and Sea Hill for the purpose of building a new reservoir. The Lake Gaillard dam was complete in 1933 and cost the town a quarter of its total land as well as the town's access to North Guilford (Miller 1982). The population in 1930 was approximately 1,329 residents and when the town celebrated their 100th anniversary in 1931; 3,000 people attended the festivities from surrounding communities (Miller 1982). As seen in many rural agricultural towns throughout Connecticut, the most impactful period of change in North Branford occurred in the 1950s and 1960s when the population grew from 1,438 in 1940 to 10,778 in 1970 (Miller 1982). Suburban housing developments facilitated much of this growth, additional schools were constructed and in 1964 another Catholic Church St. Monica's was constructed in Northford. Further improvements were made to the town in the mid twentieth century with the addition of the Edward Smith Library constructed in 1957 and the town's first police force established in 1970 with the first Police Station complete in 1975 on Forest Road. In 1965, Totoket Valley Park was established along the Farm River near Northford and in 1976 the town purchased 77 acres of land along the Branford River, aptly naming the park North Farms (Gregan 1998). Since this time North Branford and the village of Northford has retained its rural, small-town feel.

Historical Overview of the Project Area

The survey area is located on Forest Road or Connecticut Route 22 in North Branford, Connecticut and is adjacent to the village of Northford. On an 1854 historic map, the survey area appears to the west of present-day Forest Road and displays the name D. Russell, indicating a homestead within the limits of the indicated project parcel at that time er (Figure 3). According to the 1860 United States Federal Census David Russell, then age 55, was a farmer with a real estate value of $8,000 and personal estate value of $550. Living with Russell in 1860 was his wife Betsey Russell, age 53, their daughter Emily, age 21, and a schoolteacher named Theodore Dutton, age 19 (Census 1860). On the 1868 historic map D. Russell is once again represented as owning the parcel (Figure 4). According to the 1880 United States Federal Census, David Russell was then a 75-year-old retired farmer, a widower, and the father-in-law to George H. Munger, age 53, who is listed as the head of household (Census 1880). Also listed as living with David Russell is his daughter Emily Munger, age 42, and her daughter Helen R. Munger, age 16 (Census 1880). David Russell died in 1881 and is interred within Bare Plain Cemetery in North Branford alongside his wife Betsey Norton Russell who died in 1871 (Find A Grave Index, 2012). The Russell farm and homestead are visible on the 1934 historic aerial photograph with the homestead just outside of the project parcel along Forest Road (Figure 5). It is clear based that the farm was still in operation as of 1934, though Russell's son-in-law George H. Munger had died in 1915. Though not within the survey area, according to the town of North Branford the house located at the present-day 148 Forest Road was constructed in 1785 and is likely associated with David Russell and his father Samuel F. Russell, who served as deacon of the Congregational Church in 1846 (Hill 1918, Town of North Branford Accessors Office). The 1951 historic aerial photograph displays little changes from the 1934 image. Secondary reforestation is visible to the west of the survey area with the remainder used for agricultural use (Figure 6). The late-1950s and early 1950s marked the beginning of a shift in land-use and acquisition throughout Connecticut's agricultural communities. Much of the former land used for farming was sold and developed into subdivisions suitable for single-family dwelling units. The growth of suburban development in North Branford is witnessed between the 1951 and 2019 aerial photographs, in which

one such subdivision can be seen immediately to the south and southwest of the proposed project parcel (Figures 7 and 8). However, the land visible within the survey area remained cleared and use for agricultural, remaining unaffected by nearby development and unchanged since the early nineteenth century.

Conclusion

Historical data indicates that the survey area will not impact any historical resources. While there may be evidence of historic stone walls within the vicinity of the project item's location, these are not considered to be of value.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the project area in North Branford, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IB cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the project area are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites, National/State Register of Historic Places properties, and inventoried historic standing structures situated in the project region (Figures 9 and 10). The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during the course of this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Properties/Districts in the Vicinity of the Project Area

A review of data currently on file at the Connecticut State Historic Preservation Office as well as the electronic site files maintained by Heritage identified ten previously identified archaeological sites (Site 99-4, 99-6, 99-9, 99-10, 99-14, 99-20, 99-29, 99-35, 99-37, and 99-38), as well as one National Register of Historic Places Property (the George Baldwin House) located within 1.6 km (1 mi) of the project area. All resources are generally southwest of the project parcel (Figures 9 and 10). These cultural resources are discussed briefly below.

George Baldwin House

Built in the 1830's for farmer George Baldwin, this Greek Revival residence is outstanding example of the Greek Revival, style, which favors the square, central hall plan. In addition, the simple bold lines, symmetry, and correct proportions present in the Baldwin House were typical of this design style. The George Baldwin also contains correctly sized columns and heavy entablature, which lend themselves to a sense of monumentality. Listed on the National Register of Historic Places on September 15, 1977, the proposed Solar Project will not directly or indirectly impact the George Baldwin House.

Site 99-4

Site 99-4, also known as the Bare Plain Site is described as an Archaic/Woodland period village measuring approximately 6 acres in size. Surface survey and collection of the site area was carried out by the Archaeological Society of Connecticut (ASC) in 1979. This occurred on the north side of Route 80/Foxon Road on what was at the time a driving range. Artifacts recovered were all made from quartz, including quartz small-stemmed, triangular, and pentagonal projectile points, as well as chipping debris. ASC determined the site retained no integrity and had been destroyed. This site will not be impacted by the proposed Solar Project.

Site 99-6

Site 99-6, also known as the Doody's Farm Site, is described as an Early Archaic village measuring approximately an acre in size. The Archaeological Society of Connecticut (ASC) surface collected the site

which was located in a residential neighborhood 60 meters south of Route 80. This area was investigated in in 1978-79. Prehistoric artifacts collected from the site included two bifurcated points, two axes, as well as several quartz small-stemmed points and unspecified lithic debitage. Due to the disturbed context from which the cultural material was recovered, ASC could not determine if the site consisted of more than one component or if all the artifacts were associated, and so determined that the site had been destroyed by residential development. This site will not be impacted by the proposed Solar Project.

Site 99-9

Site 99-9, also known as the Page Farm Site, consists of an Archaic-Woodland site; it encompasses approximately two to three acres of land. Located on the Page Farm on the west side of Totoket Road, the site was surface collected by the landowner, Mr. Robert Page. The collected cultural material consists of small stem quartz points, two flint side-notched points, and flint and quartz chipping debris. The artifacts have no provenience, as they were not recovered during an archaeological investigation. At the time of reporting in 1979 the site was not under any threat of destruction beyond agricultural plowing. This site will not be impacted by the proposed Solar Project.

Site 99-10

Site 99-10, also known as the Pages Millpond site, is described as an Archaic site measuring approximately a half-acre in size. The site, which is located to the east of Totoket Road and north of Mill Road, was surface collected by the Archaeological Society of Connecticut (ASC) in 1978-79. Cultural material recovered included Brewerton side-notched points, small-stemmed quartz points, a retouched flint scraper, and quartz debitage. ASC determined the site to be a hunting camp that had by that point been mostly destroyed by agricultural activity. This site will not be impacted by the proposed Solar Project.

Site 99-14

Site 99-14, also known as the Russell Farm site, is described as an Archaic/Woodland site measuring approximately an acre in size. Located south of Mill Road, the site was surface collected by local collectors and the Archaeological Society of Connecticut (ASC) in 1978-79. Cultural material collected included a six-inch notched jasper point, several axes, a small ulu, and an atlatl weight. The presence of an ulu, which has been interpreted to be a butchering tool, indicates this may have been a domestic site while the presence of jasper indicates long distance trade. ASC believed the site had been destroyed by agricultural activity. This site will not be impacted by the proposed Solar Project.

Site 99-20

Site 99-20, also known as the Totoket Road site is located north of the Pages Millpond site (99-10) on the east side of Totoket Road. The site form included no information beyond the site name. This site will not be impacted by the proposed Solar Project.

Site 99-29

Site 99-29, also known as the Arthur Court site, is described as an Archaic/Woodland encampment of an undetermined size. Located in the residential neighborhood of Arthur Court, the site was surface collected by the Archaeological Society of Connecticut (ASC) in 1978-79. Cultural material collected from the site area included quartz small-stemmed points, quartz triangles, flint triangles, and flint straight-stemmed points. ASC determined the site had been destroyed by residential development. This site will not be impacted by the proposed Solar Project.

Site 99-35

Site 99-35, also known as the Burrs Brook Site, is described as a prehistoric encampment of unknown date situated on a well-drained knoll above Burrs Brook and to the south of Foxon Road. Public Archaeology Laboratory (PAL) conducted survey of the site area in 2001 prior to the Islander East pipeline construction. The archeological material present was reported to be a low density of quartz and siltstone chipping debris recovered from the plow and intact B1 subsoil, as well as a small hammerstone recovered from subsoil. PAL recommended further testing before construction as the presence of cultural material in the subsoil suggests part of the site may be intact. This site will not be impacted by the proposed Solar Project.

Site 99-37

Site 99-37, also known as the Crave's Site, is described as a prehistoric encampment of unknown date situated on a flat knoll between two large wetlands. PAL conducted survey of the site location in 2001 prior to the Islander East pipeline construction. Over the course of Phase I and II testing, scattered historical material was recovered from the plow zone across the site, as well as a low density of quartz chipping debris, one rhyolite flake and two unidentified chert-like flakes. Only two artifacts, one quartz biface and one piece of chipping debris, were recovered from the subsoil; the remainder were collected from the plow zone. The northern portion of the site was partially disturbed by the existing power line and pipeline easement. The remainder of the site was subject to agricultural plowing and while the Crave's site produced evidence of prehistoric tool manufacturing neither temporal nor cultural affiliation could be determined from the recovered materials. No further testing was recommended. This site will not be impacted by the proposed Solar Project.

Site 99-38

Site 99-38, also known as the Farm River Site, is described as a Middle and Late Woodland encampment of unknown size, as it likely extended beyond the project corridor for the Islander East Pipeline. Both Phase I and II investigations of the site area were conducted by PAL in 2001 to the east of Totoket Road and South of Mill Road. The majority of artifacts collected during fieldwork were recovered from the deep plow zone or the surface. Prehistoric artifacts include quartz and unidentified lithic chipping debris, two quartz Levana points, one piece of corded and coarse tempered pottery, an unidentified lithic core, an unidentified quartz projectile tip, and a worked quartz flake. While artifacts were recovered across the breadth of the site the horizontal distribution was thin as the stratigraphy had been disturbed by historic and modern plowing. PAL determined that any prehistoric features likely would have been destroyed by agricultural activity, as extensive testing yielded no evidence thereof. No further tested was recommended due to the above-referenced agricultural disturbance. This site will not be impacted by the proposed Solar Project.

Conclusion

The 10 previously recorded archaeological sites in the vicinity of the survey are found in two clusters: one around the Farm River to the west and another around Burr Brook to the South. The survey area is not located in proximity to any naturally bodies of fresh water and as a result lacks a desirable occupational quality, as opposed to the other nearby locations. Nevertheless, the quantity of sites within a 1.6 km (1 mi) radius suggested a strong a prehistoric Native presence in the area, underscoring the need for the Phase IB cultural resources reconnaissance survey.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methodology used to complete the Phase IB cultural resources reconnaissance survey of the survey area in North Branford, Connecticut. It also includes the location and point-of-contact for the final facility at which all artifacts, drawings, maps, photographs, field notes generated during survey will be curated is provided below.

Field Methods

Following the completion of the background research outline in Chapters 2 through 5, the survey was subjected to Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, subsurface testing, mapping, and photo-documentation. The sampling strategy was designed to provide thorough coverage of all portions of the survey area. The pedestrian survey portion of this investigation included visual reconnaissance of the survey area. The subsequent subsurface testing regime involved the excavation of shovel tests in all areas scheduled for construction related impacts within the survey area. The shovel tests were placed at 15 m (49.2 ft) intervals along parallel survey transects within survey as defined within the red polygon shown in Figure 1. This area will encompass a proposed access road, portions of the proposed solar array, a laydown area, and fencing to be installed around the Solar Project.

During survey, each shovel test measured 50 x 50 cm (19.7 x 19.7 in) in size and each was excavated until glacially derived C-Horizon or immovable objects (e.g., boulders or large tree roots, etc.) were encountered. Each shovel test was excavated in 10 cm (3.9 in) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635 cm (0.25 in) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Finally, each shovel test was backfilled immediately upon completion of the archaeological recordation process.

Curation of Project Materials

Following the completion and acceptance of the Final Report of Investigations, all project drawings, maps, photographs, and field notes will be curated with:

Dr. Sarah Sportman
Connecticut State Archaeologist
354 Mansfield Road
Unit 1176
Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION & SUMMARY

Introduction

This chapter presents the results of the Phase IB cultural resources reconnaissance survey of the survey area associated with the Solar Project (Figures 1 and 11 through 15). The Phase IB investigation was completed on behalf of All-Points in March of 2021 by personnel representing Heritage. All fieldwork was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office. The Phase IB cultural resources reconnaissance survey results are presented below.

Results of Phase IB Cultural Resources Reconnaissance Survey

During examination of the survey area, 49 of 49 (100 percent) planned shovel tests were excavated successfully. A typical shovel test profile exhibited three soil horizons in profile and was excavated to a terminal depth of 67 cmbs (26.4 inbs). The uppermost soil horizons, identified as the Ap-Horizon) plow zone), extended from the surface to a depth of 35 cmbs (13.8 inbs); it was described as a deposit of dark brown (10YR 3/3) fine sandy loam. The underlying B-Horizon consisted of a truncated layer of subsoil that extended from 35 to 57 cmbs (13.7 to 22.4 inbs); it was characterized as dark yellowish brown (10 YR 4/6) silty sand. Finally, the glacially-derived C-Horizon extended from 57 to 67 cmbs (22.4 to 26.4 inbs) and was described as a deposit of dark reddish brown (5YR 3/4) coarse sand and gravel.

Shovel testing throughout the survey area demonstrated that it has undergone impacts related to agriculture, as well as alterations related to previous soil stripping and grading. Shovel test profiles indicated partially or completely truncated subsoil in various locations throughout the survey area. The Phase IB cultural resources reconnaissance survey did not result in the recovery of any cultural material or evidence of any cultural features. As a result, no additional examination of the survey area (or the remainder of the disturbed project parcel) is recommended prior to the construction of the proposed Solar Project.

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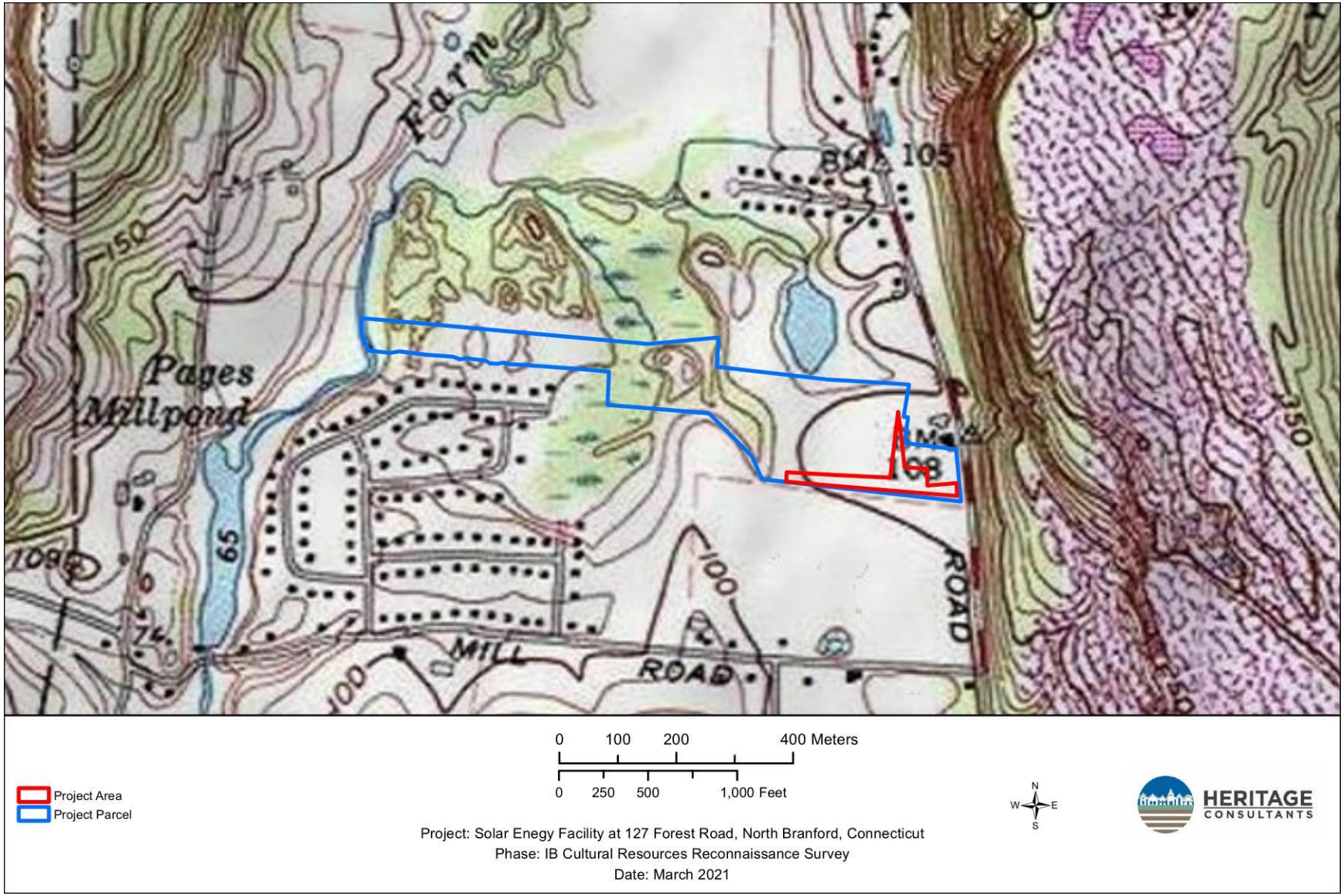


Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the proposed solar center in North Branford, Connecticut.

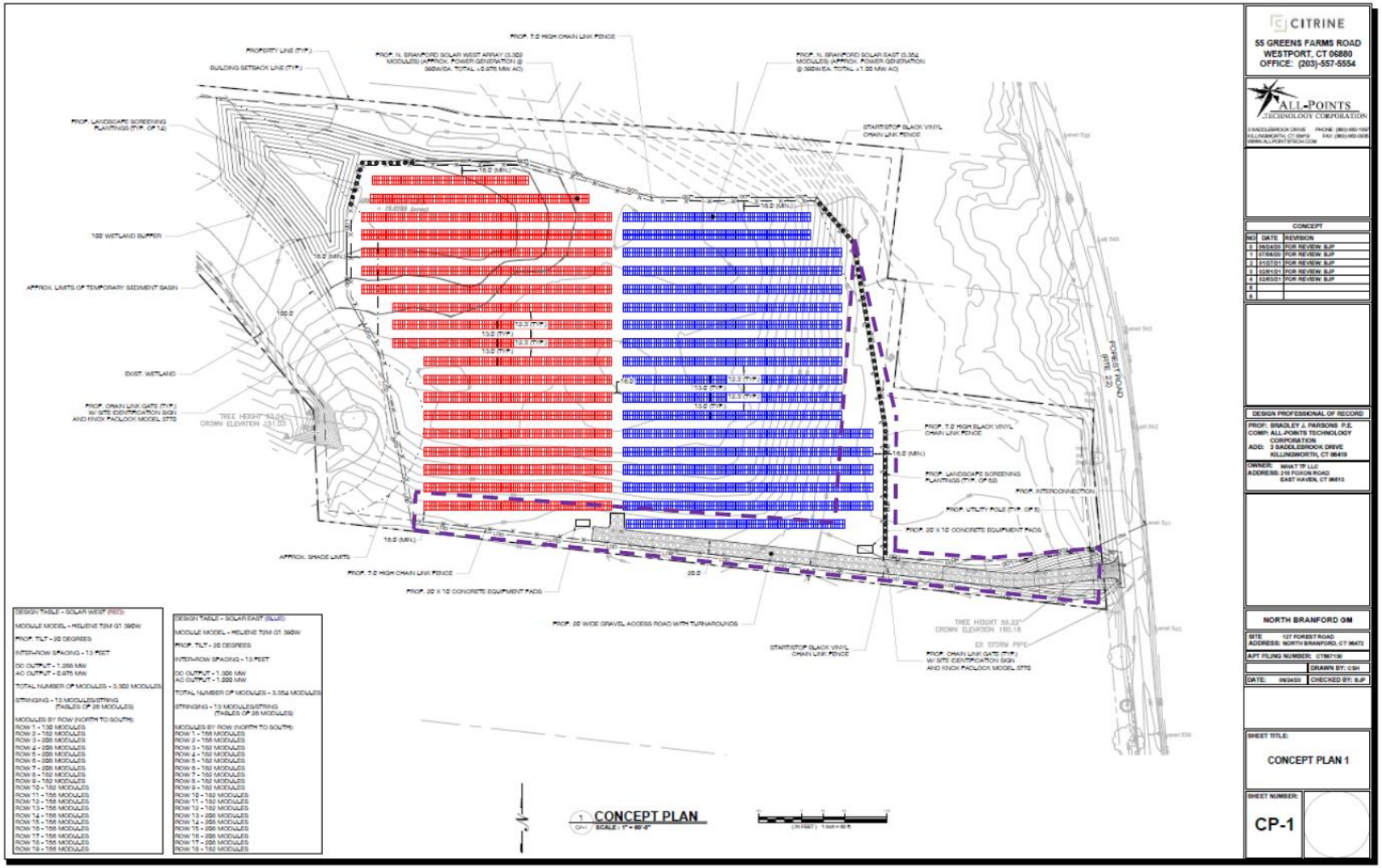


Figure 2. Schematic drawing of the proposed solar center showing the locations of the access road and equipment (Note that only the area within the purple dashed line was subjected to Phase IB survey. The remained of the parcel has been heavily disturbed by past sand and gravel operations and is no longer archaeologically sensitive).

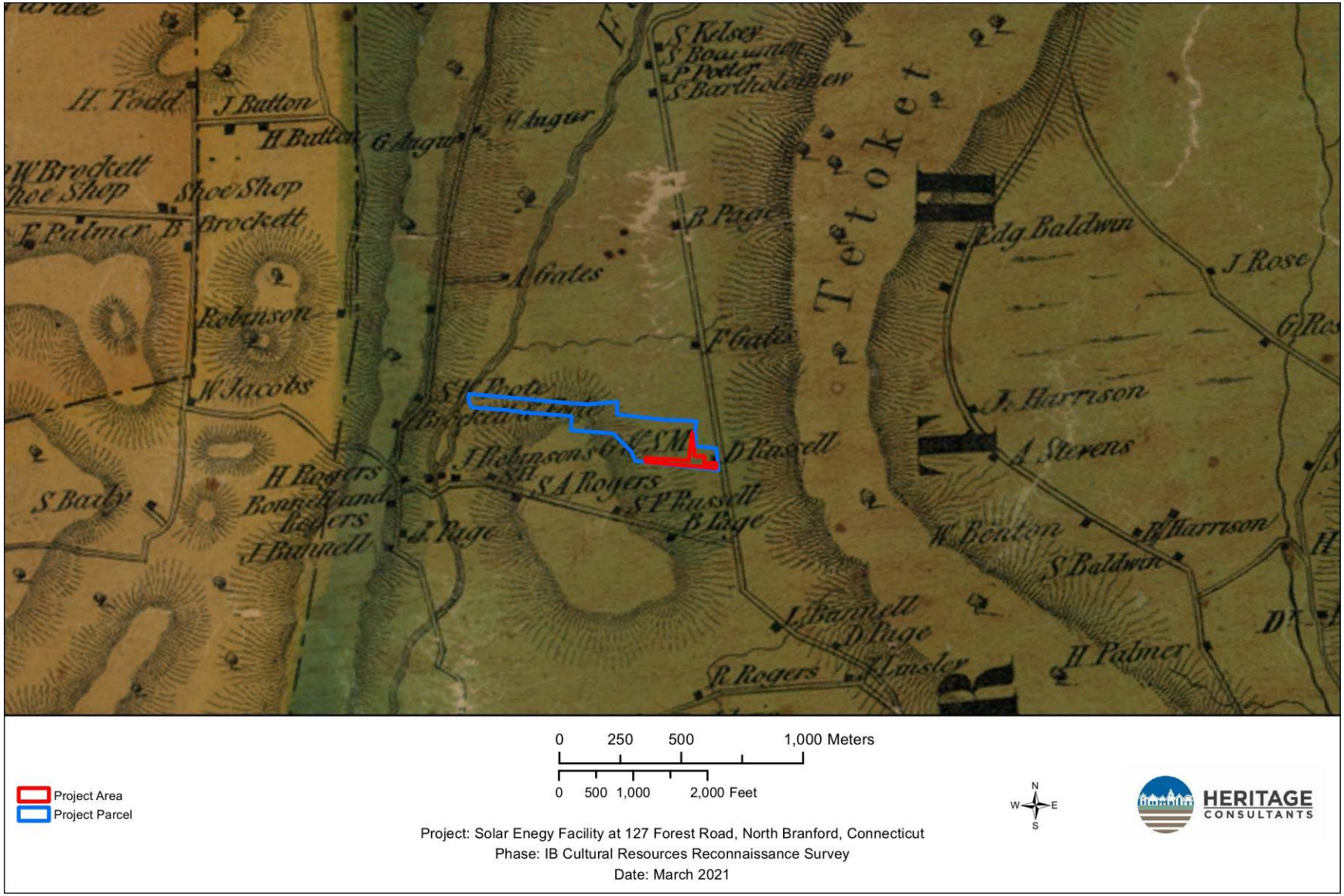


Figure 3. Excerpt from an 1852 map showing the proposed solar center in North Branford, Connecticut.

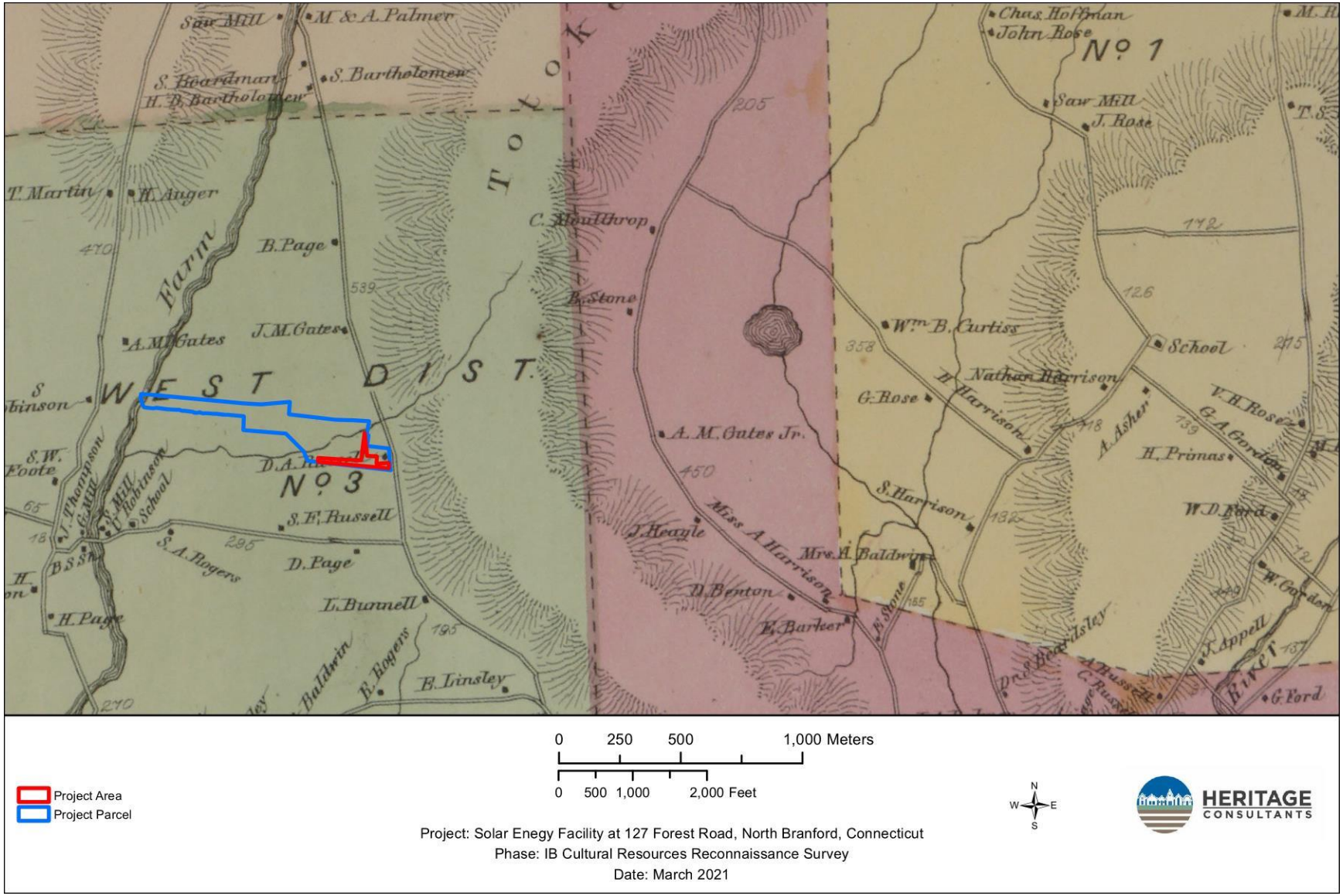


Figure 4. Excerpt from an 1868 map showing the proposed solar center in North Branford, Connecticut.

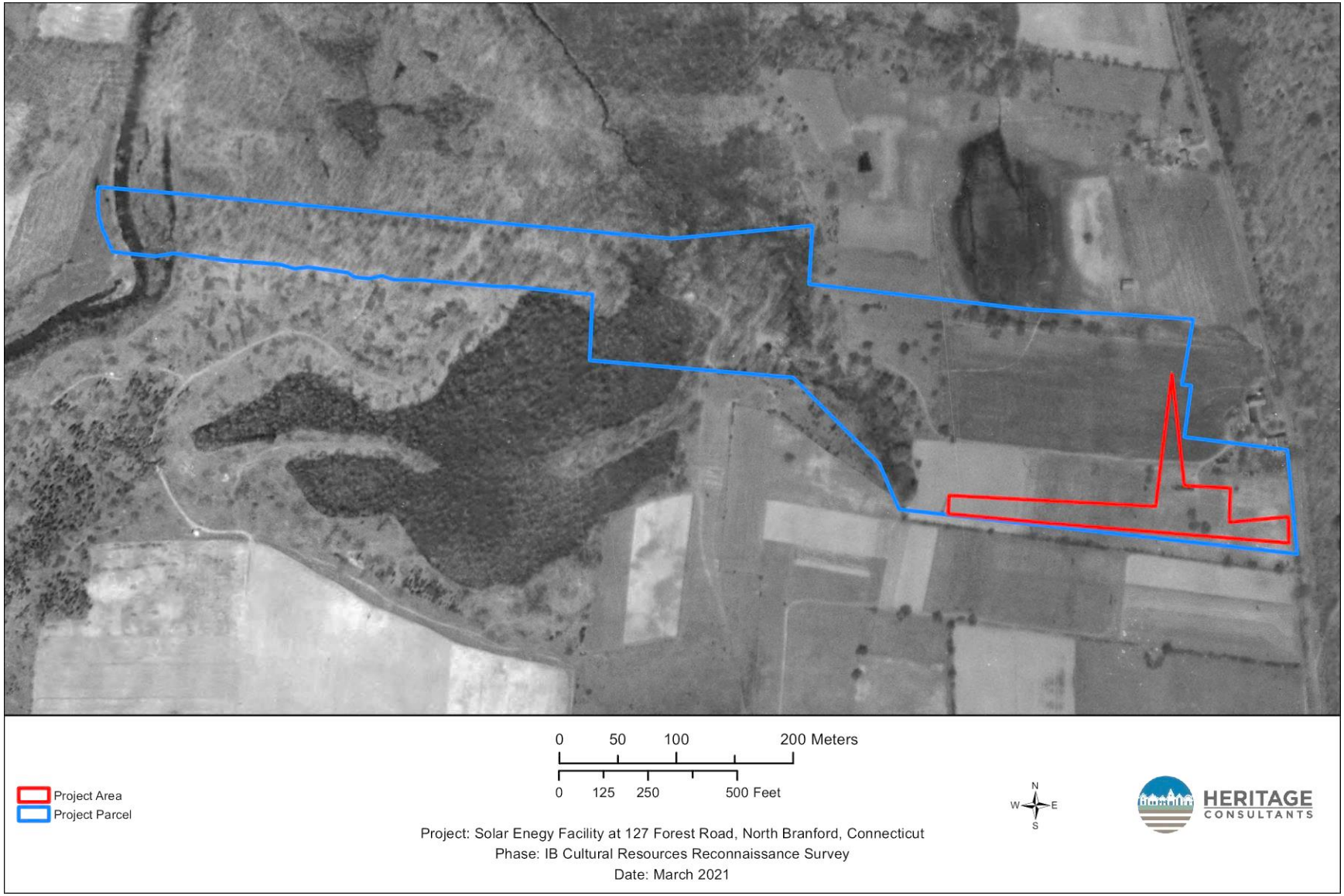


Figure 5. Excerpt from a 1934 aerial image depicting the area containing the proposed solar center in North Branford, Connecticut.

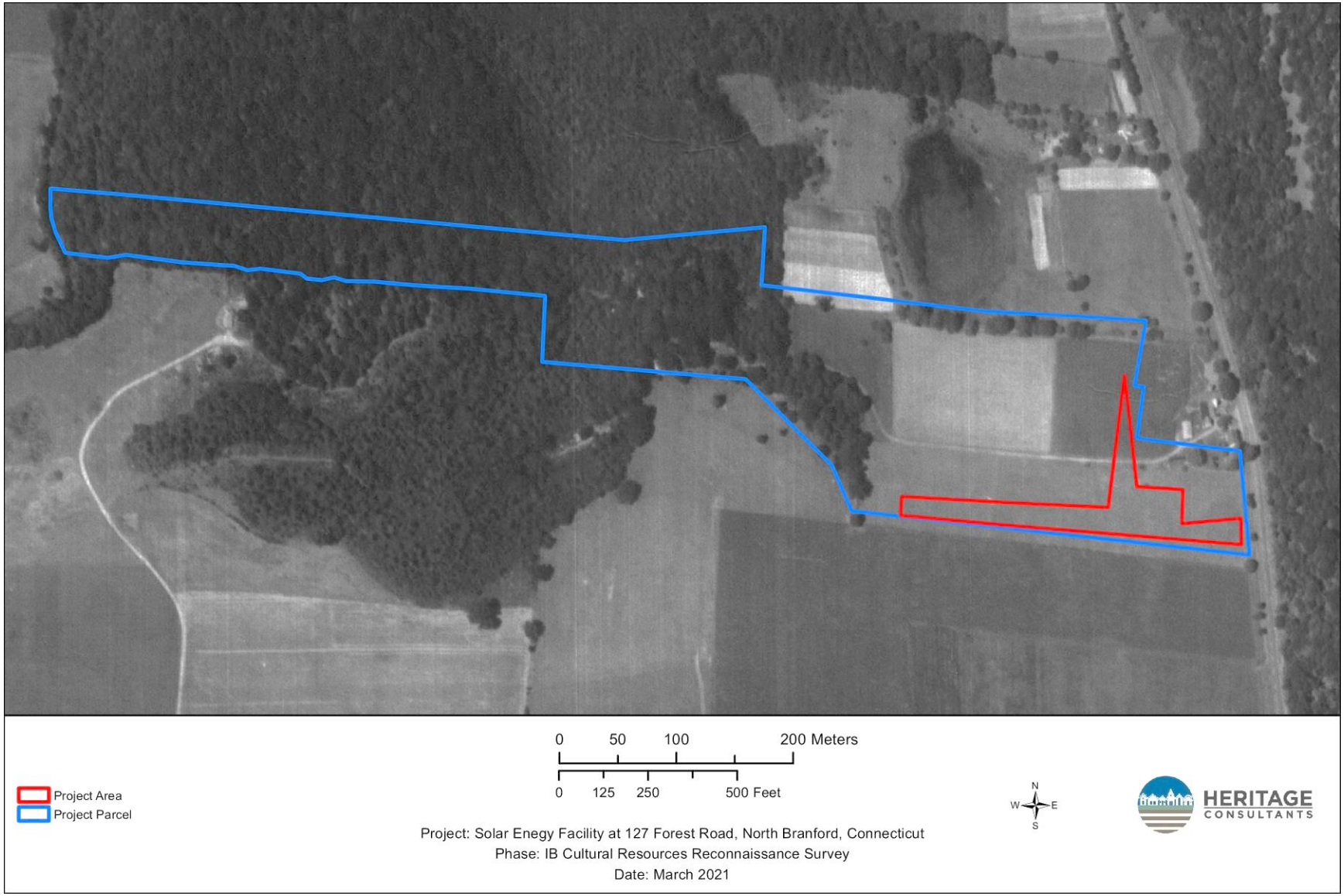


Figure 6. Excerpt from a 1951 aerial image depicting the area containing the proposed solar center in North Branford, Connecticut.

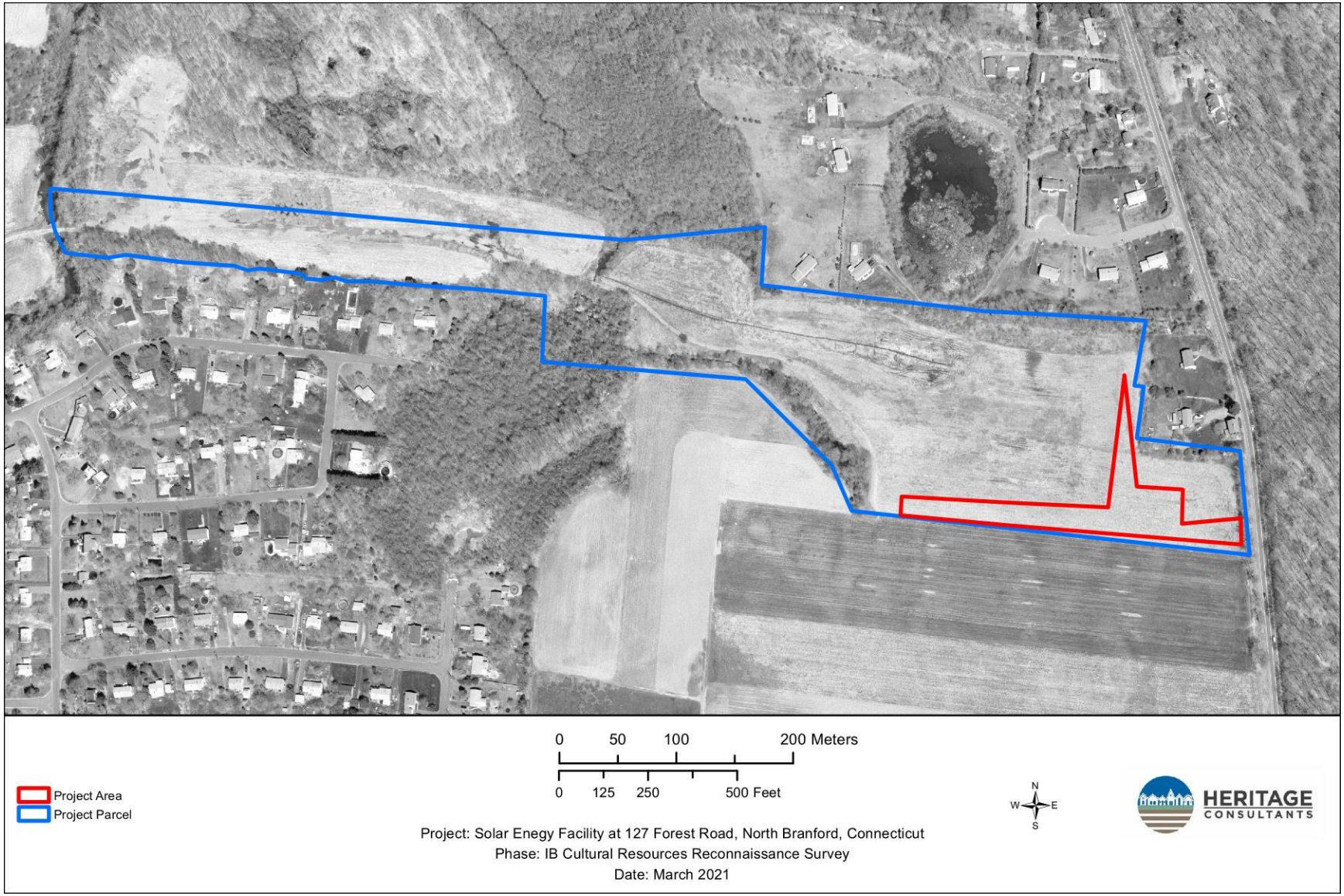


Figure 7. Excerpt from a 2004 aerial image depicting the area containing the proposed solar center in North Branford, Connecticut.

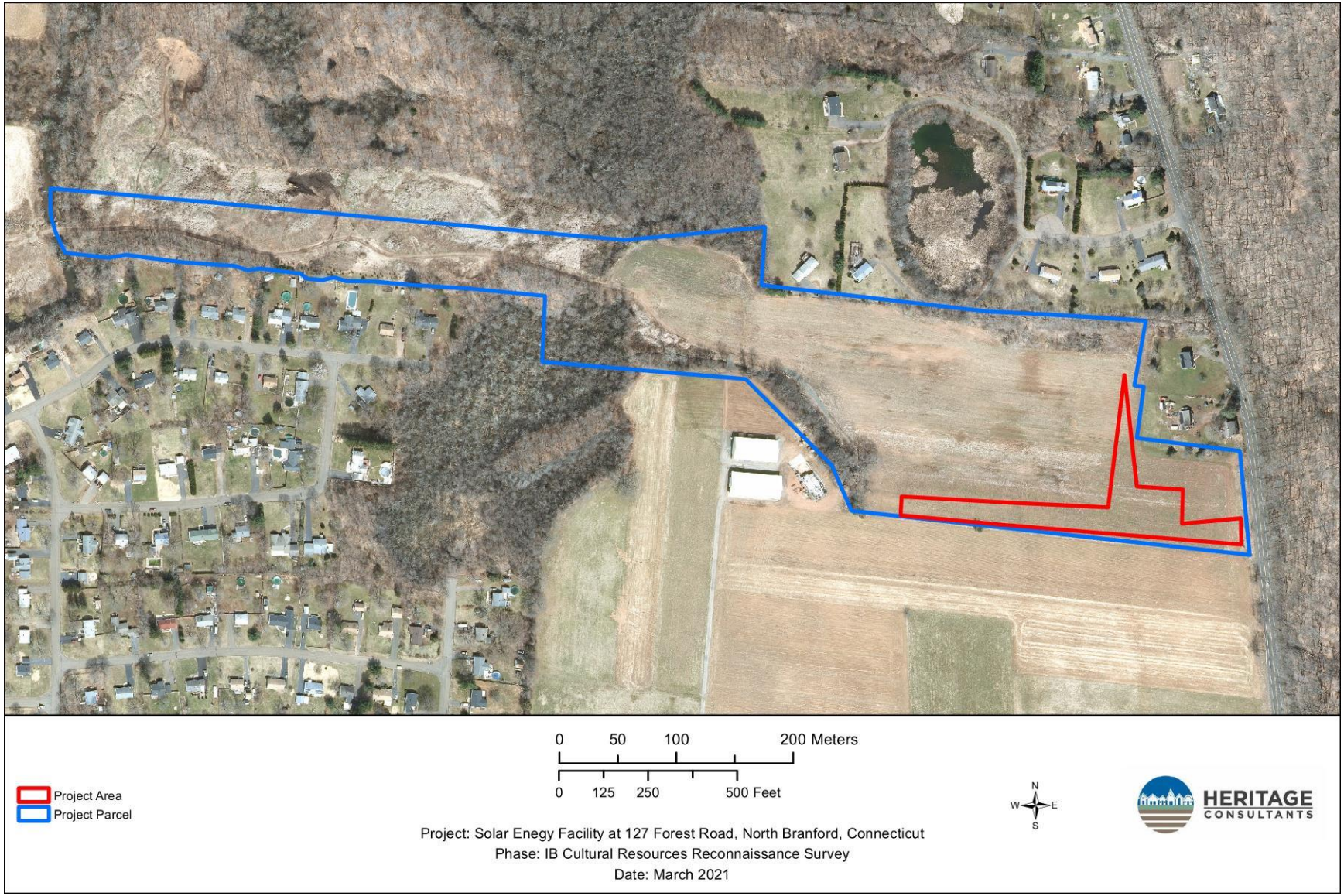


Figure 8. Excerpt from a 2019 aerial image depicting the area containing the proposed solar center in North Branford, Connecticut.

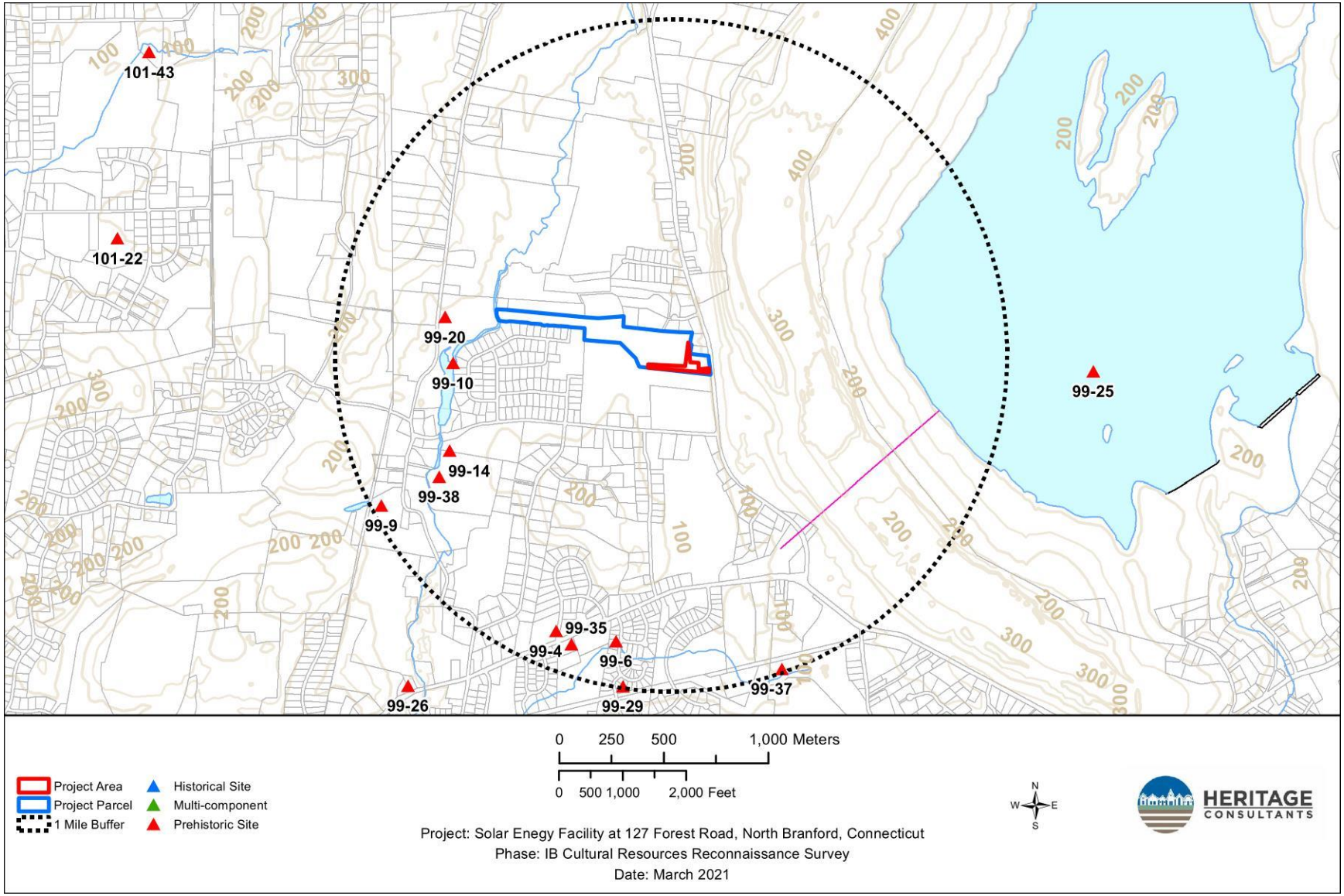


Figure 9. Digital map showing the location of previously identified archaeological sites in the vicinity of the proposed solar center in North Branford, Connecticut.

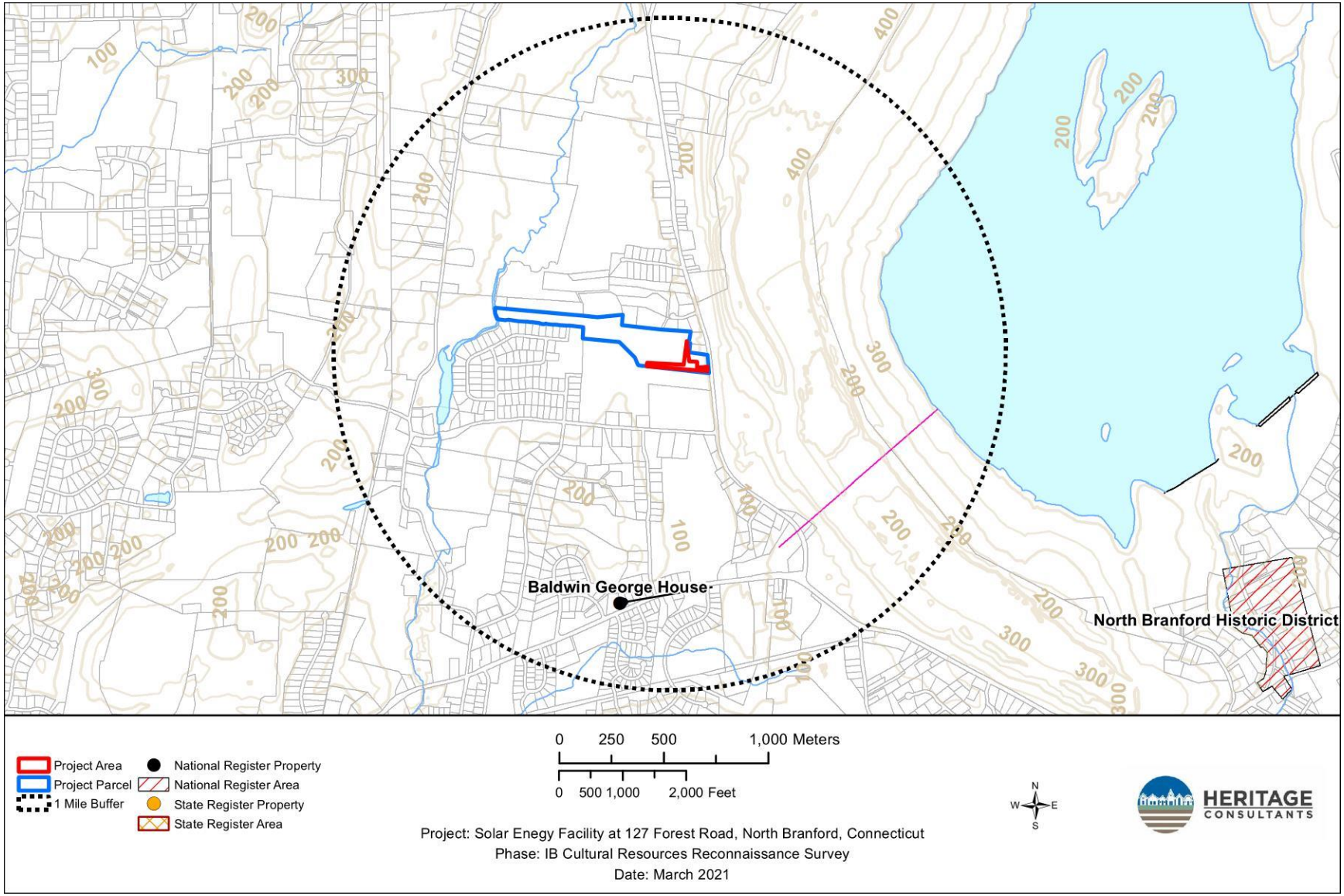


Figure 10. Digital map depicting the locations of previously identified National and State Register of Historic Places properties in the vicinity of the proposed solar center in North Branford, Connecticut.

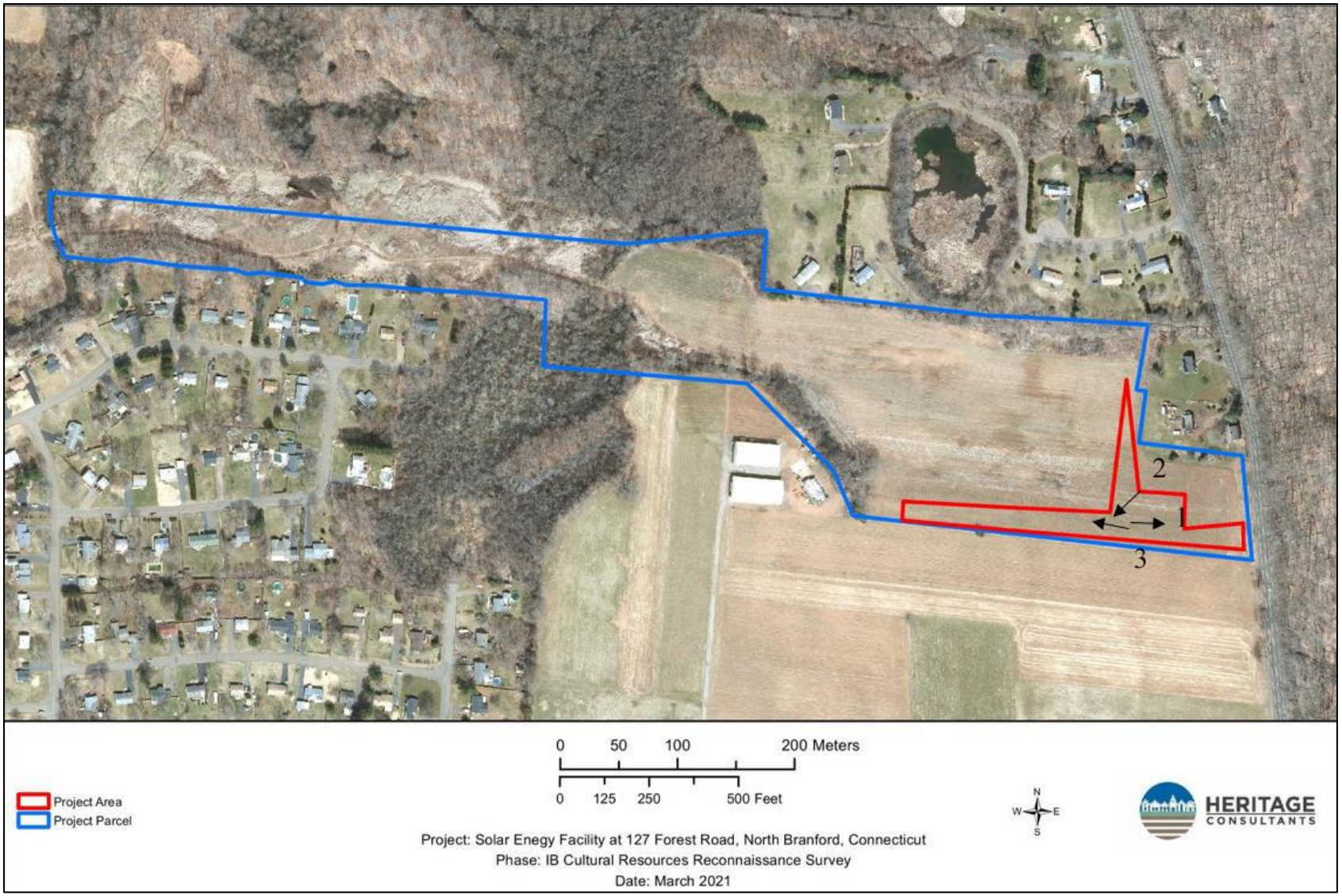


Figure 11. Excerpt from a 2019 aerial photograph showing the location of photographs taken of the work area during Phase IB excavation.

Figure 12. Overview photo of the project area during the Phase IB cultural resources reconnaissance survey. The view is looking east.

Figure 13. Overview photo of the project area during the Phase IB cultural resources reconnaissance survey. The view is looking south west.

Figure 14. Overview photo of the project area during the Phase IB cultural resources reconnaissance survey. The view is looking west.

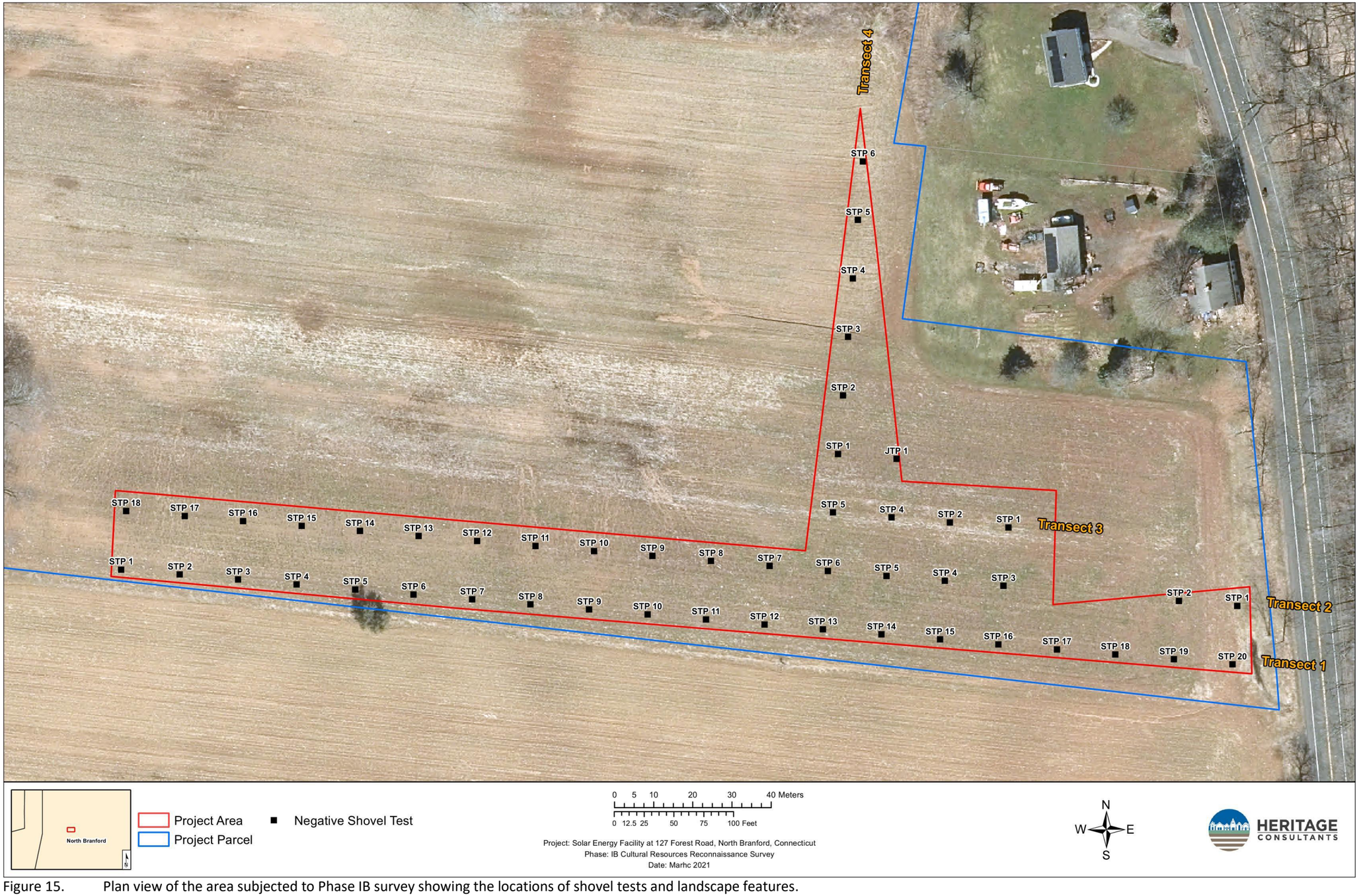


Figure 15. Plan view of the area subjected to Phase IB survey showing the locations of shovel tests and landscape features.

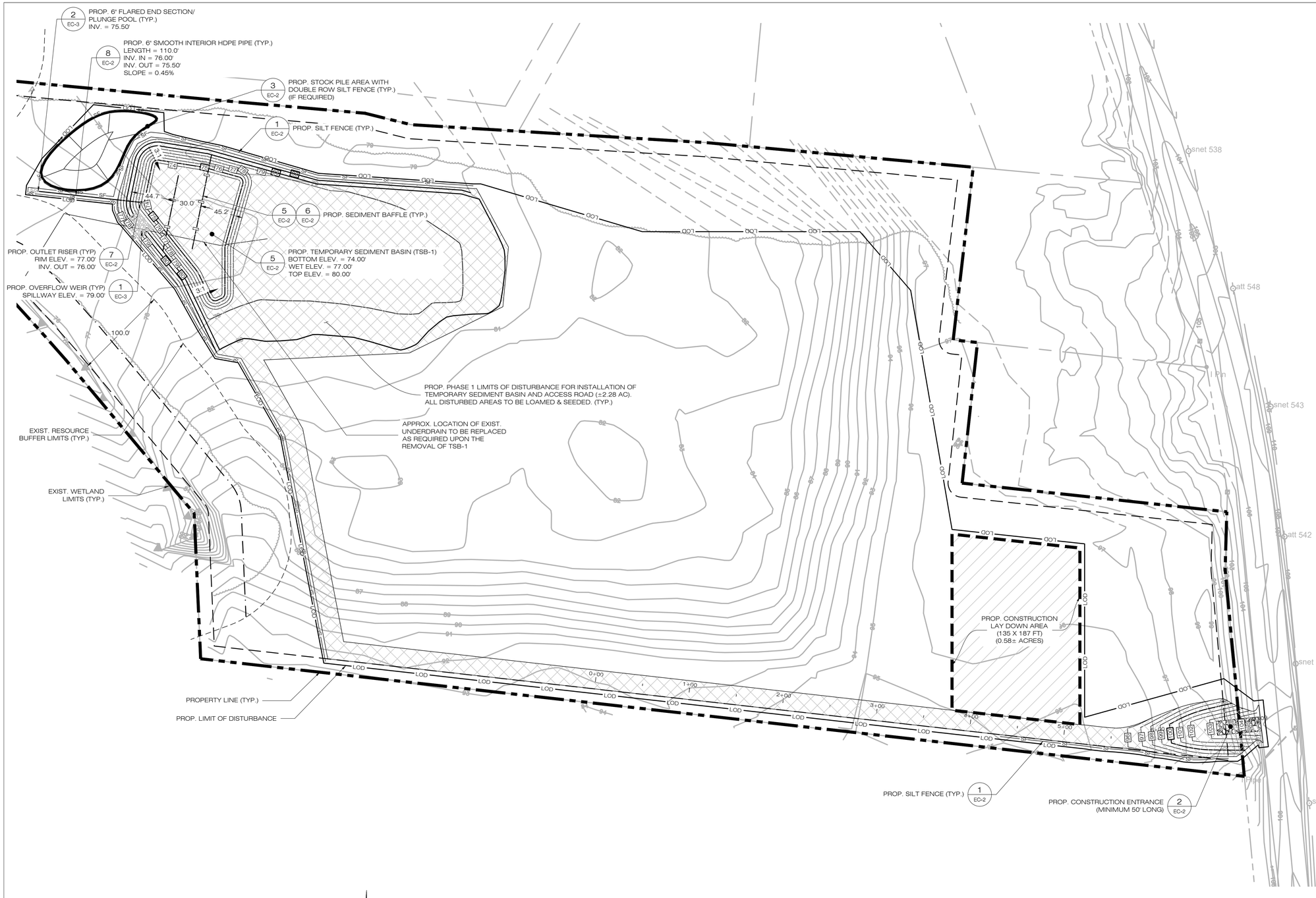
ATTACHMENT 3

(Remote Field Review)

https://allpoints.egnyte.com/fl/I2reBp0vyB

ATTACHMENT 4

(Revised EC-4)



PHASE 1 CLEARING LEGEND

CLEARING AND GRUBBING	

N

1 EC-4 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 50'-0"

50 0 25 50 100

(IN FEET) 1 inch = 50 ft.

CITRINE

55 GREENS FARMS ROAD
SUITE 200-78
WESTPORT, CT 06880
OFFICE: (203)-557-5554

ALL-POINTS TECHNOLOGY CORPORATION

567 VAUXHAUL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
0	03/03/21	FOR REVIEW: BJP
1	04/21/21	CSC INTERROGATORIES: BJP
2		
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: BRADLEY J. PARSONS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 567 VAUXHAUL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: WHAT TF LLC

ADDRESS: 218 FOXON ROAD EAST HAVEN, CT 06513

SUNFLOWER SOLAR

SITE ADDRESS: 127 FOREST ROAD NORTH BRANFORD, CT 06472

APT FILING NUMBER: CT567130

DRAWN BY: JT

DATE: 03/03/21 CHECKED BY: BJP

SHEET TITLE:

PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:

EC-4

ATTACHMENT 5

(SWPCP Excerpts)

Post-Construction Stormwater Management

Post-construction Guidelines

After the project is complete the developer will perform the following maintenance and restoration measures:

- Mowing and maintenance of the turf and vegetated areas will occur as needed.

Other Controls

Spill Prevention Control Plan

Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill to avoid possible impact to nearby habitats.

A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

1. Petroleum and Hazardous Materials Storage and Refueling
    a. Refueling of vehicles or machinery shall occur within the Construction Laydown Area ONLY and shall take place on an impervious pad with secondary containment designed to contain fuels. This area is greater than 100' from a wetland
    b. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.
2. Initial Spill Response Procedures
    a. Stop operations and shut off equipment.
    b. Remove any sources of spark or flame.
    c. Contain the source of the spill.
    d. Determine the approximate volume of the spill.
    e. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
    f. Ensure that fellow workers are notified of the spill.
3. Spill Clean Up & Containment
    a. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.

b. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
c. Isolate and eliminate the spill source.
d. Contact the appropriate local, state and/or federal agencies, as necessary.
e. Contact a disposal company to properly dispose of contaminated materials in accordance with all local, state and federal regulations.

4. Reporting
    a. Complete an incident report.
    b. Notify Regional Water Authority Control Room at 203-401-2629 (Staffed 24/7)
    c. Submit a completed incident report to the appropriate Connecticut Department of Environmental Protection, Regional Water Authority, Municipal Official, Connecticut Siting Council and other applicable local, state and federal officials.

Waste Disposal

Construction site waste shall be properly managed and disposed of during the entire construction period. Additionally;

- A waste collection area will be designated. The selected area will minimize truck travel through the site and will not drain directly to the adjacent wetlands.
- Waste collection shall be scheduled regularly to prevent the containers from overfilling.
- Spills shall be cleaned up immediately.
- Defective containers that may cause leaks or spills will be identified through regular inspection. Any found to be defective will be repaired or replaced immediately.
- Any stockpiling of materials should be confined to the designated area as defined by the engineer.

Washout Areas

Washout of applicators, containers, vehicles and equipment for concrete shall be conducted in a designated washout area. No surface discharge of washout wastewaters from the area will be allowed. All concrete wash water will be directed into a container or pit such that no overflows can occur. Washout shall be conducted in an entirely self-contained system and will be clearly designed and flagged or signed where necessary. The washout area shall be located outside of any buffers and at least 50 feet from any stream, wetland or other sensitive water or natural resources as shown on the plans.

The designated area shall be designed and maintained such that no overflows can occur during rainfall or after snowmelt. Containers or pits shall be inspected at least once a week to ensure structural integrity, adequate holding capacity and will be repaired prior to future use if leaks are present. The contractor shall remove hardened concrete waste when it accumulates to a height of ½ of the container or pit or as necessary to avoid overflows. All concrete waste shall be disposed of in a manner consistent will all applicable laws, regulations and guidelines.

ATTACHMENT 6

(TCLP Report)

September 21, 2020 **FINAL**

Heliene Inc.
520 Allens Side Road
Sault Ste. Marie, Ontario

E-mail: mpc@heliene.com

Attention: Manikantan Chandrasekharan
Property Manager

Re: TCLP Assessment Letter
520 Allens Side Road, Sault Ste. Marie, Ontario
Pinchin File: 276353

1.0 BACKGROUND

Pinchin Ltd. (Pinchin), requested by Heliene Inc. Inc. to complete a Toxicity Characteristic Leachate Procedure (TCLP) Assessment on a solar panel provided in order to classify the panel as hazardous or non-hazardous waste for end of life disposal.

2.0 SCOPE OF WORK

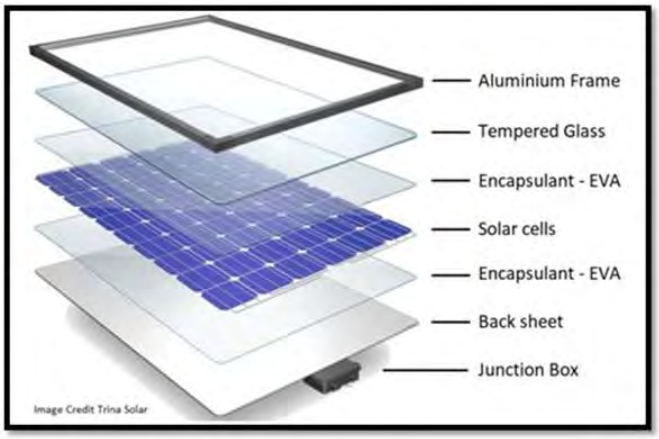
The scope of work completed by Pinchin, as outlined in the email entitled "*RE: Discussion on TCLP testing for Solar module*" between Christian Tenaglia of Pinchin and Gustavo Loureiro, Manikantan PC and Xinyan Bai submitted to the Client on May 29, 2020, included the following:

- Dismantle and cut panel, homogenize and prepare two composite samples >200 grams each, prep sample to <2 cm diameter.
- Submit composite panel samples to an accredited laboratory for analysis of leachate concentrations of metals, inorganics, and semi-volatile organic compounds (SVOCs) in accordance with the Toxicity Characteristic Leaching Procedure (TCLP) as per Ontario Regulation 347 (as amended) to characterize the material for future off-site disposal. The TCLP procedure will also be completed in compliance with the United States Environmental Protection Agency (USEPA) SW846 method 1311.
- Compare the laboratory analytical results with the applicable standards stipulated in the Schedule 4 Leachate Quality Criteria, established by Ontario Regulation 558/00 (Ontario Regulation 347). In addition, Pinchin will review general USEPA hazardous waste definitions and select individual state law for waste characterization (California, South Carolina, Florida and Minnesota).

- Prepare a factual letter report for the results of the TCLP testing program summarizing the leachate characteristics of the panels and provide an opinion whether the material would be defined as hazardous or non-hazardous waste.

3.0 TOXICITY CHARACTERISTIC LEACHATE PROCEDURE – SAMPLING AND ANALYSIS

On June 17, 2020, Pinchin cut four randomly selected bulk sections of a solar panel provided by Heliene, and subsequently homogenized the bulk cuts into two composite samples. The cuts and composite samples included all parts of the solar panel, including the glass, encapsulant, solar cells which include electronic ribbons and bans, and back sheet (as shown in the photo below).



The two composite panel samples (TCLP1 and TCLP2) were processed (cut to <2 cm in diameter) for TCLP analysis and submitted to AGAT Laboratories (AGAT) in Mississauga, Ontario, which is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) in accordance with the International Standards ISO/IEC 17025 – General Requirement for the Competence of Testing and Calibration Laboratories.

Pinchin submitted for analysis and compared the analytical results with the corresponding allowable regulatory limits for leachable metals, inorganics and SVOCs. The results of the composite sample analysis indicated that all parameters analyzed for were low and below the regulated limits for hazardous waste characterization, with the exception of lead. Leachate lead concentrations ranged from 6.69 to 8.36 milligrams per litres (mg/L) in comparison to the regulatory limit of 5 mg/L. The lead concentrations were observed to be elevated based on the presence of lead-containing bus bars and ribbons across the solar cell layer of the panel. The possibly high presence of lead-containing bus bars and ribbons in the composite samples likely elevated the overall percentage of lead in the leachate and may not have been representative of the entire composition of the solar panel. Below shows the overall composition of the solar panel by total weight (22 kilograms (kg)) versus the weight of the ribbons and bans (and subsequent lead).

Item	Quantity in Panel (kg)	Total Quantity of Lead (kg)	Percent of Lead in Panel (%)
RIB 2mm, Ribbon 0.9x 0.22mm (40% Pb)	0.22	0.088	0.40000
RIB 6mm, Ribbon 6 x 0.35mm Straight 149mm (40% Pb)	0.005	0.002	0.009091
RIB 6mm, Ribbon 6x.35mm Straight 307.5mm (40% Pb)	0.0103	0.00412	0.018727
RIB 6mm, Ribbon 6x.35mm Straight 290mm (40% Pb)	0.0145	0.0058	0.026364
Total	*0.2498*	*0.09992*	*0.454182*

As a result of elevated lead concentrations in the two composite TCLP samples, five additional composite samples were collected of the panel in areas where the lead-containing ribbon and bans were not present. The intent of the additional samples was to confirm if lead is present in other areas of the panel (not including ribbons and bans) and that the overall panel based on mass is not hazardous.

Four of the five additional composite samples (TCLP3 through TCLP6) were collected across the four quadrants of the panel and were collected using a carbide tipped core drill with an approximate diameter of 1.5 cm. The fifth sample (TCLP 7) was extracted and processed from the junction box and attached cable. All five samples were analyzed by AGAT via the TCLP procedure for lead.

The analytical results of the additional TCLP samples (TCLP3 through TCLP6) reported lead concentrations ranging from <0.01 to 0.582 mg/L and below the regulated limit. These results indicate that the previous TCLP sample analysis (TCLP1 and TCLP2) exhibited higher lead concentrations as a result of the inclusion of the ribbons and bans within the composite sample. As a result, Pinchin averaged the lead concentration of all seven samples to determine the overall compliance with the regulated limits. The average lead concentration of all seven TCLP samples was 2.27 mg/L, below the regulated limit of 5 mg/L, therefore would not be considered as hazardous waste.

A summary of the analytical data and calculations is provided in Table 1 in Appendix I. A copy of the laboratory certificates of analysis are provided in Appendix II.

4.0 REGULATED TOXICITY LIMITS FOR HAZARDOUS WASTE CHARACTERIZATION AND LEAD DISCUSSION

As part of the data evaluation, Pinchin compared the analytical results to both provincial (Ontario) and select state law (California, Florida, South Carolina and Minnesota). In Ontario, the province regulates hazardous waste characterization under Ontario Regulation 347/90 and establishes the regulated toxicity limits under Schedule 4 (Leachate Quality Criteria). In California, Florida, South Carolina and Minnesota, all four states have adopted Title 40 Code of Federal Regulations, Part 261, Subpart C, Section 261.24 (b) Toxicity Characteristic, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic into their regulatory regime for hazardous waste characterization (with respect to toxicity). The regulatory limit in all provincial and state jurisdictions reviewed for lead is 5 mg/L. Pinchin notes however that other provinces and states may have different hazardous waste characterization criteria and should be reviewed independently for waste disposal compliance purposes.

End of life disposal should consider each provincial/state requirement for hazardous waste characterization and electronics waste management and recycling programs. Pinchin recommends that given the lead content in certain components of the solar panel that those components be removed along with any other metals and be appropriately recycled at an approved receiving facility prior to disposal.

5.0 CLOSING

We trust that this letter meets your present requirements. If you have any questions, please feel free to contact the undersigned.

Should you have any questions or concerns regarding the contents of this letter, please contact the undersigned.

Yours truly,

Pinchin Ltd.

Prepared by:

Christian Tenaglia, M.E.S., P.Eng., QP_{ESA}
Director of Northeastern Ontario
705.943.1298
ctenaglia@pinchin.com

Reviewed by:

Tim McBride, B.Sc., P.Geo., QP_{ESA}
Director, Landfill & Municipal Services
705.690.5387
tmcbride@pinchin.com

Encl.: Table 1 – Toxicity Characteristic Leaching Procedure (TCLP) Analysis
Laboratory Certificates of Analysis

TABLE 1
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) ANALYSIS
HELIENE INC.
520 Allens Side Road, Sault Ste. Marie, Ontario

Parameter	*Ontario Regulation 347**	*California Code of Regulations***	*South Carolina Regulation 61-79****	*Florida Admistrative Code Chapter 62-730*****	*Minnesota Administrative Rules 7045.0130******	*Sample Designation*							*AVERAGE CALCULATION*
						Sample Collection Date (dd/mm/yyyy)							
						TCLP 1	*TCLP 2*	*TCLP 3*	*TCLP 4*	*TCLP 5*	*TCLP 6*	*TCLP 7*	
						17/06/2020	*17/06/2020*	*07/20/2020*	*07/20/2020*	*07/20/2020*	*07/20/2020*	*07/20/2020*	
METALS													
Arsenic	2.5	5	5	5	5	<0.010	<0.010	-	-	-	-	-	-
Barium	100	100	100	100	100	<0.100	<0.100	-	-	-	-	-	-
Boron	500	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-
Cadmium	0.5	1	1	1	1	<0.010	<0.010	-	-	-	-	-	-
Chromium	5	5	5	5	5	<0.010	<0.010	-	-	-	-	-	-
Lead	5	5	5	5	5	**6.69**	**8.36**	<0.010	0.255	<0.010	<0.010	0.582	2.27
Mercury	0.1	0.2	0.2	0.2	0.2	<0.01	<0.01	-	-	-	-	-	-
Selenium	1	1	1	1	1	<0.010	<0.010	-	-	-	-	-	-
Silver	5	5	5	5	5	<0.010	<0.010	-	-	-	-	-	-
Uranium	10	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-
SEMI-VOLATILE ORGANIC COMPOUNDS													
Pyridine	5	5	5	5	5	<0.010	<0.010	-	-	-	-	-	-
Cresols	200	200	200	200	200	<0.012	<0.012	-	-	-	-	-	-
Ortho-Cresol	200	200	200	200	200	<0.004	<0.004	-	-	-	-	-	-
Meta & Para-Cresol	200	200	200	200	200	<0.008	<0.008	-	-	-	-	-	-
Hexachloroethane	3	3	3	3	3	<0.004	<0.004	-	-	-	-	-	-
Nitrobenzene	2	2	2	2	2	<0.004	<0.004	-	-	-	-	-	-
Hexachlorobutadiene	0.5	0.5	0.5	0.5	0.5	<0.004	<0.004	-	-	-	-	-	-
2,4,6-Trichlorophenol	0.5	2	2	2	2	<0.05	<0.05	-	-	-	-	-	-
2,4,5-Trichlorophenol	400	400	400	400	400	<0.004	<0.004	-	-	-	-	-	-
2,4-Dinitrotoluene	0.13	0.13	0.13	0.13	0.13	<0.004	<0.004	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	10	-	-	-	-	<0.004	<0.004	-	-	-	-	-	-
Hexachlorobenzene	0.13	0.13	0.13	0.13	0.13	<0.004	<0.004	-	-	-	-	-	-
Dinoseb	1	-	-	-	-	<0.004	<0.004	-	-	-	-	-	-
Benzo(a)pyrene	0.001	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
INORGANICS													
Fluoride	150	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-
Free Cyanide	20	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-
Nitrite and Nitrate	1000	-	-	-	-	<0.70	<0.70	-	-	-	-	-	-

Notes:

Ontario Regulation 347*	Schedule 4 - Leachate Quality Criteria
California Code of Regulations**	66261.24(a) Characteristic of Toxicity, California Code of Regulations, Table I - Maximum Concentration of Contaminants for the Toxicity Characteristic
South Carolina Regulation 61-79***	Regulation 61-79.261 South Carolina Harzardous Waste Managemetn Regulations, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste 261.24 (b) Table I - Maximum Concentration of Contaminants for the Toxicity Characteristic.
Florida Administrative Code Chapter 62-730****	62.730.030 Identification of Hazardous Waste, reference and adoption of Title 40 Code of Federal Regulations, Part 261, Subpart C, Section 261.24 (b) Toxicity Characteristic, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic.
Minnesota Administrative Rules 7045.0130*****	7045.0130 Minnesota Administrative Rules, 7045.0131 Characterists of Hazardous Waste, Subpart 8 - Maximum Concentration of Contaminants for the Toxicity Characteristic
BOLD	Exceeds Regulatory Limit
Units	All Values Reported in Units of mg/L.

Pinchin File: 276353

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: PINCHIN LTD
126 QUEEN STREET EAST, SUITE #3
SAULT STE. MARIE, ON P6A1Y5
(705) 575-9207
ATTENTION TO: Brandon Guzzo-Foliaro
PROJECT: 276353.00
AGAT WORK ORDER: 20T615469
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
DATE REPORTED: Jun 25, 2020
PAGES (INCLUDING COVER): 10
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
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AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

CLIENT NAME: PINCHIN LTD

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2020-06-19

DATE REPORTED: 2020-06-25

		SAMPLE DESCRIPTION:		TCLP1	TCLP2
		SAMPLE TYPE:		Other	Other
		DATE SAMPLED:		2020-06-17	2020-06-17
Parameter	Unit	G / S	RDL	1211837	1211838
Arsenic Leachate	mg/L	2.5	0.010	<0.010	<0.010
Barium Leachate	mg/L	100	0.100	<0.100	<0.100
Boron Leachate	mg/L	500	0.050	<0.050	<0.050
Cadmium Leachate	mg/L	0.5	0.010	<0.010	<0.010
Chromium Leachate	mg/L	5	0.010	<0.010	<0.010
Lead Leachate	mg/L	5	0.010	**6.69**	**8.36**
Mercury Leachate	mg/L	0.1	0.01	<0.01	<0.01
Selenium Leachate	mg/L	1	0.010	<0.010	<0.010
Silver Leachate	mg/L	5	0.010	<0.010	<0.010
Uranium Leachate	mg/L	10	0.050	<0.050	<0.050
Fluoride Leachate	mg/L	150	0.05	<0.05	<0.05
Cyanide Leachate	mg/L	20	0.05	<0.05	<0.05
(Nitrate + Nitrite) as N Leachate	mg/L	1000	0.70	<0.70	<0.70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Divine Basily

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

CLIENT NAME: PINCHIN LTD

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

O. Reg. 558 - SVOCs

DATE RECEIVED: 2020-06-19

DATE REPORTED: 2020-06-25

		SAMPLE DESCRIPTION:		TCLP1	TCLP2
		SAMPLE TYPE:		Other	Other
		DATE SAMPLED:		2020-06-17	2020-06-17
Parameter	Unit	G / S	RDL	1211837	1211838
Pyridine	mg/L	5.0	0.010	<0.010	<0.010
Cresols	mg/L	200	0.012	<0.012	<0.012
Ortho-Cresol	mg/L	200	0.004	<0.004	<0.004
Meta & Para-Cresol	mg/L	200	0.008	<0.008	<0.008
Hexachloroethane	mg/L	3	0.004	<0.004	<0.004
Nitrobenzene	mg/L	2.0	0.004	<0.004	<0.004
Hexachlorobutadiene	mg/L	0.5	0.004	<0.004	<0.004
2,4,6-Trichlorophenol	mg/L	0.5	0.05	<0.05	<0.05
2,4,5-Trichlorophenol	mg/L	400	0.004	<0.004	<0.004
2,4-Dinitrotoluene	mg/L	0.13	0.004	<0.004	<0.004
2,3,4,6-Tetrachlorophenol	mg/L	10	0.004	<0.004	<0.004
Hexachlorobenzene	mg/L	0.13	0.004	<0.004	<0.004
Dinoseb	mg/L	1	0.004	<0.004	<0.004
Benzo(a)pyrene	mg/L	0.001	0.001	<0.001	<0.001
BNA Extr	NA			Y	Y
Surrogate	**Unit**	**Acceptable Limits**			
2-Fluorophenol	%	30-130		74	74
Phenol-d6	%	30-130		72	71
2,4,6-Tribromophenol	%	50-140		84	76
Chrysene-d12	%	50-140		86	72

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1211837-1211838 The sample was leached according to Regulation 558 protocol. Analysis was performed on the leachate.
Cresols total is a calculated parameter. The calculated value is the sum o-Cresol and m&p-Cresol.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowkolof

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Guideline Violation

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

CLIENT NAME: PINCHIN LTD

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1211837	TCLP1	ON Reg 558	O. Reg. 558 Metals and Inorganics	Lead Leachate	mg/L	5	6.69
1211838	TCLP2	ON Reg 558	O. Reg. 558 Metals and Inorganics	Lead Leachate	mg/L	5	8.36

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MISSISSAUGA, ONTARIO
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Quality Assurance

CLIENT NAME: PINCHIN LTD

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Jun 25, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	1212960		<0.010	<0.010	NA	< 0.010	103%	70%	130%	110%	80%	120%	109%	70%	130%
Barium Leachate	1212960		0.408	0.402	NA	< 0.100	103%	70%	130%	110%	80%	120%	109%	70%	130%
Boron Leachate	1212960		<0.050	<0.050	NA	< 0.050	93%	70%	130%	90%	80%	120%	86%	70%	130%
Cadmium Leachate	1212960		<0.010	<0.010	NA	< 0.010	98%	70%	130%	99%	80%	120%	90%	70%	130%
Chromium Leachate	1212960		<0.010	<0.010	NA	< 0.010	98%	70%	130%	103%	80%	120%	88%	70%	130%
Lead Leachate	1212960		0.027	0.025	NA	< 0.010	100%	70%	130%	104%	80%	120%	88%	70%	130%
Mercury Leachate	1212960		<0.01	<0.01	NA	< 0.01	100%	70%	130%	98%	80%	120%	74%	70%	130%
Selenium Leachate	1212960		<0.010	<0.010	NA	< 0.010	100%	70%	130%	109%	80%	120%	110%	70%	130%
Silver Leachate	1212960		<0.010	<0.010	NA	< 0.010	100%	70%	130%	110%	80%	120%	81%	70%	130%
Uranium Leachate	1212960		<0.050	<0.050	NA	< 0.050	97%	70%	130%	97%	80%	120%	83%	70%	130%
Fluoride Leachate	1212960		0.28	0.29	3.5%	< 0.05	101%	90%	110%	102%	90%	110%	98%	70%	130%
Cyanide Leachate	1212960		<0.05	<0.05	NA	< 0.05	100%	70%	130%	105%	80%	120%	106%	70%	130%
(Nitrate + Nitrite) as N Leachate	1212960		<0.70	<0.70	NA	< 0.70	102%	80%	120%	100%	80%	120%	102%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

Certified By: Nivine Basily

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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FAX (905)712-5122
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Quality Assurance

CLIENT NAME: PINCHIN LTD

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jun 25, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 558 - SVOCs															
Pyridine	1211837	1211837	< 0.010	< 0.010	NA	< 0.010	78%	30%	140%	75%	30%	140%	75%	30%	140%
Ortho-Cresol	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	63%	50%	140%	77%	50%	140%	69%	50%	140%
Meta & Para-Cresol	1211837	1211837	< 0.008	< 0.008	NA	< 0.008	75%	50%	140%	68%	50%	140%	78%	50%	140%
Hexachloroethane	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	106%	50%	140%	86%	50%	140%	71%	50%	140%
Nitrobenzene	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	82%	50%	140%	93%	50%	140%	87%	50%	140%
Hexachlorobutadiene	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	94%	50%	140%	77%	50%	140%	86%	50%	140%
2,4,6-Trichlorophenol	1211837	1211837	< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	67%	50%	140%	84%	50%	140%
2,4,5-Trichlorophenol	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	89%	50%	140%	69%	50%	140%	86%	50%	140%
2,4-Dinitrotoluene	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	106%	50%	140%	77%	50%	140%	86%	50%	140%
2,3,4,6-Tetrachlorophenol	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	92%	50%	140%	71%	50%	140%	71%	50%	140%
Hexachlorobenzene	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	99%	50%	140%	106%	50%	140%	74%	50%	140%
Dinoseb	1211837	1211837	< 0.004	< 0.004	NA	< 0.004	91%	50%	140%	69%	50%	140%	69%	50%	140%
Benzo(a)pyrene	1211837	1211837	< 0.001	< 0.001	NA	< 0.001	103%	50%	140%	99%	50%	140%	92%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popowkolof

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
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Method Summary

CLIENT NAME: PINCHIN LTD

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Arsenic Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Barium Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Cadmium Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Mercury Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B	ICP-MS
Fluoride Leachate	INOR-93-6018	EPA 1311 & modified from SM4500-F-C	ION SELECTIVE ELECTRODE
Cyanide Leachate	INOR-93-6052	EPA 1311 & modified from MOE 3015 & SM 4500 CN-I	TECHNICON AUTO ANALYZER
(Nitrate + Nitrite) as N Leachate	INOR-93-6053	EPA 1311 & modified from SM 4500-NO3-I	LACHAT FIA

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: PINCHIN LTD

AGAT WORK ORDER: 20T615469

PROJECT: 276353.00

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Pyridine	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Cresols	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Ortho-Cresol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Meta & Para-Cresol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Hexachloroethane	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Nitrobenzene	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Hexachlorobutadiene	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2,4-Dinitrotoluene	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2,3,4,6-Tetrachlorophenol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Hexachlorobenzene	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Dinoseb	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
Phenol-d6	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA SW846 3510C & 8270E	GC/MS
BNA Extr	ORG-91-5114	modified from EPA SW846 3510C & 8270E	N/A

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #:

Cooler Quantity:

Arrival Temperatures:

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: Pinchin LTD
Contact: Brandon Guzzo
Address: 126 Queen St FCST SSM ONT
Phone: 705 575 9207 Fax:
Reports to be sent to:
1. Email: bguzzofoliaro@pinchin.com
2. Email: Send all email.

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region _____ *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☐ Yes ☒ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

_____

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 2763533.000
Site Location: Solar Panel
Sampled By: Guzzo B & Christon T
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email: gp@pinchin.com.

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use						Potentially Hazardous or High Concentration (Y/N)
TCLP 1	06/17/20	am	1	/																	TCLP Metals	TCLP Inorganics	TCLP Soil Volatiles			
TCLP 2	1	1	1	/																						
					See attached Parameter email																					

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time	
Brandon Guzzo Foliaro.	06/17/2020	pm				
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time	Page _____ of _____
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time	Nº: T100551

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: PINCHIN LTD
126 QUEEN STREET EAST, SUITE #3
SAULT STE. MARIE, ON P6A1Y5
(705) 575-9207
ATTENTION TO: Brandon Guzzo-Foliaro
PROJECT: 276353.000
AGAT WORK ORDER: 20T632194
SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Aug 21, 2020
PAGES (INCLUDING COVER): 5
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T632194

PROJECT: 276353.000

CLIENT NAME: PINCHIN LTD

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:Solar Panel

SAMPLED BY:Guzzo B Christian T

O. Reg. 558 Lead

DATE RECEIVED: 2020-08-17

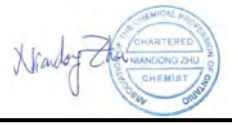
DATE REPORTED: 2020-08-21

				SAMPLE DESCRIPTION:	TCLP 3	TCLP 4	TCLP 5	TCLP 6	TCLP 7
				SAMPLE TYPE:	Other	Other	Other	Other	Other
				DATE SAMPLED:	2020-07-20	2020-07-20	2020-07-20	2020-07-20	2020-07-20
Parameter	Unit	G / S	RDL		1315295	1315297	1315298	1315299	1315300
Lead Leachate	mg/L	5	0.010		<0.010	0.255	<0.010	<0.010	0.582

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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CANADA L4Z 1Y2
TEL (905)712-5100
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Quality Assurance

CLIENT NAME: PINCHIN LTD
PROJECT: 276353.000
SAMPLING SITE:Solar Panel

AGAT WORK ORDER: 20T632194
ATTENTION TO: Brandon Guzzo-Foliaro
SAMPLED BY:Guzzo B Christian T

Soil Analysis

RPT Date: Aug 21, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 558 Lead															
Lead Leachate	1353169		<0.010	0.010	NA	< 0.010	97%	70%	130%	99%	80%	120%	88%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By:

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TEL (905)712-5100
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Method Summary

CLIENT NAME: PINCHIN LTD

AGAT WORK ORDER: 20T632194

PROJECT: 276353.000

ATTENTION TO: Brandon Guzzo-Foliaro

SAMPLING SITE:Solar Panel

SAMPLED BY:Guzzo B Christian T

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Lead Leachate	MET-93-6103	EPA 1311 & modified from EPA 6020B ICP-MS	

AGAT Laboratories

Red. Ben

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Pinchin LTD
Contact: Brandon Guzzo
Address: 126 Queen St. East SSM

Phone: 7055759907 Fax:

Reports to be sent to:
1. Email: bguzzofoliano@pinchin.com
2. Email: Fault all email

Project Information:

Project: 276353.000
Site Location: Solar Panel
Sampled By: Guzzo B CHAIN
AGAT Quote #: PO:

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email: ap@pinchin.com

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 558

☒ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table _____ *Indicate One*
Sample from APEC?
☐ Yes
☐ No
☐ Stockpile ☐ In-situ

☐ Sewer Use
☐ Sanitary ☐ Storm
_____ *Region*
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☐ Yes ☒ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Laboratory Use Only

Work Order #: 20T632194

Cooler Quantity:
Arrival Temperatures: ~~11.8~~ 11.8 | 11.6 | NOICE
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics, inc. EC/SAR	O. Reg 153: Metals - ICPMS, ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs, Analyze F4G if required ☐ Yes ☐ No	PAHs	PCBs	VOC	Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	TCLP Lead	Potentially Hazardous or High Concentration (Y/N)
TCLP 3	July 30	AM PM	1														X	
TCLP 4	"	AM PM	"														X	
TCLP 5	"	AM PM	"														X	
TCLP 6	"	AM PM	"														X	
TCLP 7	"	AM PM	"														X	
		AM PM															X	
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Brandon Guzzo BGF	July 30	am	Shawn de July 31/2020	9 AM	
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

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