ENVIRONMENTAL ASSESSMENT

LOVERS LANE SOLAR PROJECT

LOVERS LANE

TORRINGTON, CONNECTICUT

Prepared for:

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Appendices

1 Introduction

All-Points Technology Corporation, P.C. ("APT") prepared this Environmental Assessment ("EA") on behalf of LSE Sextans LLC & LSE Sextans II LLC (together the "Petitioner") for the proposed installation and utility interconnection of a solar-based electric generating facility (the "Project" or "Facility") located in the City of Torrington, Connecticut ("City"). This EA has been completed to support the Petitioner's submission to the Connecticut Siting Council ("Council") of a petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the electric generating facility.

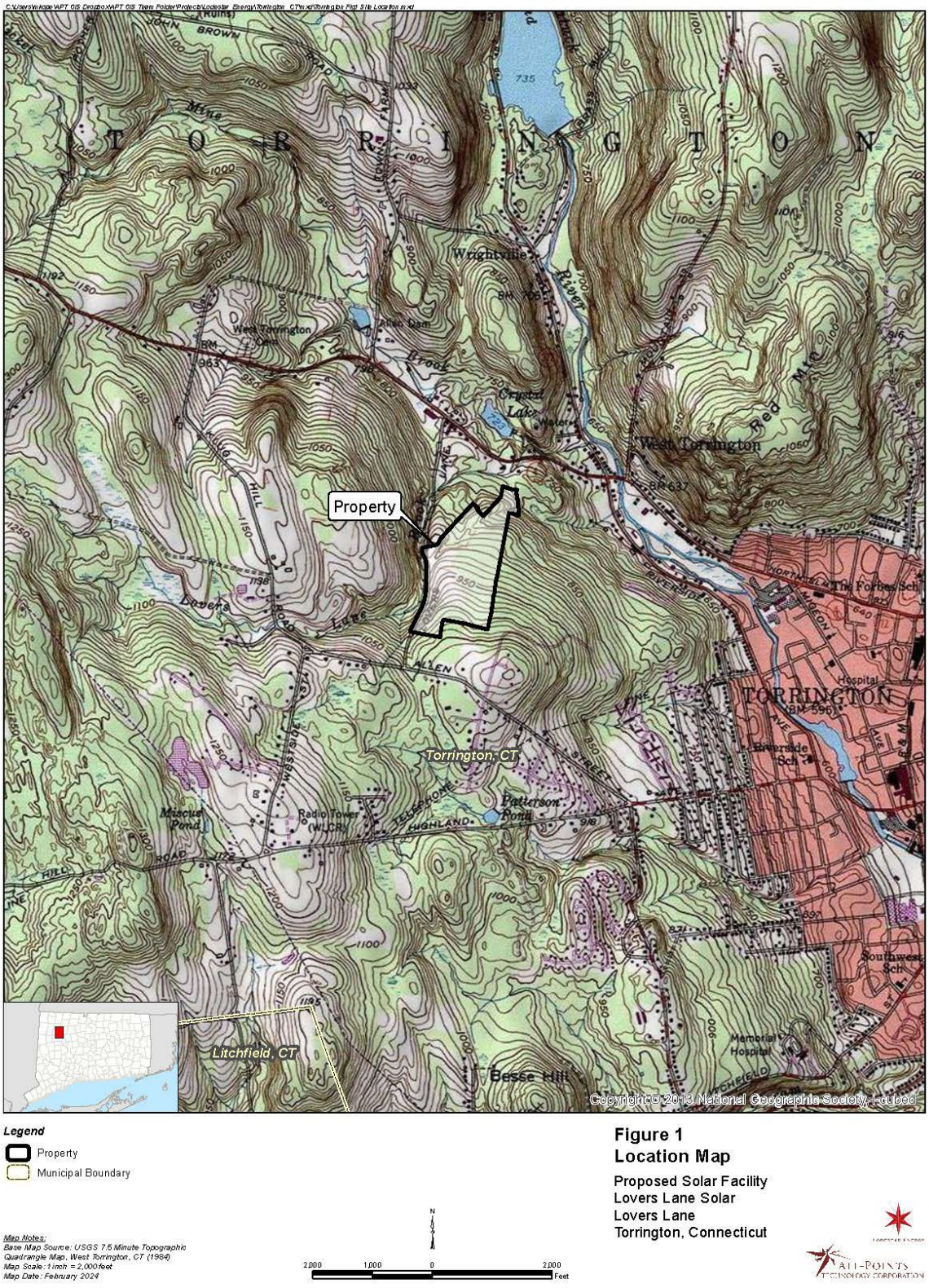
The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection's ("DEEP") air and water quality standards and will not have an adverse effect on the existing environment and ecology of the Site or the surrounding area. The City is identified as a "distressed municipality" and therefore qualifies as an "environmental justice community"[1]. The proposed Project is not defined as an "affecting facility"[2] under Connecticut General Statutes § 22a-20a. Therefore, the Project is not subject to the requirements of that section. The Project's output capacity is greater than two megawatts; therefore, the requirement of Connecticut General Statutes § 16-50k(a) for representations of no material effect by the Department of Agriculture and Department of Energy and Environmental Protection is applicable to the Project.

The Project will be located on two parcels under common ownership on the east side of Lovers Lane in Torrington, Connecticut (the "Property"). The Property totals approximately 54.08 acres. A cultivated field is located within the western portion of the south-central area of the Property; all but a small developed portion in the northwest corner of the Property is wooded. The Property is privately owned; the northern parcel is zoned RRC, Restricted Residential Community and the southern parcel is zoned R40, Residential 40,000 SF Lot Size.

[1] "Environmental justice community" means (A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of Connecticut General Statutes § 32-9p.

[2] "Affecting facility" is defined, in part, as any electric generating facility with a capacity of more than ten megawatts.

Figure 1, *Site Location Map*, depicts the location of the Site and the immediate surrounding area.



2 Proposed Project

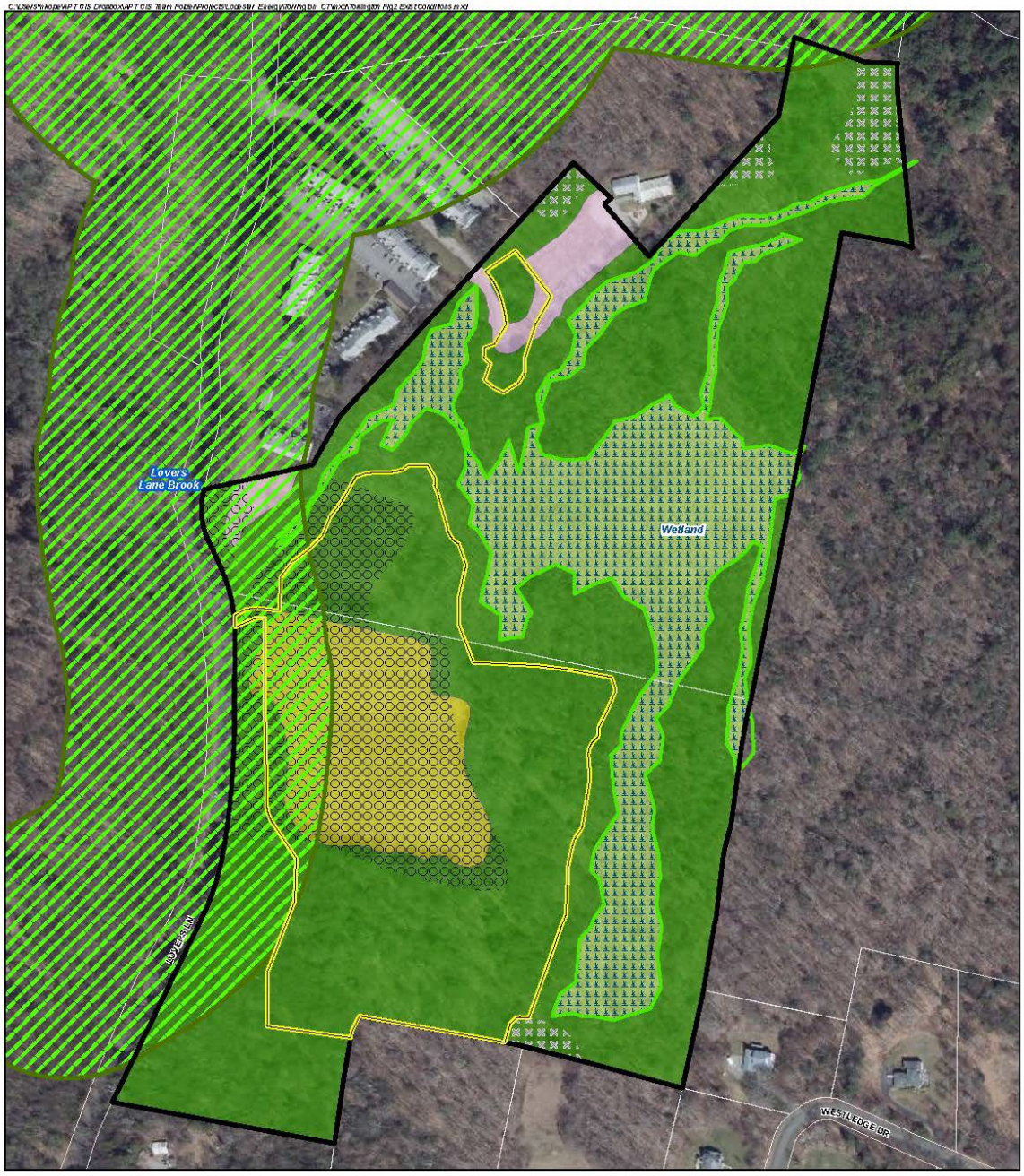
2.1 Project Setting

The Property is located on the eastern side of Lovers Lane in the West End area of Torrington, south of State Route 4. The Project will be located within the central and northern portions of the Property. Access to the solar arrays will be along a gravel drive easterly from Lovers Lane; separate access to the Facility's interconnect point will be from the north in an area of existing development associated with the Country Woods condominium complex. The Project in its entirety will occupy approximately 17.19 acres of the Property ("Site").

The Property's existing topography generally slopes down from south to north, ranging from an average of approximately 1,013 feet above mean sea level ("AMSL") in the south to approximately 817 feet AMSL in the north.

Figure 2, *Existing Conditions*, depicts the Site and current conditions on the Property.

The surrounding land to the south, east and west is wooded, with agricultural fields to the west beyond the wooded areas. Limited residential development occurs to the south; the condominium complex abuts the Property to the north. The City's Major Besse Park, which is largely undeveloped land, abuts the Property to the east.



Legend

- Property
- Approximate Parcel Boundary
- Site
- Delineated Wetland Boundary
- Wetland Area

Farmland Soils

- Prime Farmland Soils
- Statewide Important Farmland Soils
- Natural Diversity Database (updated December 2023)

Habitat

- Developed
- Mixed Field
- Upland Forest
- Wetland Forest

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: April 2024

N

300 150 0 300 Feet

Figure 2
Existing Conditions

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

2.2 Project Development and Operation

2.2.1 The Site

Upon its completion, the solar electric energy generating facility will consist of two (2) arrays with a total of 7,570 photovoltaic modules ("panels"), 18 inverters and two (2) transformers. A ground-mounted racking system will be used to secure the panels. The Facility will be surrounded by a seven (7)-foot tall chain link fence.

Access to the solar arrays will be via a gravel drive that will follow an existing farm road access easterly from Lovers Lane. The access drive will be approximately 450 feet long and 15 feet wide. Separate access to the interconnect point will be from the north off a paved driveway associated with the adjacent Country Woods condominium complex.

The Project will be serviced by two (2) electrical interconnections that will extend from an underground line along the Country Woods condominium driveway to two (2) overhead lines requiring three (3) poles each at the northwestern portion of the Property. The lines will then extend underground to an equipment pad northeast of the arrays. From there, the electrical interconnection will be routed underground (initially by direct boring to avoid direct impacts to wetlands) to a point at the northeast corner of the arrays, and continue (via underground trench) to concrete pads on the west side of each array.

Once complete, the fenced arrays will occupy approximately 13.59 acres of the Site with an additional ±3.6 acres of improvements beyond the arrays, for a total Project Area of ±17.19 acres. Proposed development drawings are provided in Appendix A, *Project Plans*.

The leading edge of the panels will be at least 24" above the existing ground surface, which will provide adequate room for any accumulating snow to "sheet" off. Any production degradation due to snow build-up has already been modeled into the annual system output and performance calculations. The Petitioner does not envision requiring any "snow removal" operations; rather, the snow will be allowed to melt or slide off.

Construction activities associated with the Project will include the following:

- installing erosion and sedimentation control measures;
- grading associated with drainage and stormwater management;
- installing racking and modules;

- trenching for electrical service and underground boring for interconnection; and
- stabilizing the Project Area with vegetation.

Earthwork is required to allow the Project development to comply with DEEP's *Appendix I, Stormwater Management at Solar Array Construction Projects*. ("Appendix I") to the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* ("General Permit").

The Facility is unstaffed; after construction is complete and the Facility is operable, traffic at the Site will be minimal. It is anticipated that the Facility will require routine maintenance of the electrical equipment one (1) time per year. Annual maintenance will typically involve two (2) technicians for a day. Repairs will be made on an as-needed basis. It is expected that mowing would occur, at a minimum, one (1) time per year to suppress woody growth. Depending on site-specific conditions, additional mowings (2 to 3 times annually) may be required.

2.2.2 Public Health and Safety

The Project will meet applicable local, state, national and industry health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products and will be unstaffed during normal operating conditions.

The Facility will be enclosed by a seven (7)-foot tall chain link fence. The entrance to the Facility will be gated, limiting access to authorized personnel only. All City emergency response personnel will be provided access via a Knox padlock. The Facility will be remotely monitored and will have the ability to remotely de-energize in the case of an emergency.

2.2.3 Public Policy

The Project is consistent with state and federal policies and will support the state's energy goals by developing a renewable energy resource while not having a substantial adverse environmental effect. The Project will benefit the local community by improving electrical service for existing and future development through the availability of enhanced local generating capacity that does not rely solely on the congested regional electrical transmission network.

The City's 2019 Plan of Conservation and Development, Section 13 – Sustainability Objectives, states support for the use of "green energy" and reduction of energy usage. It encourages review

and evaluation of land use regulations with a goal to "eliminate restrictions on the use or generation of green energy" and "create regulations that permit alternative energy production (such as solar and wind energy), when appropriate." The City's Zoning Regulations are silent on renewable energy sources, including solar development.

3 Environmental Conditions

This section provides an overview of the current conditions at the Site and an evaluation of the Project's potential impacts on the environment. The results of this assessment demonstrate that the Project will comply with the DEEP air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

Please refer to Figure 3, *Proposed Conditions* for a depiction of the Project and its relationship with the resources discussed herein.

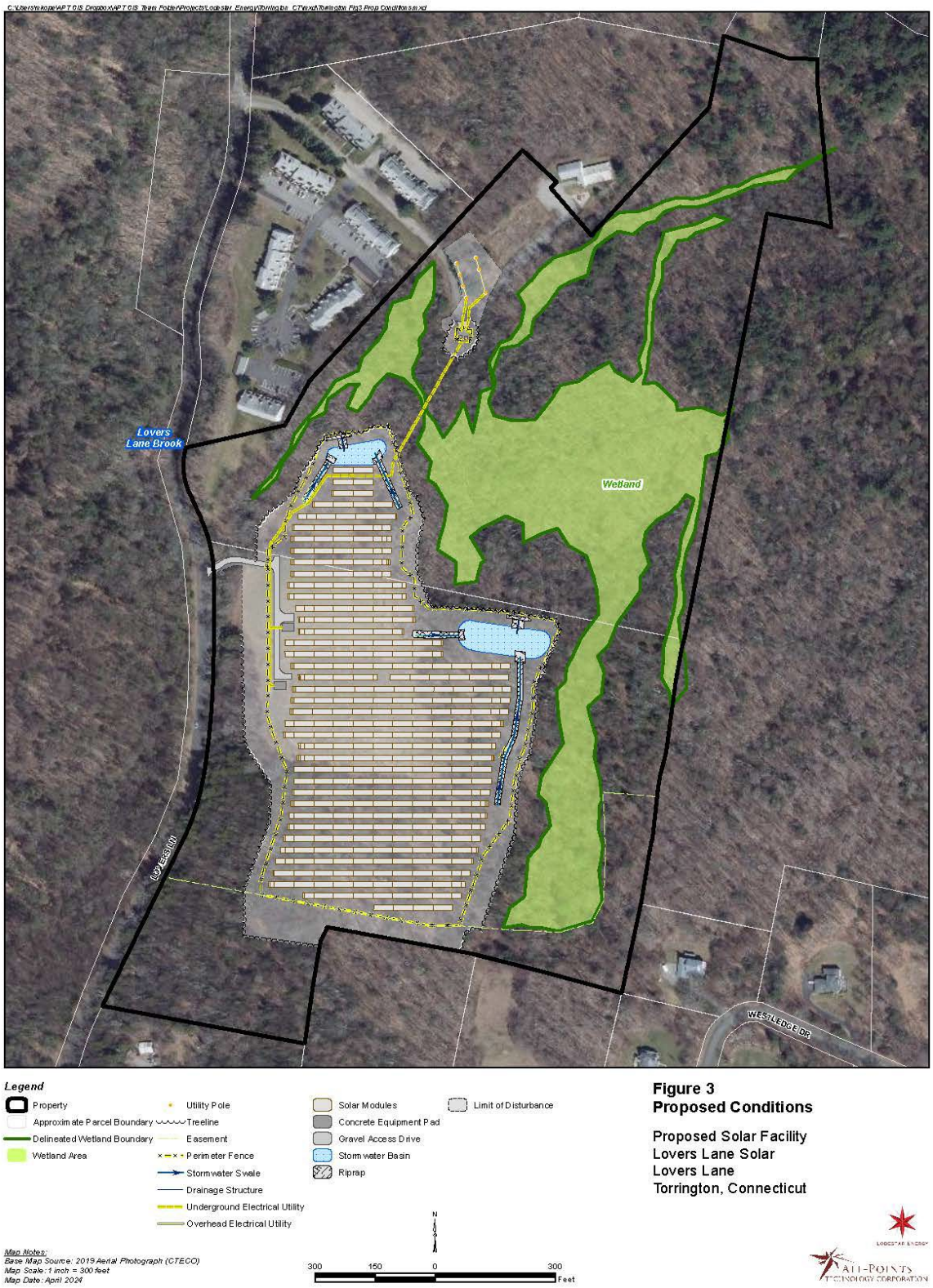


Figure 3
Proposed Conditions

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

3.1 Air Quality

Due to the nature of a solar energy generating facility, no air emissions will be generated during operations. Therefore, the operation of the Facility will have no adverse effects on air quality and no permit is required.

Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered de minimis. Such emissions will be mitigated using available measures, including limiting idling times of equipment; proper maintenance of all vehicles and equipment; and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency.

3.2 Water Resources

3.2.1 Wetlands and Watercourses

APT Registered Soil Scientists identified a portion of one (1) wetland on the Property in proximity to the Project during a field inspection and wetland investigation completed on February 14, 2023. The results of the delineation are summarized below. The location of this resource is depicted on Figure 2, *Existing Conditions* and Figure 3, *Proposed Conditions*.

The resource consists of a large forested wetland system with three interior intermittent watercourses of varying sizes and extents. This wetland system extends off the Property to the south and generally drains in a south to north direction. It eventually drains into Lovers Lane Brook to the north and Besse Brook to the northeast, both perennial watercourse tributaries to the Naugatuck River. Hillside seeps and areas of seasonal saturation characterize the remainder of this wetland complex as braided flow paths feed the interior watercourses. Base hydrology is influenced by underlying shallow bedrock and compact till deposits creating layers of densic contact resulting in a locally perched seasonal groundwater table. Topographic hummocks have created discrete upland island inclusions within the microtopography of this wetland system.

Vegetative communities consist of mature hardwood forested wetland species dominated by red maple, yellow birch, and swamp white oak. The overstory is marked by numerous deceased green ash trees likely resulting from emerald ash borer damage. Within the shrub layer highbush

blueberry, spicebush, winterberry, silky dogwood and invasive species Japanese barberry and multiflora rose were observed. The herbaceous layer is heavily dominated with hydrophytic vegetation that includes tussock sedge, soft rush, sphagnum moss, sensitive fern, skunk cabbage, jewelweed, swamp dewberry, and false hellebore.

3.2.2 Wetland Impacts

No direct wetland impacts are proposed resulting from the Project. Installation of perimeter fencing and stormwater management basins will encroach into several areas within 100 feet of the wetland but no closer than 50 feet, while solar panels will be no closer than 100 feet to the wetland. The majority of activities would occur within Upland Forest habitat. A portion of the electrical interconnection will pass below a narrow segment of the wetland, where a jack and bore technique will be employed; jack and bore pits would be positioned at least 50 feet from wetlands and no direct wetland impacts would be associated with this work. Post-development of the Project, a majority of the remaining wetland buffers will consist of established forested vegetation. Basins have been designed to support removal of total suspended sediments in excess of 90% of the 2-year design storm. All discharge locations occur on slopes less than 15% grade. Therefore, reduced setbacks to wetlands (minimum 50-foot setback from solar panels, 50-foot setback from other construction activities within forested areas, and 10-foot setback from access roads) are allowed under the General Permit, Appendix I. To the extent that the reduced setbacks are utilized in the Project design, it is primarily for stormwater management features.

The areas of indirect Project wetland impact in close proximity to wetland resources (100 feet and less) occur entirely in areas of existing dense, forested vegetation with a generally low erodibility potential. No areas of the Project would encroach closer than 50 feet from the nearest wetland. Considering the robust stormwater design, which exceeds the criteria established in Appendix I and the 2024 Connecticut Guidelines for Erosion and Sediment Control, the Project is not anticipated to result in a significant negative impact to nearby wetland resources. Any potential secondary wetland impacts will be further mitigated through the implementation of a Resource Protection Plan that has been developed to further protect the abutting wetland resources during construction of the Site. The details of the Resource Protection Plan can be found in Appendix A.

3.2.3 Floodplain Areas

The Facility will not be located within a 100- or 500-year flood zone. APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") covering the Site. A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community. The Site is mapped on FIRM PANEL #095081 0004 B, dated April 4, 1983. Based upon the reviewed FIRM Map, the Site is located in an area designated as Zone C, which is defined as an area of minimal flooding, typically above the 500-year flood level.

No special design considerations or precautions relative to flooding are required for the Facility. As no portion of the Facility is proposed to be located in or impact either 100- or 500-year flood zones, no impacts are anticipated to floodplain or downstream areas.

3.3 Water Quality

As discussed in this section, the Project will comply with DEEP's water quality standards. Once operative, the Facility will be unstaffed, and no potable water uses or sanitary discharges are planned. No liquid fuels are associated with the operation of the Facility. Stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 Connecticut Stormwater Quality Manual and Appendix I.

3.3.1 Groundwater

Groundwater underlying the Site is classified by publicly available DEEP mapping as "GA". This classification indicates groundwater within the area is presumed to be suitable for human consumption without treatment. Designated uses in GA-classified areas include existing private and potential public or private supplies or drinking water and base flow for hydraulically-connected surface water bodies.

Based upon a review of available DEEP mapping, the Site is not located within a mapped (preliminary or final) DEEP Aquifer Protection Area.

The Project will have no adverse environmental effect on ground water quality.

3.3.2 Surface Water

The Project will have no adverse environmental effect on surface water quality. Based upon DEEP mapping, the Site is located in Major Drainage Basin 6 (Housatonic River Basin), Regional Drainage Basin 69 (Naugatuck River), Subregional Drainage Basin 6903 (Nickel Mine Brook), and Local Drainage Basin 6903-02 (Lovers Lane Brook at mouth above Nickel Mine Brook). Based upon DEEP mapping, one stream, Lovers Lane Brook, is located on the western side of Lovers Lane. The stream, which is classified as a Class A surface waterbody by the DEEP[3], flows north and northeastward toward the West Branch Naugatuck River. It is located downgradient of the Project Area, approximately 86 feet from the access drive and 193 feet from the nearest point of the fence. The Project will have no effect on this surface waterbody.

Based upon the reviewed DEEP mapping, the Site is not located within a mapped Public Drinking Supply Watershed. The Site is located within the public water service area of the Torrington Water Company.

During construction, erosion and sediment ("E&S") controls will be installed and maintained in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control. Once operative, stormwater will be managed in accordance with the 2004 Connecticut Stormwater Quality Manual.[4]

3.3.3 Stormwater Management

In addition to the 2004 Connecticut Stormwater Quality Manual and 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, the Project has been designed to meet the requirements of Appendix I. Combined, these address three (3) main concerns: stormwater runoff peak attenuation, water quality volume treatment, and E&S control during construction. The Petitioner will apply for a General Permit from DEEP. Technical details, mapping, and HydroCAD modeling results are detailed in a Stormwater Management Report (See Appendix B), which will be provided to DEEP. A summary of these results is provided below.

[3] Designated uses for A classified waterbodies include potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation.

[4] While the Connecticut Stormwater Quality Manual has been revised effective March 30, 2024, the Project has been determined as eligible for review under the 2004 version.

Stormwater Runoff Peak Attenuation

The potential for changes in runoff from the Site as a result of Project construction has been evaluated and addressed in compliance with Appendix I. The Project will require the installation of underground utilities and underground and overhead interconnection, an access drive and multiple stormwater management features. A ½ step reduction[5] is required for the entire solar array to account for the compaction of soils that result from extensive machinery traffic over the course of the construction of the array. A full step reduction is required where grading exceeds a two (2) foot difference between existing and proposed grades. These reductions result in an increase in runoff.

To manage the increase in post-development runoff, two (2) grass-lined stormwater management basins with associated outlet structure and rip-rap lined overflow are proposed. The stormwater management basins will collect surface runoff from within the Facility and the approximately 450-foot gravel access road, thus properly managing the timing and release of flow from the Project Area and protecting nearby wetland resources.

The stormwater calculations for the Project predict that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50- and 100- year storm events are less than the pre-development peak discharges. Therefore, the Project is not anticipated to result in any adverse conditions to the surrounding areas and properties.

Water Quality Volume Treatment

The Project design also provides for adequate treatment of water quality volume associated with effective impervious cover, which includes the proposed gravel access drive and concrete equipment pads. The proposed basins are designed to provide the requisite treatment volume associated with these features.

Erosion and Sediment Control During Construction

To safeguard water resources from potential impacts during construction, the Petitioner is committed to implementing protective measures in the form of a Stormwater Pollution Control Plan ("SWPCP"), subject to approval by DEEP Stormwater Management. The SWPCP will include

[5] This relates to the difference of the runoff curve number between the Hydrologic Soil Group present on the Site and the next higher Hydrologic Soil Group.

monitoring of established E&S controls that are to be installed and maintained in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, effective March 30, 2024, the General Permit and Appendix I.

To meet the requirement of the General Permit, one (1) temporary sediment basin will be installed prior to the start of Facility construction. Perimeter erosion controls (compost filter sock & silt fence) will encircle the Project Area to capture sediment potentially mobilized during Site work. The basin will be cleaned of deposited sediment as needed during construction to maintain sufficient sediment storage capacity. Upon final Site stabilization, the temporary sediment basin will be converted to a permanent stormwater management basin by removing any accumulated sediments, removal of sediment baffles if applicable, and installation of permanent outlet control structures.

Open areas will be temporarily stabilized with quick growing annual rye grass seed during construction. The Project Area will subsequently be seeded with a permanent Ernst Pollinator-friendly Solar Farm Seed Mix (ERNMX-147 Fuzz & Buzz) upon completion of construction. The phased erosion control plan and details are provided in Appendix A, *Project Plans*.

With the incorporation of these protective measures, stormwater runoff from Project development is not anticipated to result in an adverse impact to water quality associated with nearby surface water bodies.

Overall, the Project is anticipated to enhance the hydrological conditions of the Project Area while maintaining existing drainage watersheds to the extent practicable. Therefore, the Project is not anticipated to result in any adverse impacts to the surrounding areas and properties.

3.4 Habitat and Wildlife

Four (4) distinct habitat types (vegetative communities), separated by transitional ecotones, are located on the Property and identified within the Project Area. These habitats were assessed using remote sensing and publicly available datasets and physically inspected during a February 14, 2023 field evaluation.

The habitats occupying the Site are as follows:

- Developed
- Mixed Field
- Upland Forest; and
- Wetland Forest

3.4.1 Habitat Types

Developed

The Developed habitat encompasses a small portion of the northwestern extent of the Property. This habitat consists of paved access roads and maintained lawn associated with the Country Woods residential condominium complex that abuts the Property to the west and north. These surfaces are routinely maintained, with areas of impervious surfaces, lawn, and landscaping limiting wildlife habitat utilization. The Developed habitat is bordered by Upland and Wetland Forest to the south and east.

The Project will result in limited impacts to the Developed habitat. The Project's impact to this habitat type is associated with the Project utility interconnection. Construction of a 20-foot by 30-foot concrete equipment pad, a surrounding fence, underground lines and six utility poles will be required. In addition, a 15-foot-wide gravel access extension for vehicle turnarounds will be added. These activities are not anticipated to result in a significant negative impact due to the highly disturbed nature of this area and existing development.

Mixed Field

Mixed Field encompasses central portions of the Property in proximity to Lovers Lane along the western boundary. This Mixed Field habitat consists of cultivated agricultural fields of corn and hay. These surfaces are routinely maintained via cultivation techniques (e.g. plowing, harrowing, mowing) associated with active agricultural use. Routine maintenance of these fields suppresses other herbaceous and shrub species, resulting in diminished wildlife habitat utilization. Transitional edge scrub/shrub habitats consisting of pockets of multiflora rose, a non-native invasive shrub, separate the Mixed Field habitat from surrounding Upland Forest habitats.

Solar panels will encompass the entire Mixed Field habitat and will convert it to Open Field habitat dominated by maintained turf grasses. The Project is not expected to represent a significant impact to this habitat due to the existing high level of human activity and disturbed nature of the area from historic and current agricultural practices.

Upland Forest

The Upland Forest habitat occupies southern and eastern portions of the Property. This habitat differs from the adjacent Wetland Forest habitat by occurring entirely within well-drained upland soils and consisting of a significantly different vegetative species composition. The southern portion of this forested habitat is characterized as a mixed hardwood forest dominated by sugar maple, tulip poplar, black cherry, black birch, grey birch, and yellow birch. Eastern extents of the Upland Forest include Eastern hemlock which co-dominates the mixed hardwoods overstory as the topography drops toward the wetland interface. Autumn olive, Japanese barberry, and multiflora rose dominate the shrub layer within and along transitional boundaries. Asiatic bittersweet and various goldenrod species were also observed on habitat boundary edges throughout.

The majority of the Project Area is within the Upland Forest habitat type. Impacts resulting from the Project are associated with panel installation, perimeter fencing and stormwater management systems. Potential short-term impacts to this habitat will be minimized through the proper stabilization of soils during construction through strict adherence to the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control. While the Project necessitates removal of forested areas, similar forested habitat occurs in abundance throughout the remainder of the Property and beyond. Impacts to the Upland Forest habitat are primarily limited to isolated "edge" type forest habitat and result in minimal impacts to core forest along boundary edges as discussed in more detail in a subsequent section. As such, the Project is not anticipated to result in a significant impact to the Upland Forest habitat type.

Wetland Forest

Wetland Forest habitat occurs throughout the Site primarily in the northern and eastern extents that border the Upland Forested habitat. This wetland habitat consists of multiple hillside seeps that drain to three interior intermittent watercourses. Forested species within this complex consist of red maple, yellow birch, and swamp white oak with high amounts of standing woody debris.

Hydrologic classifications range from seasonally saturated to intermittently flooded. Due to the lack of permanent inundation present throughout, potential for aquatic species including use by obligate vernal pool species is limited.

The Project will not result in any direct impacts to Wetland Forest areas. Robust erosion and sediment control measures are proposed as part of the Project along with implementation of a Resource Protection Plan to avoid potential secondary and short-term impacts to this habitat.

The following table provides the total acreages of each habitat type located on the Property.

Table 1: Habitat Areas

Habitat Type	Total Area On-Property (+/- ac.)	Area Impacted by Project (+/- ac.)
Developed	1.39	0.19
Mixed Field	4.95	4.87
Upland Forest	37.35	12.13
Wetland Forest	10.38	0.00

3.4.2 Wildlife

Development of the Project will primarily occur within the Mixed Field and Upland Forest habitat types. The roughly 4.95-acre Mixed Field habitat provides limited value from a wildlife utilization standpoint as a result of historic management of these areas, small habitat block size, lack of diverse vegetative communities and high level of human activity. Project-related impacts within this habitat are limited and not anticipated to adversely affect wildlife. The remainder of the development will occur primarily within Upland Forest. Although this habitat serves as a more viable location for resident (non-migratory) species compared to Mixed Field habitat, similar forested habitat exists immediately to the east.

Based on the surrounding land uses, the adjacent disturbed areas located in proximity to the Project Area are likely utilized by species that are more tolerant of human disturbance and habitat fragmentation. Generalist wildlife species common to the region, including several resident and migrant song birds and mammals such as raccoon, striped skunk, grey squirrel, Virginia opossum, white-tailed deer, and eastern chipmunk could be expected to use this area. Due to the relatively small size of this habitat patch, and given the abundance of more suitable habitat surrounding

the Property that supports habitat needs of these common species, the Project is not anticipated to result in a significant impact to wildlife.

The Project Area will not encroach into wetland habitat areas. Noise and associated human activities during construction may result in limited, temporary disruption to wildlife using these wetland habitats. Any possible wildlife displaced during construction would be expected to temporarily disperse deeper into the wetland habitat or nearby edge and core forest. Post construction, operation of the Project will not result in a likely adverse effect to wildlife using these habitats because it will be unoccupied and does not generate any significant noise, traffic, or high level of human activity.

3.4.3 Core Forestland Habitat Determination

APT evaluated the size and extent of the contiguous interior forest block present within and adjacent to the Property using the DEEP's *Forestland Habitat Impact Mapping*[6], which identifies prime contiguous and connected core forestland blocks and is used as a screening tool to identify areas of potential forestland habitat impacts relative to solar installation applications made to the Connecticut Siting Council. No forestland habitat is depicted on the Property so the Project will not have a material effect on core forest[7]. See Figure 4, *Forestland Habitat Impact Map.*

In accordance with Connecticut General Statutes § 16-50k(a), the Petitioner initiated consultation with the DEEP on February 13, 2024 and requested written concurrence that the Project would not materially affect Core Forest resources. The DEEP responded in a February 16, 2024 letter to the Council, concluding that the Project "will not materially affect the status of such Site as core forest." See Appendix D, *DEEP and DOA Correspondence*.

[6] Source: http://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=7b81844bab634281b544c20bf2d7bfb8. This spatial screening layer identifies prime contiguous and connected core forestland blocks. If the project intersects with the Forestland Habitat Impact Map there is a potential for material effects to core forest. DEEP strongly recommends using the Forestland Habitat Impact Map as a site selection screening tool for siting solar facilities per the DEEP Fact Sheet: Information for Solar Developers, An Environmental Permitting Factsheet (September 17, 2020).

[7] Core forest is defined in Connecticut General Statutes § 16a-3k.

Figure 4
Forested Habitat Impacts Map

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

3.5 Rare Species

APT reviewed publicly available information to determine the potential presence of state/federally listed species and critical habitat on or proximate to the Site. A discussion is provided in the following sections.

3.5.1 Natural Diversity Data Base

The DEEP Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state-listed species and to help landowners conserve the state's biodiversity. In furtherance of this endeavor, the DEEP also developed maps to serve as a pre-screening tool to help determine if there is the potential for project-related impact to state-listed species.

The NDDB maps represent approximate locations of (i) endangered, threatened and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) polygons on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowners' rights whenever species occur on private property.

APT reviewed the most recent DEEP NDDB mapping (December 2023), which revealed western portions of the Property, adjacent to Lovers Lane, are within known areas of state-listed species. A Preliminary Site Assessment generated on March 22, 2023 through the eNDDB system revealed wood turtle, a state listed species of Special Concern, has been identified within or in proximity to the Project Area. A Resource Protection Plan has been developed incorporating an educational component for sub-contractors, installation of isolation barriers, and routine sweeps of the Project Area to avoid injury or mortality to this species during construction activities; that protective program was presented in the NDDB review request for NDDB consultation. NDDB issued a final NDDB Determination letter on March 1, 2024 concurring with the proposed turtle protection measures. The Resource Protection Plan is incorporated in plans found in Appendix A.

3.5.2 USFWS Consultation

Federal consultation was completed in accordance with Section 7 of the Endangered Species Act ("ESA") through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, federally-listed[8] Endangered species northern long-eared bat ("NLEB"; *Myotis septentrionalis*) habitat range encompasses the Property.

The NLEB's range encompasses the entire State of Connecticut and suitable NLEB roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height ("DBH") of three (3) inches or greater.

APT reviewed the DEEP's publicly available *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map (February 1, 2016) to determine the locations of any known maternity roost trees or hibernaculum in the state. This map reveals that there are currently no known NLEB maternity roost trees within 0.25 miles of the Site. The nearest NLEB habitat resource to the Site is located in Morris, approximately 6.6 miles to the south.

NLEB has been reclassified as Endangered under the ESA. The reclassification eliminates use of the previous 4(d) rule for the NLEB, which is applicable only to Threatened species. An NLEB Interim Consultation Framework has been developed by USFWS to facilitate transition from the 4(d) rule to typical Endangered species consultation procedures. APT reviewed the new NLEB Determination Key for this Project and determined the Project may affect, but will not likely adversely affect or result in incidental take of NLEB and does not require a permit from USFWS. A USFWS letter dated February 7, 2024 confirmed the "may affect, but not likely to adversely affect" ("NLAA") determination.

A full review of the Endangered Species Act (ESA) Compliance Determination and USFWS's Response Letter is provided in Appendix C, *USFWS and NDDB Compliance Statement*.

[8] Listing under the federal Endangered Species Act

3.6 Soils and Geology

The construction of the water quality basins and swales and grading within the Project Area will generate excess material. Topsoil will be segregated from underlying soil, stockpiled, and spread over disturbed areas being seeded. Excess material will be redistributed on the Property to the extent feasible; the remainder will be removed. See Appendix A*, Project Plans.*

All exposed soils resulting from construction activities will be properly and promptly treated in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control.

Surficial materials within the Project Area are classified as thin deposits of glacial till. Bedrock beneath the Site is classified as Ordovician granitic gneiss. Ordovician granitic gneiss is described as a white, light-gray, buff, or pink, generally foliated granitic gneiss, composed of sodic plagioclase, quartz, microcline, muscovite, and biotite, and locally garnet or sillimanite. The formation commonly contains numerous inclusions or layers of mica schist and gneiss.[9] The Petitioner does not anticipate encountering bedrock during Project development.

3.6.1 Prime Farmland Soils

In accordance with the Code of Federal Regulations, CFR Title 7, part 657, farmland soils include land that is defined as prime, unique, or farmlands of statewide or local importance based on soil type. They represent the most suitable land for producing food, feed, fiber, forage, and oilseed crops.

According to the Connecticut Environmental Conditions Online Resource Guide[10], prime farmland soils are mapped in small areas at the southeast and far northern extents of the Property. The Project has been designed to exclude prime farmland soils. Statewide important farmland soils are mapped in the east-central portion of the Property, including portions of the Project Area that lie within the Mixed Field and Upland Forest habitats.

In accordance with Connecticut General Statutes §16-50k(a), the Petitioner initiated consultation with the Connecticut Department of Agriculture ("DOA") in July, 2023. Following development of a final design, the Petitioner provided additional information on February 26, 2024 and requested

[9] Connecticut Natural Resources Atlas Series: Bedrock Geological map, cteco.uconn.edu/maps/state/Bedrock_Geologic_Map_of_Connecticut.pdf

[10] Connecticut Environmental Conditions Online (CTECO) Resource Guide, www.cteco.uconn.edu

DOA's confirmation that the Project does not affect prime farmland. The DOA responded in a March 4, 2024 letter to the Council, concluding that the Project "will not materially affect the status of project land as prime farmland." See Appendix D, *DEEP and DOA Correspondence*.

3.7 Historic and Archaeological Resources

At the request of APT, and on behalf of the Petitioner, Heritage Consultants LLC ("Heritage") reviewed relevant historic and archaeological information to determine whether the Site holds potential historic or cultural resource significance. Their review of historic maps and aerial images of the Site, examination of files maintained by the Connecticut State Historic Preservation Office ("SHPO"), and a pedestrian survey of the Site revealed that no National Register of Historic Places ("NRHP") or State Register of Historic Places properties are located within one (1) mile of the Project Area. In terms of archaeological potential, Heritage determined that the 16.25 acres of the Project Area retained a high/moderate archaeological sensitivity due to proximity to the Naugatuck River and tributaries, topography and the presence of well-drained soils.

A Phase 1B investigation was performed that included 67 shovel tests. Recovered artifacts were assessed as not significant applying NRHP criteria for evaluation, and no additional archaeological investigation was recommended.

Heritage submitted the Phase 1A and Phase 1B reports to the SHPO. SHPO responded on December 22, 2023, concurring that "no historic properties will be affected by the proposed solar facility and no additional archaeological investigation is warranted."

Copies of the Phase 1A and Phase 1B reports and the SHPO determination are contained in Appendix E, *SHPO Consultation*.

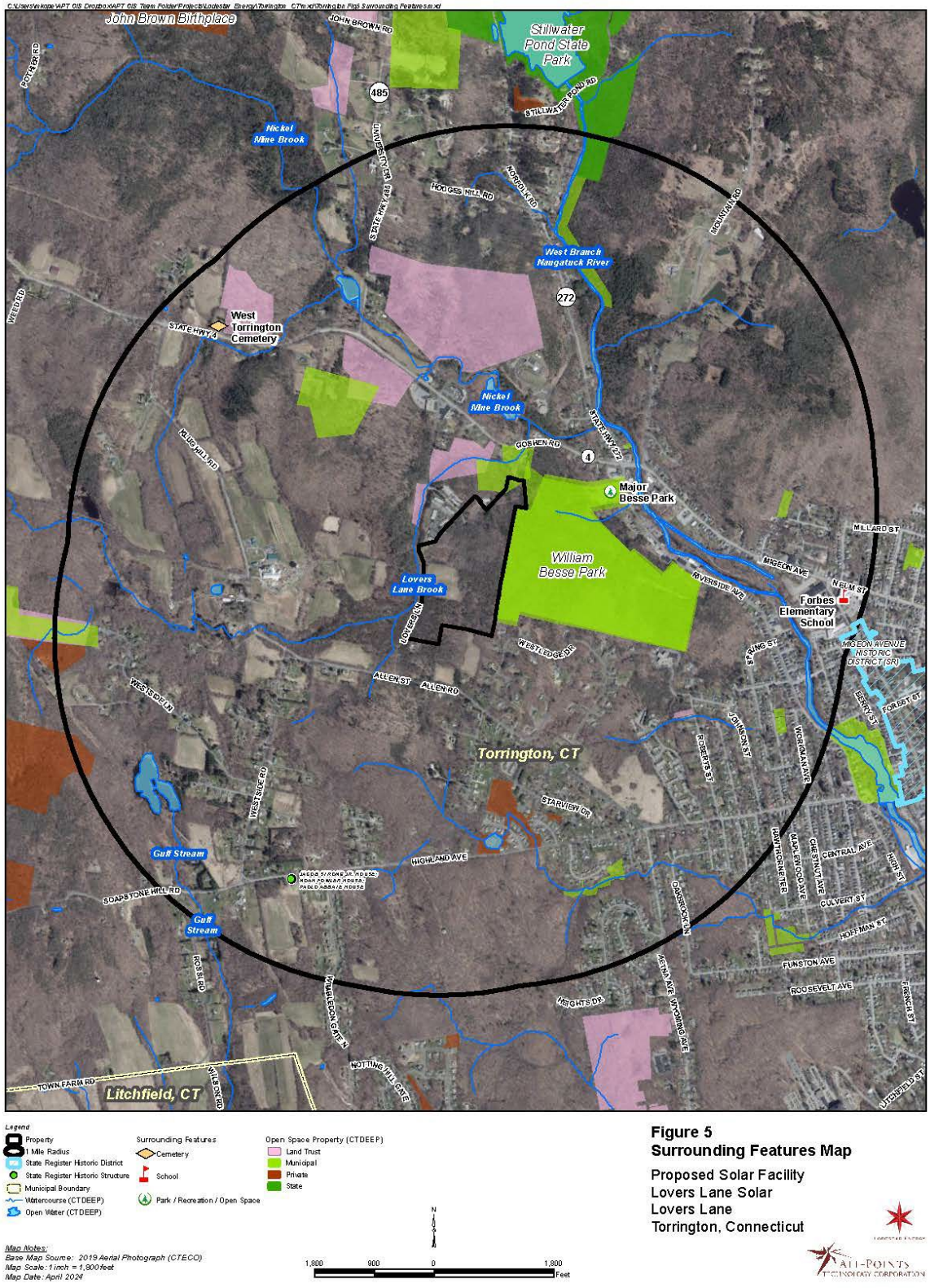
3.8 Scenic and Recreational Areas

No state or local designated scenic roads or scenic areas are located near the Property and therefore none will be physically or visually impacted by development of the Project. The nearest scenic road is a portion of State Route 118, located approximately 3.4 miles south of the Project Area in Litchfield, CT.

There are no Connecticut Blue Blaze Hiking Trails located proximate to the Site, and none will be affected. The City of Torrington's Major Besse Park abuts the Property to the east; developed

areas of the park are at the opposite end of the property beyond the heavily wooded western portion of the park property. The Project is not expected to have a direct or indirect effect on this resource.

See Figure 5, *Surrounding Features Map,* for these and other resources located within one mile of the Project Area.



Legend

Property
1 Mile Radius
State Register Historic District
State Register Historic Structure
Municipal Boundary
Watercourse (CTDEEP)
Open Water (CTDEEP)

Surrounding Features
Cemetery
School
Park / Recreation / Open Space

Open Space Property (CTDEEP)
Land Trust
Municipal
Private
State

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 1,800 feet
Map Date: April 2024

1,800 900 0 1,800 Feet

Figure 5
Surrounding Features Map

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

ALL-POINTS TECHNOLOGY CORPORATION

3.9 Noise

The Site is undeveloped, with a mix of agricultural and wooded land. Noise associated with the agricultural activity is present during the growing season.

Construction noise is exempted under State of Connecticut regulations for the control of noise, RCSA 22a-69-1.8(h) and exempted Monday through Saturday between 7:00 a.m. and 6:00 p.m. under the City's noise ordinance. During construction of the Facility, the temporary increase in noise would likely raise localized ambient sound levels immediately surrounding the Project Area. Standard types of construction equipment would be used for the Project. In general, the highest noise level from this type of equipment (e.g., backhoe, bulldozer, crane, trucks, etc.) is approximately 88 dBA at the source.

The Petitioner has completed a noise analysis, the results of which confirm that the Project will comply with State Noise Regulations.[11] The Facility would, conservatively, be considered a Class C (Industrial) noise emitter. Nearby properties are Class A Noise receptors, with noise standards of 61 dBA - daytime and 51 dBA - at night (Class A). As demonstrated in the noise analysis, all off-Site receptors are of sufficient distances from the proposed Project-related equipment that noise levels during Facility operation will meet applicable State noise standards. See Appendix F, *Noise Analysis.*

3.10 Lighting

No exterior lighting is planned for the Project. There will be some small, non-intrusive lighting fixtures within the equipment to aid in maintenance.

3.11 FAA Determination

The Petitioner submitted relevant Project information to the Federal Aviation Administration ("FAA") for an aeronautical study to evaluate potential hazards to air navigation. The nearest airport is the Wings Ago Airstrip - CT42 private airfield located in Goshen approximately 6.6 miles northwest of the Site. The FAA provided Determinations of No Hazard to Air Navigation on August 14, 2023. See Appendix G, *FAA Determinations.* There is no need to conduct a glare analysis.

[11] RCSA 22a-69-3.5. Noise Zone Standards

4 Conclusion

As demonstrated in this Environmental Assessment, the Project will comply with the DEEP air and water quality standards. Further, it will not have an undue adverse effect on the existing environment and ecology; nor will it affect the scenic, historic and recreational resources in the vicinity of the Project.

Once operative, the Facility will be unstaffed and generate minimal traffic.

The Project Area is undeveloped land, with a combination of cleared field and wooded areas. Development of the Project will have no significant impact on existing habitats and wildlife.

The Project Area does not contain Prime Farmland Soils. The Petitioner will seed all disturbed areas with a pollinator-friendly seed mix. Once the Facility has reached the end of its useful life, the panels and equipment will be removed and the Project Area restored. The DOA has confirmed that the Project will have no material impact on prime farmland soils.

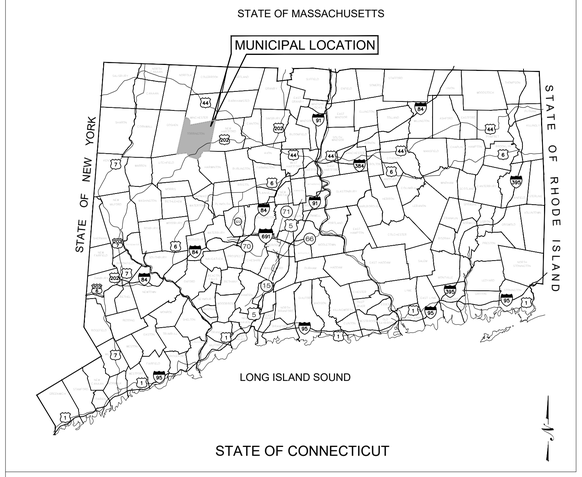
There are no impacts, direct or indirect, to wetlands on the Site. E&S controls will be installed and maintained throughout construction in accordance with the Project's Resource Protection Program. Direct boring for the interconnect line will be used to avoid impact to wetland resources within the interconnect route.

The DEEP has confirmed that the Project will have no material impact on core forest.

The Project has been designed to adequately handle water volume, in accordance with the General Permit as well as Appendix I. The Petitioner will implement a SWPCP, in accordance with the 2004 Connecticut Stormwater Quality Manual and the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, that will include provisions for monitoring of development activities and the establishment of E&S controls to be installed and maintained throughout construction.

APPENDIX A

PROJECT PLANS



LSE SEXTANS LLC & LSE SEXTANS II LLC

"LOVERS LANE SOLAR"

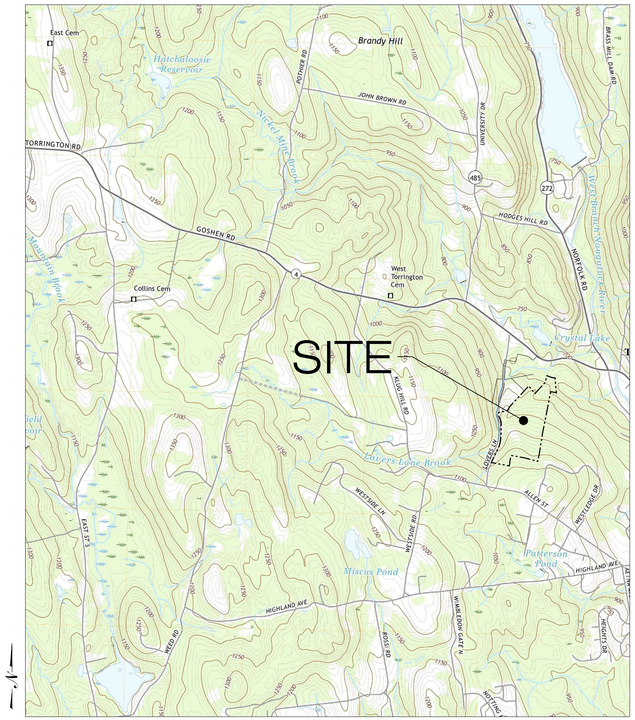
LOVERS LANE
TORRINGTON, CT

LIST OF DRAWINGS

SITE INFORMATION

SITE NAME:	"LOVERS LANE SOLAR"
LOCATION:	LOVERS LANE TORRINGTON, CT
SITE TYPE/DESCRIPTION:	ADD (2) GROUND MOUNTED SOLAR PANEL ARRAY W/ ASSOCIATED EQUIPMENT, GRAVEL ACCESS DRIVE. NORTHERN ARRAY - 2,824 540W MODULES, 1.0 MW AC SOUTHERN ARRAY - 4,746 540W MODULES, 2.0 MW AC TOTAL MW AC - 3.0 MW AC.
PROPERTY OWNER:	CLOVER RIDGE LLC 40 TOWER LANE STE 201 AVON, CT 06001
APPLICANTS:	LSE SEXTANS LLC 40 TOWER LANE, SUITE 201 AVON, CT 06001 LSE SEXTANS II LLC 40 TOWER LANE, SUITE 201 AVON, CT 06001
ENGINEER CONTACT:	THOMAS E. LITTLE, P.E. (860) 552-2046
LATITUDE: LONGITUDE:	N 41° 48' 47.17" W 73° 09' 16.07"
MBLU: ZONE:	221-3-1 & 222-4-26 R40 & RRC
TOTAL SITE ACREAGE: TOTAL DISTURBED AREA:	54.08± AC. 17.19± AC.
APPROX. VOLUME OF CUT: APPROX. VOLUME OF FILL: APPROX. NET VOLUME:	8,348± CY 1,467± CY 6,881± CY OF CUT

USGS TOPOGRAPHIC MAP



SOURCE: USGS 7.5 WEST TORRINGTON QUADRANGLE, CT 2021

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
1	07/26/24	CSC SUBMISSION
2		
3		
4		
5		
6		
7		

DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

DRAWN BY: TEL
DATE: 04/22/2024 CHECKED BY: RCB

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER

MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED JUNE 21, 1996; AMENDED OCTOBER 26, 2018.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF A PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT EXISTING CONDITIONS UPON THE SUBJECT PARCELS AS THEY RELATE TO THE ADJACENT PROPERTY/BOUNDARY LINES.
3. THE PROPERTY/BOUNDARY DETERMINATION/OPINION DEPICTED HEREON CONFORMS TO A CLASS A-2 ACCURACY. PARCEL, 222-4-26 IS BASED UPON A RESURVEY OF MAP REFERENCE 'A'. PARCEL 221-3-1 IS BASED UPON A FIRST SURVEY.
4. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY. THE VERTICAL BASELINE CONFORMS TO A CLASS V-2 ACCURACY. THE TOPOGRAPHIC FEATURES CONFORM TO A CLASS T-3 ACCURACY.
5. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 18. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON MARCH 13, 2023, USING THE CT DOT RTK NETWORK KNOWN AS ACORN (CTWI BASE), HAVING THE FOLLOWING VALUES:

   LATITUDE = N 41° 53' 51.90745"
   LONGITUDE= W 73° 04' 10.96847"
   ELLIPSOID HEIGHT = 192.098M

MAP NOTES (CONTINUED):

6. CONTOURS AND GROUND RELIEF ELEVATIONS DEPICTED HEREON ARE BASED UPON THE LIDAR DATA SET OF 2016 COMPILED BY THE STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, QUALITY LEVEL 2, AVAILABLE AT CTECO.UCONN.EDU. SAID DATA SET WAS FIELD VERIFIED AT VARIOUS LOCATIONS.
7. THE FIELD SURVEY WAS COMPLETED ON APRIL 12, 2023.
8. UNDERGROUND UTILITIES, STRUCTURES AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON ARE BASED UPON OBSERVABLE SURFACE EVIDENCE WHILE CONDUCTING THE FIELD SURVEY. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE WHICH IS UNKNOWN TO MARTIN SURVEYING ASSOCIATES, LLC.. ALL CONTRACTORS ARE REQUIRED TO CONTACT CALL-BEFORE-YOU-DIG AT 1-800-922-4455 FOR LOCATION AND OR STAKEOUT OF ANY UTILITY PRIOR TO ANY EXCAVATION.
9. THE WETLAND DELINEATION DEPICTED HEREON IS BASED UPON AN ELECTRONIC DRAWING FILE PROVIDE BY THE CLIENT "3995 FOR LODESTAR-UPDATED WETLAND.DWG"

MAP REFERENCES:

A. "PROPERTY OF FIFTH BRT DEVELOPMENT CORPORATION LOVERS LANE TORRINGTON, CONNECTICUT" SCALE: 1"=100'; DATED: SEPTEMBER, 1986; BY: WILLIAM A. BERGLUND.
B. "SURVEY OF PROPERTY BELONGING TO JAMES A & HARRIET M. HANDS TORRINGTON, CONNECTICUT" SCALE: 1"=50'; DATED: DECEMBER 30, 1983; BY: DOUGLAS G. LITTLE.
C. "WESTLEDGE PROPERTY OF J.F.C. ASSOCIATES RESUBDIVISION TORRINGTON CONNECTICUT" SCALE: 1"=40'; DATED: MAY, 1984; BY: DONALD DUFFY.
D. "MAP PREPARED FOR FIFTH DEVELOPMENT CORPORATION ROUTE 4 & LOVERS LANE TORRINGTON, CONNECTICUT" SCALE: 1" 50'; DATED: JULY, 1986; BY: WILLIAM A. BERGLUND.

MAP REFERENCES (CONTINUED):

E. " MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE CONNECTICUT LIGHT AND POWER COMPANY ACROSS THE PROPERTY OF REI IV LIMITED PARTNERSHIP LOVERS LANE TORRINGTON, CONNECTICUT" SCALE: 1"=\40'; DATED: AUGUST, 1987; BY: WILLIAM A. BERLUND.
F. "SUBDIVISION OF A PORTION OF THE GEORGE E. KLUG [PROPERTY TO BE CONVEYED TO ROBERT A & JACQUELINE C. MACKENZIE TORRINGTON, CONNECTICUT" SCALE: 1"=40'; DATED: JULY 27, 1987.
G. "COUNTRY WOODS CONDOMINIUMS PHASES A,B,C,D,E,F & G LOVERS LANE TORRINGTON, CONNECTICUT" SCALE: 1"=100'; DATED: FEBRUARY, 1990; BY: WILLIAM A. BERLUND.
H. "COUNTRY WOODS CONDOMINIUMS PHASE 'H' LOVERS LANE TORRINGTON, CONNECTICUT" SCALE: 1"100'; DATED: MARCH 1994; BY: WILLIAM BERLUND.

SITE LOCATION MAP (NOT TO SCALE)

LEGEND:

- IRON PIN (FOUND)
- Rebar/Drill Hole (To Be Set)
- MONUMENT (FOUND)
- MANHOLE
- DRAINAGE MANHOLE
- SANITARY MANHOLE
- ELEC. MANHOLE
- TELE. MANHOLE
- "C" CATCH BASIN
- "C-L" CATCH BASIN
- DECIDUOUS TREES
- EVERGREEN TREES
- SHRUB/BUSH
- FLAG POLE
- TRAFFIC CONTROL BOX
- SIGN
- POST
- LIGHT POLE
- GUY ANCHOR
- UTILITY POLE
- WATER GATE
- WATER METER
- GAS VALVE
- GAS METER
- TRANSFORMER
- ELEC. METER
- MAIL BOX
- HAND HOLE
- BUTTON BOX
- A.C. UNIT
- TRAFFIC LIGHT POLE
- BOUNDARY LINE
- GUARD RAIL
- UNDERGROUND PIPING (San.,Stm.)
- G — U/G GAS LINE
- E — U/G ELEC. LINE
- W — WATER LINE
- \\ — OVERHEAD UTILITIES
- T — U/G TELE. LINE
- CHAIN LINK FENCE
- TREE LINE

N/F
GEORGE W.& EATON KLUG
MBL: 216/003/001/2

N/F
HERITAGE LAND PRESERVATION TRUST
MBL: 222/001/001

LOVERS LANE
(PUBLIC RIGHT OF WAY)

N/F
MARCIA CZAPOR
MBL: 221-3-36

N/F
MARCIA CZAPOR
MBL: 221-3-30

N/F
JAMES BRAYTON
MBL: 221-3-3

N/F
AMADOR & EMILY RAMIREZ
MBL: 221-3-32

N/F
THE ALLEGRO TRUST
MBL: 221-3-33

N/F
CITY OF TORRINGTON
MBL: 221-3-22

LAND OF
CLOVER RIDGE LLC
MBL: 221-3-1
EXISTING
1,161,313 S.F.± / 26.660 ACRES±
PROPOSED
904,453 S.F.± / 20.763 ACRES±

LAND OF
CLOVER RIDGE LLC
MBL: 222-4-26
EXISTING
1,194,353 S.F.± / 27.419 ACRES±
PROPOSED
1,451,212 S.F.± / 33.316 ACRES±

N/F
COUNTRY WOODS CONDOMINIUM
MBL: 222-4-15-2

N/F
COUNTRY WOODS CONDOMINIUM
MBL: 222-4-27

N/F
CHRISTINE WASMER
MBL: 222-4-14

N/F
CHERYL KNOX ET AL
MBL: 222-4-13

N/F
CITY OF TORRINGTON
MBL: 221-3-22

CL&P # 4839
CL&P # 2862
CL&P # 2768
CL&P # 2863 65
C.T.N.A.D. 83 (2011)

'C' CB
TF= 998.95'
15" HDPE =996.30'

'C-L' CB
TF= 974.93'
15" HDPE= 971.98' (SW)
18" HDPE= 971.68' (NE)

'C-L' CB
TF= 975.76'
15" HDPE=972.66' (NW)

'C-L' CB
TF= 962.95'
15" HDPE= 959.95' (S)
18" HDPE=959.95' (NE)

'C-L' CB
TF= 956.09'
18" HDPE= 952.84' (SE)
18" HDPE=952.79' (W)

'C-L' CB
TF= 956.73'
18" HDPE= 953.53' (SW)
18" HDPE= 953.53' (NW)

'C-L' CB
TF= 947.35'
18" HDPE= 944.25' (E)
18" HDPE= 944.25' (W)

'C-L' CB
TF= 948.54'
(2) 6" PVC=245.99'
18" HDPE=945.54'

'C-L' CB
TF= 926.62'
6" PVC= 923.67' (S)
18" HDPE = 923.62' (N)

'C-L' CB
TF= 915.52'
18" HDPE= 912.52 (SE)
18" HDPE =912.02' (W)

'C-L' CB
TF= 915.81'
18" HDPE= 912.86' (S)
18" HDPE= 912.71' (NW)

'C-L' CB
TF= 902.09'
15" HDPE= 899.09' (E)
15" HDPE= 898.99' (W)

'C-L' CB
TF= 902.32'
15" HDPE= 899.57'
15" HDPE= 899.32'

'C-L' CB
TF= 908.14'
(2) 6" HDPE=905.29'
15" HDPE= 905.09'

L1 = 265.00'
L2 = 26.00'
L3 = 66.0'
L4 = 175.90'
L5 = 4.89'

N 00°00'00" W
32.37'

S 89°56'05" W
426.38'
PROPOSED LOT LINE REVISION

S 89°45'17" W
728.29'
PROPOSED LOT LINE REVISION

66' RIGHT OF WAY GRANTED TO THE TOWN OF TORRINGTON IN VOLUME 159 PAGE 35

EDGE OF PAVEMENT
DIRT DRIVE
TREE DRIP EDGE
WOOD FENCE POST (TYP.)
WIRE FENCE
STONE WALL
IRON PIN FOUND
IRON PIPE FOUND
ANGLE IRON
CANOPY
CONC. HEAD WALL
12" RCP = 852.22' (NW)
48" RCP= 851.55' (NE)
CONC. END WALL TOP 18" RCP EL= 848.18' (S)
'C' CB
TF= 853.44'
18" RCP= 850.29' (NE)
18" RCP= 850.74' (SW)
'C' CB
TF= 852.54'
18" RCP= 848.84 (SE)
18" RCP= 848.64' (N)
PORTION OF TRANSFORM APPEARS TO LIE OUTSIDE OF CL&P EASEMENT AS GRANTED IN VOLUME 422 PAGE 91
CATV
HYD.
SMH
BIT. CURB
FIELD LOCATED ELECTRIC PAINT
FIELD LOCATED WATER PAINT
'C' CB
FULL OF DEBRIS
TF= 865.75'
SMH
TF= 859.50'
8" PVC= 854.3' (E)
8" PVC= 850.5' (SW)
F.F.E.=859.95'
CONC. FOUNDATION
EASEMENT IN FAVOR OF CL&P AS DESCRIBED IN VOLUME 422 PAGE 91
RIGHT OF INGRESS & EGRESS ALONG ROADWAY TO COMMUNITY POOL BUILDING AS DESCRIBED IN ELEVENTH AMENDMENT TO DECLARATION OF COUNTRY WOOD CONDOMINIUM AND RECORDED IN VOLUME 597 PAGE 28.
COMMUNITY/POOL BUILDING
ELEC. H.H.
'C' CB
TF= 856.66'
18" RCP= 852.66' (SE)
18" RCP FLARED END
INV= 847.55'
CHAIN LINK FENCE
STONE WALL
DIRT PATH
24" PINE W/WIRE
24" W/WIRE
IRON PIPE FOUND 1"
IRON PIPE FOUND 1.5"
2 STORY WOOD FRAME BUILDING

PROPERTY LINE TABLE

LINE	BEARING	DISTANCE
L1	N 25°54'14" E	468.68'
L2	N 00°27'02" E	204.99'
L3	S 24°35'58" W	70.05'
L4	N 77°19'04" E	252.51'
L5	N 29°19'04" E	127.13'
L6	N 42°41'05" E	785.11'
L7	S 47°18'56" E	117.38'
L8	S 49°27'45" W	21.18'
L9	S 40°32'15" E	156.42'
L10	N 42°41'04" E	435.36'
L11	N 11°12'30" E	182.43'
L12	S 71°11'00" E	102.27'
L13	S 69°53'42" E	67.73'
L14	S 87°15'24" E	75.01'
L15	S 05°22'14" E	334.35'
L16	N 67°44'22" W	25.05'
L17	N 79°27'13" W	140.06'
L18	S 10°47'39" W	506.40'
L19	S 11°09'47" W	574.69'
L20	S 14°48'58" W	21.94'
L21	S 10°47'21" W	87.20'
L22	S 07°28'21" W	180.78'
L23	S 14°29'33" W	59.99'
L24	S 09°51'51" W	30.60'
L25	S 06°22'34" W	127.06'
L26	S 14°59'58" W	9.89'
L27	S 10°21'08" W	46.31'
L28	S 08°38'13" W	63.33'
L29	S 09°57'03" W	47.63'
L30	S 12°10'49" W	227.96'
L31	N 74°41'48" W	210.40'
L32	N 75°45'26" W	178.35'
L33	N 79°40'59" W	365.61'
L34	S 26°02'32" W	39.48'
L35	S 09°54'05" W	107.53'
L36	S 07°58'19" W	151.35'
L37	N 79°24'05" W	514.22'
L38	N 78°43'55" W	1209.13'

PROPERTY CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD LENGTH	CHORD BEARING
C1	159.68'	550.00'	159.12'	N 17°35'11" E
C2	291.01'	1890.80'	290.73'	N 04°51'36" E
C3	89.11'	350.00'	88.87'	N 06°50'36" W
C4	63.91'	350.00'	63.82'	N 19°22'06" W
C5	118.81'	170.00'	116.41'	N 04°34'35" W
C6	87.61'	664.90'	87.55'	S 01°35'45" E

50 0 50 100 150
SCALE:1"=100'

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

70147
DEAN MARTIN — LICENSE NO.

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED LICENSED PROFESSIONAL. UNAUTHORIZED ALTERATIONS TO THIS PLAN RENDER THE DECLARATION HEREON NULL AND VOID.

martin
Surveying Associates, LLC
201 CHRISTIAN LANE BERLIN, CT 06037
860-832-9328
WWW. MARTINSURVEY.COM

REVISIONS:
2024-04-10: REVISED PROPOSED LOT LINE LOCATION

PROPERTY/BOUNDARY &TOPOGRAPHIC SURVEY
LAND OF CLOVER RIDGE LLC
MAP: 221 BLOCK: 3 LOT: 1
&
MAP: 222 BLOCK: 4 LOT: 26
LOVERS LANE
TORRINGTON, CONNECTICUT

MSA PROJECT NO: 22-123

SCALE: 1"=100'
DRAWN BY: G.S.D.
DATE: 2024-04-13
CHECKED BY: D.G.M.

SHEET:
1 OF 1

GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT DEVELOPER STANDARDS, CITY OF TORRINGTON STANDARDS, CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. IF NO PROJECT CONSTRUCTION SPECIFICATION PACKAGE IS PROVIDED BY THE PROJECT DEVELOPER OR THEIR REPRESENTATIVE, THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURER, CITY OF TORRINGTON, OR CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND BE IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.
3. THE PROJECT DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING AND STORMWATER PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL CITY OF TORRINGTON CONSTRUCTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
4. REFER TO PLANS, DETAILS AND REPORTS PREPARED BY ALL-POINTS TECHNOLOGY CORPORATION FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE PROJECT DEVELOPER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING/CONSTRUCTION. ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONFIRMED WITH THE PROJECT DEVELOPERS CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS PER PLANS, AND SPECIFICATIONS TO THE PROJECT DEVELOPER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
6. SHOULD ANY UNKNOWN OR INCORRECTLY LOCATED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE PROJECT DEVELOPER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
7. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE PROJECT DEVELOPER OR OTHERS DURING OCCUPIED HOURS, EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE PROJECT DEVELOPER AND THE LOCAL MUNICIPALITY. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
8. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE CONTRACT DRAWINGS.
9. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
10. THE CONTRACTOR SHALL COMPLY WITH OSHA CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.
11. THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OF PERSONNEL OR TO SUPERVISE SAFETY AND DO NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
12. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE PROJECT DEVELOPER OR CITY OF TORRINGTON.
13. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE PROJECT DEVELOPER AT THE END OF CONSTRUCTION.
14. ALTERNATIVE METHODS AND PRODUCTS, OTHER THAN THOSE SPECIFIED, MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING/CONSTRUCTION PROCESS.
15. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG' 72 HOURS BEFORE COMMENCEMENT OF WORK AT "811" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
16. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS AND PERMITS ARE GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.

SITE PLAN NOTES

1. THE SURVEY WAS PROVIDED BY MARTIN SURVEYING ASSOCIATES DATED APRIL 13, 2023.
2. THERE ARE BORDERING VEGETATED WETLANDS (BVW/S) LOCATED ON THE SITE AS INDICATED ON THE PLANS. BVW BOUNDARIES WERE FLAGGED AND LOCATED BY IAN T. COLE, LLC IN NOVEMBER 2022 AND MODIFIED AND VERIFIED BY ALL-POINTS TECHNOLOGY CORPORATION, IN FEBRUARY 2023.
3. THERE WILL BE MINIMAL GRADING ON SITE IN THE AREAS OF THE MINOR CLEARING, TO ENSURE THAT PROPER DRAINAGE IS MAINTAINED.
4. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDED SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN OR SUBMIT AN ALTERNATE PLAN FOR APPROVAL BY THE ENGINEER AND/OR PERMITTING AGENCIES PRIOR TO THE START CONSTRUCTION. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
5. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR BVWS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. IN ADDITION, THE CONTRACTOR SHALL ADHERE TO THE "SEDIMENTATION EROSION CONTROL PLAN" CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO POST ALL BONDS AS REQUIRED BY GOVERNMENT AGENCIES WHICH WOULD GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN.
6. ALL SITE WORK, MATERIALS OF CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK AND STORM DRAINAGE WORK, SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS MANUAL. OTHERWISE THIS WORK SHALL CONFORM TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION AND PROJECT GEOTECHNICAL REPORT IF THERE IS NO PROJECT SPECIFICATIONS MANUAL. ALL FILL MATERIAL UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE ABOVE STATED APPLICABLE SPECIFICATIONS, AND/OR PROJECT GEOTECHNICAL REPORT, AND SHALL BE PLACED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 AT 95% PERCENT OF OPTIMUM MOISTURE CONTENT.
7. ALL DISTURBANCE INCURRED TO PUBLIC, MUNICIPAL, COUNTY, STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE CITY OF TORRINGTON AND STATE OF CONNECTICUT.
8. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPERS ENVIRONMENTAL CONSULTANT PRIOR TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE PROJECT DEVELOPER AND/OR PROJECT DEVELOPER'S ENVIRONMENTAL CONSULTANT.

UTILITY NOTES

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY OF TORRINGTON TO SECURE CONSTRUCTION PERMITS AND FOR PAYMENT OF FEES FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES.
2. REFER TO DRAWINGS BY PROJECT DEVELOPER FOR THE ONSITE ELECTRICAL DRAWINGS AND INTERCONNECTION TO EXISTING ELECTRICAL GRID. SITE CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADAPTERS AS NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT. THESE DETAILS ARE NOT INCLUDED IN THESE PLANS.
3. UTILITY LOCATIONS AND PENETRATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND SHALL BE VERIFIED WITH THE ELECTRICAL ENGINEER AND THE PROJECT DEVELOPER'S CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE PROP. SANITARY SEWERS AND WHERE PROP. STORM PIPING WILL CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE PROJECT DEVELOPER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED SANITARY SEWERS, STORM PIPING AND UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
5. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY PROVIDER AND GOVERNING AUTHORITY STAFF REVIEW.
6. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY PROVIDERS AND GOVERNING AUTHORITY STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COORDINATION WITH THE RESPECTIVE UTILITY PROVIDER.
7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY PROVIDERS FOR SERVICE INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR GENERAL CONDITIONS OF THE CONTRACT.
8. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT. AFTER UTILITY INSTALLATION IS COMPLETED, THE CONTRACTOR SHALL INSTALL TEMPORARY AND/OR PERMANENT PAVEMENT REPAIR AS DETAILED ON THE DRAWINGS OR AS REQUIRED BY THE CITY OF TORRINGTON.
9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
10. RELOCATION OF UTILITY PROVIDER FACILITIES, SUCH AS POLES, SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY PROVIDER.
11. THE CONTRACTOR SHALL COMPACT PIPE BACKFILL IN 8" LIFTS ACCORDING TO THE PIPE BEDDING DETAILS. TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE USED PER THE TRENCH DETAILS AND IN AREAS OF ROCK EXCAVATION.
12. CONTRACTOR TO PROVIDE STEEL SLEEVES AND ANNULAR SPACE SAND FILL FOR UTILITY PIPE AND CONDUIT CONNECTIONS UNDER FOOTINGS.
13. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE UTILITY PROVIDER REQUIREMENTS.
14. A ONE-FOOT MINIMUM VERTICAL CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM PIPING SHALL BE PROVIDED. A SIX-INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN STORM PIPING AND SANITARY SEWER. A 6-INCH TO 18-INCH VERTICAL CLEARANCE BETWEEN SANITARY SEWER PIPING AND STORM PIPING SHALL REQUIRE CONCRETE ENCASEMENT OF THE SANITARY PIPING.
15. THE CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, PIPE, CONDUIT, PAVEMENT, CURBING, SIDEWALKS, DRAINAGE STRUCTURE, SWALE OR LANDSCAPED AREAS DISTURBED DURING CONSTRUCTION, TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE PROJECT DEVELOPER AND CITY OF TORRINGTON.
16. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY, AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE INCLUDING SERVICES. CONTACT 'CALL BEFORE YOU DIG' AT 811 72 HOURS PRIOR TO CONSTRUCTION AND VERIFY ALL UNDERGROUND AND OVERHEAD UTILITY AND STORM DRAINAGE LOCATIONS. THE CONTRACTOR SHALL EMPLOY THE USE OF A UTILITY LOCATING COMPANY TO PROVIDE SUBSURFACE UTILITY ENGINEERING CONSISTING OF DESIGNATING UTILITIES AND STORM PIPING ON PRIVATE PROPERTY WITHIN THE CONTRACT LIMIT AND CONSISTING OF DESIGNATING AND LOCATING WHERE PROP. UTILITIES AND STORM PIPING CROSS EXISTING UTILITIES AND STORM PIPING WITHIN THE CONTRACT LIMITS.
17. THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY PROVIDERS FOR WORK TO BE PERFORMED BY UTILITY PROVIDERS. THE CONTRACTOR SHALL PAY ALL UTILITY FEES UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATION MANUAL AND GENERAL CONDITIONS, AND REPAIR PAVEMENTS AS NECESSARY.
18. ELECTRIC DRAWINGS AND REQUIREMENTS ARE NOT INCLUDED AS PART OF THIS DRAWING SET AND SHOULD BE OBTAINED FROM THE PROJECT DEVELOPER.
19. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE PROJECT DEVELOPER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.
20. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE PROJECT DEVELOPER, CITY OF TORRINGTON, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.

GENERAL LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
BUILDING SETBACK		
SOLAR SETBACK		
EASEMENT		
TREE LINE		
WETLAND	V V V	
WETLAND BUFFER		
VERNAL POOL		
VERNAL POOL BUFFER		
WATERCOURSE		
WATERCOURSE BUFFER		
MAJOR CONTOUR		
MINOR CONTOUR		
UNDERGROUND ELECTRIC		E E
OVERHEAD ELECTRIC		OH OH
BASIN		
SWALE		
FENCE		X X X
LIMIT OF DISTURBANCE		LOD
FILTER SOCK		FS FS
SILT FENCE		SF SF
BAFFLE		

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
1	07/26/24	CSC SUBMISSION
2		
3		
4		
5		
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7		

DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

DRAWN BY: TEL

DATE: 04/22/2024 CHECKED BY: RCB

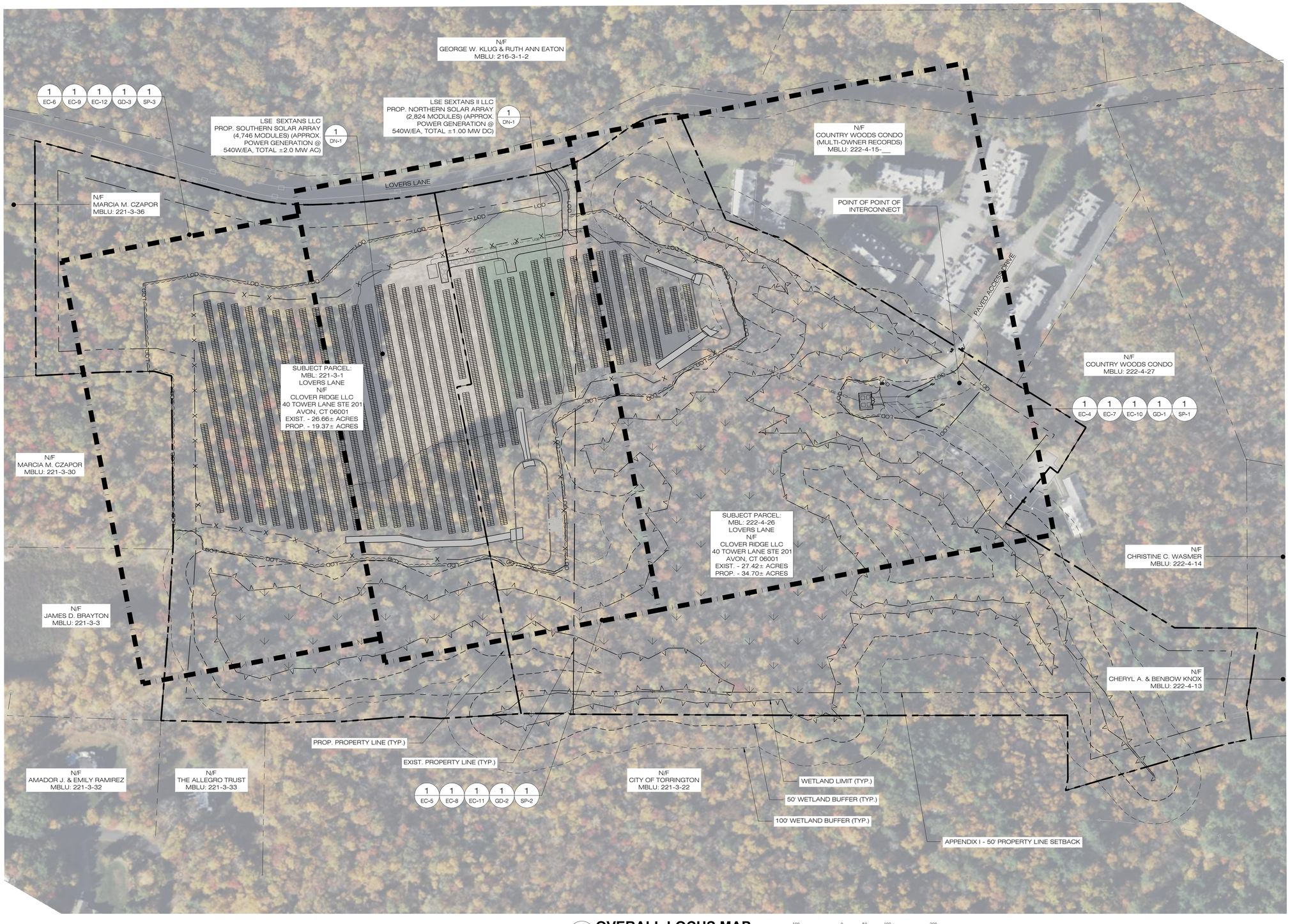
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

GN-1

STATE OF CONNECTICUT — THOMAS E. LITTLE — 33443 — LICENSED PROFESSIONAL ENGINEER



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1 OP-1 **OVERALL LOCUS MAP**
SCALE : 1" = 100'-0"

100 0 50 100 200
(IN FEET) 1 inch = 100 ft.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
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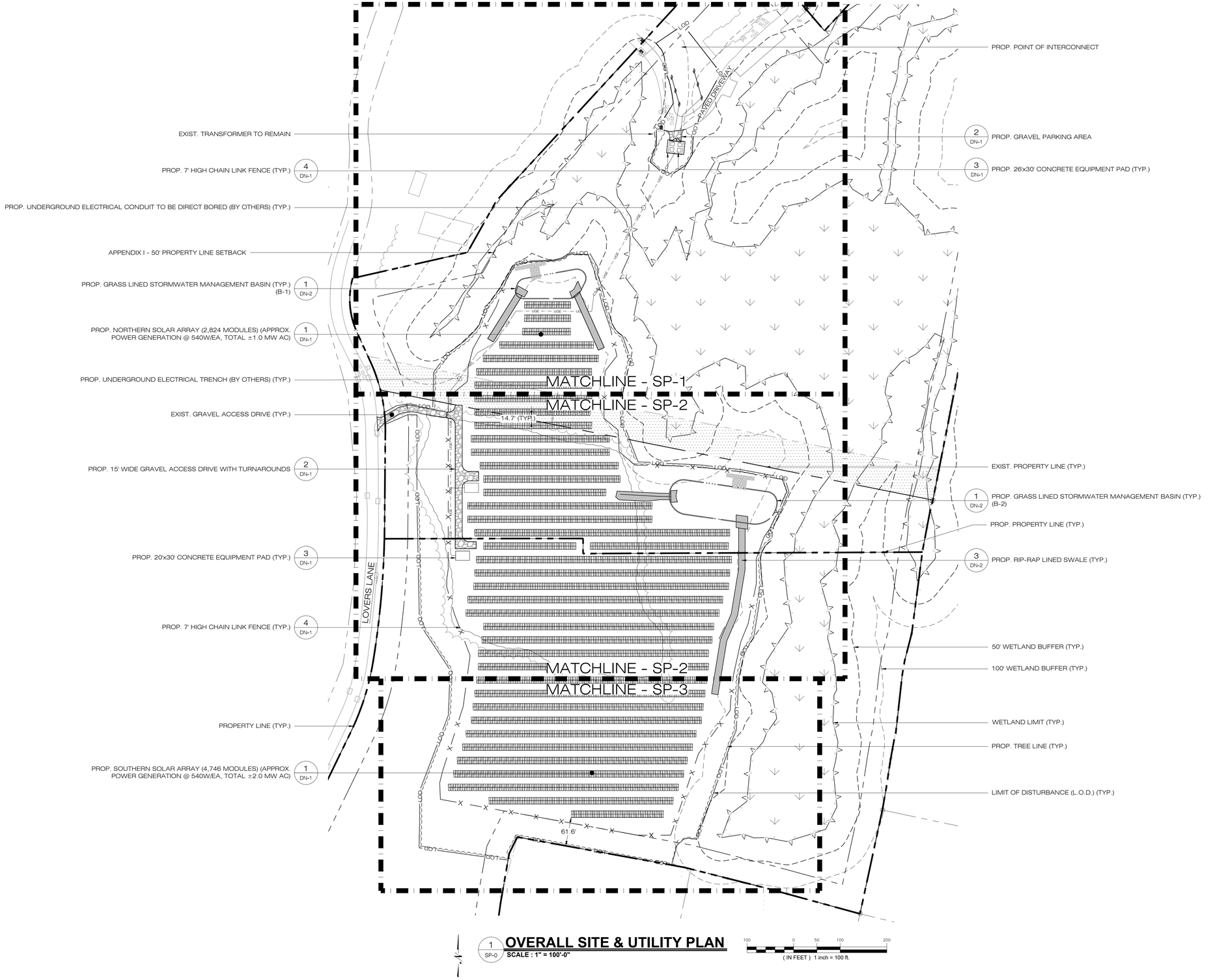
OVERALL LOCUS MAP

SHEET NUMBER:
OP-1

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



1 SP-0 **OVERALL SITE & UTILITY PLAN**
SCALE : 1" = 100'-0"

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

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APT FILING NUMBER: CT606190

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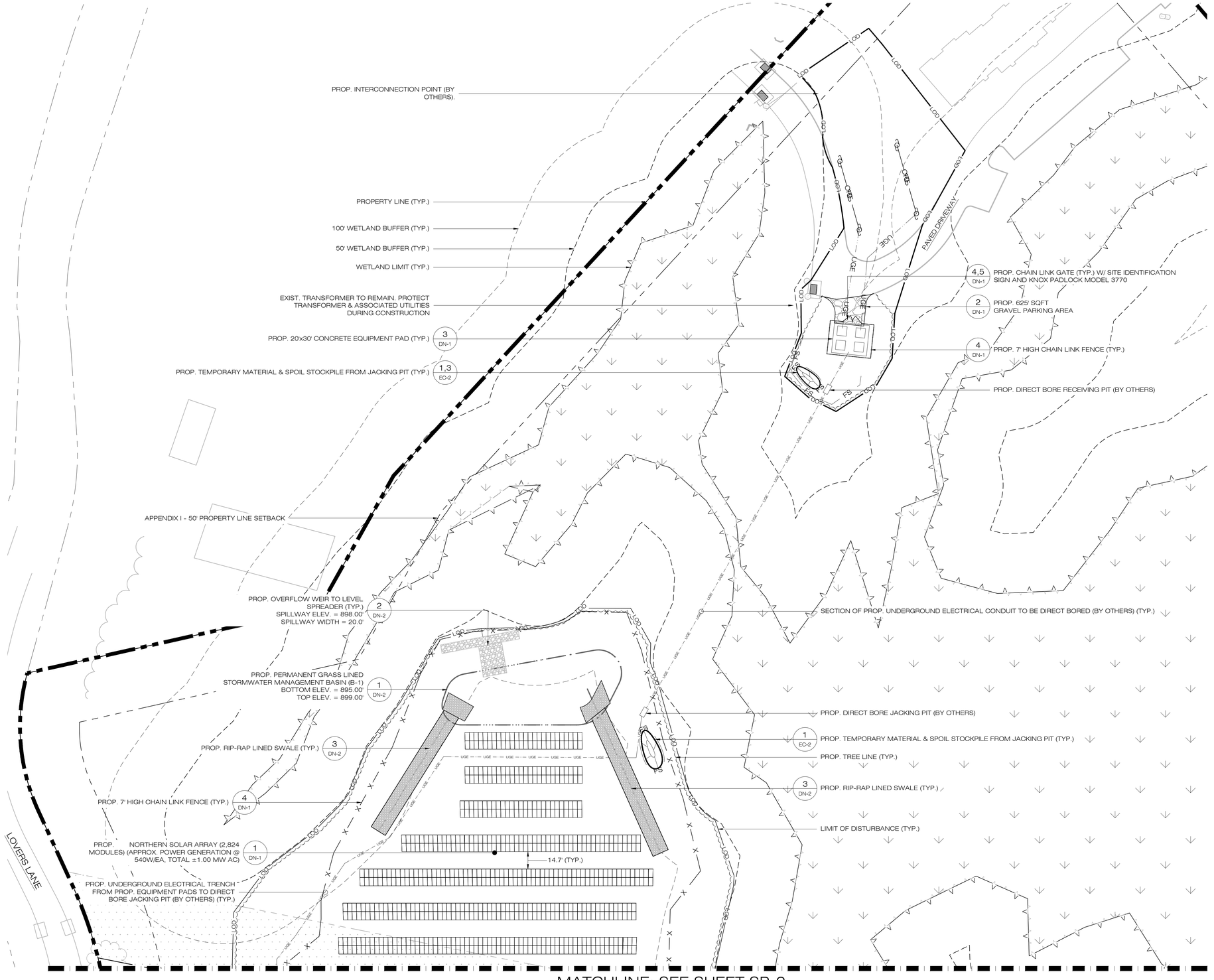
SHEET TITLE:
OVERALL SITE & UTILITY PLAN

SHEET NUMBER:
SP-0

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



MATCHLINE: SEE SHEET SP-2

1 SP-1 **SITE & UTILITY PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTE:
1. SEE DRAWING GN-1 FOR GENERAL LEGEND.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

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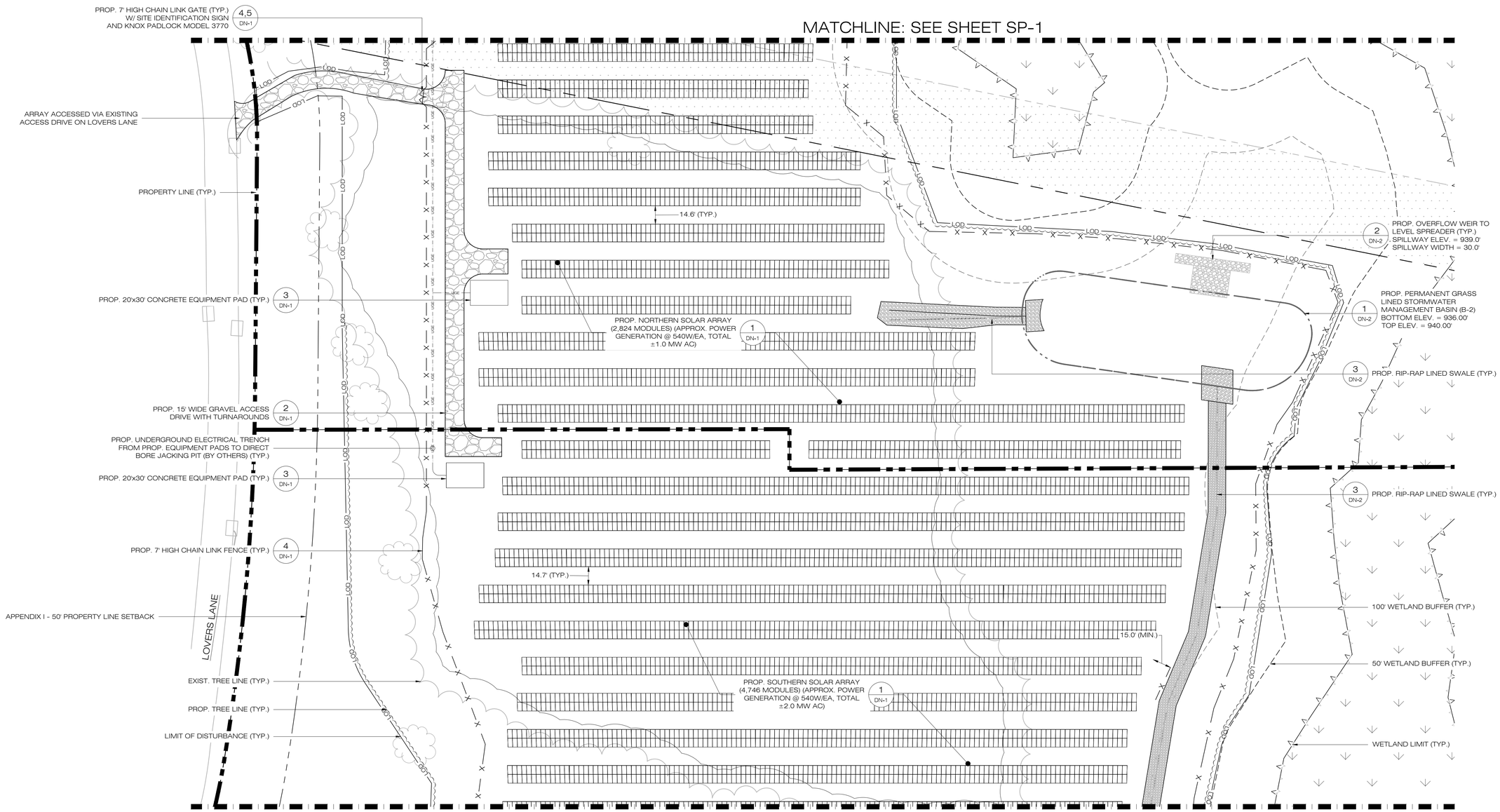
SHEET TITLE:
SITE & UTILITY PLAN

SHEET NUMBER:
SP-1

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



1 SP-2 **SITE & UTILITY PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTE:
1. SEE DRAWING GN-1 FOR GENERAL LEGEND.

LSE SEXTANS LLC & LSE SEXTANS II LLC
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LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

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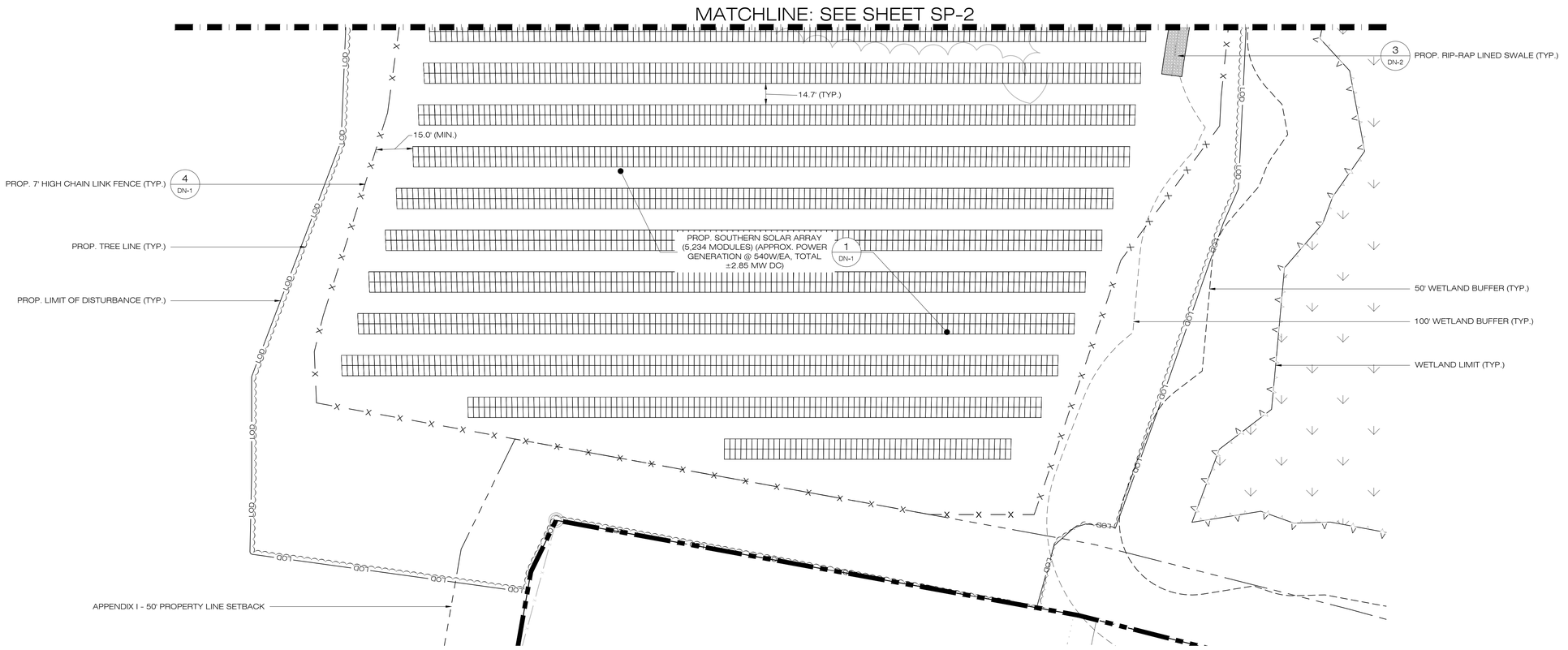
DATE: 04/22/2024 **CHECKED BY:** RCB

SHEET TITLE:
SITE & UTILITY PLAN

SHEET NUMBER:
SP-2

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



1 SP-3 **SITE & UTILITY PLAN**

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTE:
1. SEE DRAWING GN-1 FOR GENERAL LEGEND.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
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CSC PERMIT SET

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ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

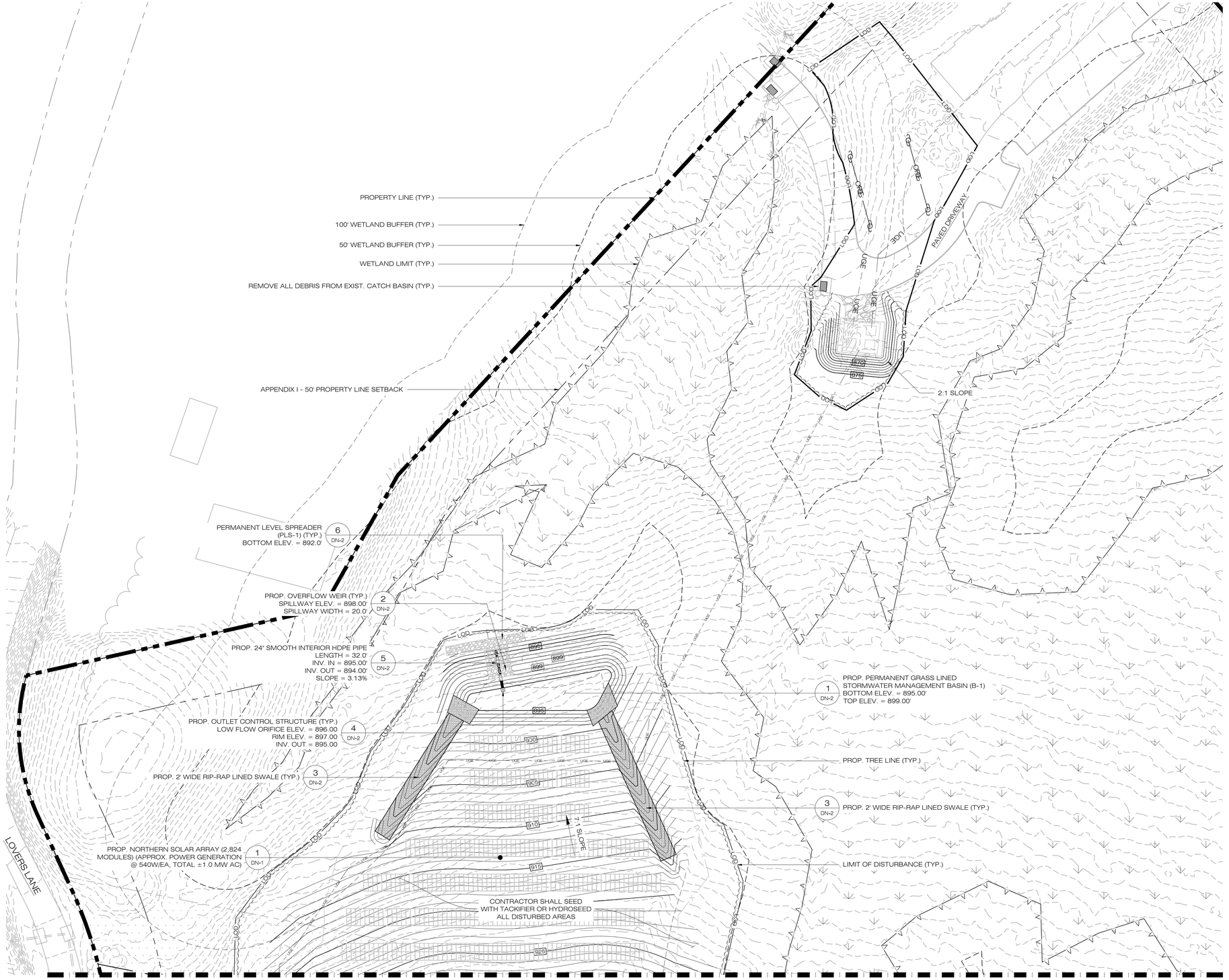
APT FILING NUMBER: CT606190

DRAWN BY: TEL
DATE: 04/22/2024 **CHECKED BY:** RCB

SHEET TITLE:
SITE & UTILITY PLAN

SHEET NUMBER:
SP-3

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



MATCHLINE: SEE SHEET GD-2

1 GD-1 **GRADING & DRAINAGE PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTES:
1. GRADE/SHAPE AREA TO MAINTAIN EXIST. SLOPE & DRAINAGE PATTERNS.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

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DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

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SHEET TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
GD-1

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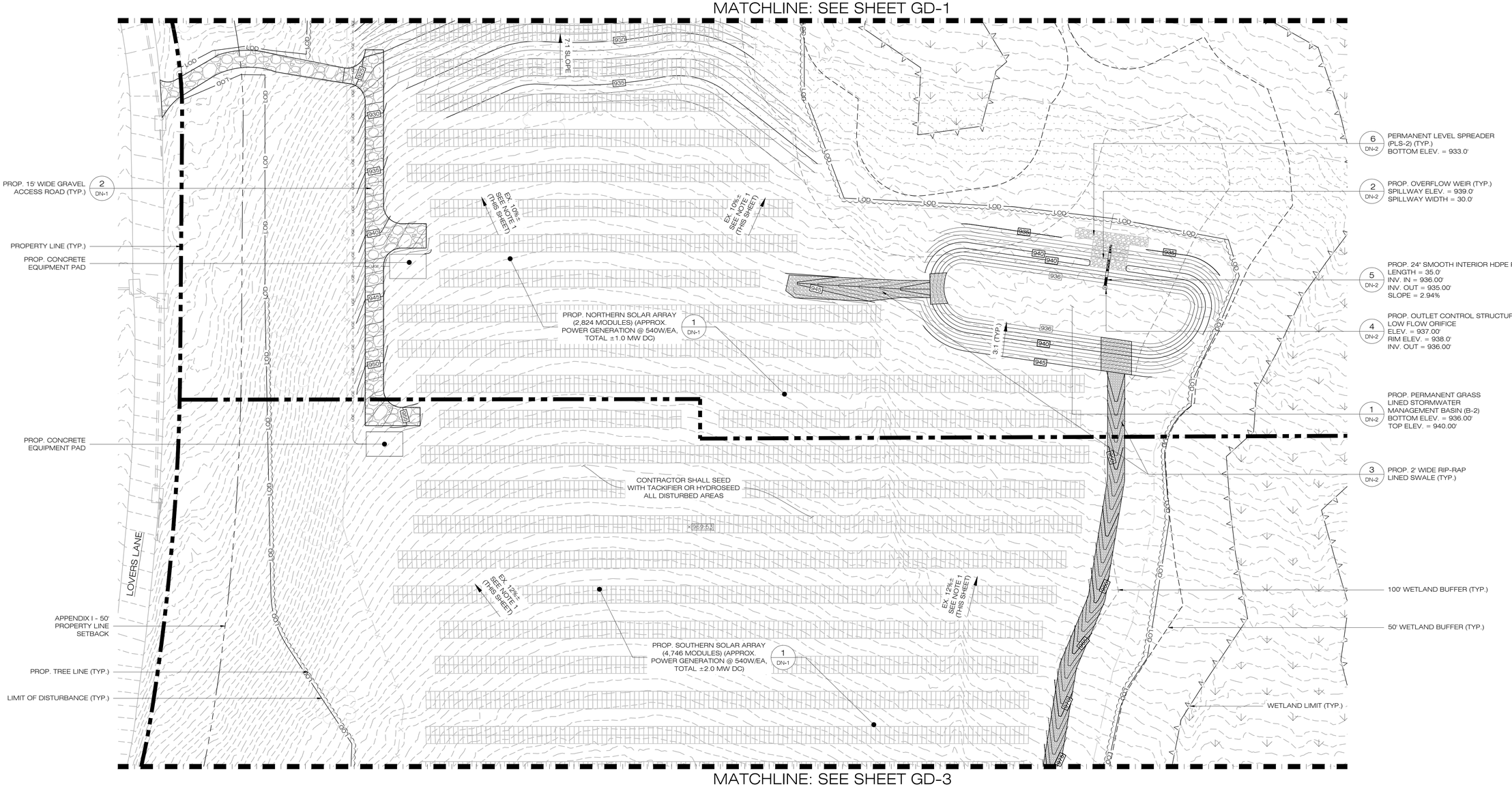
MATCHLINE: SEE SHEET GD-1



MATCHLINE: SEE SHEET GD-3

1 GD-2 **GRADING & DRAINAGE PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTES:
1. GRADE/SHAPE AREA TO MAINTAIN EXIST. SLOPE & DRAINAGE PATTERNS.

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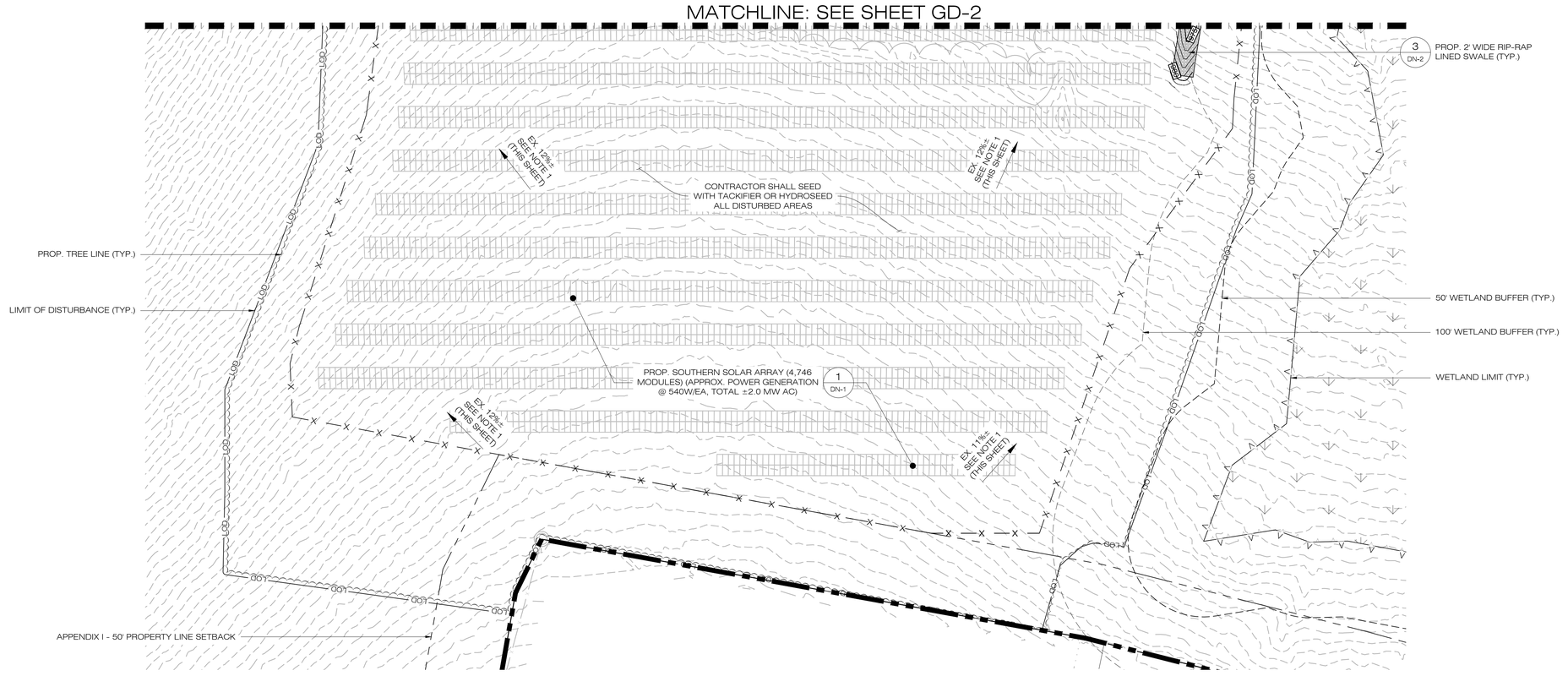
SHEET TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
GD-2

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



1 GD-3 **GRADING & DRAINAGE PLAN**

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(IN FEET) 1 inch = 40 ft.

NOTES:
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GRADING & DRAINAGE PLAN

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STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER

EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE CITY OF TORRINGTON, PERMITTEE, AND/OR SWPCP MONITOR. ALL PERIMETER SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. THESE DRAWINGS ARE ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL MEASURES FOR THIS SITE. SEE CONSTRUCTION SEQUENCE FOR ADDITIONAL INFORMATION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLANS ARE SHOWN AS REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EROSION CONTROL MEASURES ARE CONFIGURED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION OF SOILS AND PREVENT THE TRANSPORT OF SEDIMENTS AND OTHER POLLUTANTS TO STORM DRAINAGE SYSTEMS AND/OR WATERCOURSES. ACTUAL SITE CONDITIONS OR SEASONAL AND CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS, AS REQUIRED, AND AS DIRECTED BY THE PERMITTEE AND/OR SWPCP MONITOR. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

3. A BOND OR LETTER OF CREDIT MAY BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL APPLY THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN IN CONJUNCTION WITH CONSTRUCTION SEQUENCING, SUCH THAT ALL ACTIVE WORK ZONES ARE PROTECTED. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPAL OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CONSTRUCTION SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR INSTALLED SEDIMENTATION AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS WEEKLY AND WITHIN 24 HOURS OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS AS NECESSARY IN A TIMELY MANOR.

6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, COMPOST FILTER SOCK, EROSION CONTROL BLANKET, ETC.) ON-SITE FOR PERIODIC MAINTENANCE AND EMERGENCY REPAIRS.

7. ALL FILL MATERIAL PLACED ADJACENT TO ANY WETLAND AREA SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING, ORANGE SAFETY FENCE, CONSTRUCTION TAPE, OR EQUIVALENT FENCING/TAPE. ANY LIMB TRIMMING SHOULD BE DONE AFTER CONSULTATION WITH AN ARBORIST AND BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. CONSTRUCTION ENTRANCES (ANTI-TRACKING PADS) SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF ALL CONSTRUCTION IF REQUIRED. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED. CONTRACTOR SHALL ENSURE THAT ALL VEHICLES EXITING THE SITE ARE PASSING OVER THE ANTI-TRACKING PADS PRIOR TO EXITING.

10. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SEDIMENT BARRIER UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE BARRIER.

11. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS. ALL SLOPES SHALL BE SEEDED AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

12. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE CONFORMING TO THE GUIDELINES WITHIN THE APPROVED LIMIT OF DISTURBANCE IF REQUIRED. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE PERMITTEE OR MUNICIPALITY.

13. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ON-SITE AT ALL TIMES AND SECURED APPROPRIATELY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE/CONTAINMENT.

14. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

15. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAYS DAMP. CALCIUM CHLORIDE MAY ALSO BE APPLIED TO ACCESS ROADS. DUMP TRUCK LOADS EXITING THE SITE SHALL BE COVERED.

16. VEGETATIVE ESTABLISHMENT SHALL OCCUR ON ALL DISTURBED SOIL, UNLESS THE AREA IS UNDER ACTIVE CONSTRUCTION, IT IS COVERED IN STONE OR SCHEDULED FOR PAVING WITHIN 30 DAYS. TEMPORARY SEEDING OR NON-LIVING SOIL PROTECTION OF ALL EXPOSED SOILS AND SLOPES SHALL BE INITIATED WITHIN THE FIRST 7 DAYS OF SUSPENDING WORK IN AREAS TO BE LEFT LONGER THAN 30 DAYS.

17. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP CONCRETE PADS, CLEAN THE STORMWATER MANAGEMENT SYSTEMS AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS ONCE THE SITE IS FULLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM PERMITTEE OR THE MUNICIPALITY.

18. THE SITE WAS DESIGNED TO COMPLY WITH FEDERAL, STATE, AND, IF APPLICABLE, LOCAL STANDARDS, PLUS CURRENT ACCEPTED PRACTICES FOR THE INDUSTRY. ADDITIONAL CONTROLS AND ACTIVITIES MAY BE DEEMED NECESSARY BY THE SWPCP MONITOR DURING CONSTRUCTION AS A RESULT OF UNFORESEEN CONDITIONS AND/OR MEANS AND METHODS. SUCH ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO: ADDITIONAL FOREBAYS, BASINS, OR UPSTREAM STRUCTURAL CONTROLS, THE USE OF FLOCCULANTS OF FLOCK LOGS TO DECREASE SEDIMENT, DISCHARGE MANAGEMENT SUCH AS ADDITIONAL ARMORING AND FILTERING MEASURES (I.E. STRAW BALES, WATTLES, ETC.), AND HYDROSEEDING WITH RAPIDLY GERMINATING SEED.

19. SEEDING MIXTURES SHALL BE FUZZ & BUZZ MIX - ERNMX-147, OR APPROVED EQUAL BY OWNER, IN ALL DISTURBED AREAS OTHER THAN THE STORMWATER MANAGEMENT BASINS.NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES WILL BE USED WITHIN THE STORMWATER MANAGEMENT BASINS, OR APPROVED EQUAL BY OWNER. SEE 6/DN-1 & 7/DN-1 FOR SEE MIXTURES.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN - BY CONTRACTOR

E&S MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
CONSTRUCTION ENTRANCE	DAILY	PLACE ADDITIONAL STONE, EXTEND THE LENGTH OR REMOVE AND REPLACE THE STONE. CLEAN PAVED SURFACES OF TRACKED SEDIMENT.
COMPOST FILTER SOCK	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED.
SILT FENCE	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR/REPLACE WHEN FAILURE OR DETERIORATION IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.
TEMPORARY SEDIMENT BASIN (W/ BAFFLES)	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SEDIMENT TRAP (W/ BAFFLES)	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.5"	REMOVE SEDIMENT ONCE IT HAS ACCUMULATED TO ONE HALF OF MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATERING AS NEEDED. RESTORE TRAP TO ORIGINAL DIMENSIONS. REPAIR/REPLACE BAFFLES WHEN FAILURE OR DETERIORATION IS OBSERVED.
TEMPORARY SOIL PROTECTION	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.25"	REPAIR ERODED OR BARE AREAS IMMEDIATELY. RESEED AND MULCH.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INVOLVES THE CONSTRUCTION OF A GROUND MOUNTED SOLAR PANEL FACILITY WITH ASSOCIATED EQUIPMENT, INCLUDING THE CLEARING, GRUBBING AND GRADING OF APPROXIMATELY 17.18± ACRES OF EXISTING LOT.

THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:

A. CLEARING, GRUBBING, AND GRADING OF EXISTING LOT.
B. CONSTRUCTION OF 7,570 GROUND MOUNTED SOLAR PANELS AND ASSOCIATED EQUIPMENT.
B. THE STABILIZATION OF DISTURBED AREAS WITH PERMANENT VEGETATIVE TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 16.64± ACRES OF THE SITE BEING DISTURBED WITH NEGLIGIBLE INCREASE IN THE IMPERVIOUS AREA OF THE SITE, AS ALL ACCESS THROUGH THE SITE WILL BE GRAVEL. IMPERVIOUS AREAS ARE LIMITED TO THE CONCRETE PADS FOR ELECTRICAL EQUIPMENT.

3. THE PROJECT SITE, AS MAPPED IN THE SOIL SURVEY OF STATE OF CONNECTICUT (NRCS, VERSION 22, SEP 12, 2022), CONTAINS TYPE 84B, 84C AND 86C (HYDROLOGIC SOIL GROUP C), 47C (HYDROLOGIC SOIL GROUP C/D), AND 52C (HYDROLOGIC SOIL GROUP B/D) SOILS. A GEOTECHNICAL ENGINEERING REPORT HAS NOT BEEN COMPLETED.

4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 4-6 MONTHS.

5. REFER TO THE CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION NOTES FOR INFORMATION REGARDING SEQUENCING OF MAJOR OPERATIONS IN THE ON-SITE CONSTRUCTION PHASES.

6. STORMWATER MANAGEMENT DESIGN CRITERIA UTILIZES THE APPLICABLE SECTIONS OF THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL AND THE CITY OF TORRINGTON STANDARDS, TO THE EXTENT POSSIBLE AND PRACTICABLE FOR THIS PROJECT ON THIS SITE. EROSION AND SEDIMENTATION MEASURES ARE BASED UPON ENGINEERING PRACTICE, JUDGEMENT AND THE APPLICABLE SECTIONS OF THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, LATEST EDITION.

7. DETAILS FOR THE TYPICAL STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION MEASURES ARE SHOWN ON THE PLAN SHEETS OR PROVIDED AS SEPARATE SUPPORT DOCUMENTATION FOR REVIEW IN THIS PLAN.

8. CONSERVATION PRACTICES TO BE USED DURING CONSTRUCTION:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS TO THE EXTENT PRACTICABLE DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT MEASURES AS SOON AS POSSIBLE, BUT NO LATER THAN 7-DAYS FOLLOWING DISTURBANCE;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

9. THE FOLLOWING SEPARATE DOCUMENTS ARE TO BE CONSIDERED A PART OF THE EROSION AND SEDIMENTATION PLAN:
   A. STORMWATER MANAGEMENT REPORT DATED APRIL 2024.
   B. SWPCP DATED APRIL 2024.

SUGGESTED CONSTRUCTION SEQUENCE

THE FOLLOWING SUGGESTED SEQUENCE OF CONSTRUCTION ACTIVITIES IS PROJECTED BASED UPON ENGINEERING JUDGEMENT AND BEST MANAGEMENT PRACTICES. THE CONTRACTOR MAY ELECT TO ALTER THE SEQUENCING TO BEST MEET THE CONSTRUCTION SCHEDULE, THE EXISTING SITE ACTIVITIES AND WEATHER CONDITIONS. SHOULD THE CONTRACTOR ALTER THE CONSTRUCTION SEQUENCE OR ANY EROSION AND SEDIMENTATION CONTROL MEASURES THEY SHALL MODIFY THE STORMWATER POLLUTION CONTROL PLAN ("SWPCP") AS REQUIRED BY THE GENERAL PERMIT. MAJOR CHANGES IN SEQUENCING AND/OR METHODS MAY REQUIRE REGULATORY APPROVAL PRIOR TO IMPLEMENTATION.

1. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING. PHYSICALLY FLAG THE LIMITS OF DISTURBANCE IN THE FIELD AS NECESSARY TO FACILITATE THE PRE-CONSTRUCTION MEETING.

2. CONDUCT A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED WORK AND EROSION AND SEDIMENTATION CONTROL MEASURES. THE MEETING SHOULD BE ATTENDED BY THE OWNER, THE OWNERS REPRESENTATIVE(S), THE GENERAL CONTRACTOR, DESIGNATED SUB-CONTRACTORS AND THE PERSON, OR PERSONS, RESPONSIBLE FOR THE IMPLEMENTATION, OPERATION, MONITORING AND MAINTENANCE OF THE EROSION AND SEDIMENTATION MEASURES. THE CONSTRUCTION PROCEDURES FOR THE ENTIRE PROJECT SHALL BE REVIEWED AT THIS MEETING.

3. NOTIFY CALL BEFORE YOU DIG AT 811, AS REQUIRED, PRIOR TO THE START OF CONSTRUCTION.

PHASE 1

4. REMOVE EXISTING IMPEDIMENTS AS NECESSARY AND PROVIDE MINIMAL CLEARING AND GRUBBING TO INSTALL THE REQUIRED CONSTRUCTION ENTRANCE/S.

5. CLEAR ONLY AS NEEDED TO INSTALL THE PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES, SWALES, SEDIMENT TRAPS/BASIN AND, IF APPLICABLE, TREE PROTECTION. ALL WETLAND AREAS SHALL BE PROTECTED BEFORE MAJOR CONSTRUCTION BEGINS.

6. INSTALL PERIMETER EROSION CONTROL AS SHOWN ON PLANS, INCLUDING SILT FENCE, SILT FENCE WINGS, AND COMPOST FILTER SOCKS.

7. INSTALL TEMPORARY SEDIMENT TRAP TST-1 AND ASSOCIATED SWALES & PLUG OUTLET PIPE. UPON COMPLETED INSTALLATION AND STABILIZATION OF THE BASIN AND SWALES, PHASE 2 & PHASE 3 WORK UP GRADIENT CAN PROCEED.

8. INSTALL TEMPORARY SEDIMENT BASIN TSB-2 AND ASSOCIATED SWALES. PLUG OUTLET PIPE. UPON COMPLETED INSTALLATION AND STABILIZATION OF THE BASIN AND SWALES, PHASE 2 & PHASE 3 WORK UP GRADIENT CAN PROCEED.

PHASE 2

9. UPON COMPLETION OF THE INSTALLATION OF TEMPORARY SEDIMENT BASINS, COMPLETE THE CLEARING & GRUBBING OF THE REMAINING SOUTHERN WOODED AREA AS REQUIRED, IN 5 ACRE MAXIMUM INCREMENTS. REMOVE CUT WOOD AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF DEMOLITION DEBRIS OFF-SITE IN ACCORDANCE WITH APPLICABLE LAWS.

10. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.

PHASE 3

12. WORKING FROM SOUTH TO NORTH, COMPLETE THE CLEARING & GRUBBING OF THE REMAINING WOODED AREA AS REQUIRED, IN 5 ACRE MAXIMUM INCREMENTS. REMOVE CUT WOOD AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF DEMOLITION DEBRIS OFF-SITE IN ACCORDANCE WITH APPLICABLE LAWS.

13. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.

FINAL GRADING & DRAINAGE PLAN

14. INSTALL CONCRETE EQUIPMENT PAD.

15. INSTALL ELECTRICAL CONDUITS.

16. INSTALL RACKING POSTS FOR GROUND MOUNTED SOLAR PANELS.

17. INSTALL GROUND MOUNTED SOLAR PANELS AND COMPLETE ELECTRICAL INSTALLATION.

18. AFTER SUBSTANTIAL COMPLETION OF THE INSTALLATION OF THE SOLAR PANELS, COMPLETE REMAINING SITE WORK AND STABILIZE ALL DISTURBED AREAS.

19. FINE GRADE, RAKE, SEED AND MULCH ALL REMAINING DISTURBED AREAS.

20. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE PERMITTEE, REMOVE REMAINING EROSION AND SEDIMENTATION CONTROLS AND CLEAN & CONVERT TEMPORARY SEDIMENT TRAPS/BASIN TO FINAL GRASS LINED STORMWATER BASINS. RESHAPE AND RESEED BASINS AS NECESSARY, UNPLUG OUTLET PIPES AND INSTALL LOW FLOW ORIFICES PER PLANS AND DETAIL 4/DN-2. ANY AREAS DISTURBED DURING CLEAN UP SHALL BE PERMANENTLY SEEDED.

21. THE SITE SHALL BE MONITORED EVERY MONTH OF THE YEAR FOR TWO (2) FULL GROWING SEASONS (GROWING SEASONS ARE APRIL-OCTOBER).

22. ISSUE NOTICE OF TERMINATION UPON COMPLETION OF MONITORING REQUIRED PER CT DEEP CONSTRUCTION GENERAL PERMIT APPENDIX I.

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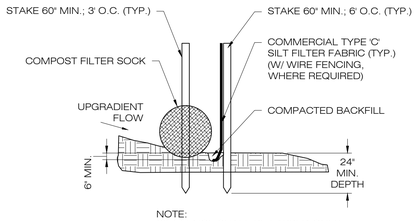
SEDIMENTATION & EROSION CONTROL NOTES

SHEET NUMBER:

EC-1

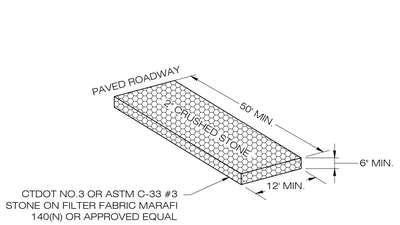
STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER



NOTE:
SILT FENCE SHALL BE LAPPED ONLY WHEN NECESSARY PER THE MANUFACTURER RECOMMENDATIONS.

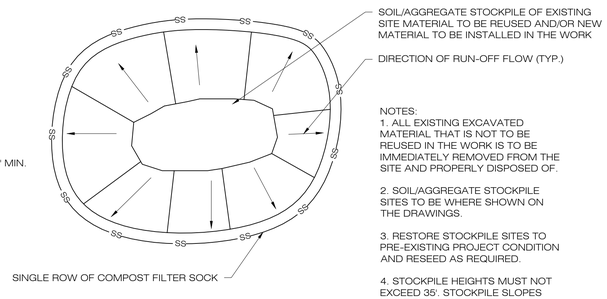
SILT FENCE W/ COMPOST FILTER SOCK DETAIL

1 / EC-2 **SCALE : N.T.S.**



CONSTRUCTION ENTRANCE DETAIL

2 / EC-2 **SCALE : N.T.S.**



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

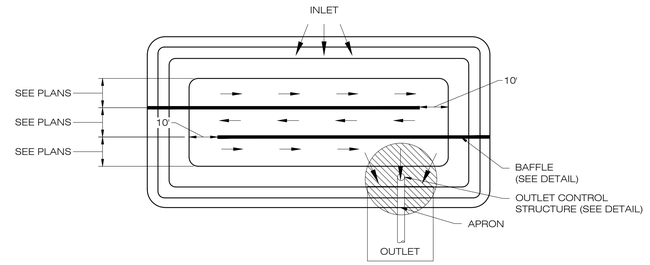
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

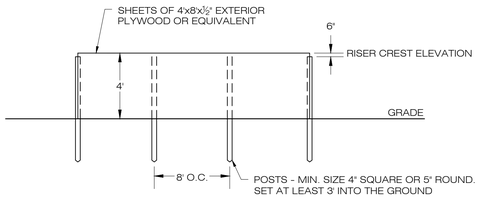
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

MATERIALS STOCKPILE DETAIL

3 / EC-2 **SCALE : N.T.S.**



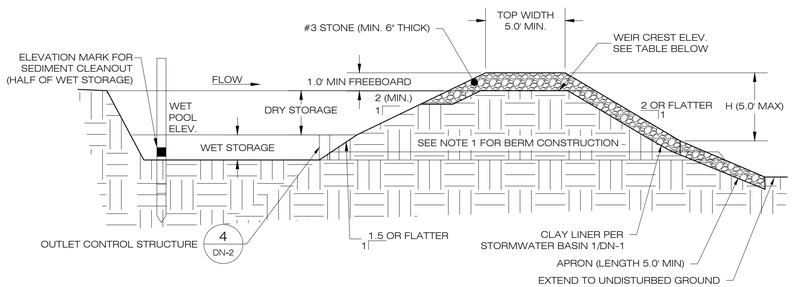
TOP VIEW



NOTES:
1. FILL ANY VOIDS BETWEEN THE BOTTOM OF THE BASIN AND BAFFLE.

SEDIMENT TRAP BAFFLE

6 / EC-2 **SCALE : N.T.S.**



CROSS SECTION

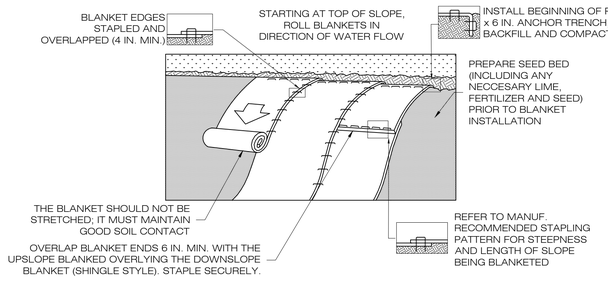
NOTES:
1. CONSTRUCT TEMPORARY SEDIMENT BASIN BERMS AND SIDEWALLS PER THE GRASS LINED BASIN DETAIL.
2. SEDIMENT BAFFLES SHALL BE INSTALLED AS SHOWN ON EC-4 & EC-5.
3. SEE TSB SIZING TABLE FOR WET AND DRY STORAGE VOLUMES.

TEMPORARY SEDIMENT BASIN SIZING TABLE

NAME	DRAINAGE AREA (AC)	REQ. WET VOLUME (CF)	REQ. RESIDENCE TIME VOLUME (CF)	TOTAL VOLUME REQ. (CF)	PROP. BTM. ELEV. (FT)	PROP. OUTLET RIM ELEV. (FT)	PROP. WEIR CREST ELEV. (FT)	PROP. TOP ELEV. (FT)	WET VOL. PROVIDED (CF)	RESIDENCE TIME VOLUME PROVIDED (CF)	TOTAL VOL. PROVIDED (CF)
TSB-2	5.70 AC	11,225	10,346	27,182	936.00'	938.00	939.00	940.00'	19,873	12,138	32,011

TEMPORARY SEDIMENT BASIN

5 / EC-2 **SCALE : N.T.S.**

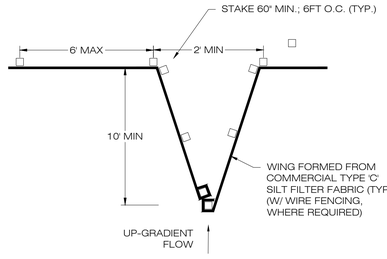


EROSION CONTROL BLANKET INSTALLATION
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS DOWN HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON THE RECPS TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPS WIDTH.

NOTES:
1. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
3. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
4. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
5. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET STEEP SLOPES

9 / EC-2 **SCALE : N.T.S.**

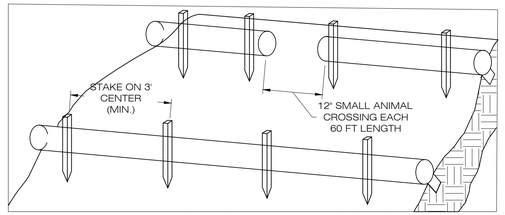


NOTES:
1. WRAP SILT FENCE AT ENDS.

2. NO JOINING FENCE SECTIONS SHALL BE INSTALLED WITHIN 30 FEET OF WING.

SILT FENCE WING DETAIL

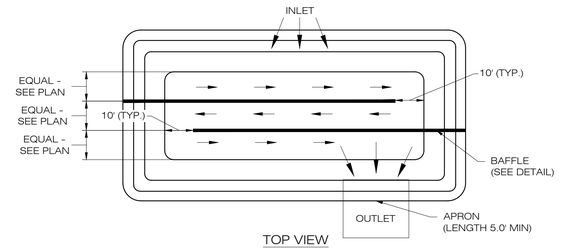
8 / EC-2 **SCALE : N.T.S.**



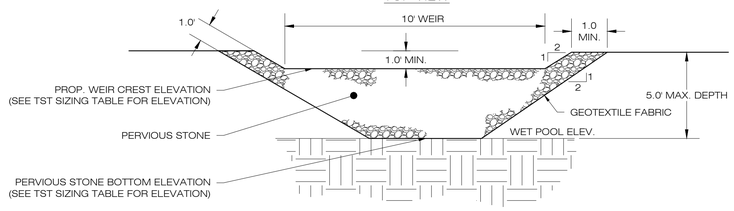
1. BEGIN AT THE LOCATION WHERE THE SOCK IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE SOCK IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE SOCK ON THE UPHILL SIDE. SOCKS SHALL BE INSTALLED IN 60 FT CONTINUOUS LENGTHS WITH ADJACENT SOCKS TIGHTLY ABUT. EVERY 60 FT THE SOCK ROW SHALL BE SPACED 12 INCHES CLEAR, END TO END, FOR AMPHIBIAN AND REPTILE TRAVEL. THE OPEN SPACES SHALL BE STAGGERED MID LENGTH OF THE NEXT DOWN GRADIENT SOCK.
3. SECURE THE SOCK WITH 18-24" (45.7-61 CM) STAKES EVERY 3' (0.9 -1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE SOCK. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.
4. CONTRACTOR TO FOLLOW MANUFACTURES SPECIFICATIONS AND INSTALL DIRECTIONS IF DIRECTED THAN WHAT IS PROVIDED ABOVE.

COMPOST FILTER SOCK SEDIMENTATION CONTROL BARRIER

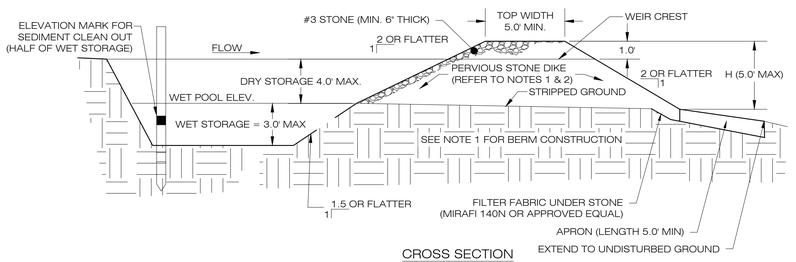
4 / EC-2 **SCALE : N.T.S.**



TOP VIEW



OUTLET ELEVATION



CROSS SECTION

NOTES:
1. CONSTRUCT TEMPORARY SEDIMENT TRAP BERMS AND SIDEWALLS PER THE INFILTRATION BASIN DETAIL.
2. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIP-RAP WITH #3 STONE ON FACE.
3. SEDIMENT TRAP BAFFLES SHALL BE INSTALLED AS SHOWN ON EC-4.
4. SEE TST SIZING TABLE FOR WET AND DRY STORAGE VOLUMES.

TEMPORARY SEDIMENT TRAP SIZING TABLE

NAME	DRAINAGE AREA (AC)	SEDIMENT VOLUME/ACRE AREA (CY)	REQ. VOLUME (CY)	REQ. WET VOLUME (CY)	PROP. BTM. ELEV. (FT)	PROP. STONE DIKE BTM. ELEV. (FT)	PROP. WEIR CREST ELEV. (FT)	PROP. TOP ELEV. (FT)	WET VOL. PROVIDED (CY)	TOTAL VOL. PROVIDED. (CY)
TST-1	2.40	134	322	161	895.00	897.00	898.00	899.00	263	446

TEMPORARY SEDIMENT TRAP

7 / EC-2 **SCALE : N.T.S.**

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

NO	DATE	REVISION
1	07/26/24	CSC SUBMISSION
2		
3		
4		
5		
6		
7		

DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

DRAWN BY: TEL
DATE: 04/22/2024 **CHECKED BY:** RCB

SHEET TITLE:

SEDIMENTATION & EROSION CONTROL NOTES

SHEET NUMBER:

EC-2

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER

ENVIRONMENTAL NOTES - RESOURCE PROTECTION PROGRAM

WETLAND AND RARE SPECIES PROTECTION MEASURES

AS A RESULT OF THE PROJECTS LOCATION IN THE VICINITY OF SENSITIVE HABITATS INCLUDING WETLAND RESOURCES AND RARE SPECIES, THE FOLLOWING PROTECTION PROGRAM SHALL BE IMPLEMENTED BY THE CONTRACTOR TO AVOID UNINTENTIONAL IMPACTS TO PROXIMATE WETLAND RESOURCES AND RARE SPECIES DURING CONSTRUCTION ACTIVITIES.

WOOD TURTLE (GLYPTEMYS INSCULPTA), A STATE SPECIAL CONCERN SPECIES AFFORDED PROTECTION UNDER THE CONNECTICUT ENDANGERED SPECIES ACT, IS KNOWN TO OCCUR ON OR PROXIMITY TO THE PROPOSED FACILITY. THESE RARE SPECIES PROTECTION MEASURES ARE SIMILAR TO PROTECTION MEASURES PREVIOUSLY APPROVED BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION ("DEEP") WILDLIFE DIVISION ON OTHER COMPARABLE PROJECTS. DETAILS OF PROTECTION MEASURES TO BE IMPLEMENTED IN ASSOCIATION WITH CONSTRUCTION AND MAINTENANCE OF THE FACILITY ARE PROVIDED BELOW.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLIES WITH THE REQUIREMENT FOR THE INSTALLATION OF PROTECTIVE MEASURES AND THE EDUCATION OF ITS EMPLOYEES AND SUBCONTRACTORS PERFORMING WORK ON THE PROJECT SITE. THE WETLAND PROTECTION MEASURES SHALL BE IMPLEMENTED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES UNTIL PERMANENT STABILIZATION OF SITE SOILS HAS OCCURRED.

ALL-POINTS TECHNOLOGY CORPORATION, P.C. ("APT") WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT THESE PROTECTION MEASURES ARE IMPLEMENTED PROPERLY AND WILL PROVIDE AN EDUCATION SESSION ON THE PROJECTS PROXIMITY TO SENSITIVE WETLANDS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONTACT DEAN GUSTAFSON, SENIOR WETLAND SCIENTIST AT APT, AT LEAST 5 BUSINESS DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. MR. GUSTAFSON CAN BE REACHED BY PHONE AT (860) 552-2033 OR VIA EMAIL AT DGUSTAFSON@ALLPOINTSTECH.COM.

THIS RESOURCES PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS INCLUDING: EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; INSTALLATION OF EROSION CONTROLS; PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION; PROTECTIVE MEASURES; RARE SPECIES PROTECTION MEASURES; HERBICIDE, PESTICIDE, AND SALT RESTRICTIONS; AND REPORTING.

1. CONTRACTOR EDUCATION:

   a. PRIOR TO WORK ON SITE, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH APT. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF AN INTRODUCTORY MEETING WITH APT TO EMPHASIZE THE ENVIRONMENTALLY SENSITIVE NATURE OF THE PROJECT, THE VARIOUS WETLAND AND RARE SPECIES RESOURCES, AND THE REQUIREMENT TO DILIGENTLY FOLLOW THE PROTECTIVE MEASURES AS DESCRIBED IN SECTIONS BELOW. WORKERS WILL ALSO BE PROVIDED INFORMATION REGARDING THE IDENTIFICATION OF OTHER TURTLES, SNAKES, COMMON HERPETOFAUNA THAT COULD BE ENCOUNTERED. THE MEETING WILL FURTHER EMPHASIZE THE NON-AGGRESSIVE NATURE OF THESE SPECIES, THE ABSENCE OF NEED TO DESTROY SUCH ANIMALS AND THE NEED TO FOLLOW PROTECTIVE MEASURES AS DESCRIBED IN FOLLOWING SECTIONS. THE CONTRACTOR WILL DESIGNATE ONE OF ITS WORKERS AS THE "PROJECT MONITOR", WHO WILL RECEIVE MORE INTENSE TRAINING ON THE IDENTIFICATION AND PROTECTION OF WOOD TURTLES.

   b. THE EDUCATION SESSION WILL ALSO FOCUS ON MEANS TO DISCRIMINATE BETWEEN THE SPECIES OF CONCERN AND OTHER NATIVE SPECIES TO AVOID UNNECESSARY "FALSE ALARMS". ENCOUNTERS WITH ANY SPECIES OF TURTLES, SNAKES AND AMPHIBIANS WILL BE DOCUMENTED.

c. THE CONTRACTOR WILL DESIGNATE A MEMBER OF ITS CREW AS THE PROJECT MONITOR TO BE RESPONSIBLE FOR THE PERIODIC "SWEEPS" FOR TURTLES AND OTHER HERPETOFAUNA WITHIN THE CONSTRUCTION ZONE EACH MORNING AND FOR ANY GROUND DISTURBANCE WORK. THIS INDIVIDUAL WILL RECEIVE MORE INTENSE TRAINING FROM APT ON THE IDENTIFICATION AND PROTECTION OF WOOD TURTLES AND OTHER HERPETOFAUNA IN ORDER TO PERFORM SWEEPS. ANY HERPETOFAUNA DISCOVERED WOULD BE TRANSLOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

d. THE CONTRACTORS PROJECT MONITOR WILL BE PROVIDED WITH CELL PHONE AND EMAIL CONTACTS FOR APT PERSONNEL. EDUCATIONAL POSTER MATERIALS WILL BE PROVIDED BY APT AND DISPLAYED ON THE JOB SITE TO MAINTAIN WORKER AWARENESS AS THE PROJECT PROGRESSES.

e. APT WILL ALSO POST CAUTION SIGNS THROUGHOUT THE PROJECT SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT PROVIDING NOTICE OF THE ENVIRONMENTALLY SENSITIVE NATURE OF THE WORK AREA, THE POTENTIAL FOR ENCOUNTERING VARIOUS AMPHIBIANS AND REPTILES AND PRECAUTIONS TO BE TAKEN TO AVOID INJURY TO OR MORTALITY OF THESE ANIMALS.

f. IF ANY RARE SPECIES ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY CEASE ALL WORK, AVOID ANY DISTURBANCE TO THE SPECIES, AND CONTACT APT.

2. EROSION AND SEDIMENTATION CONTROLS/ISOLATION BARRIERS

a. PLASTIC NETTING USED IN A VARIETY OF EROSION CONTROL PRODUCTS (I.E., EROSION CONTROL BLANKETS, FIBER ROLLS [WATTLES], REINFORCED SILT FENCE) HAS BEEN FOUND TO ENTANGLE WILDLIFE, INCLUDING REPTILES, AMPHIBIANS, BIRDS AND SMALL MAMMALS. NO PERMANENT EROSION CONTROL PRODUCTS OR REINFORCED SILT FENCE WILL BE USED ON THE PROJECT. TEMPORARY EROSION CONTROL PRODUCTS THAT WILL BE EXPOSED AT THE GROUND SURFACE AND REPRESENT A POTENTIAL FOR WILDLIFE ENTANGLEMENT WILL USE EITHER EROSION CONTROL BLANKETS AND FIBER ROLLS COMPOSED OF PROCESSED FIBERS MECHANICALLY BOUND TOGETHER TO FORM A CONTINUOUS MATRIX (NETLESS) OR NETTING COMPOSED OF PLANAR WOVEN NATURAL BIODEGRADABLE FIBER TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.

b. EXCLUSIONARY FENCING SHALL BE AT LEAST 20 INCHES TALL AND MUST BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND AND BE REGULARLY MAINTAINED BY THE CONTRACTOR (AT LEAST BI-WEEKLY AND AFTER MAJOR WEATHER EVENTS) TO SECURE ANY GAPS OR OPENINGS AT GROUND LEVEL THAT MAY LET ANIMAL PASS THROUGH.

c. THE EXTENT OF THE EROSION CONTROLS WILL BE AS SHOWN ON THE SITE PLANS. THE CONTRACTOR SHALL HAVE ADDITIONAL SEDIMENTATION AND EROSION CONTROLS STOCKPILED ON SITE SHOULD FIELD OR CONSTRUCTION CONDITIONS WARRANT EXTENDING DEVICES. IN ADDITION TO THE CONTRACTOR MAKING THESE DETERMINATIONS, REQUESTS FOR ADDITIONAL CONTROLS WILL ALSO BE AT THE DISCRETION OF THE ENVIRONMENTAL MONITOR.

d. INSTALLATION OF SEDIMENTATION AND EROSION CONTROLS, REQUIRED FOR EROSION CONTROL COMPLIANCE AND CREATION OF A BARRIER TO POSSIBLE MIGRATING/DISPERSING TURTLES, SHALL BE PERFORMED BY THE CONTRACTOR FOLLOWING CLEARING ACTIVITIES AND PRIOR TO ANY EARTHWORK. THE ENVIRONMENTAL MONITOR WILL INSPECT THE WORK ZONE AREA PRIOR TO AND FOLLOWING EROSION CONTROL BARRIER INSTALLATION TO ENSURE THE AREA IS FREE OF WOOD TURTLE (ALONG WITH OTHER AMPHIBIANS AND REPTILES THAT MAY BE ENCOUNTERED) AND DOCUMENT BARRIERS HAVE BEEN SATISFACTORILY INSTALLED. THE INTENT OF THE BARRIER IS TO SEGREGATE THE MAJORITY OF THE WORK ZONE AND ISOLATE IT FROM NESTING/FORAGING/MIGRATING/DISPERSING TURTLES, SNAKES AND OTHER HERPETOFAUNA. OFTENTIMES COMPLETE ISOLATION OF A WORK ZONE IS NOT FEASIBLE DUE TO ACCESSIBILITY NEEDS AND LOCATIONS OF STAGING/MATERIAL STORAGE AREAS, ETC. ALTHOUGH THE BARRIERS MAY NOT COMPLETELY ISOLATE THE WORK ZONE, THEY WILL BE POSITIONED TO DEFLECT MIGRATING/DISPERSAL ROUTES AWAY FROM THE WORK ZONE TO MINIMIZE POTENTIAL ENCOUNTERS WITH TURTLES, SNAKES AND OTHER HERPETOFAUNA.

e. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS FOR TEARS OR BREACHES AND ACCUMULATION LEVELS OF SEDIMENT, PARTICULARLY FOLLOWING STORM EVENTS THAT GENERATE A DISCHARGE, AS DEFINED BY AND IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR SHALL NOTIFY THE APT ENVIRONMENTAL MONITOR WITHIN 24 HOURS OF ANY BREACHES OF THE SEDIMENTATION AND EROSION CONTROLS AND ANY SEDIMENT RELEASES BEYOND THE PERIMETER CONTROLS THAT IMPACT WETLANDS, WATERCOURSES, OR AREAS WITHIN 100 FEET OF WETLANDS. THE APT ENVIRONMENTAL MONITOR WILL PROVIDE PERIODIC INSPECTIONS OF THE SEDIMENTATION AND EROSION CONTROLS THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES ONLY AS IT PERTAINS TO THEIR FUNCTION TO PROTECT NEARBY WETLANDS. SUCH INSPECTIONS WILL GENERALLY OCCUR ONCE PER MONTH. THE FREQUENCY OF MONITORING MAY INCREASE DEPENDING UPON SITE CONDITIONS, LEVEL OF CONSTRUCTION ACTIVITIES IN PROXIMITY TO SENSITIVE RECEPTORS, OR AT THE REQUEST OF REGULATORY AGENCIES. IF THE ENVIRONMENTAL MONITOR IS NOTIFIED BY THE CONTRACTOR OF A SEDIMENT RELEASE, AN INSPECTION WILL BE SCHEDULED SPECIFICALLY TO INVESTIGATE AND EVALUATE POSSIBLE IMPACTS TO WETLAND RESOURCES.

f. THIRD PARTY MONITORING OF SEDIMENTATION AND EROSION CONTROLS WILL BE PERFORMED BY OTHER PARTIES, AS NECESSARY, UNDER APPLICABLE LOCAL, STATE AND/OR FEDERAL REGULATIONS AND PERMIT CONDITIONS.

g. NO EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS SHALL BE STORED WITHIN 100 FEET OF WETLAND OR WATERCOURSE RESOURCES.

h. ALL SILT FENCING AND OTHER EROSION CONTROL DEVICES SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS. IF FIBER ROLLS/WATTLES, STRAW BALES, OR OTHER NATURAL MATERIAL EROSION CONTROL PRODUCTS ARE USED, SUCH DEVICES WILL NOT BE LEFT IN PLACE TO BIODEGRADE AND SHALL BE PROMPTLY REMOVED AFTER SOILS ARE STABLE SO AS NOT TO CREATE A BARRIER TO WILDLIFE MOVEMENT. SEED FROM SEEDING OF SOILS SHOULD NOT SPREAD OVER FIBER ROLLS/WATTLES AS IT MAKES THEM HARDER TO REMOVE ONCE SOILS ARE STABILIZED BY VEGETATION.

3. PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION

a. 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 DUE TO THE PROJECT'S LOCATION IN PROXIMITY TO WETLAND RESOURCES.

b. IF A SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN FOR THIS PROJECT, PER THE REQUIREMENTS OF 40 CFR 112, HAS BEEN DEVELOPED FOR THIS FACILITY, PLEASE REFER TO THE SPCC FOR SPECIFIC REQUIREMENTS. BASIC REQUIREMENTS FOR PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION ARE PROVIDED BELOW. IN THE EVENT THESE BASIC REQUIREMENTS CONTRADICT THE SPCC, THE CONTRACTOR SHALL RELY ON REQUIREMENTS PROVIDED IN THE SPCC.

c. 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.

d. THE SERVICE OF MACHINERY SHALL NOT OCCUR WITHIN 100 FEET OF WETLANDS OR WATERCOURSES.

e. AT A MINIMUM, THE FOLLOWING PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING RESTRICTIONS AND SPILL RESPONSE PROCEDURES WILL BE ADHERED TO BY THE CONTRACTOR.

   i. PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING

1. REFUELING OF VEHICLES OR MACHINERY SHALL OCCUR A MINIMUM OF 100 FEET FROM WETLANDS AND SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
2. 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.

   ii. INITIAL SPILL RESPONSE PROCEDURES

1. STOP OPERATIONS AND SHUT OFF EQUIPMENT.
2. REMOVE ANY SOURCES OF SPARK OR FLAME.
3. CONTAIN THE SOURCE OF THE SPILL.
4. DETERMINE THE APPROXIMATE VOLUME OF THE SPILL.
5. IDENTIFY THE LOCATION OF NATURAL FLOW PATHS TO PREVENT THE RELEASE OF THE SPILL TO SENSITIVE NEARBY WETLANDS AND VERNAL POOL.
6. ENSURE THAT FELLOW WORKERS ARE NOTIFIED OF THE SPILL.

   iii. SPILL CLEAN UP & CONTAINMENT

1. OBTAIN SPILL RESPONSE MATERIALS FROM THE ON-SITE SPILL RESPONSE KIT. PLACE ABSORBENT MATERIALS DIRECTLY ON THE RELEASE AREA.
2. LIMIT THE SPREAD OF THE SPILL BY PLACING ABSORBENT MATERIALS AROUND THE PERIMETER OF THE SPILL.
3. ISOLATE AND ELIMINATE THE SPILL SOURCE.
4. CONTACT APPROPRIATE LOCAL, STATE AND/OR FEDERAL AGENCIES, AS NECESSARY.
5. CONTACT A DISPOSAL COMPANY TO PROPERLY DISPOSE OF CONTAMINATED MATERIALS.

   iv. REPORTING

1. COMPLETE AN INCIDENT REPORT.
2. SUBMIT A COMPLETED INCIDENT REPORT TO LOCAL, STATE AND FEDERAL AGENCIES, AS NECESSARY, INCLUDING THE CONNECTICUT SITING COUNCIL.

4. HERBICIDE, PESTICIDE, AND SALT RESTRICTIONS

a. THE USE OF HERBICIDES AND PESTICIDES AT THE FACILITY SHALL BE MINIMIZED. IF HERBICIDES AND/OR PESTICIDES ARE REQUIRED AT THE FACILITY, THEIR USE WILL BE USED IN ACCORDANCE WITH CURRENT INTEGRATED PEST MANAGEMENT ("IPM") PRINCIPLES WITH PARTICULAR ATTENTION TO AVOID/MINIMIZE APPLICATIONS WITHIN 100 FEET OF WETLAND AND VERNAL POOL RESOURCES.

b. MAINTENANCE OF THE FACILITY DURING THE WINTER MONTHS SHALL MINIMIZE THE APPLICATION OF SALT OR SIMILAR PRODUCTS FOR MELTING SNOW OR ICE. NON-CHLORIDE BASED DEICING PRODUCTS ARE RECOMMENDED.

5. WOOD TURTLE PROTECTION MEASURES - CONSTRUCTION PHASE

   a. PRIOR TO CONSTRUCTION AND FOLLOWING INSTALLATION OF ISOLATION BARRIERS, THE CONSTRUCTION AREA WILL BE SWEPT BY APT AND ANY TURTLES OCCURRING WITHIN THE WORK AREA WILL BE RELOCATED TO SUITABLE HABITAT OUTSIDE OF THE ISOLATION BARRIERS.

b. PRIOR TO THE START OF CONSTRUCTION EACH DAY, THE CONTRACTOR SHALL SEARCH THE ENTIRE WORK AREA FOR TURTLES.

c. IF A TURTLE IS FOUND DURING THE ACTIVE PERIOD, IT SHALL BE IMMEDIATELY MOVED, UNHARMED, BY BEING CAREFULLY GRASPED IN BOTH HANDS, ONE ON EACH SIDE OF THE SHELL, BETWEEN THE TURTLE'S FORELIMBS AND THE HIND LIMBS, AND PLACED JUST OUTSIDE OF THE ISOLATION BARRIER IN THE SAME APPROXIMATE DIRECTION IT WAS HEADING. THESE ANIMALS ARE PROTECTED BY LAW AND NO TURTLES SHOULD BE RELOCATED FROM THE PROPERTY.

d. SPECIAL CARE SHALL BE TAKEN BY THE CONTRACTOR DURING EARLY MORNING AND EVENING HOURS SO THAT POSSIBLE BASKING OR FORAGING TURTLES ARE NOT HARMED BY CONSTRUCTION ACTIVITIES.

e. THE CONTRACTOR SHALL BE PARTICULARLY DILIGENT DURING THE MONTHS OF MAY AND JUNE WHEN TURTLES ARE ACTIVELY SELECTING NESTING SITES WHICH RESULTS IN AN INCREASE IN TURTLE MOVEMENT ACTIVITY.

f. NO HEAVY MACHINERY OR VEHICLES MAY BE PARKED IN ANY TURTLE HABITAT.

g. AVOID AND LIMIT ANY EQUIPMENT USE WITHIN 100 FEET OF WETLANDS AND NO HEAVY MACHINERY OR VEHICLES MAY BE PARKED IN ANY TURTLE HABITAT OR WITHIN 100 FEET OF WETLANDS.

h. SPECIAL PRECAUTIONS MUST BE TAKEN TO AVOID DEGRADATION OF WETLAND HABITATS, PARTICULARLY ALONG AN PERENNIAL STREAM RIPARIAN CORRIDORS.

6. TURTLE PROTECTION MEASURES - FACILITY MAINTENANCE (MOWING RECOMMENDATIONS)

   a. PERFORM MOWING DURING THE TURTLE DORMANT PERIOD - NOVEMBER 1ST THROUGH MARCH 31ST WHEN POSSIBLE.

b. IF MOWING IS REQUIRED OUTSIDE OF THE TURTLE DORMANT PERIOD, AVOID MOWING DURING MAY 15TH THROUGH AUGUST 30TH WHEN TURTLES MAY BE LOCATED WITHIN THE FACILITY (AND AWAY FROM FORESTED HABITAT), IF POSSIBLE, UNDERSTANDING THAT SOME VEGETATION MAINTENANCE IS NECESSARY FOR OPERATIONAL AND ELECTRICAL SAFETY PURPOSES.

c. VEGETATION MAINTENANCE WITHIN THE FENCED SOLAR FACILITY MAY BE ACCOMPLISHED THROUGH SHEEP GRAZING. SHOULD THAT TECHNIQUE BE USED, MOWING RESTRICTIONS WOULD NOT APPLY; MOWING RECOMMENDATIONS OUTSIDE OF THE FENCED FACILITY WOULD STILL APPLY.

d. IF MOWING IS REQUIRED DURING THE TURTLE ACTIVE SEASON (APRIL 1ST THROUGH OCTOBER 31ST), MOWING SHOULD BE PERFORMED AS FOLLOWS.

i. MOWING STYLE: AVOID FLAIL MOWER HEADS WITH GUIDE BARS THAT RIDE ALONG THE GROUND. SICKLE BAR MOWERS WILL HAVE THE LEAST IMPACT IF MOWING EVERY 1-5 YEARS. IN AREAS WITH MORE WOODY VEGETATION >1-2" DIAMETER BRONTOSAURUS-STYLE MOWER WILL LIKELY HAVE THE LEAST IMPACT ON TURTLES.

ii. MOWING HEIGHT: IF MOWING DURING ACTIVE SEASON, RETENTION OF MOWING STUBBLE TO 7-12 INCHES WILL REDUCE MORTALITY, REDUCE BLADE WEAR, AND WILL LEAVE IMPORTANT COVER FOR ANIMALS.

iii. DIRECTIONALITY: IF MOWING DURING THE ACTIVE SEASON IS NECESSARY, START MOWING FROM THE CENTER OF THE FIELD AND USE A BACK-AND-FORTH APPROACH, OR LARGE CIRCULAR PATTERN, TO AVOID CONCENTRATING FLEEING ANIMALS WHERE THEY MAY BE KILLED OR STRANDED. IN ADDITION, LEAVE AN UN-MOWED 30 FT STRIP AROUND THE PERIMETER OF THE FIELD AND MOW THIS AREA LAST. MOST TURTLES ARE FOUND IN THESE AREAS, AND THIS PROVIDES TIME FOR THEM TO REACT TO THE MOWING ACTIVITY AND MOVE OUT OF THE AREA.

iv. MOWER SPEED: MOWING IN LOW GEAR OR AT SLOW SPEEDS WILL ALLOW TURTLES TO REACT AND MOVE OUT OF THE FIELD.

v. UN-MOWED EDGE: LEAVING AN UN-MOWED FIELD EDGE IN HIGH TURTLE USE AREAS UNTIL AFTER SEPTEMBER 15TH. WOOD TURTLES ARE OFTEN IN FIELD EDGES CLOSEST TO NEARBY STREAMS.

7. REPORTING

a. A COMPLIANCE MONITORING REPORT (BRIEF NARRATIVE AND APPLICABLE PHOTOS) DOCUMENTING EACH APT INSPECTION WILL BE SUBMITTED BY APT TO THE PERMITTEE AND ITS CONTRACTOR FOR COMPLIANCE VERIFICATION OF THESE PROTECTION MEASURES. THESE REPORTS ARE NOT TO BE USED TO DOCUMENT COMPLIANCE WITH ANY OTHER PERMIT AGENCY APPROVAL CONDITIONS (I.E., DEEP STORMWATER PERMIT MONITORING, ETC.). ANY NON-COMPLIANCE OBSERVATIONS OF EROSION CONTROL MEASURES OR EVIDENCE OF EROSION OR SEDIMENT RELEASE WILL BE IMMEDIATELY REPORTED TO THE PERMITTEE AND ITS CONTRACTOR AND INCLUDED IN THE REPORTS. ANY OBSERVATIONS OF RARE SPECIES, RESOURCE IMPACTS, OR CORRECTIVE ACTIONS WILL BE INCLUDED IN THE REPORTS.

b. FOLLOWING COMPLETION OF THE CONSTRUCTION PROJECT, APT WILL PROVIDE A FINAL COMPLIANCE MONITORING REPORT TO THE PERMITTEE DOCUMENTING IMPLEMENTATION OF THIS WETLAND AND RARE SPECIES PROTECTION PROGRAM AND MONITORING OBSERVATIONS. THE PERMITTEE IS RESPONSIBLE FOR PROVIDING A COPY OF THE FINAL COMPLIANCE MONITORING REPORT TO THE CONNECTICUT SITING COUNCIL FOR COMPLIANCE VERIFICATION.

c. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO DEEP BY APT ON THE APPROPRIATE SPECIAL ANIMAL REPORTING FORM, WITH PHOTO-DOCUMENTATION (IF POSSIBLE) AND SPECIFIC INFORMATION ON THE LOCATION AND DISPOSITION OF THE ANIMAL.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

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DATE: 04/22/2024 **CHECKED BY:** RCB

SHEET TITLE:

ENVIRONMENTAL NOTES - RESOURCE PROTECTION

SHEET NUMBER:

EC-3

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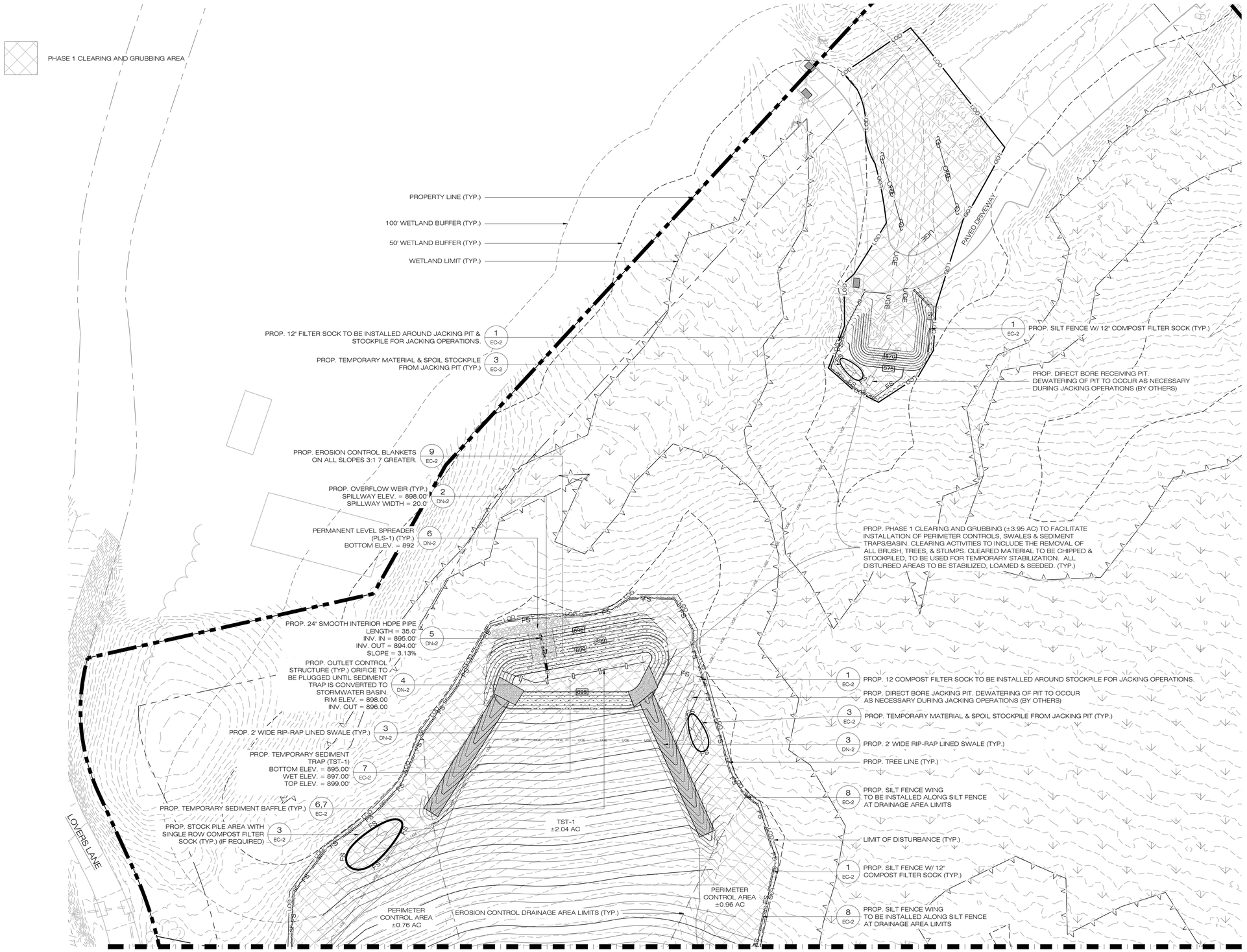

MATCHLINE: SEE SHEET EC-5

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

1 EC-4 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1" = 40'-0"

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
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ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

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SHEET TITLE:
PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-4

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER

PHASE 1 CLEARING AND GRUBBING AREA

PROP. CONSTRUCTION ENTRANCE (MINIMUM 50' LONG) 2 EC-2

MATCHLINE: SEE SHEET EC-4

PROPERTY LINE (TYP.)

TST-1
±2.04 AC

PERIMETER CONTROL AREA
±0.76 AC

PERIMETER CONTROL AREA
±0.53 AC

PERIMETER CONTROL AREA
±0.75 AC

PERIMETER CONTROL AREA
±0.96 AC

PERIMETER CONTROL AREA
±0.80 AC

PERIMETER CONTROL AREA
±0.91 AC

PERIMETER CONTROL AREA
±0.86 AC

TSB-2
±5.42 AC

PROP. SILT FENCE WING TO BE INSTALLED ALONG SILT FENCE AT DRAINAGE AREA LIMITS 5 EC-2

3 EC-2 PROP. STOCK PILE AREA WITH SINGLE ROW COMPOST FILTER SOCK (TYP.) (IF REQUIRED)

PROP. STOCK PILE AREA WITH SINGLE ROW COMPOST FILTER SOCK (TYP.) (IF REQUIRED) 3 EC-2

PROP. 24" SMOOTH INTERIOR HDPE PIPE
LENGTH = 35.0'
INV. IN = 936.00'
INV. OUT = 935.00'
SLOPE = 2.86%
5 DN-2

10.0' (TYP.)

PROP. PHASE 1 CLEARING AND GRUBBING (±3.95 AC) TO FACILITATE INSTALLATION OF PERIMETER CONTROLS, SWALES & SEDIMENT TRAPS/BASIN. CLEARING ACTIVITIES TO INCLUDE THE REMOVAL OF ALL BRUSH, TREES, & STUMPS. CLEARED MATERIAL TO BE CHIPPED & STOCKPILED, TO BE USED FOR TEMPORARY STABILIZATION. ALL DISTURBED AREAS TO BE STABILIZED LOAMED & SEEDED. (TYP.)

EROSION CONTROL DRAINAGE AREA LIMITS (TYP.)

LOVERS LANE

EXIST. TREE LINE (TYP.)

PROP. TREE LINE (TYP.)

LIMIT OF DISTURBANCE (TYP.)

6 DN-2 PERMANENT LEVEL SPREADER (PLS-2) (TYP.)
BOTTOM ELEV. = 933.00'

2 DN-2 PROP. OVERFLOW WEIR (TYP.)
SPILLWAY ELEV. = 939.0'
SPILLWAY WIDTH = 30.0'

4 DN-2 PROP. OUTLET CONTROL STRUCTURE (TYP.)
RIM ELEV. = 939.0'
12" ORIFICE/GRATE = 938.0'
INV. OUT = 936.0'

5,6 EC-2 PROP. TEMPORARY SEDIMENT BAFFLE (TYP. 3PL)

5 EC-2 PROP. TEMPORARY SEDIMENT BASIN (TSB-2)
BOTTOM ELEV. = 936.00'
WET ELEV. = 938.00'
TOP ELEV. = 940.00'

9 EC-2 PROP. EROSION CONTROL BLANKETS ON ALL SLOPES 3:1 & GREATER.

3 DN-2 PROP. 2' WIDE RIP-RAP LINED SWALE (TYP.)

3 DN-2 PROP. 2' WIDE RIP-RAP LINED SWALE (TYP.)

1 EC-2 PROP. SILT FENCE W/ 12" COMPOST FILTER SOCK (TYP.)

EXIST. 100' WETLAND BUFFER (TYP.)

EXIST. 50' WETLAND BUFFER (TYP.)

EXIST. WETLANDS (TYP.)

MATCHLINE: SEE SHEET EC-6

1 EC-5 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

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DATE: 04/22/2024 **CHECKED BY: RCB**

SHEET TITLE:
PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-5

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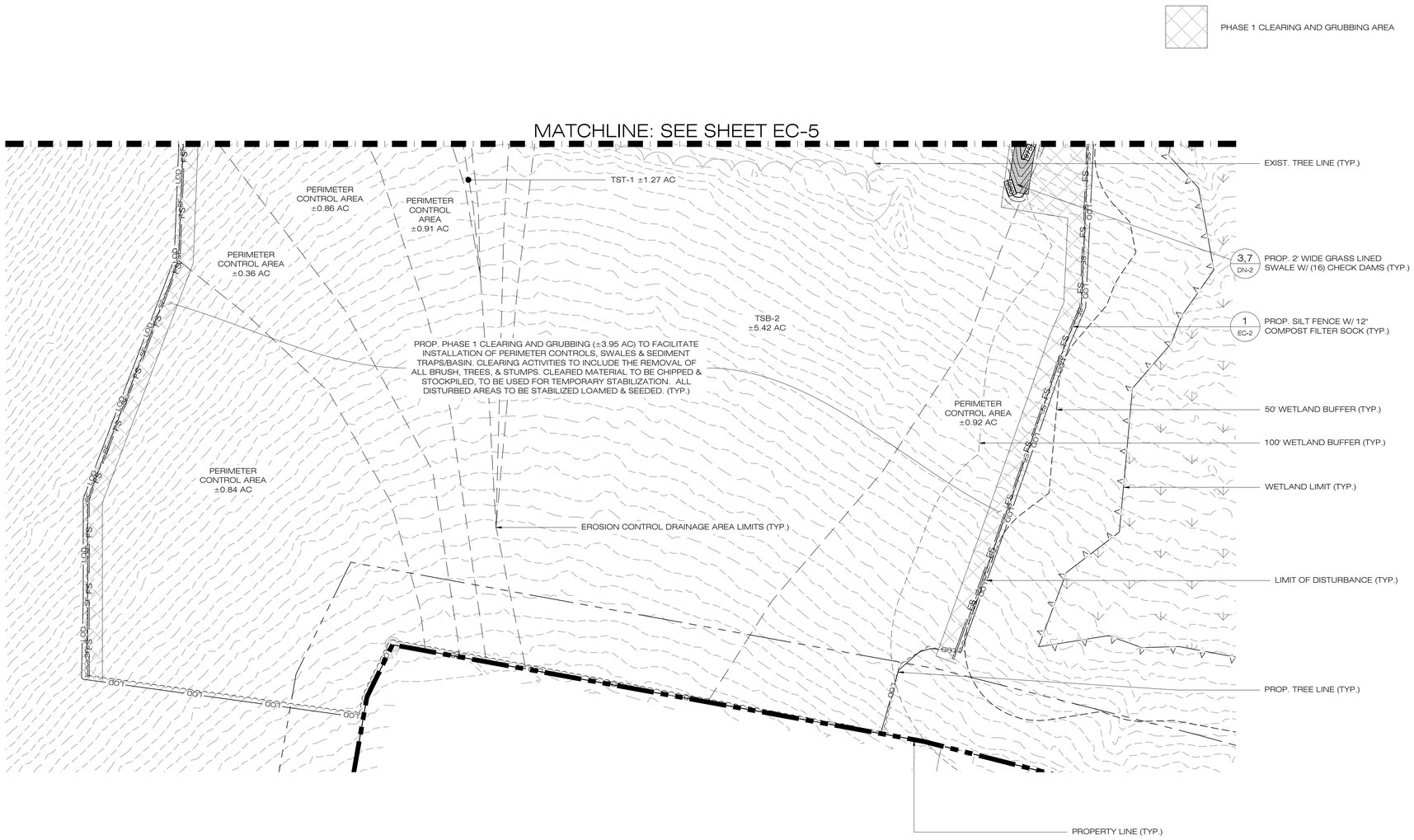

1 EC-6 **PHASE 1 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
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PHASE 1 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-6

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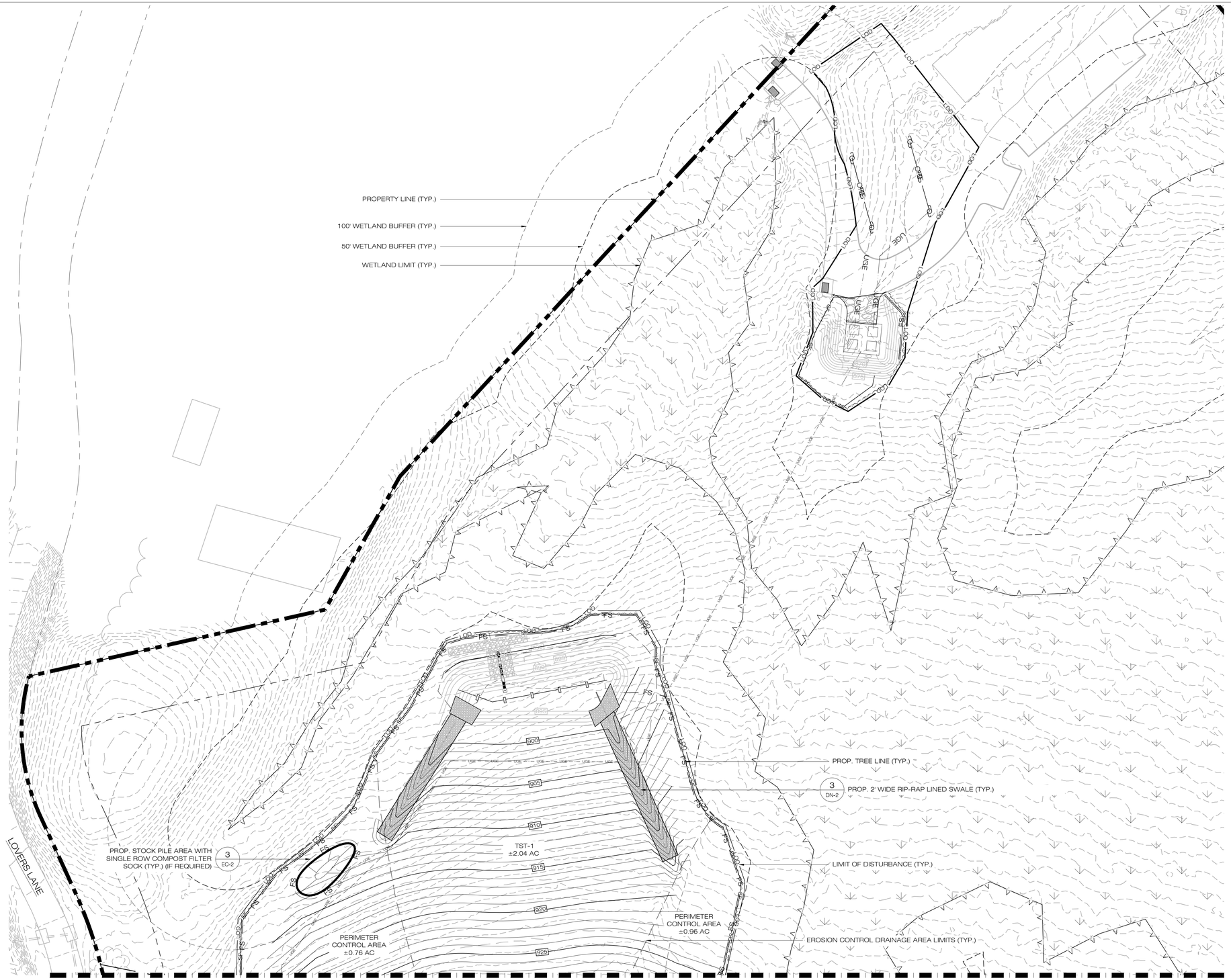

MATCHLINE: SEE SHEET EC-8

1 EC-7 **PHASE 2 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
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OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

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SHEET TITLE:
PHASE 2 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-7

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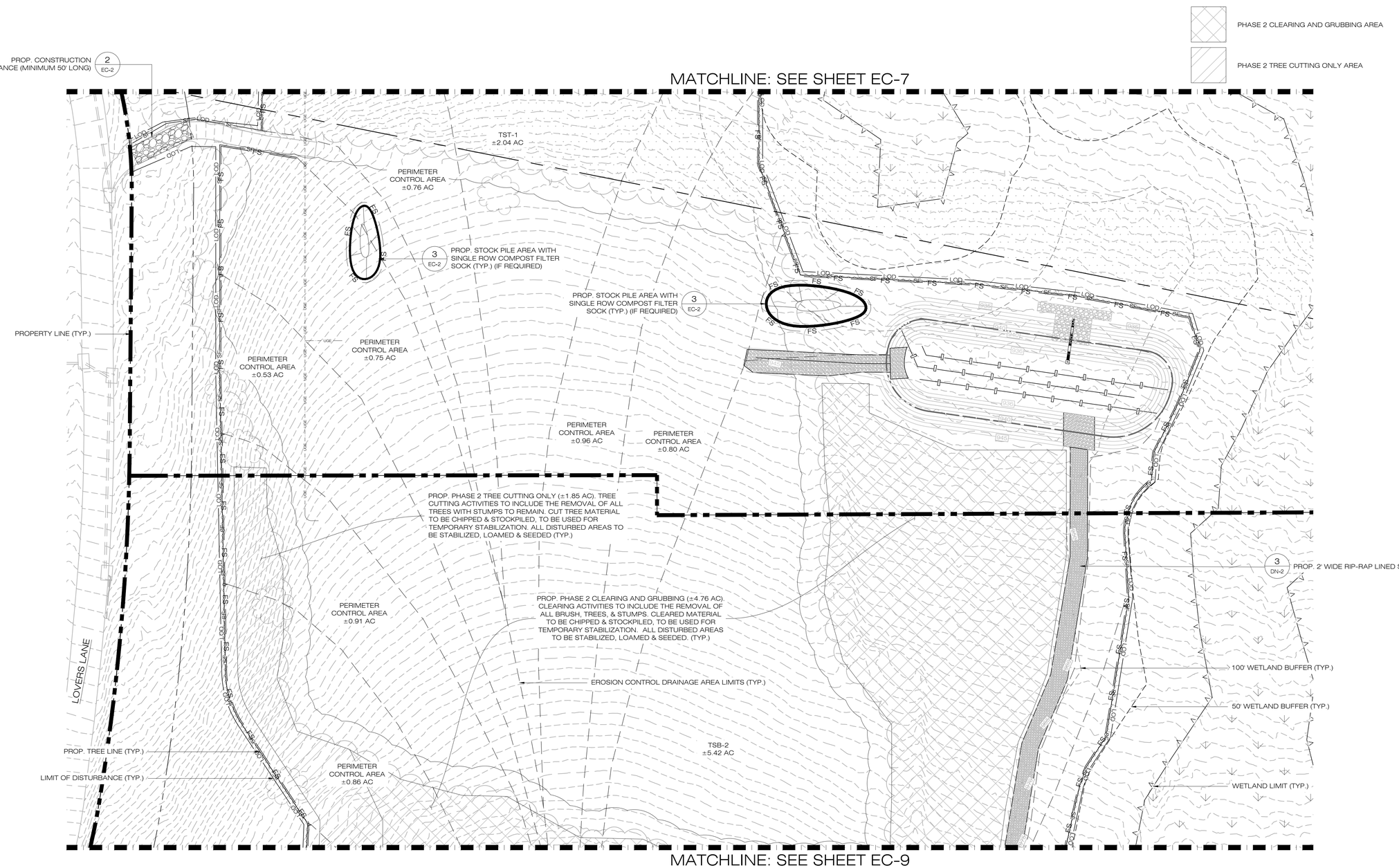

1 EC-8 **PHASE 2 - SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
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AVON, CT 06001

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LOVERS LANE SOLAR

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SHEET TITLE:
PHASE 2 SEDIMENTATION & EROSION CONTROL PLAN

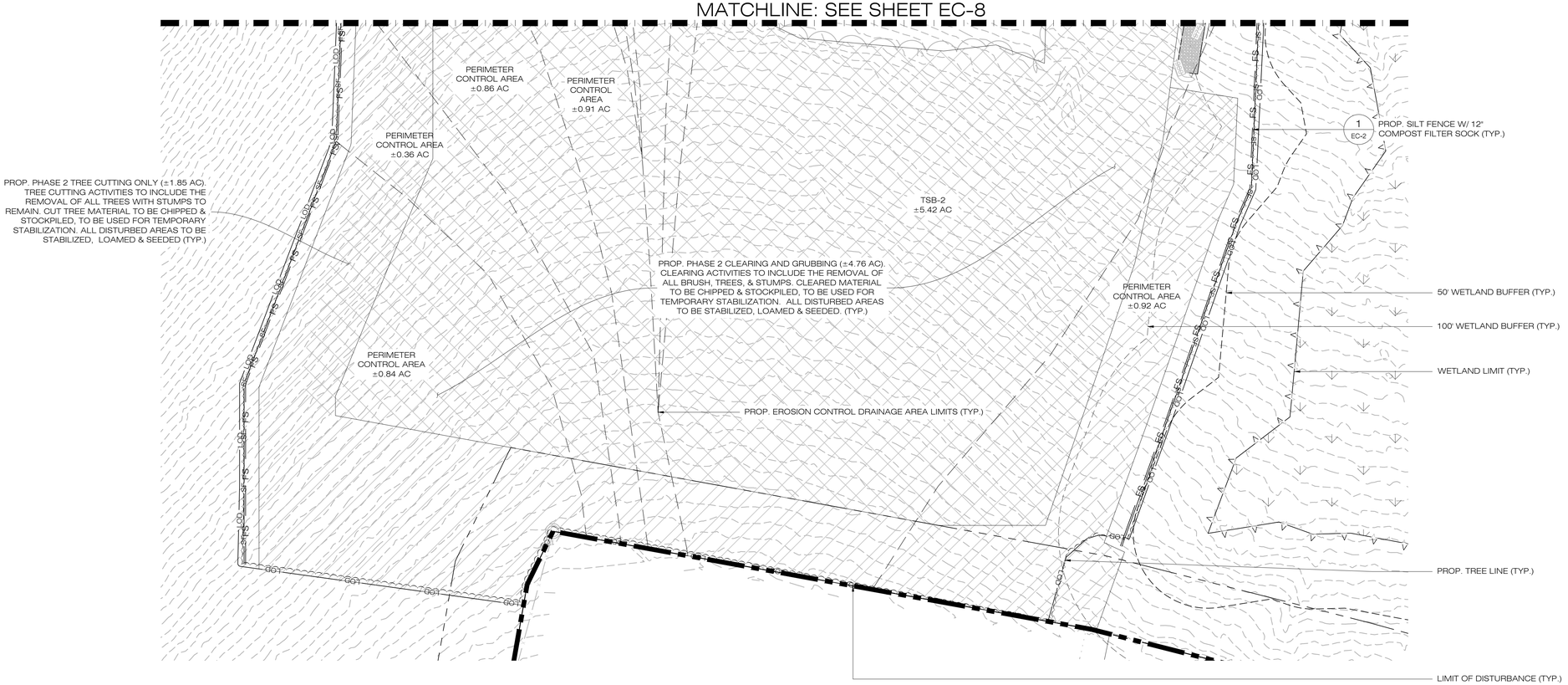
SHEET NUMBER:
EC-8

STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER

PHASE 2 CLEARING AND GRUBBING AREA

PHASE 2 TREE CUTTING ONLY AREA

MATCHLINE: SEE SHEET EC-8



1 EC-9 **PHASE 2 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
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DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

DRAWN BY: TEL

DATE: 04/22/2024 **CHECKED BY: RCB**

SHEET TITLE:
PHASE 2 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-9

STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER

PHASE 3 CLEARING AND GRUBBING AREA

PROPERTY LINE (TYP.)

100' WETLAND BUFFER (TYP.)

50' WETLAND BUFFER (TYP.)

WETLAND LIMIT (TYP.)

LOVERS LANE

PROP. STOCK PILE AREA WITH SINGLE ROW COMPOST FILTER SOCK (TYP.) (IF REQUIRED) — 3 / EC-2

TST-1
±2.04 AC

PERIMETER CONTROL AREA
±0.76 AC

EROSION CONTROL DRAINAGE AREA LIMITS (TYP.)

PERIMETER CONTROL AREA
±0.96 AC

PROP. TREE LINE (TYP.)

PROP. PHASE 3 CLEARING AND GRUBBING (±1.44 AC). CLEARING ACTIVITIES TO INCLUDE THE REMOVAL OF ALL BRUSH, TREES, & STUMPS. CLEARED MATERIAL TO BE CHIPPED & STOCKPILED, TO BE USED FOR TEMPORARY STABILIZATION. ALL DISTURBED AREAS TO BE STABILIZED, LOAMED & SEEDED. (TYP.)

LIMIT OF DISTURBANCE (TYP.)

1 / EC-2 PROP. SILT FENCE W/ 12" COMPOST FILTER SOCK (TYP.)

MATCHLINE: SEE SHEET EC-11

1 / EC-10 **PHASE 3 - SEDIMENTATION & EROSION CONTROL PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
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ALL-POINTS TECHNOLOGY CORPORATION
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ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

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SHEET TITLE:
PHASE 3 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-10

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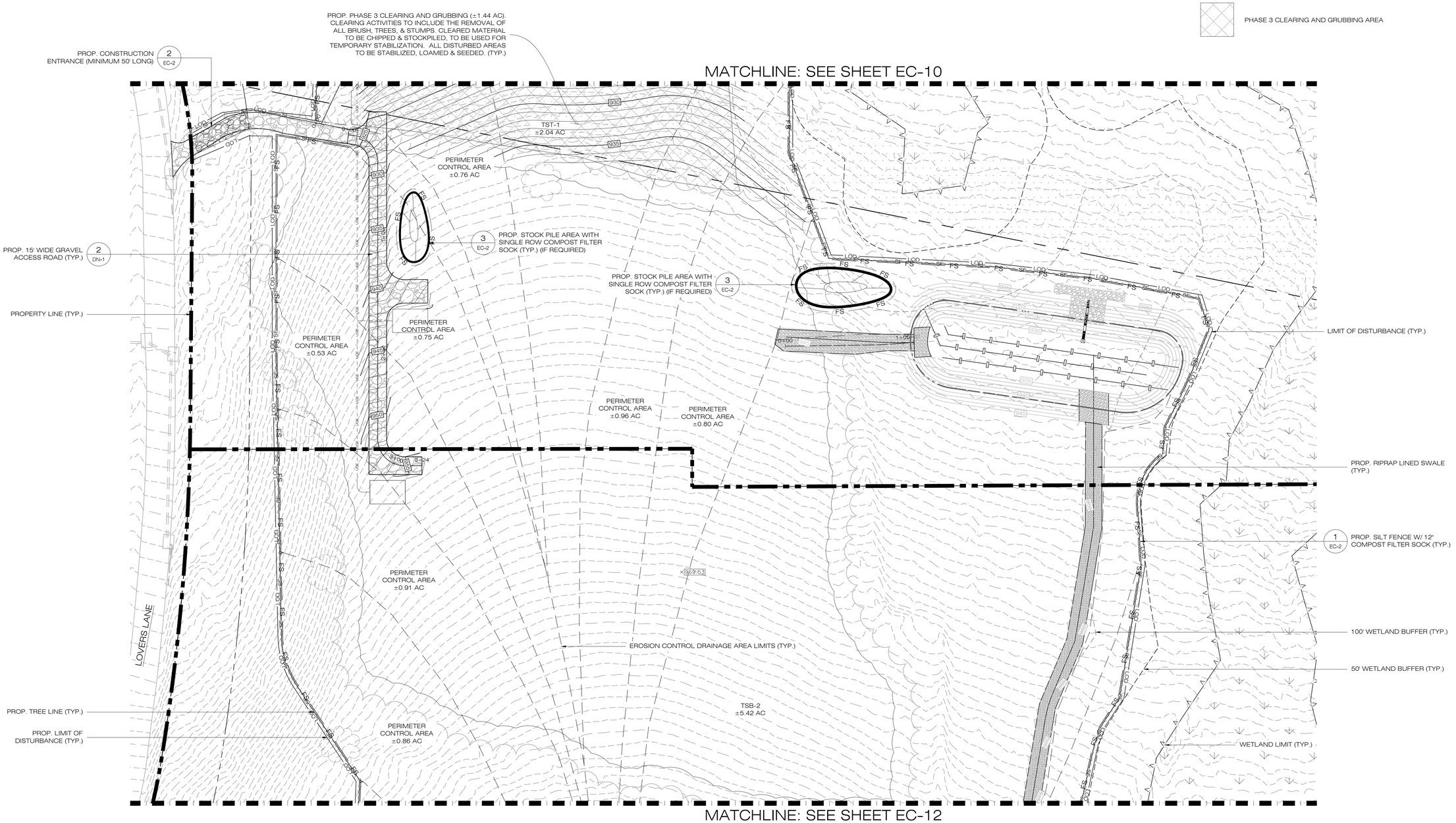

1 EC-11 PHASE 3 - SEDIMENTATION & EROSION CONTROL PLAN

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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1	07/26/24	CSC SUBMISSION
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DESIGN PROFESSIONAL OF RECORD

PROF: THOMAS E. LITTLE, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

DRAWN BY: TEL
DATE: 04/22/2024 **CHECKED BY: RCB**

SHEET TITLE:

PHASE 3 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:

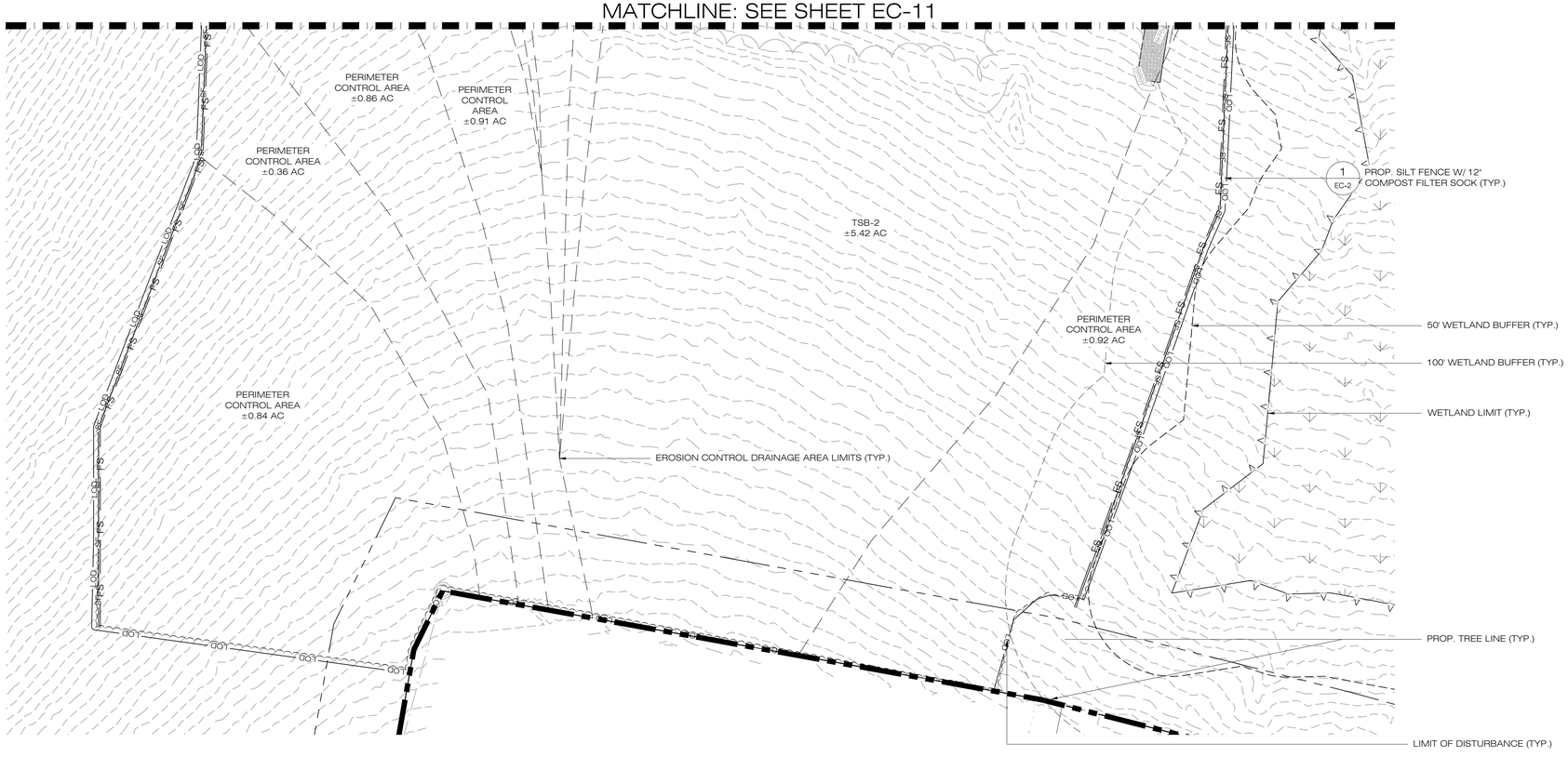
EC-11

STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER

PHASE 3 CLEARING AND GRUBBING AREA

PHASE 3 TREE CUTTING ONLY AREA

MATCHLINE: SEE SHEET EC-11



1 EC-12 **PHASE 3 - SEDIMENTATION & EROSION CONTROL PLAN**

SCALE : 1" = 40'-0"

40 0 20 40 80

(IN FEET) 1 inch = 40 ft.

NOTES:
1. SEE SHEET GN-1 FOR GENERAL LEGEND

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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DESIGN PROFESSIONAL OF RECORD

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COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: CLOVER RIDGE LLC
ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

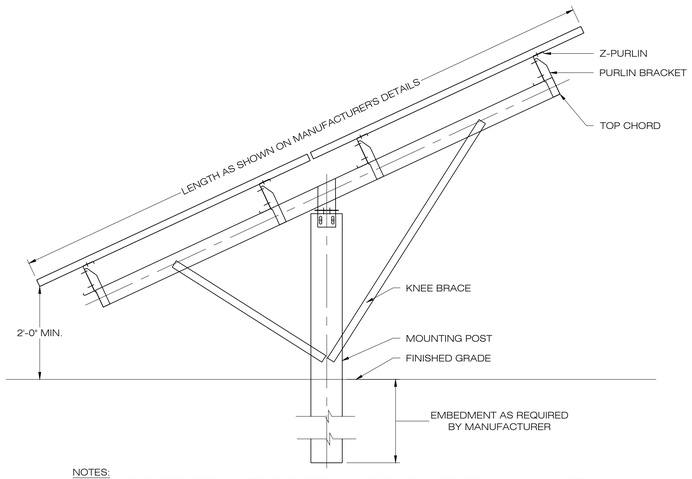
DRAWN BY: TEL

DATE: 04/22/2024 CHECKED BY: RCB

SHEET TITLE:
PHASE 3 SEDIMENTATION & EROSION CONTROL PLAN

SHEET NUMBER:
EC-12

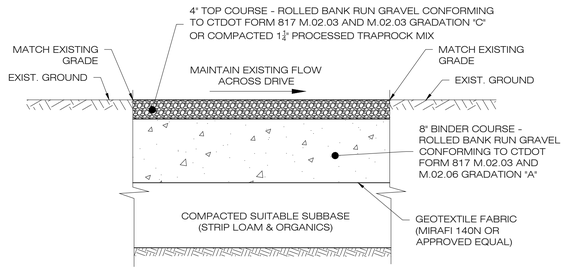
STATE OF CONNECTICUT THOMAS E. LITTLE 33443 LICENSED PROFESSIONAL ENGINEER



NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

1 DN-1 TYPICAL POST MOUNTED RACKING SYSTEM

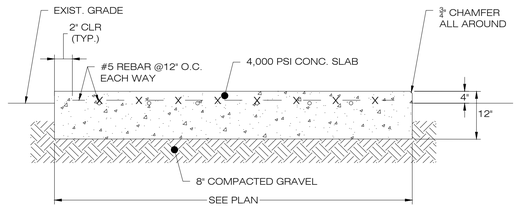
SCALE : N.T.S.



NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.
3. CONTRACTOR SHALL INSTALL ACCESS ROAD FLUSH WITH EXISTING GRADE TO ENSURE DRAINAGE FLOW PATHS ARE MAINTAINED.
4. SEE PLAN VIEW SHEETS FOR ROAD WIDTH.

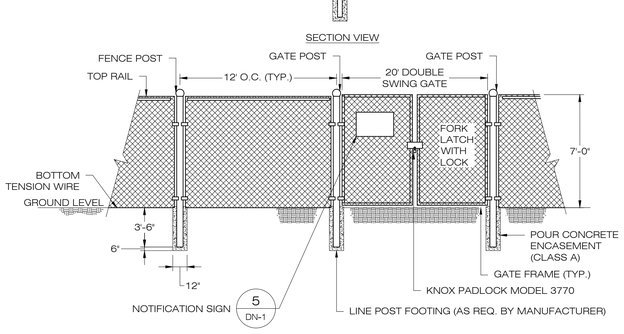
2 DN-1 GRAVEL ACCESS DRIVE SECTION

SCALE : N.T.S.



3 DN-1 CONCRETE EQUIPMENT PAD

SCALE : N.T.S.



4 DN-1 BLACK VINYL CHAIN-LINK FENCE & GATE DETAIL

SCALE : N.T.S.

LOVERS LANE SOLAR

IN CASE OF EMERGENCY
CALL T.B.D.

NOTES:
EMERGENCY CALL NUMBER TO BE PROVIDED ONCE DETERMINED.

5 DN-1 NOTIFICATION SIGN DETAIL

SCALE : N.T.S.

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: April 14, 2021

Fuzz & Buzz Mix - Premium - ERNMX-147

	Botanical Name	Common Name	Price/lb
24.20 %	*Lolium perenne, 'Crave', Tetraploid*	Perennial Ryegrass, 'Crave', Tetraploid	3.48
17.70 %	*Dactylis glomerata, 'Pennlate'*	Orchardgrass, 'Pennlate'	3.00
17.70 %	*Festuca elatior*	Meadow Fescue	4.80
17.70 %	*Poa pratensis, 'Ginger'*	Kentucky Bluegrass, 'Ginger' (pasture type)	3.36
5.40 %	*Trifolium hybridum*	Alsike Clover	3.90
4.90 %	*Trifolium incarnatum, Variety Not Stated*	Crimson Clover, Variety Not Stated	1.92
4.50 %	*Trifolium pratense, Medium, Variety Not Stated*	Red Clover, Medium, Variety Not Stated	3.00
2.00 %	*Lotus corniculatus, 'Leo'*	Bird's Foot Trefoil, 'Leo'	7.50
1.30 %	*Chrysanthemum leucanthemum*	Oxeye Daisy	33.60
1.30 %	*Cichorium intybus*	Blue Chicory	19.20
0.80 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	7.20
0.40 %	*Aster oblongifolius, PA Ecotype*	Aromatic Aster, PA Ecotype	336.00
0.40 %	*Aster prenanthoides, PA Ecotype*	Zigzag Aster, PA Ecotype	432.00
0.40 %	*Coreopsis lanceolata*	Lanceleaf Coreopsis	28.80
0.40 %	*Tradescantia ohiensis, PA Ecotype*	Ohio Spiderwort, PA Ecotype	192.00
0.40 %	*Zizia aurea*	Golden Alexanders	288.00
0.30 %	*Solidago nemoralis, PA Ecotype*	Gray Goldenrod, PA Ecotype	336.00
0.10 %	*Asclepias syriaca*	Common Milkweed	163.20
0.10 %	*Penstemon hirsutus*	Hairy Beardtongue	480.00
100.00 %		**Mix Price/lb Bulk:**	**$10.91**

Seeding Rate: Expect to apply about 42 lbs per acre with a cover crop of annual ryegrass at 12 lbs/acre.

Forage & Pasture Sites; Solar Sites

6 DN-1 FUZZ & BUZZ MIX

SCALE : N.T.S.

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: March 14, 2024

Retention Basin Floor Mix - Low Maintenance - ERNMX-126

	Botanical Name	Common Name	Price/Lb
20.00 %	*Panicum clandestinum, Tioga*	Deertongue, Tioga	22.08
20.00 %	*Puccinellia distans, Fults*	Alkaligrass, Fults	4.56
18.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	10.45
15.00 %	*Agrostis stolonifera, 'Penncross'*	Creeping Bentgrass, 'Penncross'	14.40
15.00 %	*Poa palustris*	Fowl Bluegrass	16.80
10.00 %	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	28.80
1.00 %	*Carex scoparia, PA Ecotype*	Blunt Broom Sedge, PA Ecotype	81.60
1.00 %	*Juncus effusus*	Soft Rush	48.00
100.00 %		**Mix Price/Lb Bulk:**	**$16.06**

Seeding Rate: 20-40 lbs per acre, or 0.5-1 lb/1,000 sq ft with a cover crop. For a cover crop use one of the following: grain rye (1 Sep to 30 Apr; 30 lbs/acre), Japanese millet (1 May to 31 Aug; 10 lbs/acre), or barnyard grass (1 May to 31 Aug; 10 lbs/acre).

Grasses & Grass-like Species - Herbaceous Perennial; Stormwater Management

The hardy inexpensive grass and grass-like species are ideal for retention basins that may have high salt inflows and where mowing may be required. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

7 DN-1 STORMWATER MANAGEMENT BASIN MIX

SCALE : N.T.S.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

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DESIGN PROFESSIONAL OF RECORD

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COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

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ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

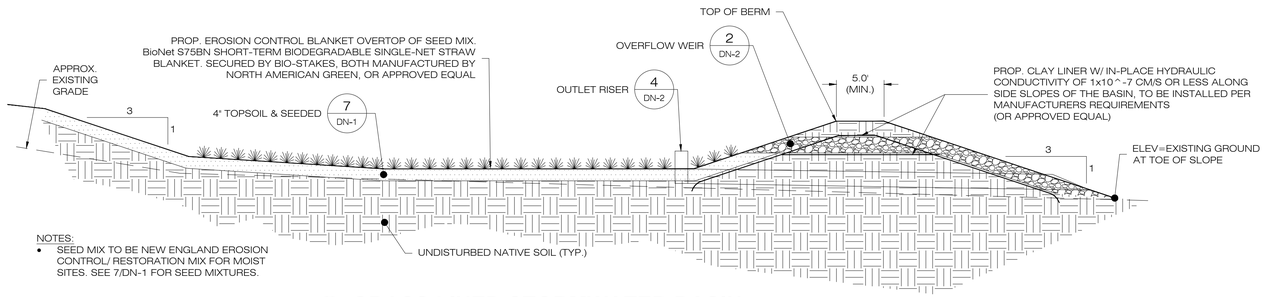
APT FILING NUMBER: CT606190

DRAWN BY: TEL
DATE: 04/22/2024 CHECKED BY: RCB

SHEET TITLE:
SITE DETAILS

SHEET NUMBER:
DN-1

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER



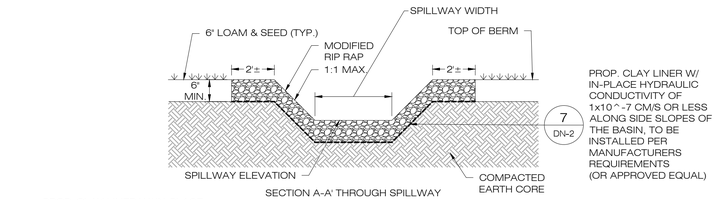
NOTES:

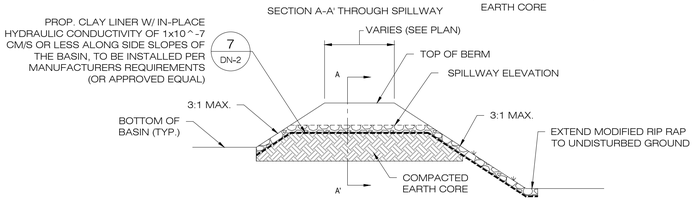
- SEED MIX TO BE NEW ENGLAND EROSION CONTROL/ RESTORATION MIX FOR MOIST SITES. SEE 7/DN-1 FOR SEED MIXTURES.

1 DN-2 GRASS LINED STORMWATER BASIN

SCALE : N.T.S.

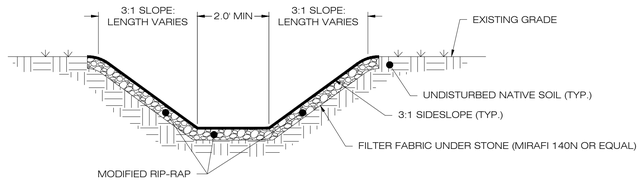
HDPE OUTLET PIPE SIZING TABLE										
BASIN	ORIFICE SIZE (IN)	ORIFICE ELEV. (FT.)	GRATE SIZE (IN)	GRATE ELEV. (FT)	GRATE	OUTLET PIPE SIZE (IN.)	OUTLET PIPE LENGTH (FT)	OUTLET PIPE SLOPE (%)	OUTLET PIPE INV. ELEV. AT STRUCTURE (FT)	OUTLET PIPE INV. AT OUTFALL (FT)
B-1	3	896.0	12	897.0	12	24	32.0	3.13%	895.0	894.00'
B-2	3	937.0	12	938.0	12	24	34	2.94%	936.0	935.00'





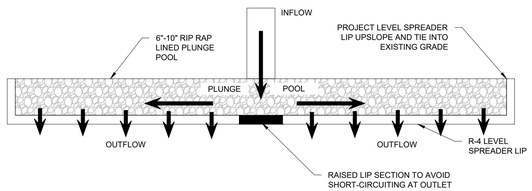
2 DN-2 OVERFLOW WEIR DETAIL

SCALE : N.T.S.

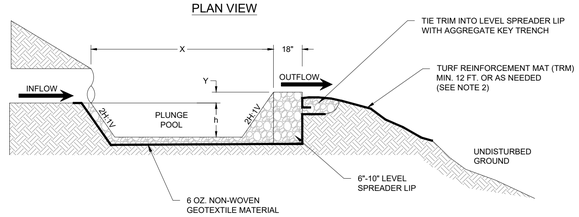


3 DN-2 RIP-RAP LINED SWALE

SCALE : N.T.S.



PLAN VIEW



PROFILE VIEW

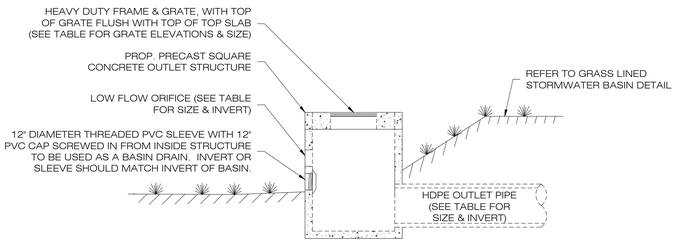
LEVEL SPREADER ID	LEVEL SPREADER LENGTH, L(FT)	PLUNGE POOL LENGTH, X (FT)	PLUNGE POOL HEIGHT, h (FT)	VERTICAL SEPERATION Y(FT)
PLS-1	67	6	1	0.5
PLS-2	59	6	1	0.5

NOTES:

1. UNDERLYING SOILS TO REMAIN UNDISTURBED, COMPACTED AND PROTECTED FROM HEAVY EQUIPMENT TO PRESERVE INFILTRATION CAPACITY.
2. LEVEL SPREADER TO BE INSTALLED COMPLETELY LEVEL ALONG THE EXISTING CONTOUR WITH A SMOOTH TRANSITION BETWEEN THE LEVEL SPREADER AND THE EXISTING GRADE. THE IDEAL ELEVATION OF THE LEVEL SPREADER LIP IS 3 INCHES ABOVE THE EXISTING GRADE.
3. THE MINIMUM WIDTH OF 12' OF TURF REINFORCEMENT MAT (TRM) IS TO BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE LEVEL SPREADER LIP. CONTRACTOR TO INSTALL ADDITIONAL TRM AS NECESSARY BASED ON EXISTING SITE CONDITIONS TO ADEQUATELY STABILIZE THE DOWNSLOPE AREA.

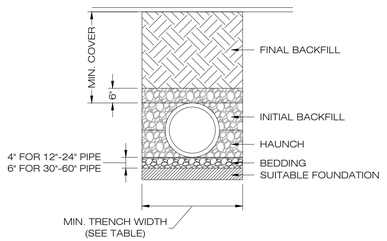
6 DN-2 PERMANENT LEVEL SPREADER

SCALE : N.T.S.



4 DN-2 OUTLET CONTROL STRUCTURE

SCALE : N.T.S.



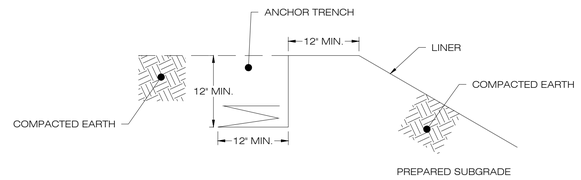
RECOMMENDED MIN. TRENCH WIDTH	
PIPE DIA.	MIN. TRENCH WIDTH
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
48"	80"
60"	96"

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 , "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

5 DN-2 HDPE STORM DRAINAGE TRENCH DETAIL

SCALE : N.T.S.



7 DN-2 LINER ANCHOR DETAIL

SCALE : N.T.S.

LSE SEXTANS LLC & LSE SEXTANS II LLC
40 TOWER LANE, SUITE 201
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CSC PERMIT SET

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DESIGN PROFESSIONAL OF RECORD

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COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
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ADDRESS: 40 TOWER LANE STE 201 AVON, CT 06001

LOVERS LANE SOLAR

SITE ADDRESS: LOVERS LANE TORRINGTON, CT

APT FILING NUMBER: CT606190

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SITE DETAILS

SHEET NUMBER:

DN-2

STATE OF CONNECTICUT · THOMAS E. LITTLE · 33443 · LICENSED PROFESSIONAL ENGINEER

APPENDIX B

STORMWATER REPORT SUMMARY

STORMWATER MANAGEMENT REPORT

PROPOSED

LOVERS LANE SOLAR

SOLAR PROJECT

LOVERS LANE
TORRINGTON, CONNECTICUT
LITCHFIELD COUNTY

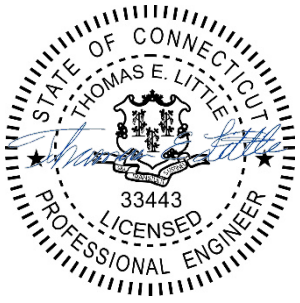
Prepared for:

LSE Sextans LLC
40 Tower Lane, Suite 201
Avon, CT 06001

Prepared by:

All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension, Suite 311
Waterford, CT 06385

MAY 2024



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Tables

Appendices

Introduction

At the request of LSE Sextans LLC, All-Points Technology Corporation, P.C. ("APT") has prepared this Stormwater Management Report to outline the potential impacts resulting from the development of a solar electric generating facility, consisting of two arrays with an output of approximately 3.0 megawatts (MW) alternating current (AC) (the "Project") located off of Lovers Lane in Torrington, Connecticut (the "Site").

The design is intended to be in full compliance with all applicable State and Town regulations while taking prevailing site conditions and practical factors into account. This report will describe how the proposed Project adheres to the Connecticut Department of Energy & Environmental Projection ("CT DEEP") Appendix I, Stormwater Management at Solar Array Construction Projects.

Existing Site Conditions

The Site consists of two (2) privately-owned parcels totaling 54.08-acres. The Project will be located within a farm field and wooded area in the southwestern portion of the Site. Project limit of disturbance is approximately 17.19± acres of the overall site area. See Appendix A for an Overall Locus Map.

The Project area's topography generally slopes at 10%-12% from the south of the site down to the north and west, with ground elevations ranging from approximately 1013 feet above mean sea level ("AMSL") in the south of the Site to approximately 817 feet AMSL in the north of the Site.

Developed Site Conditions

The Project will be constructed in the southwestern portion of the Site, within an existing farm field with crop rows and wooded area. Access to the Project will be provided at the western edge of the Site via one (1) existing gravel drive off of Lovers Lane. The Project includes the installation of 7,570 540W tracking modules and associated fencing, access drive and utilities, within 16.59± acres of the Site. Approximately 10.86± acres of woods will require clearing and grubbing for the development of the Project, with another 0.97± acres of tree cutting only for shading purposes.

The proposed solar panels will be installed on a post driven ground mounted racking system, with minimal changes to the existing grades. As a result, the post-development site conditions will mimic the pre-developed site conditions. Areas of clearing and grubbing and any existing ground cover that is disturbed during construction will be reseeded with a Fuzz & Buzz Mix – ERNMX-147 or approved equal. In order to account for the change in ground cover and time of concentration, grass-lined stormwater management basins are proposed along the northern side of the proposed Project area.

All of the array locations will all drain into proposed stormwater basins which have been designed to treat the entire 2-year design storm and will also remove in excess of 90% of Total Suspended Solids as demonstrated in SEDIMOT Modeling that we have provided in Appendix G of this report. Proposed stormwater discharges from the basins will be at locations with grades of less than 15%. Based upon meeting these criteria, the setbacks for the proposed solar panels will be 100' or greater from the identified wetlands system running through the property and the grading associated with the construction of the basins will be 50' or greater from any wetlands area in accordance with reduced setbacks allowed in Appendix I of the Construction General Permit.

Stormwater Management

Analysis Methodology

The hydrologic analysis was performed using the HydroCAD stormwater modeling system computer program developed by HydroCAD Software Solutions, LLC.

Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with a Type III rainfall distribution. Hydrographs were developed for the NOAA Atlas 14, Volume 10, Version 2 Precipitation 2-, 25-, 50-, and 100-year storm event with rainfall depths of 3.49, 7.06, 8.06, and 9.17 inches respectively.

The drainage areas used in the calculations are illustrated on the Existing and Proposed Drainage Area Maps (EDA-1 & PDA-1). These maps and the corresponding HydroCAD output are attached in Appendices C & D.

Utilizing CT DEEP Appendix I, this hydrologic analysis reflects a reduction of the Hydrologic Soil Group ("HSG") present on-site by a half (1/2) step (i.e., half the difference between the runoff curve number for HSG A versus HSG B). This reduction, as indicated by CT DEEP, is intended to account for the compaction of soils that results from extensive machinery traffic during construction of the array. The Water Quality Volume ("WQV") for the site will be calculated assuming that the gravel surfaces and concrete equipment pads are effectively impervious cover.

Existing Drainage Patterns

The proposed Project area drains generally from the south to the north and west. The area that drains to the west, Analysis Point One ("AP-1"), drains to the existing municipal storm drain system in Lovers Lane. The area that drains to the north, Analysis Point Two ("AP-2") and Analysis Point Three ("AP-3"), drains to an existing wetland system. Peak discharges have been computed at the analysis points for the 2-, 25-, 50-, and 100-year storm events as shown in Table 1.

The Project area soils identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Service consist of map unit symbols 84C, 86C, 52C and 47C. 84C is classified as "Paxton and Montauk fine sandy loams, 8 to 15 percent slopes" and has a HSG rating of "C". 86C is classified as "Paxton and Montauk fine sandy loams, 3 to 45 percent slopes, extremely stony" and has a HSG rating of "C". 52C is classified as "Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony" and has a HSG rating of "B/D". 47C is classified as "Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony" and has a HSG rating of "C/D". Specific details for each soil Map Unit Symbol are provided in Appendix B.

Table 1

Analysis Point	**Pre-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	6.47	21.01	25.34	30.19
AP-2	7.41	22.26	26.60	31.41
AP-3	6.51	21.83	26.39	31.53

Proposed Drainage Patterns

The Project will require clearing and grubbing in the immediate area for the proposed solar installation, including the necessary utilities, access road, and stormwater management features, resulting in approximately 17.189± acres of disturbance. Overall, hydrologically, through the addition of catchment areas associated with the individual drainage areas of each proposed basin, the post-developed condition is designed to mimic the pre-developed condition.

To manage the increase in post-development runoff due to the change in cover type associated with converting woods to meadow and the increase in a half step of HSG within the proposed limit of disturbance, two (2) grass-lined stormwater management basins are proposed; both located on the north side of the facility. Using outlet control structure/s with a grate top in each basin, as needed, the basins are designed to provide the necessary water quality treatment volume for the additional impervious area, as required by CT DEEP Appendix I. See calculations attached. Additional flow and volume control is provided via a 4" low flow orifice and a rip-rap overflow weir discharging to level spreaders at the flared end sections.

Since the proposed development mimics the existing conditions, the post-development condition was modeled using the same Analysis Points. Peak discharges have been computed at AP-1, AP-2 and AP-3 for the 2-year, 25-year, 50-year, and 100-year storm events.

Table 2

Analysis Point	**Post-developed Peak Storm Runoff (Q), cubic feet per second (cfs)**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	5.96	20.63	25.06	30.03
AP-2	3.93	16.87	22.88	30.94
AP-3	1.76	13.70	22.12	30.02

The reductions in runoff achieved by the post-development discharges in comparison with the pre-development discharges are tabulated in Table 3.

Table 3

Analysis Point	**Pre vs. Post Peak Storm Runoff (Q) Percent Reduction**			
	2-year	**25-year**	**50-year**	**100-year**
AP-1	7.9%	1.8%	1.1%	0.5%
AP-2	47.0%	8.3%	9.7%	10.1%
AP-3	73.0%	37.2%	16.2%	4.8%

CT DEEP Appendix I Design Regulations/Compliance

The following identifies and details the regulations and proposed compliance measures within CT DEEP Appendix I that pertain specifically to civil, stormwater, and erosion control designs. Additionally, a checklist of the same is available herein in Appendix F.

(I) Design and construction requirements:

1. Roadways, gravel surfaces, transformer pads are considered effective impervious cover for the purposes of calculating the WQV. The proposed solar panels that are proposed within existing and post-construction slopes that are less than 15% are not considered impervious cover for the purposes of calculating the WQV because the following have been met:
    a. Vegetative areas between the rows of solar panels have a width of 14.7 feet which is greater than the solar panel width of 14.1 feet.
    b. The post-development stormwater runoff is designed to drain to proposed stormwater management controls.
    c. The Project meets (iv) this requirement as the plan includes specific engineered phased construction plans and detailed erosion control measures.
    d. The panels are spaced and provide a minimum height of 2 feet from the ground to provide growth of native vegetation.
2. Setback and buffer requirements have been met following the subsections identified below:
    a. See Subsection requirements below:
        i. Solar panels are not located within the 100-foot wetland setback (see subsection(b)) but not within the 50-foot setback of any property boundary.
        ii. An undisturbed buffer of at least fifty (50) feet between any wetland or waters will be maintained during construction activities at the site.
        iii. Other than a single perpendicular crossing, a 10-foot buffer is maintained between the proposed access road and electrical interconnection path.
    b. Under Section (2)(b)(i) the Project would then be eligible for a 50% reduction if Section (2)(b)(i)(A-C) are met, resulting in both the LOD and panel buffers being reduced to 50'.
    c. The existing wetlands and waters were delineated by Ian T. Cole, LLC in November of 2022 and verified by All-Points Technology Corporation in February of 2023. The location of delineated resources, as well as buffers, are present on the development plans.

    Under Section (2)(b)(i) the Project would then be eligible for a 50% reduction if Section (2)(b)(i)(A-C) are met, resulting in both the LOD and panel buffers being reduced to 50'

3. The lowest vertical clearance of the solar panels above the ground is proposed to be 2 feet.

II. Design requirements for post-construction stormwater management measures.

1. Post-construction stormwater control measures have been designed and will be constructed to provide permanent stabilization and non-erosive conveyance of runoff from the site.
2. The orientation of the panels follows the existing slopes on the site to the extent practicable.
3. The hydrologic analysis has been completed, as described above, with the following details:
    a. The Project evaluates and controls the 2, 25, 50, and 100-year 24-hour rainfall events in accordance with the 2004 CT Stormwater Quality Manual. Maximum sheet flow was kept to 100 feet and shallow concentrated flows are calculated using values for grassed waterways within HydroCAD.
    b. NRCS soil mapping was used for the stormwater/erosion control design.
    c. The required half-drop (1/2) and full drop in HSG for the facility area has been included in the stormwater calculations and design for the proposed stormwater management BMPs to provide a decrease in post-development runoff in comparison to pre-development runoff.
    d. Pre-and post-development drainage area maps & computations are provided in Appendices B and C.
    e. The analysis above demonstrates that the Project will have no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

Sediment and Erosion Control During Construction

For drainage areas that are under 1.0-acre, sediment and erosion control will be provided by perimeter compost filter sock/silt fence with wings, as needed. For drainage areas that are between 1.0 and 5.0 acres, sediment and erosion control will be provided by a temporary sediment trap. For the one (1) drainage area that is larger than 5.0 acres, sediment and erosion control will be provided by a temporary sediment basin. The temporary sediment trap and basin provide the requisite sediment treatment volumes, based on 134 cubic yards per acre of disturbance.

Conclusion

The stormwater management for the proposed project has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100- year storm events are less than the pre-development peak discharges. In addition, the Project adheres to the regulations and guidelines presented by CT DEEP's Appendix I as described above. As a result, the proposed solar array will not result in any adverse conditions to the surrounding areas.

APPENDIX C

USFWS AND NDDB

COMPLIANCE STATEMENT

USFWS & NDDB COMPLIANCE

March 1, 2024

LSE Sextans LLC and LSE Sextans II LLC
40 Tower Lane, Suite 145
Avon, Connecticut 06001

Re: Lovers Lane Solar Facility, Lovers Lane, Torrington, Connecticut
APT Job No: CT606190

On behalf of LSE Sextans LLC and LSE Sextans II LLC, All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible federally- and state-listed, threatened, endangered or special concern species in order to determine if the proposed referenced solar energy generation facility (the "Facility" or "Project") would result in a potential adverse effect to listed species.

APT understands that LSE Sextans LLC and LSE Sextans II LLC proposes the construction of a solar energy generation facility in the southeastern portion of property located at Lovers Lane in Torrington, Connecticut ("Subject Property"). The Facility would be located within upland forest both north and south of an existing cleared field on the Subject Property.

USFWS

The federal consultation was completed in accordance with Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, one federally listed[1] threatened species is known to occur in the vicinity of the Property documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). Please refer to the enclosed official species list.[2] As a result of this preliminary finding, APT performed an evaluation to determine if the proposed referenced Facility would result in a likely adverse effect to NLEB.

The proposed Facility would be located partially within a cleared agricultural field with much of the Project located in forested uplands that will require tree clearing; trees potentially provide NLEB habitat. A review of the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") NLEB habitat map[3] revealed that the proposed Facility is not within 150 feet of a known occupied NLEB maternity roost tree and is not within 0.25 mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the proposed Facility is located ±6.6 miles to the south in Morris.

NLEB has been reclassified as Endangered under the ESA. The reclassification now eliminates use of the previous 4(d) rule for NLEB; 4(d) rules may only be applied to Threatened species. A NLEB Interim

[1]Listing under the federal Endangered Species Act

[2]Monarch butterfly (*Danaus plexippus*), a Candidate species, is also listed for the Property. Candidate species have no current protections under the ESA and there is no requirement to consider project impacts.

[3]*Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance* map. February 1, 2016.

Consultation Framework has been developed by USFWS for projects that are reasonably certain to occur before April 1, 2024 (date on which the NLEB Interim Consultation Framework expires) to facilitate transition from the 4(d) rule to typical ESA consultation procedures for Endangered species. APT submitted the effects determination using the new NLEB Determination Key ("DKey") within the IPaC system for this Facility and determined it "may effect, but not likely to adversely affect" ("NLAA") NLEB. No further consultation/coordination for this Project is required with USFWS. Please refer to the enclosed USFWS July 11, 2023, letter confirming the NLEB NLAA determination and ESA compliance for the Facility.

NDDB

The western portion of the Subject Property is located within a DEEP Natural Diversity Data Base ("NDDB") buffer area; please refer to the attached NDDB Map. A NDDB review request was submitted to DEEP on February 19, 2024. As part of that submission, a Preliminary Site Assessment was obtained through the eNDDB system resulting in identification of wood turtle (*Glyptemys insculpta*) on or in close proximity to the Subject Property. It appears that wood turtle, which is a riverine and riparian obligate species, is associated with the nearby Lovers Lane Brook located just west of the Subject Property across Lovers Lane. The proposed Facility will not directly or indirectly impact Lovers Lane Brook. However, wood turtle summer habitat that consists of early successional habitats may include portions of the Subject Property. Therefore, as a precaution, protective measures are proposed to avoid incidental injury or mortality to wood turtles both during construction and maintenance mowing at this Facility. Please find enclosed the resource protection program environmental notes that will be incorporated into the Project site plans.

The wood turtle protection program was included in the formal NDDB review request as part of that consultation process. CTDEEP issued a final NDDB Determination letter on March 1, 2024 that agreed with the turtle protection measures; a copy of that letter is enclosed.

Therefore, with incorporation of the wood turtle protection measures the proposed Facility is not anticipated to adversely impact any Federal or State Threatened, Endangered or species of Special Concern.

Sincerely,
All-Points Technology Corporation, P.C.

Dean Gustafson
Senior Biologist

Enclosures

USFWS Letters

- Species List
- NLEB Determination Key Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: February 07, 2024
Project Code: 2023-0102941
Project Name: Lodestar Torrington: Lovers Lane Solar

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2023-0102941
Project Name: Lodestar Torrington: Lovers Lane Solar
Project Type: Power Gen - Solar
Project Description: Lovers Lane Solar proposes to construct a solar photovoltaic electric generating facility (“Project”) with a capacity of < 2.0 MW, to be located off of Lovers Lane in Torrington, Connecticut (“Site”). The Project will be located on two parcels identified by the City of Torrington as M/B/L 222/004/026 (Goshen Road) and M/B/L 221/003/001 (Lovers Lane). We understand that the Client’s affiliate owns both parcels and intends to utilize a portion of the ±54.93-acre Site for Project development.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.8143178,-73.15379759385146,14z

Counties: Litchfield County, Connecticut

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: July 11, 2023
Project code: 2023-0102941
Project Name: Lodestar Torrington: Lovers Lane Solar

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Technical assistance for 'Lodestar Torrington: Lovers Lane Solar'

Dear Deborah Gustafson:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on July 11, 2023, for 'Lodestar Torrington: Lovers Lane Solar' (here forward, Project). This project has been assigned Project Code 2023-0102941 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements are not complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project is not reasonably certain to cause incidental take of the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species and/or critical habitat listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

Next Steps

Coordination with the Service is complete. This letter serves as technical assistance. All conservation measures should be implemented as proposed. Thank you for considering federally listed species during your project planning.

We are uncertain where the northern long-eared bat occurs on the landscape outside of known locations. Because of the steep declines in the species and vast amount of available and suitable forest habitat, the presence of suitable forest habitat alone is a far less reliable predictor of their presence. Based on the best available information, most suitable habitat is now expected to be unoccupied. During the interim period, while we are working on potential methods to address this uncertainty, we conclude take is not reasonably certain to occur in areas of suitable habitat where presence has not been documented.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2023-0102941 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Lodestar Torrington: Lovers Lane Solar

2. Description

The following description was provided for the project 'Lodestar Torrington: Lovers Lane Solar':

> Lovers Lane Solar proposes to construct a solar photovoltaic electric generating facility (“Project”) with a capacity of < 2.0 MW, to be located off of Lovers Lane in Torrington, Connecticut (“Site”). The Project will be located on two parcels identified by the City of Torrington as M/B/L 222/004/026 (Goshen Road) and M/B/L 221/003/001 (Lovers Lane). We understand that the Client’s affiliate owns both parcels and intends to utilize a portion of the ±54.93-acre Site for Project development.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.81428915,-73.15379560341378,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of "may affect, but not likely to adversely affect" for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Do you have post-white nose syndrome occurrence data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed acoustic detections. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

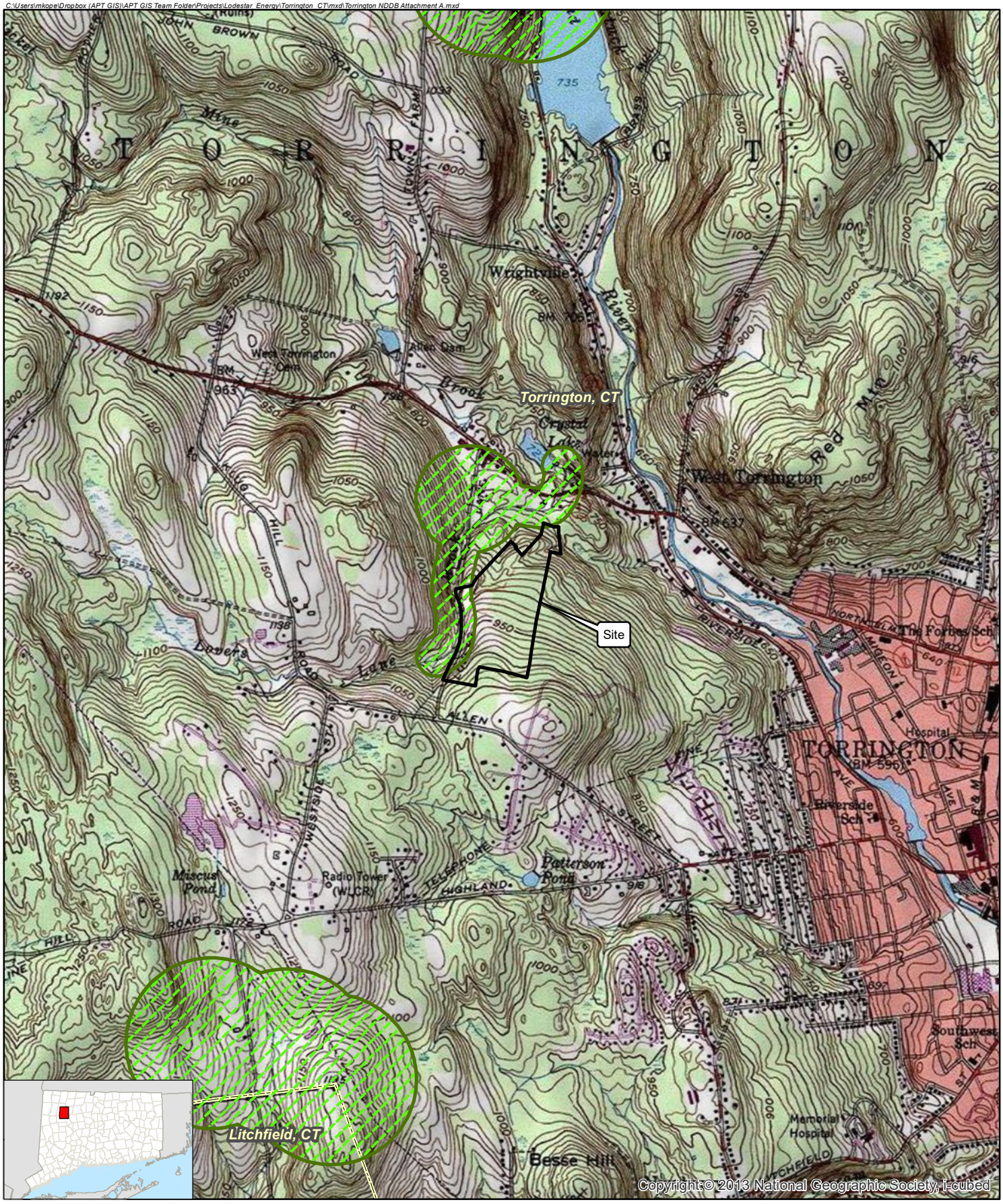
   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

NDDB Map

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Lodestar Energy\Torrington_CT\mxd\Torrington NDDB Attachment A.mxd



Legend

- Site
- Natural Diversity Database (updated June 2023)
- Municipal Boundary

NDDB Map

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, West Torrington, CT (1984)
Map Scale: 1:24,000
Map Date: July 2023

N

1,000 500 0 1,000 Feet

LODESTAR ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

ENVIRONMENTAL NOTES - RESOURCES PROTECTION PROGRAM

WETLAND AND RARE SPECIES PROTECTION MEASURES

As a result of the project's location in the vicinity of sensitive habitats including wetland resources and rare species, the following Protection Program shall be implemented by the Contractor to avoid unintentional impacts to proximate wetland resources and rare species during construction activities.

Wood Turtle (*Glyptemys insculpta*), a State Special Concern species afforded protection under the Connecticut Endangered Species Act, is known to occur on or proximity to the proposed facility. These rare species protection measures are similar to protection measures previously approved by the Connecticut Department of Energy and Environmental Protection ("DEEP") Wildlife Division on other comparable projects. Details of protection measures to be implemented in association with construction and maintenance of the facility are provided below.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. The wetland protection measures shall be implemented and maintained throughout the duration of construction activities until permanent stabilization of site soils has occurred.

All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that these protection measures are implemented properly and will provide an education session on the project's proximity to sensitive wetlands prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Wetland Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 552-2033 or via email at dgustafson@allpointstech.com.

This resources protection program consists of several components including: education of all contractors and sub-contractors prior to initiation of work on the site; installation of erosion controls; petroleum materials storage and spill prevention; protective measures; rare species protection measures; herbicide, pesticide, and salt restrictions; and reporting.

1. **Contractor Education:**

    a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT to emphasize the environmentally sensitive nature of the project, the various wetland and rare species resources, and the requirement to diligently follow the Protective Measures as described in sections below. Workers will also be provided information regarding the identification of other turtles, snakes, common herpetofauna that could be encountered. The meeting will further emphasize the non-aggressive nature of these species, the absence of need to destroy such animals and the need to follow Protective Measures as described in following sections. The Contractor will designate one of its workers as the "Project Monitor", who will receive more intense training on the identification and protection of wood turtles.

b. The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary “false alarms”. Encounters with any species of turtles, snakes and amphibians will be documented.

c. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the periodic “sweeps” for turtles and other herpetofauna within the construction zone each morning and for any ground disturbance work. This individual will receive more intense training from APT on the identification and protection of wood turtles and other herpetofauna in order to perform sweeps. Any herpetofauna discovered would be translocated outside the work zone in the general direction the animal was oriented.

d. The Contractor’s Project Monitor will be provided with cell phone and email contacts for APT personnel. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

e. APT will also post Caution Signs throughout the project site for the duration of the construction project providing notice of the environmentally sensitive nature of the work area, the potential for encountering various amphibians and reptiles and precautions to be taken to avoid injury to or mortality of these animals.

f. If any rare species are encountered, the Contractor shall immediately cease all work, avoid any disturbance to the species, and contact APT.

2. Erosion and Sedimentation Controls / Isolation Barriers

a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary erosion control products that will be exposed at the ground surface and represent a potential for wildlife entanglement will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

b. Exclusionary fencing shall be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained by the contractor (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.

c. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional sedimentation and erosion controls stockpiled on site should field or construction conditions warrant extending devices. In addition to the Contractor making these determinations, requests for additional controls will also be at the discretion of the Environmental Monitor.

d. Installation of sedimentation and erosion controls, required for erosion control compliance and creation of a barrier to possible migrating/dispersing turtles, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of Wood Turtle (along with other amphibians and reptiles that may be encountered) and document barriers have been satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone and isolate it from nesting/foraging/migrating/dispersing turtles, snakes and other herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. Although the barriers may not completely isolate the work zone, they will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with turtles, snakes and other herpetofauna.

e. The Contractor shall be responsible for daily inspections of the sedimentation and erosion controls for tears or breaches and accumulation levels of sediment, particularly following storm events that generate a discharge, as defined by and in accordance with applicable local, state and federal regulations. The Contractor shall notify the APT Environmental Monitor within 24 hours of any breaches of the sedimentation and erosion controls and any sediment releases beyond the perimeter controls that impact wetlands, watercourses, or areas within 100 feet of wetlands. The APT Environmental Monitor will provide periodic inspections of the sedimentation and erosion controls throughout the duration of construction activities only as it pertains to their function to protect nearby wetlands. Such inspections will generally occur once per month. The frequency of monitoring may increase depending upon site conditions, level of construction activities in proximity to sensitive receptors, or at the request of regulatory agencies. If the Environmental Monitor is notified by the Contractor of a sediment release, an inspection will be scheduled specifically to investigate and evaluate possible impacts to wetland resources.

f. Third party monitoring of sedimentation and erosion controls will be performed by other parties, as necessary, under applicable local, state and/or federal regulations and permit conditions.

g. No equipment, vehicles or construction materials shall be stored within 100 feet of wetland or watercourse resources.

h. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to wildlife movement. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

3. Petroleum Materials Storage and Spill Prevention

a. 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 due to the project's location in proximity to wetland resources.

b. If a Spill Prevention Control and Countermeasure (SPCC) Plan for this project, per the requirements of 40 CFR 112, has been developed for this facility, please refer to the SPCC for specific requirements. Basic requirements for petroleum materials storage and spill prevention are provided below. In the event these basic requirements contradict the SPCC, the Contractor shall rely on requirements provided in the SPCC.

c. 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.

d. The service of machinery shall not occur within 100 feet of wetlands or watercourses.

e. At a minimum, the following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

i. Petroleum and Hazardous Materials Storage and Refueling
   1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands and shall take place on an impervious pad with secondary containment designed to contain fuels.
   2. 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.

ii. Initial Spill Response Procedures
   1. Stop operations and shut off equipment.
   2. Remove any sources of spark or flame.
   3. Contain the source of the spill.
   4. Determine the approximate volume of the spill.
   5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby wetlands and vernal pool.
   6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment
   1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
   2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
   3. Isolate and eliminate the spill source.
   4. Contact appropriate local, state and/or federal agencies, as necessary.

5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting
    1. Complete an incident report.
    2. Submit a completed incident report to local, state and federal agencies, as necessary, including the Connecticut Siting Council.

4. Herbicide, Pesticide, and Salt Restrictions

a. The use of herbicides and pesticides at the Facility shall be minimized. If herbicides and/or pesticides are required at the Facility, their use will be used in accordance with current Integrated Pest Management ("IPM") principles with particular attention to avoid/minimize applications within 100 feet of wetland and vernal pool resources.

b. Maintenance of the facility during the winter months shall minimize the application of salt or similar products for melting snow or ice. Non-chloride based deicing products are recommended.

5. Wood Turtle Protection Measures – Construction Phase

a. Prior to construction and following installation of isolation barriers, the construction area will be swept by APT and any turtles occurring within the work area will be relocated to suitable habitat outside of the isolation barriers.

b. Prior to the start of construction each day, the contractor shall search the entire work area for turtles.

c. If a turtle is found during the active period, it shall be immediately moved, unharmed, by being carefully grasped in both hands, one on each side of the shell, between the turtle's forelimbs and the hind limbs, and placed just outside of the isolation barrier in the same approximate direction it was heading. These animals are protected by law and no turtles should be relocated from the property.

d. Special care shall be taken by the contractor during early morning and evening hours so that possible basking or foraging turtles are not harmed by construction activities.

e. The contractor shall be particularly diligent during the months of May and June when turtles are actively selecting nesting sites which results in an increase in turtle movement activity.

f. No heavy machinery or vehicles may be parked in any turtle habitat.

g. Avoid and limit any equipment use within 100 feet of wetlands and no heavy machinery or vehicles may be parked in any turtle habitat or within 100 feet of wetlands.

h. Special precautions must be taken to avoid degradation of wetland habitats, particularly along an perennial stream riparian corridors.

6. Turtle Protection Measures – Facility Maintenance (Mowing Recommendations)

a. Perform mowing during the turtle dormant period – November 1st through March 31st when possible.

b. If mowing is required outside of the turtle dormant period, avoid mowing during May 15th through August 30th when turtles may be located within the facility (and away from forested habitat), if possible, understanding that some vegetation maintenance is necessary for operational and electrical safety purposes.

c. Vegetation maintenance within the fenced solar facility may be accomplished through sheep grazing. Should that technique be used, mowing restrictions would not apply; mowing recommendations outside of the fenced facility would still apply.

d. If mowing is required during the turtle active season (April 1st through October 31st), mowing should be performed as follows.

i. Mowing style: Avoid flail mower heads with guide bars that ride along the ground. Sickle bar mowers will have the least impact if mowing every 1-5 years. In areas with more woody vegetation >1-2" diameter Brontosaurus-style mower will likely have the least impact on turtles.

ii. Mowing height: If mowing during active season, retention of mowing stubble to 7-12 inches will reduce mortality, reduce blade wear, and will leave important cover for animals.

iii. Directionality: If mowing during the active season is necessary, start mowing from the center of the field and use a back-and-forth approach, or large circular pattern, to avoid concentrating fleeing animals where they may be killed or stranded. In addition, leave an un-mowed 30 ft strip around the perimeter of the field and mow this area last. Most turtles are found in these areas, and this provides time for them to react to the mowing activity and move out of the area.

iv. Mower Speed: Mowing in low gear or at slow speeds will allow turtles to react and move out of the field.

v. Un-mowed Edge: Leaving an un-mowed field edge in high turtle use areas until after September 15th. Wood turtles are often in field edges closest to nearby streams.

7. Reporting

a. A Compliance Monitoring Report (brief narrative and applicable photos) documenting each APT inspection will be submitted by APT to the Permittee and its Contractor for compliance verification of these protection measures. These reports are not to be used to document compliance with any other permit agency approval conditions (i.e., DEEP Stormwater Permit monitoring, etc.). Any non-compliance observations of erosion control measures or evidence of erosion or sediment release will be immediately reported to the Permittee and its Contractor and included in the reports. Any observations of rare species, resource impacts, or corrective actions will be included in the reports.

b. Following completion of the construction project, APT will provide a final Compliance Monitoring Report to the Permittee documenting implementation of this wetland and rare species protection program and monitoring observations. The Permittee is responsible for providing a copy of the final Compliance Monitoring Report to the Connecticut Siting Council for compliance verification.

c. Any observations of rare species will be reported to DEEP by APT on the appropriate special animal reporting form, with photo-documentation (if possible) and specific information on the location and disposition of the animal.

CTDEEP NDDB Determination Letter

Connecticut Department of Energy & Environmental Protection

portal.ct.gov/DEEP

3/1/2024

Dean Gustafson
LSE Sextans LLC
40 Tower Ln
Avon, CT 06001
dgustafson@allpointstech.com

Subject: Lodestar Torrington
Filing #: 97331
NDDB - New Determination Number: 202402070

Expiration Date: 3/1/2026

Location: 131 Lovers Ln, Torrington, CT

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby the proposed project area.

Wood turtle (*Glyptemys insculpta*)- State Special Concern

Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31. Their summer habitat focuses within 90m (300ft of rivers) and they regularly travel 300m (0.2 mile) from rivers during this time. During summer they seek out early successional habitat: pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. Their habitat in Connecticut is already severely threatened by fragmentation of riverine, instream, riparian, and upland habitats, but is exacerbated by heavy adult mortality from machinery, cars, and collection. This is compounded by the species late maturity, low reproductive potential, and high nest and hatchling depredation rates.

I concur with your Site protection plans (attached) to minimize impacts to this species and other natural resources. Additionally, consider the following general design recommendations to potentially increase the value of the habitat for wildlife and state listed species with your development.

- **Create a site management plan to promote native vegetation growth in the area under the solar panels.** Restoring native vegetation will attract pollinators and avoid the need for constant mowing. Reduced need for mowing will reduce the risk for reptiles and amphibians.
    - More specific management suggestions can be found here: https://ag.umass.edu/clean-energy/services/pollinator-friendly-solar-pv-for-massachusetts
- Provide habitat for wildlife and allow for connectivity for wildlife movement. Use wildlife-friendly fencing to allow movement through the solar development.
- Manage areas of the property where development is not occurring, or develop a management plan for

when panels will be decommissioned to help support state listed species.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the appropriate survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDB - New determination for the Lodestar Torrington as described in the submitted information and summarized at the end of this document is valid until 3/1/2026. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 3/1/2026.

If you have further questions, please contact me at the following:

Shannon Kearney
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Please reference the Determination Number 202402070 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Shannon Kearney
Wildlife Division- Natural Diversity Data Base
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Application Details:

Project involves federal funds or federal permit:	No
Project involves state funds, state agency action, or relates to CEPA request:	No
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Energy and Utility Production Facilities and Distribution Infrastructure
Project Sub-type:	Solar Energy
Project Name:	Lodestar Torrington
Project Description:	

APPENDIX D

DEEP AND DOA CORRESPONDENCE

CONNECTICUT DEPARTMENT OF AGRICULTURE
450 Columbus Blvd, Suite 701 | Hartford, Connecticut 06103 | 860.713.2500
Office of the Commissioner
An Equal Opportunity Employer

March 4, 2024

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

Re: LSE Sextans LLC – 181 and 191 Lovers Lane in Torrington, proposed 4.27-Megawatt AC solar project – No Material Affect Letter from the Department of Agriculture

Dear Executive Director Bachman:

Pursuant to 16-50k(a) of the Connecticut General Statutes, we have reviewed the above cited project with respect to agricultural impacts, specifically, to determine whether "…such project will not materially affect the status of such land as prime farmland…"

This project will be located on Lovers Lane in Torrington, on land owned by Clover Ridge LLC. The entire 54.1-acre parcel contains approximately 1 acre of prime farmland soils. The proposed solar facility would occupy approximately 8.4 acres, of which none are classified as prime farmland soils.

Based on preliminary information provided to DOAG on February 14, 2024, and a follow up letter dated February 26, 2024 (enclosed), the Department of Agriculture concludes this project **will not** materially affect the status of project land as prime farmland.

Should any changes raise concerns to the Agency, we reserve the right to modify our position on this project, including opposing it, as detailed plans are provided by the Petitioner. Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, please feel free to contact Eileen Underwood of my staff. Eileen can be reached at eileen.underwood@ct.gov.

Sincerely,

Bryan P. Hurlburt
Commissioner

Enc.

Cc: Katie Dykes, Commissioner, Department of Energy and Environmental Protection
Sam Valone, LSE Sextans LLC

LODESTAR ENERGY

February 26, 2024

Bryan P. Hurlburt, Commissioner
c/o Ms. Eileen Underwood
Farmland Preservation Program
Department of Agriculture
450 Columbus Boulevard, Suite 703
Hartford, CT 16103

Ms. Underwood:

We are pleased to submit this information for your consideration in review of the proposed solar project by LSE Sextans LLC ("Lodestar") located at 181 and 191 Lovers Lane in Torrington. Included in this correspondence is a copy of the current site plans for the proposed Project.

The property consists of a 26.7-acre parcel at191 Lovers Lane, a 27.4-acre parcel at 181 Lovers Lane (collectively, the "Property"). The Property amounts to approximately 54.1 acres. The owner of both parcels is Clover Ridge LLC. The total project area will cover approximately 16.74 acres of the 54.1 total acres (the "Project Site"). The Project Site does not affect any prime farmland. Approximately 8.4 of the 54.1 acres is classified as "farmland of statewide importance."

The Project will not remove or alter any of the soils on the Property. Grading for the Project will be minimal, and all soils will remain on the Property. As a condition for the Project's approval and Lodestar's lease with the Property owner, Lodestar is required to return the Project Site to grassy meadow at the end of the Project's operations. Please refer to the previous correspondence for additional information.

The Project will be 4.27MW DC in size. It will contain a solar photovoltaic electric generating facility and associated electrical interconnection equipment. There is approximately 1 acre classified as Prime Farmland across 4 non-contiguous areas on the Property and none of the Project will overlap with these areas. The project will involve the construction of ground-mounted solar photovoltaic panels and security fencing. An access road will be installed off Lovers Lane. The work will include limited clearing and grubbing, grading, layout and placement of foundation systems, racking, and solar PV panels, installation of utility pads and associated electrical equipment, installation of electrical conduit, conduit supports, electrical poles, overhead wire, and security fencing. There is no plan to increase the energy capacity

beyond the 4.27MW AC proposed.

As you may recall, we engaged Lodestar engaged with DOAG staff last summer and, on July 31, 2023, DOAG staff sent an email to Lodestar stating that “DOAG has discussed this project and determined that it is not located on prime farmland. I will reach out via email shortly with more information regarding obtaining a letter of no material affect.”

As a follow up to that determination, we are formally requesting that the DOAG confirm in writing is determination that the Property does not affect prime farmlands.

Please contact me directly if you have any questions or require any additional information.

Sincerely,

Samantha Valone
Development Associate

C:\Users\mkope\APT GIS Dropbox\APT GIS Team Folder\Projects\Lodestar_Energy\Torrington_CT\mxd\Torrington Farmland Soils.mxd

Legend

- Property
- Site
- Approximate Parcel Boundary

Farmland Soils

- Prime Farmland Soils
- Statewide Important Farmland Soils

Farmland Soils Map

Proposed Solar Facility
Lovers Lane Solar
Lovers Lane
Torrington, Connecticut

N

300 150 0 300
Feet

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: February 2024

Lodestar Energy
All-Points Technology Corporation

APPENDIX E

SHPO CONSULTATION

JULY 2023

PHASE IA CULTURAL RESOURCES ASSESSMENT SURVEY OF THE LOVERS LANE SOLAR PROJECT IN TORRINGTON, CONNECTICUT

PREPARED FOR:

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION, SUITE 311
WATERFORD, CONNECTICUT 06385

PREPARED BY:

HERITAGE CONSULTANTS
830 BERLIN TURNPIKE
BERLIN, CONNECTICUT 06037

ABSTRACT

This report presents the results of a Phase IA Cultural Resources Assessment survey for a proposed solar facility in Torrington, Connecticut. The facility will include the construction of solar arrays, two gravel access roads, two concrete pads, and associated infrastructure across two abutting parcels of land on the eastern side of Lovers Lane. The proposed facility will encompass 17.09 acres of land within larger project parcels totaling 55 acres in size. Heritage Consultants, LLC completed this investigation on behalf of All-Points Technology Corporation in July of 2023. The investigation consisted of: 1) preparation of an overview of the region's precontact era, post-European Contact period, and natural settings; 2) a literature search to identify and discuss previously recorded cultural resources in the region; 3) a review of readily available maps and aerial imagery depicting the project parcels to identify potential cultural resources and/or areas of past disturbance; and 4) a pedestrian survey and photo-documentation of the area to determine its archaeological sensitivity.

The pedestrian survey resulted in the determination that much of project parcels and the facility were characterized by well drained soils and gently sloping topography. The proposed facility location is defined by fallow agricultural fields and sparse mixed deciduous forest. Taking this into consideration, as well the proximity of the facility to tributaries of the Naugatuck River, it was determined that 16.25 acres of land retained a moderate/high potential to yield archaeological deposits. This area was designated as Sensitivity Area SA-1. Finally, the pedestrian survey resulted in the identification and documentation of three interconnecting dry-laid stonewalls in the northern portion Project parcel. Stonewall 1 and Stonewall 2 extend parallel to one another on a northeast axis, with the latter extending approximately 200 meters further than the former. Stonewall 3 bisects the above-reference stonewalls at a perpendicular angle. All three walls will be partially impacted by construction.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IA cultural resources assessment survey of a proposed solar facility (the Facility) located at 191 Lovers Lane in Torrington, Connecticut. The Facility will be constructed on two abutting parcels located to the east of Lovers Lane, to the north of Allen Road, and to the south of Goshen Road in Torrington, Connecticut (Figure 1). The Facility will encompass 17.09 acres of land within larger project parcels totaling 55 acres in size. All-Points Technology Corporation (All-Points) requested that Heritage Consultants, LLC (Heritage) complete the Phase IA assessment survey as part of the planning process for the proposed construction project. Heritage completed this investigation in July of 2023. All work associated with this project was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The Facility will consist of solar panel arrays, concrete pads, gravel access roads, and associated infrastructure (Figure 2). It will be situated at elevations ranging from 247 to 314 meters (810.4 to 1030.2 feet) NGVD. It will be located on the eastern side of Lovers Lane, the northern side of Allen Road, and the southern side of Goshen Road in Torrington, Connecticut. The project parcels are bound by both forested and agricultural land, as well as residential development in all four cardinal directions. The Phase IA cultural resources assessment survey consisted of the completion of the following tasks: 1) a contextual overview of the region's precontact era, post-European Contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project parcel; 3) a review of readily available maps and aerial imagery depicting the Project area of impact in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the Project area of impact in order to assess its archaeological sensitivity.

Project Results and Management Recommendations Overview

The review of maps and aerial images, as well as files maintained by the CT-SHPO resulted in the identification of a single archaeological site located within 1.6 kilometers (1 mile) of the Facility. However, no National or State Register of Historic Places (SRHP) properties were identified within 1.6 kilometers (1 mile) search radius. Nevertheless, the areas topography and proximity to fresh water sources indicate that the portions of the Facility could have been the location of precontact era and/or post-European Contact period settlement and use. This information was considered during pedestrian survey of the Facility and project parcels, which resulted in the stratification of the Facility of impact into zones of no/low and moderate/high archaeological sensitivity.

The Phase IA pedestrian survey was completed in July of 2023. It revealed that the majority of the Project parcels were defined by overgrown hay fields and thickly forested land, with wetlands and streams dominating the northern and eastern sections. The pedestrian survey revealed that 16.25 acres of the 17.09 acre Facility retained a high/moderate archaeological sensitivity due to its proximity to the Naugatuck River and its tributaries, its topography, and the presence of well drained soils. This area was identified as Sensitivity Area SA-1. The remaining 0.85 acres of land were characterized by wetlands and steep slopes and therefore retain no/low archaeological sensitivity.

In addition, the pedestrian survey resulted in the identification of a series of interconnecting stonewalls in the northern Project parcel. Stonewall 1 and Stonewall 2 are located approximately 90 meters apart and extend parallel to one another in a northeast direction. Stonewall 1 is the westernmost wall and measures approximately 120 meters (394 feet) in length. In contrast, Stonewall 2 runs in a northeast direction for approximately 320 meters (1,050 feet). Stonewall 3 extends in a perpendicular line between the above-reference stonewalls and measures approximately 100 meters (304 feet) in length. All three walls will be partially impacted by the proposed construction.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Tony Medina B.A. (Operations Manager), Linda Seminario, M.A. (Project Archaeologist); David Naumec, Ph.D. (Historian); and Sean Buckley, B.A. (GIS Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed solar Facility in Torrington, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the Facility 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 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 the Northwest Uplands Ecoregion is germane to the current investigation. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the Facility.

<u>Northwest Uplands Ecoregion</u>

The Northwest Uplands ecoregion consists of "a variably hilly landscape of high average elevation with local areas of considerable topographic relief and rugged hills. Elevations are generally above 1,000 feet, reaching a maximum of almost 1,500 feet in a few local areas." The region's bedrock is metamorphic, consisting of Paleozoic gneisses and schists. Soils "developed on glacial till in the uplands and on local deposits of stratified sand, gravel, and silt in the valley areas."

Hydrology of the Study Region

The Facility is located within close proximity of several streams, ponds and wetlands. The major fresh water sources in this area include the Naugatuck River, Lovers Lane Brook, Gulf Stream, Nickel Mine Brook, Crystal Lake, Patterson Pond, and associated wetlands. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project Parcels

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many 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 within the Project area. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of 10 soil types were identified within the larger Project parcels. They are listed below in Table 1, and their locations are shown in Figure 3. The most ubiquitous of these soils are Paxton and Montauk and Woodbridge Fine Sandy Loam, which dominate both parcels of land, as well as Sutton Fine Sandy Loam, which is most prominent in the northernmost parcel. The remaining soils comprise smaller amounts of the Project parcels. These soil types fall into two categories: well drained and poorly drained. When well drained soils such as Ninigret and Tisbury, Canton and Charlton, Sutton, Paxton and Montauk, and Woodbridge soils remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. In contrast, Udorthents-Urban Land Complex Soils are characterized as poorly drained soils and are not likely to contain archaeological deposits. Below is a summary of each specific soil type identified within the Project parcel.

Table 1. Soils present within the Project parcel.

Soil Code*	Soil Description*
21A	Ninigret and Tisbury Soils, 0 to 5 percent slopes
60B	Canton and Charlton Soils, 3 to 8 percent slopes
60D	Canton and Charlton Soils, 15 to 25 percent slopes
52C	Sutton Fine Sandy Loam, 2 to 25 percent slopes, extremely stony
86C	Paxton and Montauk Soils, 3 to 15 percent slopes, extremely Stony
84B	Paxton and Montauk Soils, 3 to 8 percent slopes
84C	Paxton and Montauk Soils, 8 to 15 percent slopes
47C	Woodbridge Fine Sandy Loam, 8 to 15 percent slopes, very stony
62C	Canton and Charlton, 3 to 15 percent slopes, extremely stony
306	Udorthents-Urban Land Complex

*(https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/office/ssr12/?cid=nrcs144p2_016612)

<u>Ninigret and Tisbury Soils (Soil Code 21A)</u>

The Ninigret series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) fine sandy loam; pale brown (10YR 6/3) dry; weak medium granular structure; very friable; many fine roots; strongly acid; **Bw1**--8 to 16 inches; yellowish brown (10YR 5/6) fine sandy loam; weak coarse granular structure; very friable; few fine roots; strongly acid; **Bw2**--16 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; very weak coarse granular structure; very friable; very few fine roots; common medium distinct light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) redoximorphic features; strongly acid; **2C**--26 to 65 inches; pale brown (10YR 6/3) loamy sand and few lenses of loamy fine sand; single grain; loose; many medium distinct light olive gray (5Y 6/2) and many prominent yellowish brown (10YR 5/8) redoximorphic features; strongly acid.

The Tisbury series consists of very deep, moderately well drained loamy soils formed in silty eolian deposits overlying outwash. They are nearly level and gently sloping soils on outwash plains and terraces, typically in slight depressions and broad drainageways. Slope ranges from 0 to 3 percent. A typical soil profile is as follows: **Ap**--0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak coarse granular structure; friable; many very fine and fine roots; few scattered pebbles; strongly acid; abrupt smooth boundary; **Bw1**--8 to 18 inches; yellowish brown (10YR 5/6) silt loam; weak medium and coarse subangular blocky structure; very friable; common very fine and fine roots; few scattered pebbles; strongly acid; clear wavy boundary; **Bw2**--18 to 26 inches; brownish yellow (10YR 6/6) silt loam; massive; very friable; few fine roots; few scattered pebbles; common medium prominent grayish brown (2.5Y 5/2) iron depletions and common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; strongly acid; clear wavy boundary; and **2C**--26 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand; single grain; loose; 60 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and common medium faint light brownish gray (10YR 6/2) iron depletions; strongly acid.

Canton and Charlton Soils (Soil Codes

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. Slope ranges from 0 to 45 percent. A typical profile associated with Canton soils is as follows: **Oi**--0 to 5 cm; slightly decomposed plant material; **A**--5 to 13 cm; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent gravel; very strongly acid (pH 4.6); abrupt smooth boundary. **Bw1**--13 to 30 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid; clear smooth boundary. **Bw2**--30 to 41 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; strongly acid (pH 5.1); clear smooth boundary. **Bw3**--41 to 56 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; weak medium subangular blocky; friable; common fine and medium roots; 15 percent gravel; strongly acid (pH 5.1); abrupt smooth boundary. **2C**--56 to 170 cm; grayish brown (2.5Y 5/2) gravelly loamy sand; massive; friable; 25 percent gravel; moderately acid.

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. A typical profile associated with Charlton soils is as follows: **Oe**--0 to 4 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--4 to 10 cm; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent gravel; very strongly acid; abrupt smooth boundary; **Bw1**--10 to 18 cm; brown (7.5YR 4/4) fine sandy loam; weak coarse granular structure; very friable; many fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--18 to 48 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel and cobbles; very strongly acid; clear wavy boundary; **Bw3**--48 to 69 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; massive; very friable; few medium roots; 15 percent gravel and cobbles; very strongly acid; abrupt wavy boundary; and **C**--69 to 165 cm; grayish brown (2.5Y 5/2) gravelly fine sandy loam with thin lenses of loamy sand; massive; friable, some lenses firm; few medium roots; 25 percent gravel and cobbles; strongly acid.

Sutton Series (Soil Code 52C)

The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. A typical profile associated with Sutton soils is as follows: **Oe**--0 to 2 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--2 to 15 cm; very dark brown (10YR 2/2) fine sandy loam; weak medium granular structure; very friable; common fine and medium roots; 5 percent gravel; strongly acid; clear wavy boundary; **Bw1**--15 to 30 cm; brown (7.5YR 4/4) fine sandy loam; weak fine and

medium subangular blocky structure; friable; common fine and medium roots; 10 percent gravel and cobbles; moderately acid; gradual wavy boundary; **Bw2**--30 to 61 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few medium roots; 10 percent gravel and cobbles; common fine and medium prominent light brownish gray (2.5Y 6/2) iron depletions and yellowish red (5YR 5/6) masses of iron accumulation; moderately acid; gradual wavy boundary; **Bw3**--61 to 71 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; 10 percent gravel and cobbles; common medium prominent light brownish gray (2.5Y 6/2) iron depletions and reddish brown (5YR 4/4) and strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; gradual wavy boundary; **C1**--71 to 91 cm; brown (10YR 5/3) gravelly fine sandy loam; weak thick platy structure; firm; 15 percent gravel and cobbles; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron concentrations; moderately acid; gradual wavy boundary; and **C2**--91 to 165 cm; light olive brown (2.5Y 5/4) gravelly sandy loam; massive; friable; 25 percent gravel and cobbles; moderately acid.

Paxton and Montauk Soils (Soil Codes 84B, 84C, and 86C)

The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. A typical profile associated with Paxton soils is as follows: **Ap**--0 to 20 cm; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 5 percent gravel; strongly acid; abrupt smooth boundary; **Bw1**--20 to 38 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent gravel; few earthworm casts; strongly acid; gradual wavy boundary; **Bw2**--38 to 66 cm; olive brown (2.5Y 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; strongly acid; clear wavy boundary; and **Cd**--66 to 165 cm; olive (5Y 5/3) gravelly fine sandy loam; medium plate-like divisions; massive; very firm, brittle; 25 percent gravel; many dark coatings on plates; strongly acid.

The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. A typical profile associated with Montauk soils is as follows: **Ap**--0 to 10 cm; very dark gray (10YR 3/1) loam; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots; 2 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.1); clear smooth boundary; **BA**--10 to 34 cm; brown (10YR 4/3) loam; moderate medium and coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 4 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid; clear wavy boundary; **Bw1**--34 to 65 cm; dark yellowish brown (10YR 4/6) loam; moderate coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 6 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid clear wavy boundary; **Bw2**--65 to 87 cm; yellowish brown (10YR 5/6) sandy loam; moderate medium and coarse subangular blocky structure; friable; many very fine, fine, and coarse roots; many fine and medium pores; 5 percent gravel and 1 percent cobbles; extremely acid; clear smooth boundary; **2Cd1**--87 to 101 cm; strong brown (7.5YR 5/6) gravelly loamy sand; moderate medium plates; firm; few fine roots; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; very strongly acid; clear wavy boundary; and **2Cd2**--101 to 184 cm; dark yellowish brown (10YR 4/6) gravelly loamy sand; moderate medium plates; firm; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid.

Woodbridge Soils (Soil Code 47C)

The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. A typical profile associated with

Woodbridge soils is as follows: **Ap**--0 to 18 cm; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and medium roots; few very dark brown (10YR 2/2) earthworm casts; 5 percent gravel; moderately acid; abrupt wavy boundary; **Bw1**--18 to 46 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; moderately acid; gradual wavy boundary; **Bw2**--46 to 66 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; few very dark brown (10YR 2/2) earthworm casts; 10 percent gravel; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; gradual wavy boundary; **Bw3**--66 to 76 cm; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; clear wavy boundary; **Cd1**--76 to 109 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; weak thick plates of geogenic origin; very firm, brittle; 20 percent gravel; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation and light brownish gray (10YR 6/2) areas of iron depletion; moderately acid; gradual wavy boundary; and **Cd2**--109 to 165 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; weak thick plates of geogenic origin; very firm, brittle; few fine prominent very dark brown (10YR 2/2) coatings on plates; 25 percent gravel; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid.

Udorthents-Urban Land (Code 306)

The Udorthents-Urban Land Complex consists of moderately well drained to excessively drained soils that have been disturbed by cuffing or filling, and areas that are covered by buildings and pavement. The areas are mostly larger than 5 acres. Udorthents are in areas that have been cut to a depth of 0.6 meters (2 feet) or more or are on areas with more than 0.6 meters (2 feet) of fill. Udorthents consist primarily of moderately coarse textured soil material and a few small areas of medium textured material. In some areas fill has been used to build up recreational areas and highways.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Project area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact era of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact era 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 precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, was the focus of settlements and exploitation in the precontact 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 precontact era of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the project parcel.

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., 13,000 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 over 50 surface finds of Paleo-Indian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

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. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). 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.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleo-Indian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers that represented at least two temporally discrete Paleo-Indian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz. They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie et al. 2020). Approximately 15,000 artifacts were collected in total.

The scarcity of identified Paleo-Indian sites suggests a low population density during this period. The small size of most Paleo-Indian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleo-Indian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

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, very 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 very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of 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 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, the recovery of these projectile points has 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, are 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.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C BP, is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges, recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

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

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging 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 precontact era. 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 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 of 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 was still 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.

<u>Early Woodland Period (ca., 2,700 to 2,000 B.P.)</u>

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and is 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. Archaeological investigations of Early Woodland sites in southern New England 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 indicate 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.

<u>Middle Woodland Period (2,000 to 1,200 B.P.)</u>

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 that are indicative of the Middle Woodland Period include 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 stylistically diverse 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 Precontact Era

The precontact era of Connecticut spans from ca., 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is

characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering 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 precontact 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 that includes the proposed Project area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleo-Indian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Facility will be located at 191 Lovers Lane in the Town of Torrington, which is in Litchfield County, Connecticut. This chapter provides a brief overview of Litchfield County followed by a history of Torrington, with a focus on the Facility region. Most Connecticut towns such as Torrington originated as Indigenous settlements and later became English colonial villages. Originally settled by English colonists around 1735 and incorporated in 1740, Torrington developed as a small agricultural community and by the mid-nineteenth century the town experienced industrial growth (Lewis 1881). Torrington's population grew dramatically during the twentieth century and was charted as a city in 1923 (CSL 2023). In the twenty-first century it largely remains an urban area although it retains much of its rural character.

Litchfield County

Litchfield County was founded in 1751 with land taken from Fairfield, New Haven, and Hartford Counties (Hoadly 1877). Located in the northwest corner of Connecticut, Litchfield County is bounded to the south by New Haven and Fairfield Counties, to the east by Hartford County, to the north by Berkshire and Hampden Counties, Massachusetts, and to the west by Dutchess County, New York. Litchfield County is the largest county in Connecticut. Its landscape includes rocky hills situated adjacent to the Berkshire Mountains, including Bear Mountain, the highest peak in Connecticut, interspersed with flat lands and watersheds. Important bodies of water associated with Litchfield County include the Housatonic River, Naugatuck River, Candlewood Lake, Barkhamsted Reservoir, Lake Waramaug, in addition to smaller un-named streams and ponds. Torrington is the only city in Litchfield County and the most populous locations in the county (Connecticut 2021). Torrington is located in the eastern section of Litchfield County in what is known as the Litchfield Hills section of the Appalachian Mountain range and is bounded north by the Town of Winchester, east by the Town of New Hartford, south by Harwinton and Litchfield, and west by Goshen (Connecticut 2021). Important waterways in Torrington include the Naugatuck River and Still River while several bodies of water are located in the town including Burr Pond and Stillwater Pond along with numerous unnamed streams and wetlands.

Woodland Period to the Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3,000 to 500 years ago), the Indigenous peoples who resided in central Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian languages and lived in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Indigenous people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times. Additionally, these communities came together in large groups to hunt deer in the fall and winter. Indigenous peoples lived with their immediate or extended families in large settlements, often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their habitation, known as a *weetu* or *wigwam,* was usually constructed of a tree-sapling frame and covered in reed matting during warm months and tree bark throughout the winter. These varied in size from a small, individual dwelling, to an expansive "long house," which could accommodate several

families. Native communities commonly traded among their immediate neighbors and often maintained long-distance networks (Lavin 2013). At the time of the arrival of Europeans to the region present-day Litchfield County was home to several Native American communities including the Mahican and Paugussett while the Mahican people were likely the most prominent Native American community in present-day Torrington (Lewis 1881; Rossano 1996; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Indigenous communities maintained oral traditions rather than a written record, most surviving information of the Indigenous people of present-day Connecticut was recorded by European observers (Lavin 2013). The earliest Europeans known to have sailed along Long Island Sound and the Connecticut River were the Dutch by 1614 (Love 1903). The Dutch developed trade relationships with local Indigenous communities. By the early 1620s, Dutch traders entered into an agreement with the Pequot of present-day southeastern Connecticut in which the Pequot supplied wampum (polished shells) and furs in return for European goods. In 1624, the Dutch West India Company formally established New Netherland Colony centered around Manhattan and the Hudson River with its eastern bounds extending as far as Cape Cod, including much of present-day Connecticut (Jacobs 2009). Through their relationship with the Dutch, the Pequot accessed a variety of trade goods they distributed to tributaries and traded with other groups in the region. The Pequot extended their dominance over the region, bringing all the Native nations in the area into a tributary relationship under their leadership (Hauptman & Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a fortified trading post, the *Huys de Hoop,* on the Connecticut River at the site of present-day Hartford to further cement both parties' domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who then settled Windsor (1633), Wethersfield (1634), and Hartford (1635), as well as Saybrook Colony (1635) at the mouth of the river (Trumbull 1886; Van Dusen 1961). Increased European interaction resulted in exposure to diseases and epidemics Indigenous people had never encountered and to which they had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In 1633, an epidemic spread from Plimoth Colony to Connecticut, impacting the Pequot and the people of the Connecticut River Valley in 1634 (Trumbull 1886). Tensions between Native and European groups in the region resulted in the death of several English traders in 1634 and 1636, which were blamed on the Pequot. In retaliation, English forces from Massachusetts Bay destroyed Pequot and Niantic villages on the Pequot (Thames) River in August of 1636, which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April of 1637. Connecticut Colony declared war on the Pequot and was joined by Native warriors from the Connecticut River and Mohegans under the Sachem Uncas (Oberg 2006). In May of 1637, English allied forces destroyed the fortified Pequot village at Mistick and in July they pursued refugees west. The Pequot were defeated in present-day Fairfield and the war soon ended (Cave 1996). Afterwards, the English considered Pequot territory, including land in the Connecticut River Valley, to be conquered lands and they were claimed by Connecticut Colony (Trumbull 1886). From 1687, what would become present-day Litchfield County and Torrington was known as the "Western Lands" and were claimed by the Colony of Connecticut which feared the new royal governor of New England and New York, Sir Edmund Andros, would distribute those lands to persons in New York. Connecticut quickly granted all the land lying between the east bank of the Housatonic River and west of the towns of Farmington and Simsbury to the towns of Hartford and Windsor.

In 1732, the General Assembly named the territory allotted to Windsor as Torrington and granted land to 136 proprietors; by 1735 the first permanent settlers arrived there (Lewis 1881). Torrington

developed as an agricultural community but in the midst of inter-Colonial warfare taking place between English and French allied forces in the northeast. By 1744, during King George's War (1744-1748) the town voted to build a fort to protect against attacks and although several alarms occurred no raids took place during the conflict (Lewis 1881). During the war years several new dwelling houses, a tavern, and a school house were built in town and when the wars came to an end in 1760 additional settlers moved to the region. During the 1750's several roads and highways were constructed through town, better connecting Torrington to both Hartford and New Haven (DeLuca 2011). Several saw mills and grist mills also were erected, as well as a carding mill, during the 1760's along with two new taverns all of which reflect the growing population in town in the years prior to the American Revolution (Lewis 1881). Slavery existed in the region to different degrees and by the eighteenth century it was primarily practiced by wealthy families, merchants, and ministers in larger towns but in Torrington there appeared to be very little slavery present. The 1774 Connecticut colonial census recorded a "White" population of 843, a "Black" population of 2, and no "Indians" in Torrington although one's status as free or enslaved was not (Hoadly 1887). During the American Revolution (1775-1783), the Town of Torrington played an important role recruiting soldiers, supplying food stores, and military goods for the war effort and had troops that served in many major battles of the war (Lewis 1881; Van Dusen 1961). Following the war, in 1784 the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). Finally, on January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Nineteenth Century through the Twenty-First Century

Following the Revolutionary War, the Torrington slowly grew in population as it continued to develop as an agricultural hub and in 1800 had a total of 1,417 residents (Connecticut 2023a). By 1814, the first water powered woolen mill was erected on the Naugatuck River in the southern end of town and Torrington entered an early industrial era. According to the *Gazetteer of the States of Connecticut and Rhode-Island,* Torrington was a modest agricultural town containing 250 dwelling houses, 9 school districts, 2 libraries and 3 doctor's office for the use of 1,586 people (Pease & Niles 1819). Agricultural activities such as dairying and raising beef were the main source of income in Torrington, although the *Gazetteer* noted the Wolcottville Woolen Factory, a cotton factory, two grain mills, a carding mill, tanneries, and merchant stores in town (Pease & Niles 1819). A few years later, the Connecticut artist John Warner Barber visited Torrington, but appeared to have mainly focused on the Village of Wolcottville where and noted the 40 dwelling houses, two churches, 4 mercantile stores, 2 taverns, and a post office along with the Wolcott's woolen mill (Barber 1836).

Abolitionist sentiments grew in town during the early nineteenth century and in early 1837 anti-slavery supporters gathered in Wolcottville for the purpose of organizing a national society and although the effort initially failed the State Charter Oak Society was formed the next year to promote anti-slavery activities (Lewis 1881). In 1835, the Coe Brass Manufacturing Company was founded on the Naugatuck River, helping stimulate the region's growing brass industry (Lewis 1881). By 1849, the Naugatuck Railroad was opened; it ran from Bridgeport along the Naugatuck Valley to Winsted and stopped at Torrington along the way (Turner & Jacobus 1989). In 1859, Torrington native and abolitionist, John Brown, lead a failed attack on the US arsenal at Harpers Ferry in Virginia, which proved to be one of the catalysts of the Civil War (1861-1865) (Lewis 1881). Like many Connecticut towns, Torrington provided men and materials to aid the Union during the Civil War which included textiles manufactured in local mills and 173 men who served in the Union Army (Hines 2002; Niven 1965). Following the Civil War, several additional manufacturers were established in town including the Excelsior Needle Company (1866), Turner & Seymour Manufacturing Company (1866), and the Hendy Machine Company (1870). By 1874 Torrington had its first newspaper published in town titled *The Wolcottville Register* (Lewis 1881).

The town's robust industrial base attracted immigrants from southern and eastern Europe in the latter half of the nineteenth century and Torrington's population rapidly grew from 2,893 people in 1870 to 4,283 residents by 1890 (Connecticut 2023a, b; Table 1).

At the turn of the twentieth century, Torrington was home to 8,360 residents. As a growing manufacturing hub in the Naugatuck River Valley, immigrants, largely from eastern Europe, moved to town in large numbers. In 1910, Torrington's population exploded to a stunning 15,483 inhabitants and by 1920 there were 20,623 residents living and working there (Connecticut 2023c; Table 1). Torrington's population grew so quickly during the twentieth century that it was charted as a city in 1923 (CSL 2023). Torrington's manufacturing base produced brass items during World War I (1917-1918) and ball bearings during World War II (1941-1945), and as hundreds of men volunteered for service during the war years women took their place in the mills (Bendici 2014; Mills 2023). Following World War I and II, the State of Connecticut continued to actively preserving land through the State Parks system and several were established in Torrington, including Burr Pond State Park, Sunnybrook State Park, Stillwater Pond State Park as well as the Paugnut State Forest (Connecticut 2014a, b). In August of 1955 Connecticut was impacted by hurricanes and severe rains which flooded much of the state, including Torrington. The flooding damaged much of the city, including most downtown business, but residents quickly rebuilt the town (Van Dusen 1961; ConnecticutHistory.org 2023).

As with the rest of the state during the 1950s, Torrington experienced gradual industrialization as the Naugatuck brass industry diminished while also benefiting from post-war suburbanization trends. Although none of the highway construction of the period passed through the city, Interstate 84 ran approximately 20 miles to the southeast, while U.S. Route 202 and CT Route 8 remained highly traveled roads that intersected in Torrington (DeLuca 2020). By 1980, the city's population rose to 30,987 people and continued to climb to 33,687 residents by 1990. In the twenty-first century Torrington remained the most populated municipality and largest city in Litchfield County. By the years 2000 ,Torrington had 35,202 residents which rose to 36,383 people by 2010 (Connecticut 2023d; Table 1). Due to enrollment decline the UConn Torrington branch was closed in the Spring of 2016 (Connecticut 2023e). The city remains a mixture of urban areas, suburban residential communities, and elements of its agricultural past with a diverse natural landscape including state parks. As of 2021, Torrington had a population of 34,489 people with health care and social assistance employment being the top employer followed by retail trade and manufacturing (AdvanceCT and CTData Collaborative 2021).

Table 1: Population of Torrington, Connecticut, Litchfield County 1890-2020 (Connecticut 2023a-d; USCB 2023)

Town	1890	1900	1910	1920	1930	1940	1950
Town of Torrington, Litchfield County, Connecticut	4,283	8,360	15,483	20,623	20,040	26,988	27,820
	1960	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	30,045	31,952	30,987	33,687	35,202	36,383	35,515

History of the Project Area

The proposed Facility is located at 191 Lovers Lane Torrington and is situated to the west of the Naugatuck River and a short distance to the east of Lovers Lane Brook. According to the 1859 map of Litchfield County, the Facility is located in an area that was referred to as Torrington Hollow, which appears to be a densely populated area with dozens of dwelling homes to the northeast of the project parcels. The closest dwelling belonged to "A. W. Cowles." It abutted the northern bounds of the combined project parcels, although several more are noted approximately 250 meters (820 ft) further to

the north. The 1859 map also notes the location of the "old" school house approximately 250 meters (820 ft) further to the south for the Facility. The project parcels themselves are abutted by Lovers Lane to the west and Goshen Road to the north. While the parcels appear to be located on the northwestern slope of a nearby hill and are not developed, it is unclear if the property was under agricultural cultivation or if it is forested land during the middle of the nineteenth century (Figure 4). The 1874 Beers map of Litchfield County demonstrates that little had changed in the vicinity of the project parcels in the 15 years since the last county map was produced. They are abutted by Lovers Lane to the west and Goshen Road to the north with the home of "A. W. Cowles" remaining on the west side of Lovers Lane Brook to the northwest of the parcels. A school stands to the northeast of the project parcels and there is little development to the south. The project parcels themselves appear to be undeveloped, although it remains unclear whether the land was under agricultural cultivation or if it was wooded (Figure 5).

During the twentieth century the area containing the Facility remained largely rural with little development in the immediate vicinity. A 1934 aerial photograph of the area depicts a cleared landscape under agricultural cultivation with some wooded areas. It is unclear what crops were being raised, however, the open fields may have been utilized as hay lots. Lovers Lane is evident along the western bounds of the project parcels whereas Goshen Road, known as Connecticut Route 4 since 1932, is visible to the north of the Facility (Figure 6; DeLuca 2020). Nearly four decades later the landscape appears much the same in a 1970 aerial photograph, which shows the project parcels as heavily wooded with several open lots which remained under agricultural cultivation. Lovers Lane and Route 4 were visible to the west and north of the project parcels, while there does not appear to be any signs of development in the vicinity of the Facility itself (Figure 7). Moving ahead to the twenty-first century, a 2004 aerial image indicates significant residential development along the northwest bounds of the project parcels known as "Country Woods of Torrington," which dates from 1988 according to signage at the developments entrance. A second residential development was evident to the southeast of the Facility as well. Lovers Lane and Route 4 were visible in the image, while the project parcels themselves remain largely wooded with a large cleared field that remained under agricultural cultivation (Figure 8). An aerial image taken in 2019 depicts a landscape that has not undergone any significant further development although additional residential homes are visible within the existing housing development to the southeast of the Facility. Both Lovers Lane and Route 4 are clearly shown in the aerial image while the Facility area remain wooded with one cleared field, which was under agricultural cultivation (Figure 9).

Conclusions

The documentary review of the project region indicates that the proposed abutting project parcels at 191 Lovers Lane in the City of Torrington are situated on the site of a long-time agricultural area that later largely reverted to forested land. Based on the past use of the land for agriculture, there is the possibility of encountering remains of outbuildings, stonewalls, or other evidence of post European Contact farming.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the proposed Facility in Torrington, Connecticut and it provides the comparative data necessary for assessing the results of the current Phase IA cultural resources assessment survey. It also ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Facility area are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites and National/State Register of Historic Places properties situated in the Project region (Figures 10 and 11). The discussions presented below are based on information currently on file at the CT-SHPO in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during 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 CT-SHPO, as well as the electronic site files maintained by Heritage, resulted in the identification of a single precontact era archaeological site (143-4) situated within 1.6 kilometers (1 miles) of the Project area (Figure 10). However, no National/State Register of Historic Places properties were identified within 1.6 kilometers (1 miles) of the Project area (Figure 11). A brief discussion of the Site 1430-4 is provided below.

Site 143-4

Site 143-4, which is also known as the Hewitt Site, is a precontact era site located in Torrington, Connecticut. It was reported by Connecticut Archaeological Survey (CAS) in 1979. The official Connecticut archaeological site form describes the site as an Archaic/Woodland period camp in fair condition; it was excavated by avocational archaeologists in 1970. The site yielded 2 steatite pots, Susquehanna Broadpoints, an Orient Fishtail, and Fox Creek stemmed, a Sylvan side-notched point, Brewerton side-notched points, 15 potsherds, and an unknown quantity of knives and scrapers. Site 143-4 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Hewitt Site is located approximately 0.9 km (0.56 mi) to the west of the Project parcel. While is will not be impacted by the proposed construction, it does indicate that the region containing the proposed Facility was occupied and used by precontact era Native Americans between ca., 6,000 and 500 years ago. Other sites of this age and type may be expected in the project region, and perhaps in the Facility area.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IA cultural resources assessment survey of the Facility in Torrington, Connecticut. The following tasks were completed during this investigation: 1) study of the region's precontact era, post-European Contact period, and natural settings, as presented in Chapters II through IV; 2) a literature search to identify and discuss previously recorded cultural resources in study region; 3) a review of maps, topographic quadrangles, and aerial imagery depicting the Facility and project parcels in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the Facility area and project parcels in order to determine their archaeological sensitivity.

Research Design

The current Phase IA cultural resources reconnaissance survey was designed to identify all precontact era and post-European Contact period cultural resources located within the project parcels and Facility in Torrington, Connecticut. The undertaking was comprehensive in nature, and planning considered the distribution of previously recorded cultural resources located within the larger region, local soil conditions, and a visual assessment of proposed project parcels and the Facility location. The methods used to complete this investigation were designed to provide coverage of all portions of the project parcels and the Facility location, and it considered both the potential for below and above ground resources. The fieldwork portion of this undertaking entailed pedestrian survey, photo-documentation, and mapping. These endeavors are described below.

Archival Research & Literature Review

Background research for this project included a review of a variety of maps depicting the proposed project parcels and the Facility area; an examination of USGS 7.5' series topographic quadrangles; an examination of aerial images dating from 1934 through 2019; and a review of all archaeological sites and National and State Register of Historic Places on file with the CT-SHPO, as well as electronic cultural resources data maintained by Heritage. The intent of this review was to identify all previously recorded cultural resources situated within and immediately adjacent to the project area, and to provide a natural and cultural context for the project region. This information then was used to develop the archaeological context of the project area, and to assess its sensitivity with respect to the potential for producing intact cultural resources.

Background research materials, including maps, aerial imagery, and information related to previous archaeological investigations, were gathered from the CT-SHPO. Finally, electronic databases and Geographic Information System files maintained by Heritage were employed during the course of this Project, and they provided valuable data related to the project region, as well as data concerning previously identified archaeological sites and National/State Register of Historic Places properties within the general vicinity of the development area.

Field Methodology and Data Synthesis

Heritage personnel performed pedestrian survey, photo-documentation, and mapping of the proposed project area. During the pedestrian survey, Heritage staff members visually reconnoitered the project

parcels and the Facility area and noted the locations of all above ground cultural features, standing structures, previous disturbances, wetlands, topographic relief, and locations of freshwater sources. These natural and cultural landscape features were recorded on a base map of the project parcels. Any identified cultural resources were recorded using a GPS unit so that their locations could be transferred into the project GIS. In addition, during the pedestrian survey, the field crew photo-documented the Facility area and the larger project parcels. The locations from which all photos were taken, as well as directional indications, were recorded on a base map. The photo-documentation portion of the survey was completed using color digital media. The pedestrian survey was useful to stratify the project parcels and Facility area into zones of no/low and moderate/high archaeological sensitivity.

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IA cultural resources assessment survey associated with the proposed Facility at 191 Lover's Lane in Torrington, Connecticut (Figure 12 and Photos 1 through 6). As stated in the introductory section of this report, the goals of the investigation included completion of the following tasks: 1) a contextual overview of the region's precontact era, post-European contact period, and natural settings of the study region (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously completed cultural resources research and previously recorded cultural resources in the Project region; 3) a review of readily available maps and aerial imagery depicting the Facility in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey and photo-documentation of the project parcels and Facility area in order to determine their depositional integrity, post-European Contact period associations, and archaeological sensitivity.

Determining Archaeological Sensitivity

The field data associated with soils, slopes, aspect, distance to water, and previous disturbance collected during the pedestrian survey and presented above was used in conjunction with the analysis of maps, aerial images, and data regarding previously identified archaeological sites and National/State Register of Historic Places properties to stratify the project parcels into zones of no/low and/or moderate/high archaeological sensitivity. In general, post-European Contact period archaeological sites are relatively easy to identify on the current landscape because the features associated with them tend to be relatively permanent constructions that extend above the ground surface (i.e., stone foundations, pens, wells, privies, etc.). Archaeological sites dating from the precontact era, on the other hand, are less often identified during pedestrian survey because they are buried, and predicting their locations relies more on the analysis and interpretation of environmental factors that would have informed Native American site choices.

With respect to the potential for identifying precontact era archaeological sites, the project parcels and the Facility were divided into areas of no/low and/or moderate/high archaeological potential by analyzing the landform types, slope, aspect, soils contained within them, and their distance to water. In general, areas located less than 300 m (1,000 ft) from a freshwater source and that contain slopes of less than 8 percent and well-drained soils possess a high potential for producing precontact era archaeological deposits. Those areas located between 300 and 600 m (1,000 and 2,000 ft) from a freshwater source and well drained soils are considered moderate probability areas. This is in keeping with broadly based interpretations of precontact era settlement and subsistence models that are supported by decades of previous archaeological research throughout the region. It is also expected that there may be variability of precontact era site types found in the moderate/high sensitivity zones. For example, large Woodland period village sites and Archaic period seasonal camps may be expected along large river floodplains and near stream/river confluences, while smaller temporary or task specific sites may be expected on level areas with well-drained soils that are situated more than 300 m (1,000 ft) but less than 600 m (2,000 ft) from a water source. Finally, steeply sloping areas, poorly drained soils, or areas of previous disturbance are generally deemed to retain a no/low archaeological sensitivity with respect to their potential to contain precontact era archaeological sites.

In addition, the potential for a given area to yield evidence of post-European Contact period archaeological deposits is based not only on the above-defined landscape features but also on the presence or absence of previously identified post-European Contact period archaeological resources as identified during previous archaeological surveys, recorded on maps, or captured in aerial images of the region under study. In this case, portions of a proposed project area that are situated within 100 m (328 ft) of a previously identified post-European Contact period archaeological site or a National or State Register of Historic Places district/individually listed property also may be deemed to retain a moderate/high archaeological sensitivity. In contrast, those areas situated over 100 m (328 ft) from any of the above-referenced properties would be considered to retain a no/low post-European Contact period archaeological sensitivity.

Results of Phase IA Survey and Management Summary

As noted earlier in this report, the Facility encompasses approximately 17.09 acres of land within larger project parcels totaling 55 acres in size located along the eastern side of Lovers Lane, to the north of Allen Road, and to the south of Goshen Road in Torrington, Connecticut. The development parcels are positioned to the west of the Naugatuck River, to the east of Lovers Lane Brook, to the south of Nickel Mine Brook and Crystal Lake, to the north of Patterson Pond, and to the northeast of Gulf Stream. The parcels are situated at elevations ranging between 247 to 314 meters (810.4 to 1030.2 feet) NGVD. During the survey, the abutting project parcels were characterized primarily by deciduous wooded land and an overgrown hay field (Photos 1 and 2), with the northern and eastern portions of the combined parcels defined by wetlands and unnamed streams (Photos 3 and 4). The parcels are bound by wooded land with small pockets of residential development and agricultural lands.

The pedestrian survey of the Facility resulted in the identification of a potential high/moderate archaeologically sensitivity area: Sensitivity Area SA-1. Sensitivity Area SA-1 encompasses 16.25 acres of land and, at the time of survey, it was characterized by gently sloping topography and well-drained soils. The predominant, undisturbed soil type identified within Sensitivity Area SA-1 was identified Paxton and Montauk soil, which is well drained and is well correlated with known archaeological sites that have been identified throughout the State of Connecticut and within the project region. The remaining 0.85 acres of the Facility area contained wetlands, thus retaining no/low potential to yield archaeological deposits.

In addition, the pedestrian survey also led to the identification of a series of interconnecting stonewalls (Photos 5 and 6). Stonewall 1 and Stonewall 2 are located approximately 90 meters (198.8 feet) apart and extend parallel to one another in a northeast direction. Stonewall 1 is the westernmost wall and measures approximately 120 meters (394 feet) in length. In contrast, Stonewall 2 runs in a northeast direction for approximately 320 meters (1,050 feet). Stonewall 3 runs in a perpendicular line between Stonewalls 1 and 1, and it measures approximately 100 meters (304 feet) in length. All three of these dry-laid stonewalls will potentially be impacted by construction of the proposed Facility. Stonewalls that are part of a larger agricultural landscape, as these appear to be, are a dwindling cultural resources in the State of Connecticut.

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APPENDIX A

FIGURES

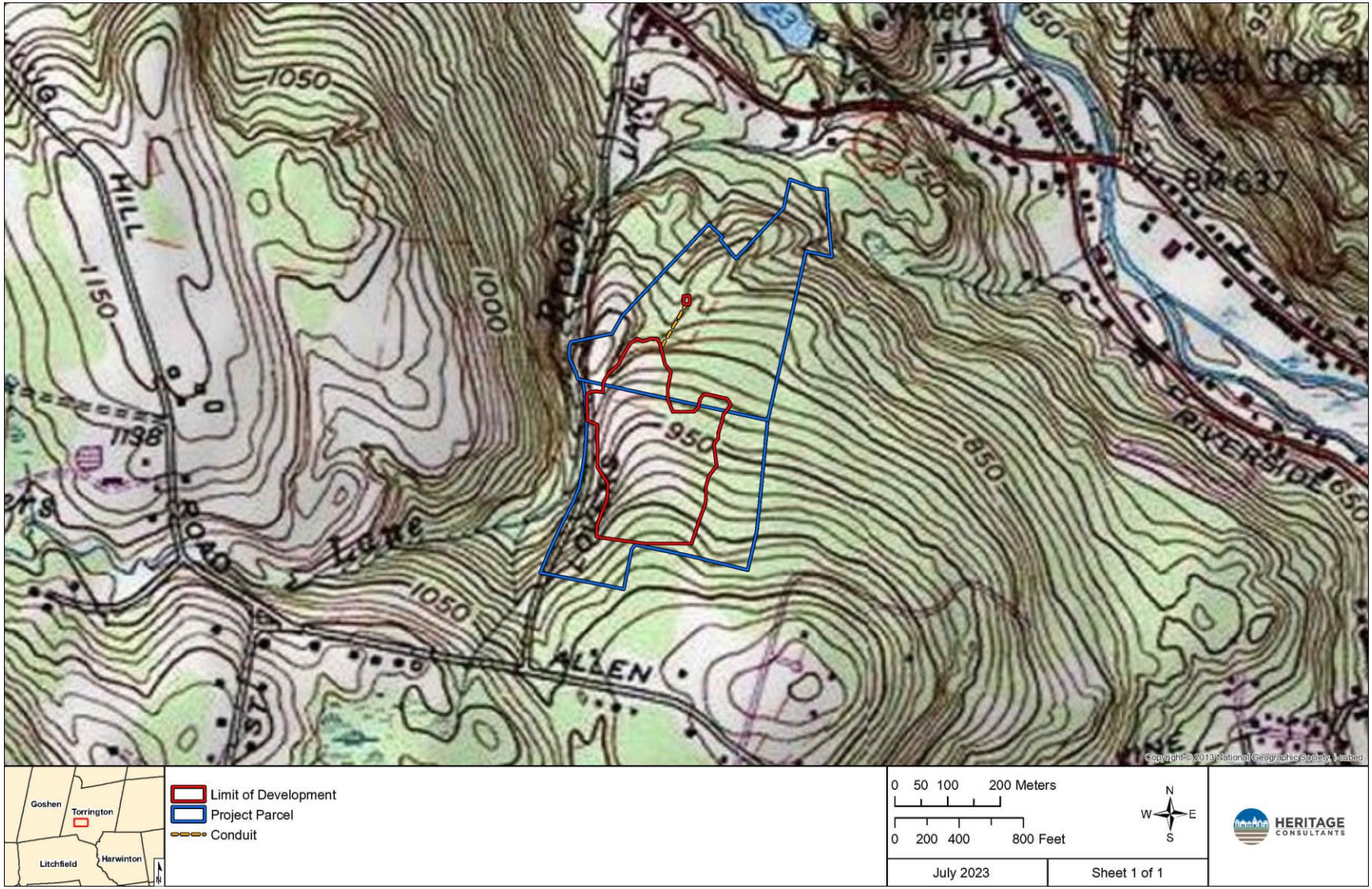

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel and limit of development in Torrington, Connecticut.

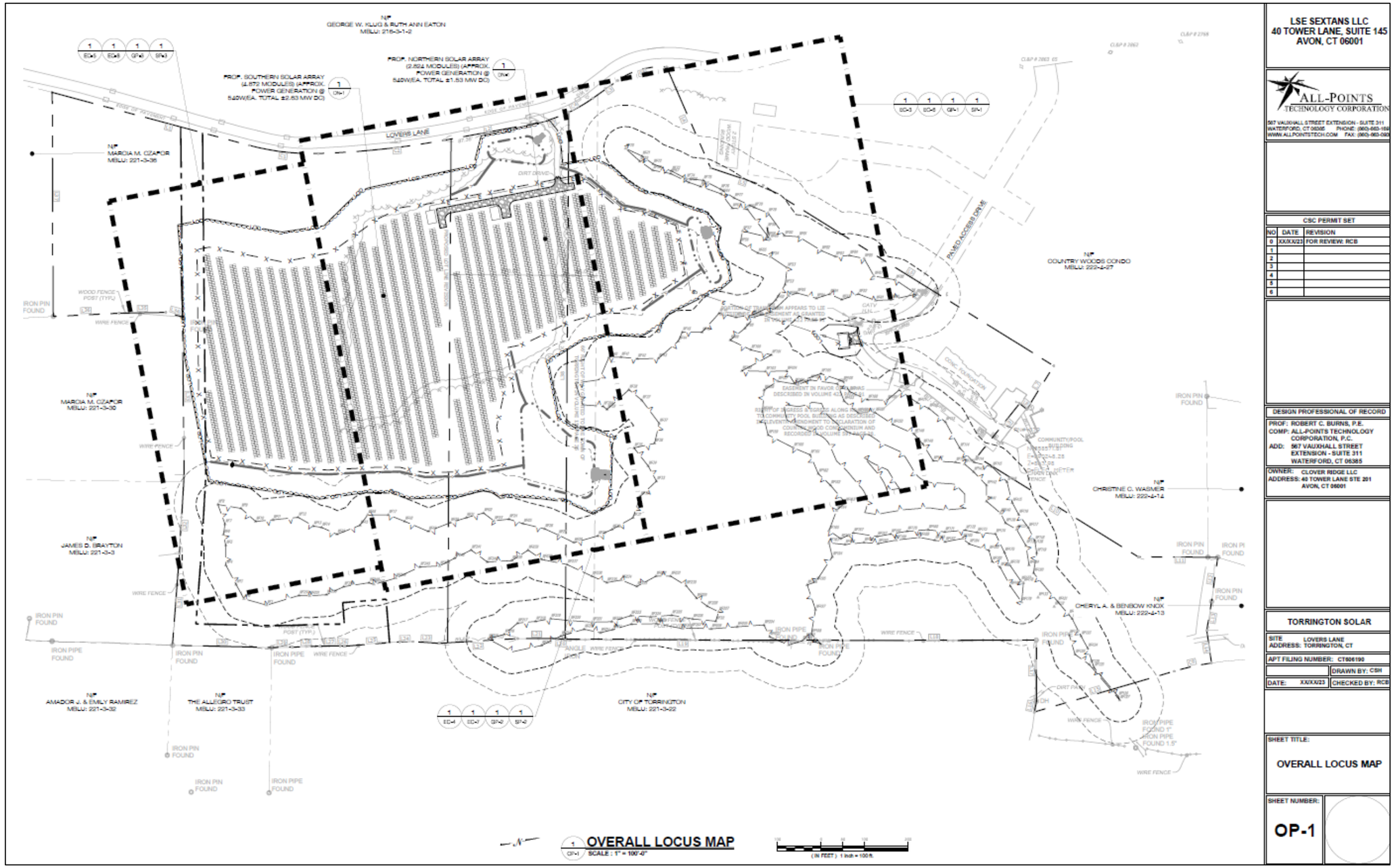

Figure 2. Digital map depicting the client's project plans for the proposed solar facility in Torrington, Connecticut.

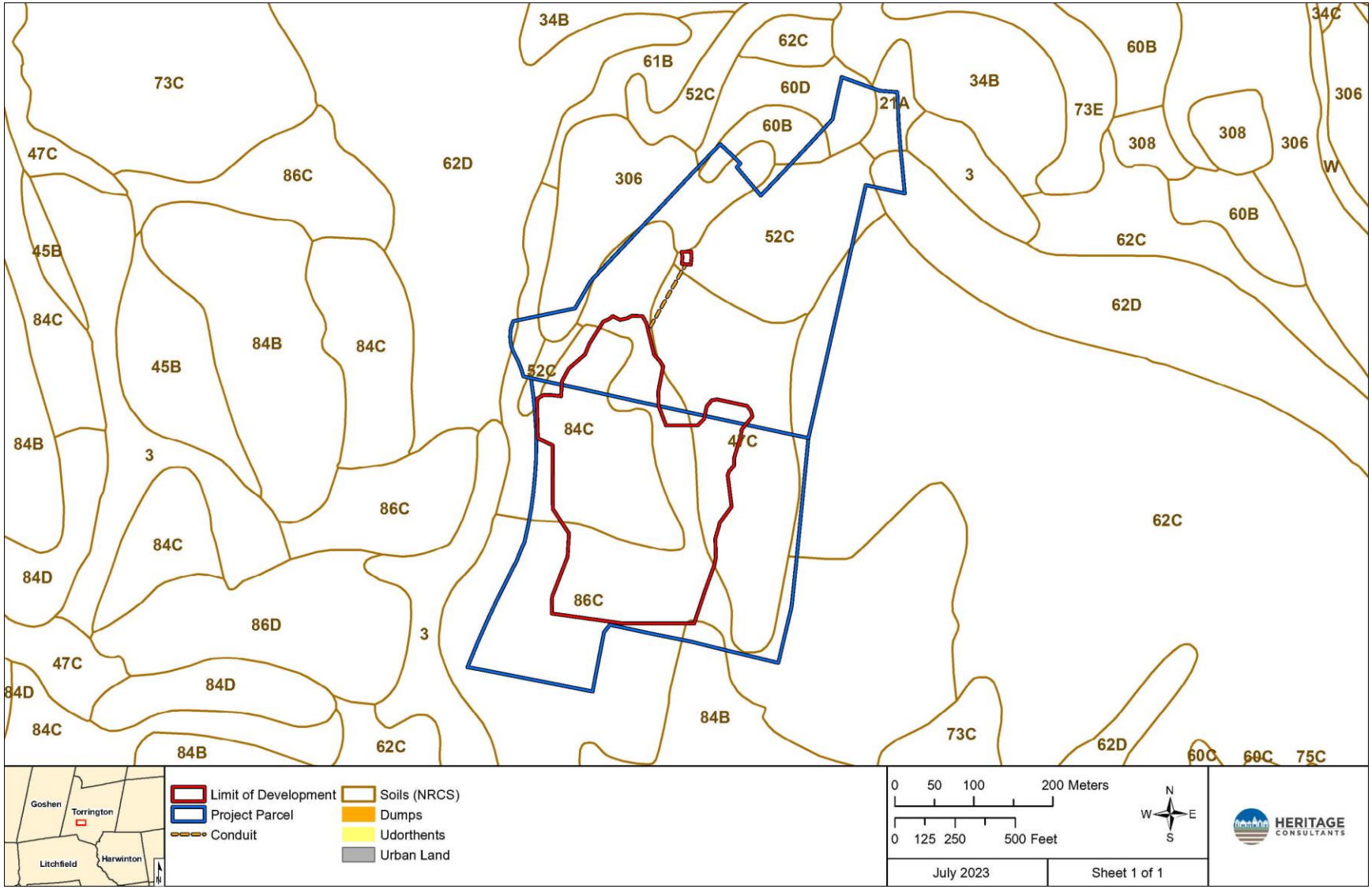

Figure 3. Digital map depicting the soil types present in the vicinity of the project parcel in Torrington, Connecticut.

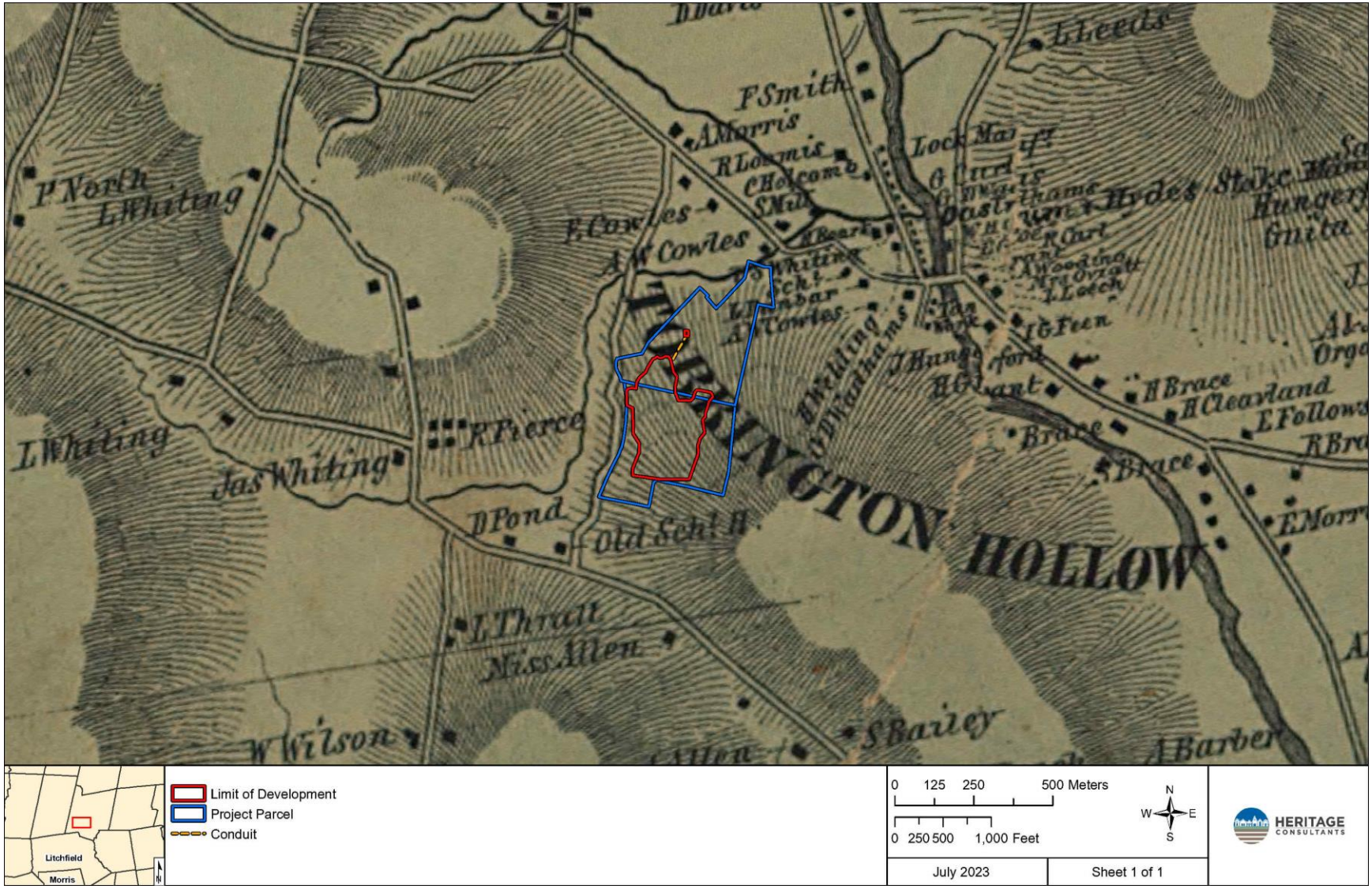

Figure 4. Excerpt from an 1859 historical map showing the location of the project parcel in Torrington, Connecticut.

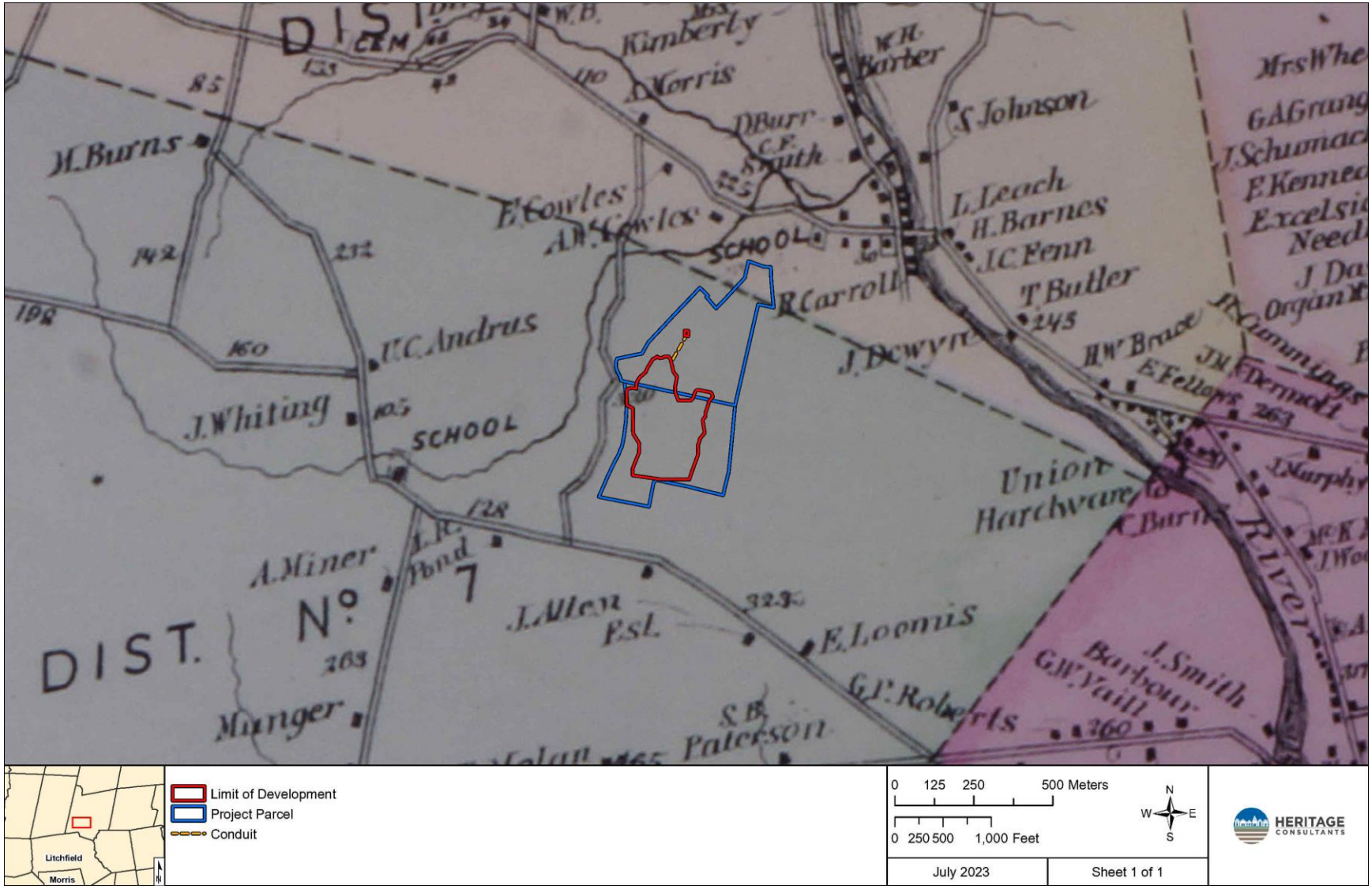

Figure 5. Excerpt from an 1874 historical map showing the location of the project parcel in Torrington, Connecticut.

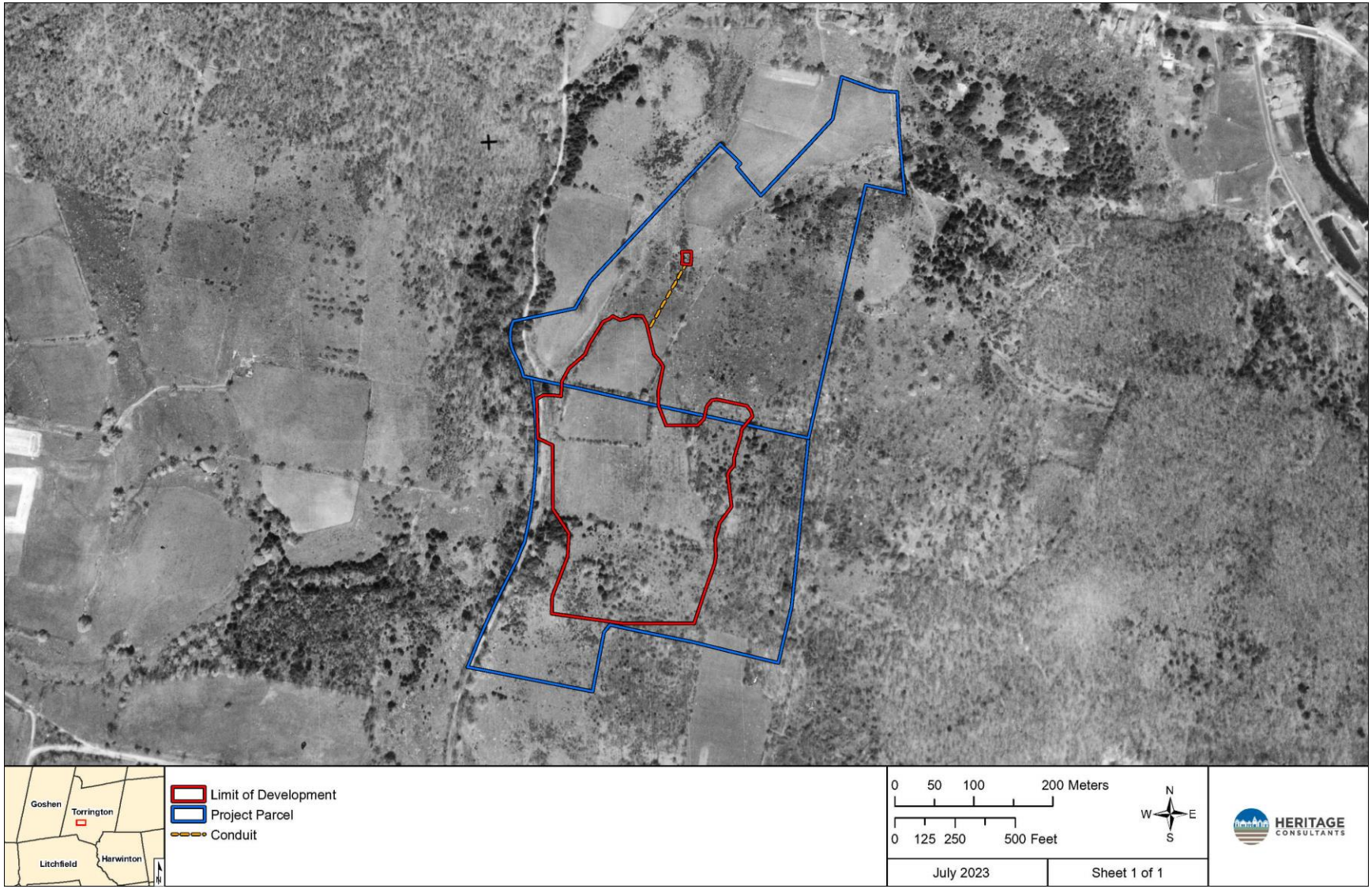

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

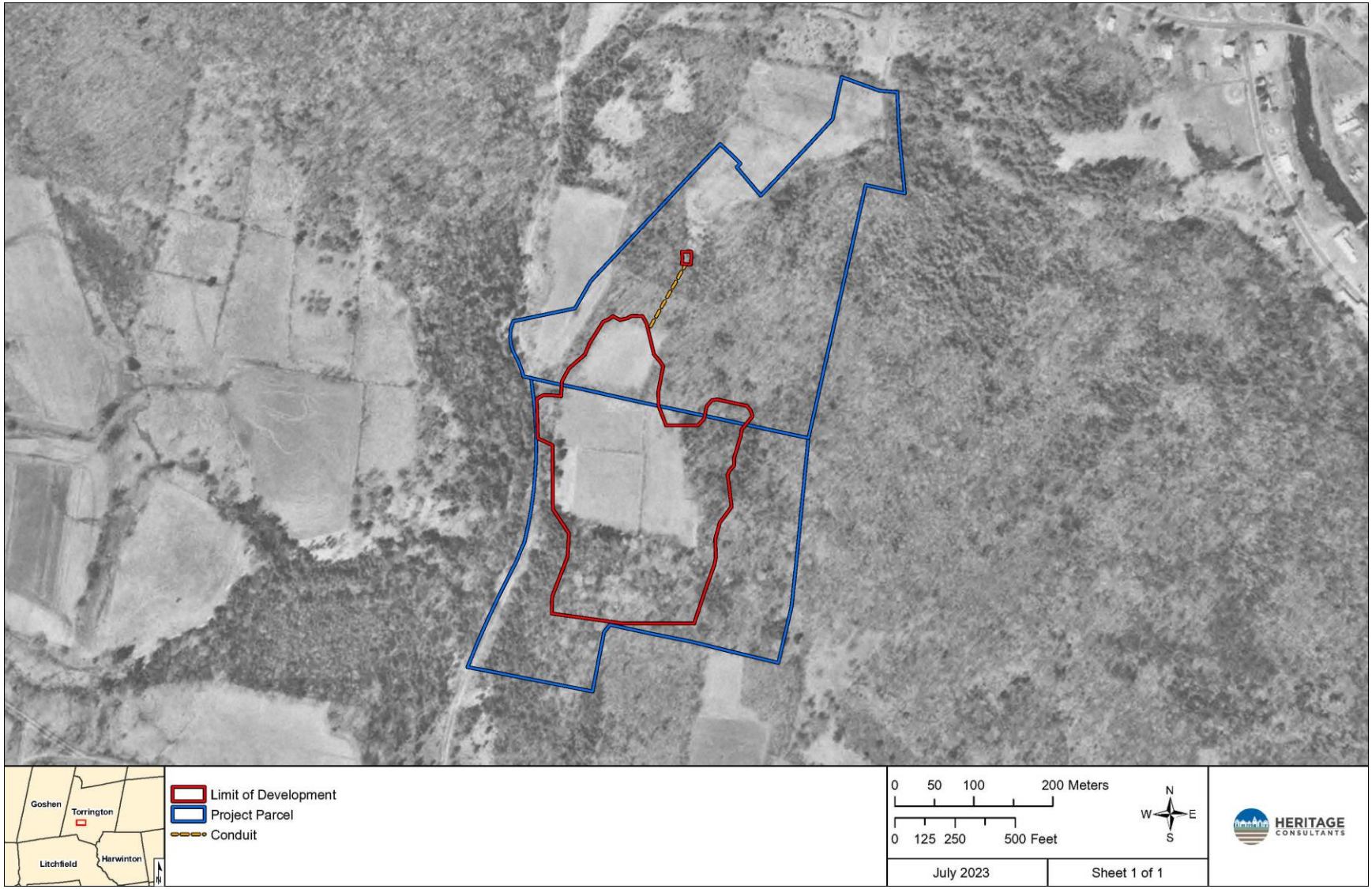

Figure 7. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

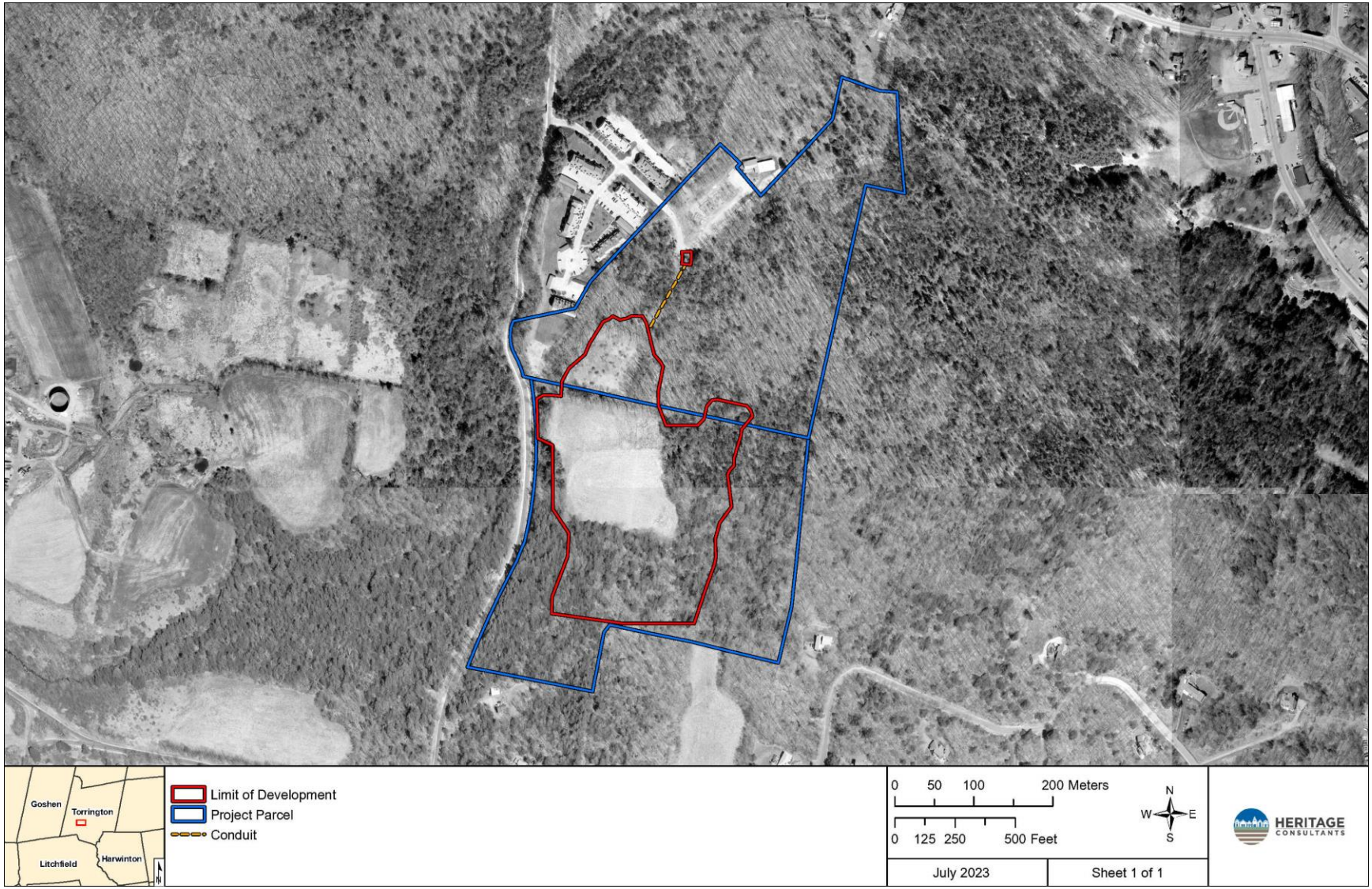

Figure 8. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

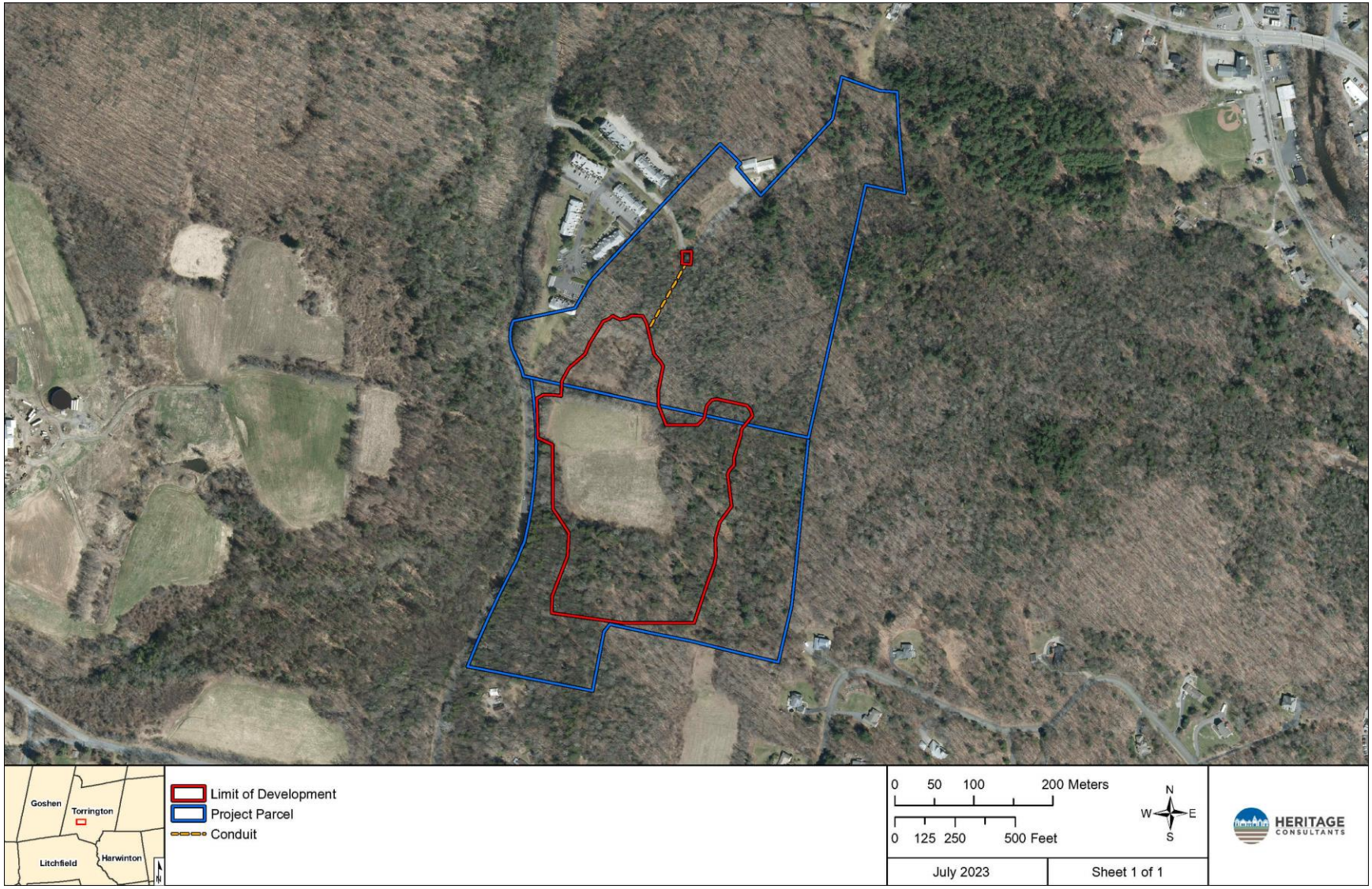

Figure 9. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

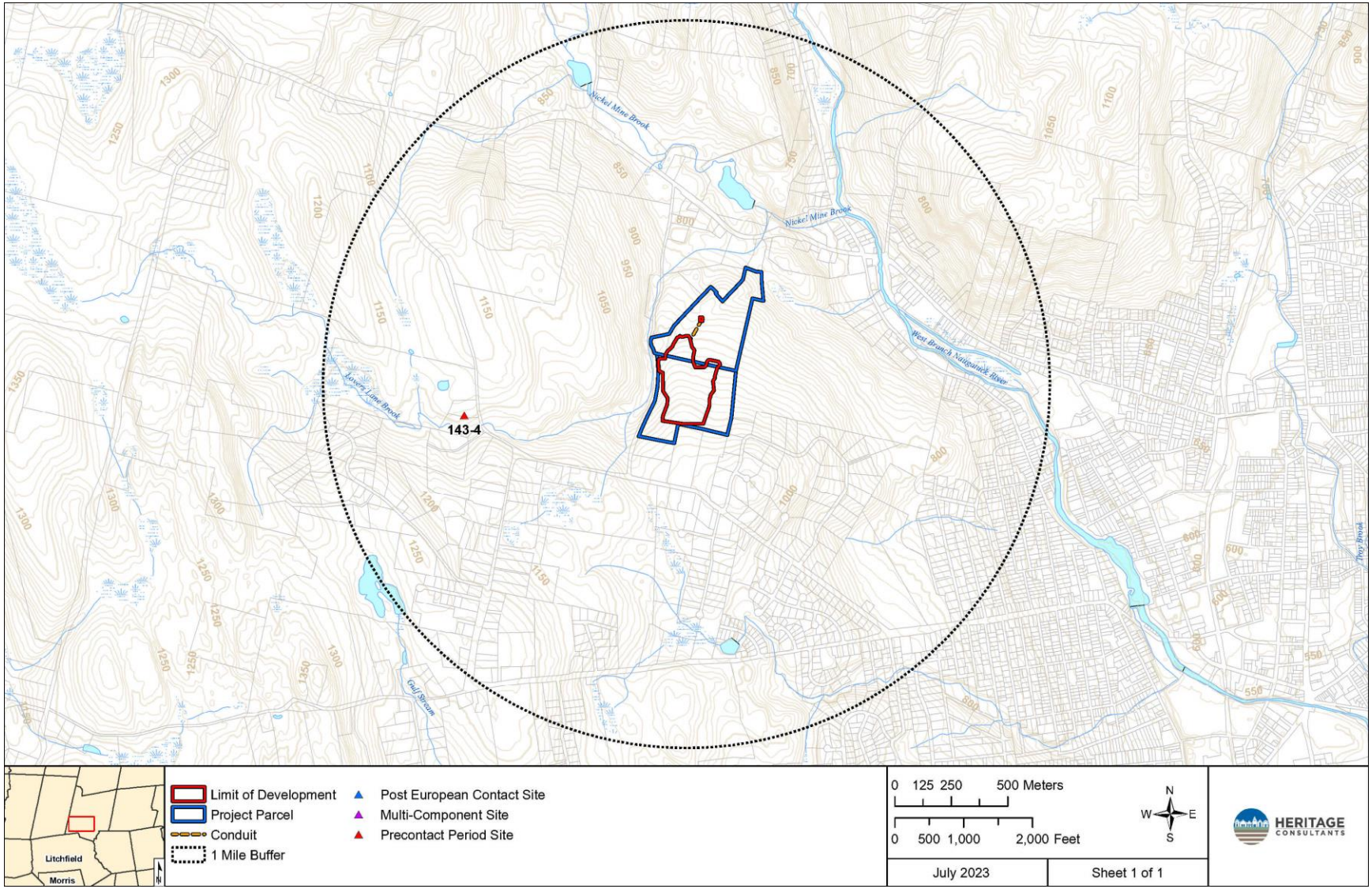

Figure 10. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Torrington, Connecticut.

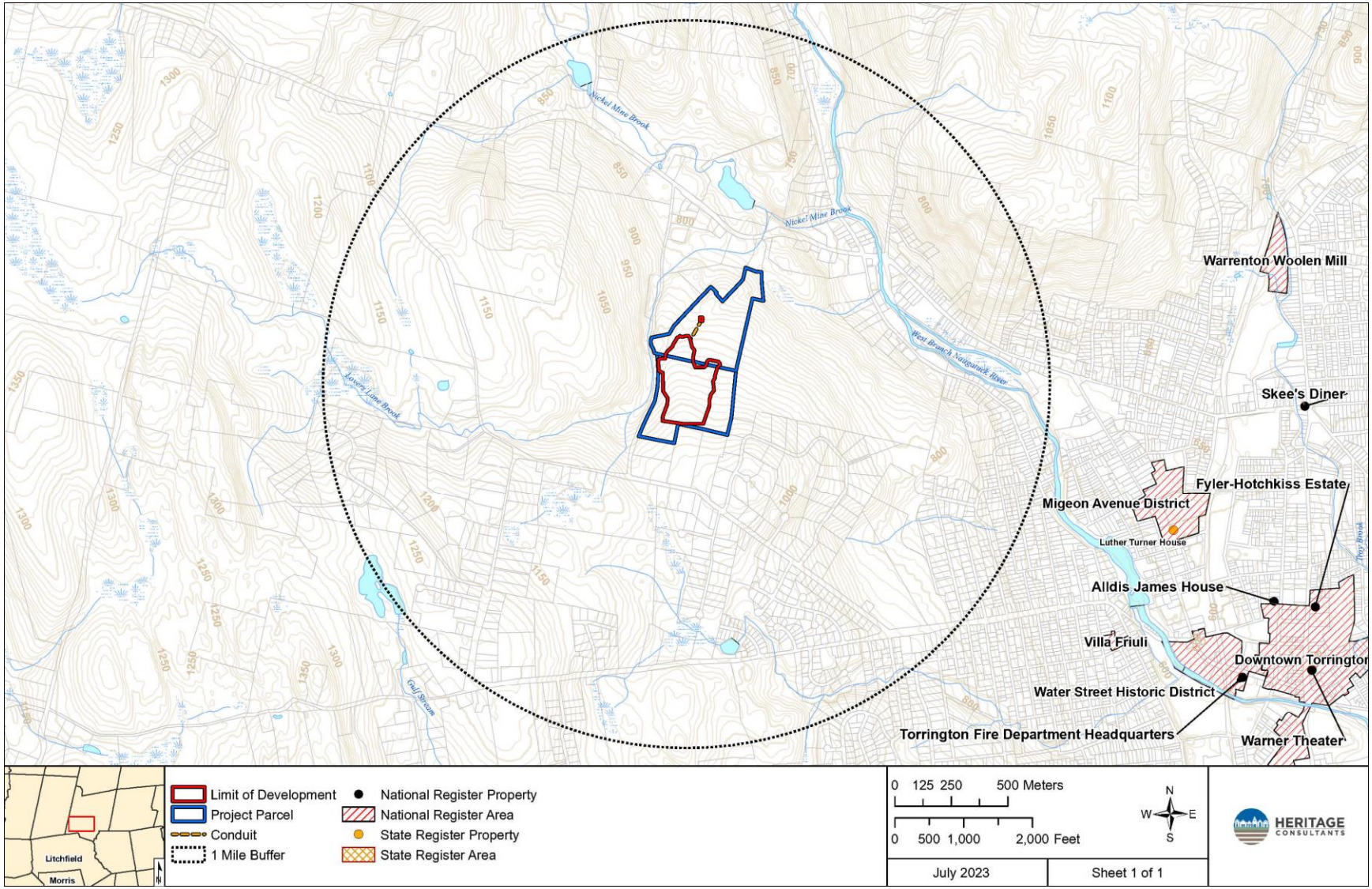

Figure 11. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Torrington, Connecticut.

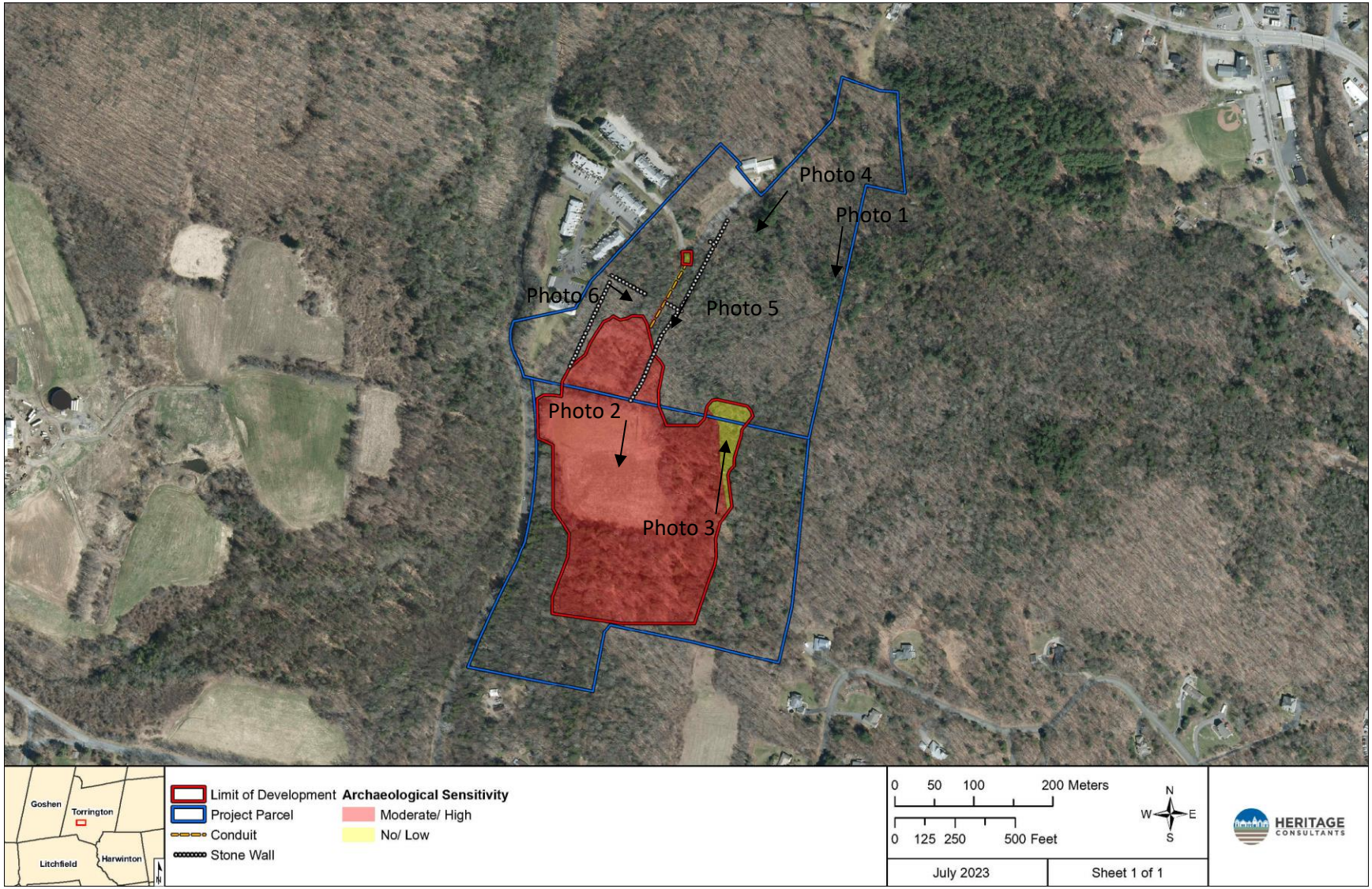

Figure 12. Digital map illustrating areas of finalized Moderate/High archaeological sensitivity (Red) and areas of No/Low Archaeological Sensitivity (Yellow) with directional arrows of photo points taken of the proposed project parcel and limit of development in Torrington, Connecticut.

APPENDIX B

PHOTOS

Photo 1. Overview of the wooded area in the northern parcel. Photo facing to the south.

Photo 2. Overview of sensitivity area SA-1. Photo facing to the south.

Photo 3. Overview of wetland area in the northern Project parcel. Photo facing to the north.

Photo 4. Overview of a stream cut located in the northern Project parcel. Photo facing to the southwest.

Photo 5. Overview of Stonewall 2. Photo facing to the southwest.

Photo 6. Overview of Stonewall 3. Photo facing to the southeast.

NOVEMBER 2023

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF THE LOVERS LANE SOLAR PROJECT IN TORRINGTON, CONNECTICUT

PREPARED FOR:

ALL-POINTS TECHNOLOGY CORPORATION

567 VAUXHALL STREET EXTENSION
SUITE 311, WATERFORD, CT 06385

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ABSTRACT

This report presents the results of a Phase IB Cultural Resources Reconnaissance Survey for a proposed solar facility in Torrington, Connecticut. The facility will include the construction of solar arrays, two gravel access roads, two concrete pads, and associated infrastructure across two abutting parcels of land on the eastern side of Lovers Lane. The proposed facility will encompass 17.5 acres of land within larger project parcels totaling 55 acres in size. A Phase IA cultural resources assessment survey of the facility area was completed in July of 2023. The results of the Phase IA Survey indicated that the facility area was characterized by well drained soils and gently sloping topography. It was determined that 16.25 acres of land retained a moderate/high potential to yield archaeological deposits, and a Phase IB cultural reconnaissance survey was recommended prior to construction. The Phase IB survey was completed in November of 2023. During the survey, 67 of 73 (92 percent) planned shovel tests were excavated throughout the solar array area and proposed conduit area. The six planned but unexcavated shovel tests fell within areas characterized by wetlands, modern disturbances, and wood piles. The field effort resulted in the recovery of seven mid-nineteenth to early twentieth century post-European Contact period artifacts. A total of six artifacts were recovered from the plowzone, and a single unidentified ferrous metal fragment was recovered in the B1-Horizon; however, it was likely an intrusive find that did not originate in the B1-Horizon. Due to the low-density nature of the archaeological deposits and lack of associated architectural remains, the post-European Contact period artifacts were characterized as field scatter and were assessed as not significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]. It was determined that no impacts to significant cultural resources are anticipated by the proposed construction and no additional archaeological investigation of the project area is recommended.

Finally, LiDAR data and pedestrian survey revealed the presence of four dry laid stonewalls along the perimeter of the limit of disturbance. The stonewalls could not be attributed to a specific type, function, or time period; however, it is recommended that they be protected in place, included on construction maps, and marked with high visibility fencing in the field so that as many of the walls as possible are allowed to remain in place and can be worked into the development plan.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey of a proposed solar facility (the Facility) in Torrington, Connecticut (Figure 1). All-Points Technology Corporation (All-Points) requested that Heritage Consultants, LLC (Heritage) complete the survey as part of the planning process for the Facility, which will encompass 17.5 acres of land within larger project parcels totaling 55 acres in size. The proposed Facility location is defined by fallow agricultural fields and sparse mixed deciduous forest. Heritage completed this investigation on behalf of All-Points in November of 2023. All work associated with this project was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987), which is promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description, Methods, & Results Overview

The proposed Facility will consist of solar panel arrays, concrete pads, gravel access roads, and associated infrastructure. Elevations range from 247 to 314 meters (810.4 to 1030.2 feet) NGVD. The facility will be located on the eastern side of Lovers Lane and the southern side of Goshen Road in Torrington, Connecticut. Field methods employed during the survey consisted of pedestrian survey, mapping, photo documentation, and subsurface testing throughout the Facility. The details of the field methods used, as well as the results of the Phase IB survey, are reviewed below.

As noted earlier in this report, pedestrian survey revealed that 16.25 acres of the Facility area retained a high/moderate archaeological sensitivity due to its proximity to the Naugatuck River and its tributaries, its topography, and the presence of well drained soils. The Phase IB survey was completed through the excavation of shovel test pits spaced at 20 meter (66 foot) intervals located along 14 linear survey transects positioned 20 meters (66 feet) apart. In addition, a single shovel test was excavated along the proposed conduit. All shovel tests excavated measured 50 x 50 centimeters (19.4 x 19.4 inches) in size and were excavated until glacially derived C-Horizon soils or immovable objects (boulders, large tree roots) were encountered.

During the survey, 67 of 73 (92 percent) planned shovel test pits were excavated throughout the solar array area and proposed conduit. The field effort resulted in the recovery of a total of seven mid-nineteenth to early twentieth century post-European Contact period artifacts. A total of six artifacts were recovered from the plow zone. A single unidentified ferrous metal fragment was recovered in the B1-Horizon, but it was likely an intrusive find that fell from the plow zone. The post-European Contact period artifacts were characterized as field scatter and were assessed as not significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]. It was determined that no impacts to significant cultural resources are anticipated by the proposed construction and no additional archaeological investigation of the project area is recommended.

Finally, LiDAR data and pedestrian survey revealed the presence of a total of four dry laid stonewalls along the perimeter of the project area. The stone walls could not be attributed to a specific type, function, or time period; however, it is recommended that these stonewalls be protected in place, included on construction maps, and marked with high visibility fencing in the field so that as many of the wall as possible are allowed to remain in place and can be worked into the development plan.

Project Personnel

Key personnel for this project included David R. George, M.A., R.P.A (Principal Investigator); Antonio Medina, B.A., (Operations Supervisor), Samuel Spitzschuh, B.A. (Field Supervisor); Nita Vitaliano, M.A. (Historian); Tevin Jourdain, B.A. (GIS Specialist), and Susannah Goeters, B.A., (Laboratory Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed solar Facility in Torrington, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the Facility 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 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 the Northwest Uplands Ecoregion is germane to the current investigation. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the Facility.

<u>Northwest Uplands Ecoregion</u>

The Northwest Uplands ecoregion consists of "a variably hilly landscape of high average elevation with local areas of considerable topographic relief and rugged hills. Elevations are generally above 1,000 feet, reaching a maximum of almost 1,500 feet in a few local areas." The region's bedrock is metamorphic, consisting of Paleozoic gneisses and schists. Soils "developed on glacial till in the uplands and on local deposits of stratified sand, gravel, and silt in the valley areas."

Hydrology of the Study Region

The Facility is located within close proximity of several streams, ponds and wetlands. The major fresh water sources in this area include the Naugatuck River, Lovers Lane Brook, Gulf Stream, Nickel Mine Brook, Crystal Lake, Patterson Pond, and associated wetlands. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project Area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many 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 within the Project area. In contrast, acidic soils enhance the preservation of charred plant remains.

The project area is comprised of Paxton and Montauk soils, which, when undisturbed and possessing less than eight percent slopes, are generally well correlated with precontact era and post-European Contact period site locations and are considered to retain archaeological sensitivity. Below is a summary of each specific soil type identified within the Project parcel.

Paxton and Montauk Soils

The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. A typical profile associated with Paxton soils is as follows: **Ap**--0 to 20 cm; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 5 percent gravel; strongly acid; abrupt smooth boundary; **Bw1**--20 to 38 cm; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent gravel; few earthworm casts; strongly acid; gradual wavy boundary; **Bw2**--38 to 66 cm; olive brown (2.5Y 4/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent gravel; strongly acid; clear wavy boundary; and **Cd**--66 to 165 cm; olive (5Y 5/3) gravelly fine sandy loam; medium plate-like divisions; massive; very firm, brittle; 25 percent gravel; many dark coatings on plates; strongly acid.

The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. A typical profile associated with Montauk soils is as follows: **Ap**--0 to 10 cm; very dark gray (10YR 3/1) loam; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots; 2 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid (pH 4.1); clear smooth boundary; **BA**--10 to 34 cm; brown (10YR 4/3) loam; moderate medium and coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 4 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid; clear wavy boundary; **Bw1**--34 to 65 cm; dark yellowish brown (10YR 4/6) loam; moderate coarse subangular blocky structure; friable; many fine, medium, and coarse roots; many fine and medium pores; 6 percent gravel, 1 percent cobbles, and 1 percent stones; extremely acid clear wavy boundary; **Bw2**--65 to 87 cm; yellowish brown (10YR 5/6) sandy loam; moderate medium and coarse subangular blocky structure; friable; many very fine, fine, and coarse roots; many fine and medium pores; 5 percent gravel and 1 percent cobbles; extremely acid; clear smooth boundary; **2Cd1**--87 to 101 cm; strong brown (7.5YR 5/6) gravelly loamy sand; moderate medium plates; firm; few fine roots; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; very strongly acid; clear wavy boundary; and **2Cd2**--101 to 184 cm; dark yellowish brown (10YR 4/6) gravelly loamy sand; moderate medium plates; firm; many fine pores; 10 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid.

Summary
A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Project area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact era of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact era 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 precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, was the focus of settlements and exploitation in the precontact 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 precontact era of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the project parcel.

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., 13,000 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 over 50 surface finds of Paleo-Indian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

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. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). 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.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleo-Indian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers that represented at least two temporally discrete Paleo-Indian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz. They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie et al. 2020). Approximately 15,000 artifacts were collected in total.

The scarcity of identified Paleo-Indian sites suggests a low population density during this period. The small size of most Paleo-Indian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleo-Indian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

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, very 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 very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of 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 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, the recovery of these projectile points has 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, are 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.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 B.P., is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges, recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

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

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging 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 precontact era. 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 B.P.) 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 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 of 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 was still 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.

<u>Early Woodland Period (ca., 2,700 to 2,000 B.P.)</u>

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and is 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. Archaeological investigations of Early Woodland sites in southern New England 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 indicate 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 that are indicative of the Middle Woodland Period include 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 stylistically diverse 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 Precontact Era

The precontact era of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering 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 precontact 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 that includes the proposed Project area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleo-Indian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Facility will be located along Lovers Lane in the City of Torrington, which is in Litchfield County, Connecticut. This chapter provides a brief overview of Litchfield County followed by a history of Torrington, with a focus on the Facility region. Most Connecticut towns, such as Torrington, originated as Indigenous settlements and later became English colonial villages. Originally settled by English colonists around 1735 and incorporated in 1740, Torrington developed as a small agricultural community and by the mid-nineteenth century the town experienced industrial growth (Lewis 1881). Torrington's population grew dramatically during the twentieth century and it was chartered as a city in 1923 (CSL 2023). In the twenty-first century it largely remains an urban area although it retains much of its rural character.

Litchfield County

Litchfield County was founded in 1751 with land taken from Fairfield, New Haven, and Hartford Counties (Hoadly 1877). Located in the northwest corner of Connecticut, Litchfield County is bounded to the south by New Haven and Fairfield Counties, to the east by Hartford County, to the north by Berkshire and Hampden Counties, Massachusetts, and to the west by Dutchess County, New York. Litchfield County is the largest county in Connecticut. Its landscape includes rocky hills situated adjacent to the Berkshire Mountains, including Bear Mountain, the highest peak in Connecticut, interspersed with flat lands and watersheds. Important bodies of water associated with Litchfield County include the Housatonic River, Naugatuck River, Candlewood Lake, Barkhamsted Reservoir, Lake Waramaug, in addition to smaller un-named streams and ponds. Torrington is the only city in Litchfield County and the most populous location in the county (Connecticut 2021). Torrington is located in the eastern section of Litchfield County in what is known as the Litchfield Hills section of the Appalachian Mountain range and is bounded north by the Town of Winchester, east by the Town of New Hartford, south by Harwinton and Litchfield, and west by Goshen (Connecticut 2021). Important waterways in Litchfield County include the Naugatuck River and Still River while several bodies of water are located in the town, including Burr Pond and Stillwater Pond, along with numerous unnamed streams and wetlands.

Woodland Period to the Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3,000 to 500 years ago), the Indigenous peoples who resided in central Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian languages and lived in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Indigenous people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times. Additionally, these communities came together in large groups to hunt deer in the fall and winter. Indigenous peoples lived with their immediate or extended families in large settlements, often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their habitation, known as a *weetu* or *wigwam,* was usually constructed of a tree-sapling frame and covered in reed matting during warm months and tree bark throughout the winter. These varied in size

from a small, individual dwelling, to an expansive "long house," which could accommodate several families. Native communities commonly traded among their immediate neighbors and often maintained long-distance networks (Lavin 2013). At the time of the arrival of Europeans to the region present-day Litchfield County was home to several Native American communities including the Mahican and Paugussett, though the Mahican were likely the most prominent Native American community in present-day Torrington (Lewis 1881; Rossano 1996; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Indigenous communities maintained oral traditions rather than a written record, most surviving information of the Indigenous people of present-day Connecticut was recorded by European observers (Lavin 2013). The earliest Europeans known to have sailed along Long Island Sound and the Connecticut River were the Dutch by 1614 (Love 1903). The Dutch developed trade relationships with local Indigenous communities. By the early 1620s, Dutch traders entered into an agreement with the Pequot of present-day southeastern Connecticut in which the Pequot supplied wampum (polished shells) and furs in return for European goods. In 1624, the Dutch West India Company formally established New Netherland Colony centered around Manhattan and the Hudson River with its eastern bounds extending as far as Cape Cod, including much of present-day Connecticut (Jacobs 2009). Through their relationship with the Dutch, the Pequot accessed a variety of trade goods they distributed to tributaries and traded with other groups in the region. The Pequot extended their dominance over the region, bringing all the Native nations in the area into a tributary relationship under their leadership (Hauptman and Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a fortified trading post, the *Huys de Hoop,* on the Connecticut River at the site of present-day Hartford to further cement both parties' domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who then settled Windsor (1633), Wethersfield (1634), and Hartford (1635), as well as Saybrook Colony (1635) at the mouth of the river (Trumbull 1886; Van Dusen 1961). Increased European interaction resulted in exposure to diseases and epidemics Indigenous people had never encountered and to which they had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In 1633, an epidemic spread from Plimoth Colony to Connecticut, impacting the Pequot and the people of the Connecticut River Valley in 1634 (Trumbull 1886). Tensions between Native and European groups in the region resulted in the death of several English traders in 1634 and 1636, which were blamed on the Pequot. In retaliation, English forces from Massachusetts Bay destroyed Pequot and Niantic villages on the Pequot (Thames) River in August of 1636, which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April of 1637. Connecticut Colony declared war on the Pequot and was joined by Native warriors from the Connecticut River and Mohegans under the Sachem Uncas (Oberg 2006). In May of 1637, English allied forces destroyed the fortified Pequot village at Mistick and in July they pursued refugees west. The Pequot were defeated in present-day Fairfield and the war soon ended (Cave 1996). Afterwards, the English considered Pequot territory, including land in the Connecticut River Valley, to be conquered lands and they were claimed by Connecticut Colony (Trumbull 1886). From 1687, what would become present-day Litchfield County and Torrington was known as the "Western Lands" and were claimed by the Colony of Connecticut which feared the new royal governor of New England and New York, Sir Edmund Andros, would distribute those lands to people in New York. Connecticut quickly granted all the land lying between the east bank of the Housatonic River and west of the towns of Farmington and Simsbury to the towns of Hartford and Windsor.

In 1732, the General Assembly named the territory allotted to Windsor as Torrington and granted land to 136 proprietors; by 1735 the first permanent settlers arrived there (Lewis 1881). Torrington developed as an agricultural community in the midst of inter-Colonial warfare taking place between English and French allied forces in the northeast. By 1744, during King George's War (1744-1748) the town voted to build a fort to protect against attacks and although several alarms occurred no raids took place during the conflict (Lewis 1881). During the war years several new dwelling houses, a tavern, and a school house were built in town and when the wars ended in 1760 additional settlers moved to the region. During the 1750s, several roads and highways were constructed through town, better connecting Torrington to both Hartford and New Haven (DeLuca 2011). Saw mills and grist mills also were erected, as well as a carding mill during the 1760s along with two new taverns, which reflects the growing population in town in the years prior to the American Revolution (Lewis 1881). Slavery existed in the region to different degrees and by the eighteenth century it was primarily practiced by wealthy families, merchants, and ministers in larger towns. In Torrington there appeared to be very little slavery present. The 1774 Connecticut colonial census recorded a "White" population of 843, a "Black" population of 2, and no "Indians" in Torrington although one's status as free or enslaved was not recorded (Hoadly 1887). During the American Revolution (1775-1783), the Town of Torrington played an important role recruiting soldiers, supplying food stores, and military goods for the war effort and had troops that served in many major battles of the war (Lewis 1881; Van Dusen 1961). Following the war, in 1784 the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). Finally, on January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Nineteenth Century through the Twenty-First Century

Following the Revolutionary War, Torrington slowly grew in population as it continued to develop as an agricultural hub and in 1800 had a total of 1,417 residents (Connecticut 2023a). By 1814, the first water powered woolen mill was erected on the Naugatuck River in the southern end of town and Torrington entered an early industrial era. According to the *Gazetteer of the States of Connecticut and Rhode-Island,* Torrington was a modest agricultural town containing 250 dwelling houses, nine school districts, two libraries and three doctor's offices for the use of 1,586 people (Pease and Niles 1819). Agricultural activities such as dairying and raising beef were the main source of income in Torrington, although the *Gazetteer* noted the Wolcottville Woolen Factory, a cotton factory, two grain mills, a carding mill, tanneries, and merchant stores in town (Pease and Niles 1819). A few years later, the Connecticut artist John Warner Barber visited Torrington, but appeared to have mainly focused on the Village of Wolcottville, where he noted 40 dwelling houses, two churches, four mercantile stores, two taverns, and a post office along with the Wolcott's woolen mill (Barber 1836).

Abolitionist sentiments grew in town during the early nineteenth century and in 1837 anti-slavery supporters gathered in Wolcottville for the purpose of organizing a national society. Although the effort initially failed, the State Charter Oak Society was formed the next year to promote anti-slavery activities (Lewis 1881). In 1835, the Coe Brass Manufacturing Company was founded on the Naugatuck River, helping stimulate the region's growing brass industry (Lewis 1881). By 1849, the Naugatuck Railroad was opened; it ran from Bridgeport along the Naugatuck Valley to Winsted and stopped at Torrington along the way (Turner and Jacobus 1989). In 1859, Torrington native and abolitionist, John Brown, led a failed attack on the US arsenal at Harpers Ferry in Virginia, which proved to be one of the catalysts of the Civil War (1861-1865) (Lewis 1881). Like many Connecticut towns, Torrington provided men and materials to aid the Union during the Civil War which included textiles manufactured in local mills and 173 men who served in the Union Army (Hines 2002; Niven 1965). Following the Civil War, several additional manufacturers were established in town including the Excelsior Needle Company (1866), Turner &

Seymour Manufacturing Company (1866), and the Hendy Machine Company (1870). By 1874 Torrington had its first newspaper published in town titled *The Wolcottville Register* (Lewis 1881). The town's robust industrial base attracted immigrants from southern and eastern Europe in the latter half of the nineteenth century and Torrington's population rapidly grew from 2,893 people in 1870 to 4,283 residents by 1890 (Connecticut 2023a, b; Table 1).

At the turn of the twentieth century, Torrington was home to 8,360 residents. As a growing manufacturing hub in the Naugatuck River Valley, immigrants, largely from eastern Europe, moved to town in large numbers. In 1910, Torrington's population exploded to a stunning 15,483 inhabitants and by 1920 there were 20,623 residents living and working there (Connecticut 2023c; Table 1). Torrington's population grew so quickly during the twentieth century that it was chartered as a city in 1923 (CSL 2023). The manufacturing base was essential for producing brass items during World War I (1917-1918) and ball bearings during World War II (1941-1945). When hundreds of men volunteered for service during the war years women took their place in the mills and factories (Bendici 2014; Mills 2023). Following World Wars I and II, the State of Connecticut continued to actively preserve land through the State Parks system and several were established in Torrington, including Burr Pond State Park, Sunnybrook State Park, Stillwater Pond State Park as well as the Paugnut State Forest (Connecticut 2014a, b). In August of 1955 Connecticut was impacted by hurricanes and severe rains which flooded much of the state, including Torrington. The flooding damaged much of the city, including most downtown businesses, but residents quickly rebuilt (Van Dusen 1961; ConnecticutHistory.org 2023).

As with the rest of the state during the 1950s, Torrington experienced the post-war suburbanization trend elsewhere seen in the state. Although none of the highway construction of the period passed through the city, Interstate 84 ran approximately 20 miles to the southeast, while U.S. Route 202 and CT Route 8 remained highly traveled roads that intersected in Torrington (DeLuca 2020). By 1980, the city's population rose to 30,987 people and continued to climb to 33,687 residents by 1990. In the twenty-first century Torrington remained the most populated municipality and largest city in Litchfield County. By the year 2000, Torrington had 35,202 residents which rose to 36,383 people in 2010 (Connecticut 2023d; Table 1). Due to enrollment decline the University of Connecticut Torrington branch was closed in the Spring of 2016 (Connecticut 2023e). The city remains a mixture of urban areas, suburban residential communities, and elements of its agricultural past with a diverse natural landscape including state parks. As of 2021, Torrington had a population of 34,489 people with health care and social assistance employment being the top employers followed by retail trade and manufacturing (AdvanceCT and CTData Collaborative 2021).

Table 1: Population of Torrington, Connecticut, Litchfield County 1890-2020 (Connecticut 2023a-d; USCB 2023)

Town	1890	1900	1910	1920	1930	1940	1950
Town of Torrington, Litchfield County, Connecticut	4,283	8,360	15,483	20,623	20,040	26,988	27,820
	1960	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	30,045	31,952	30,987	33,687	35,202	36,383	35,515

History of the Project Area

The proposed Facility is located along Lovers Lane in Torrington and is situated to the west of the Naugatuck River, a short distance to the east of Lovers Lane Brook. According to the 1859 map of Litchfield County, the Facility is located in an area that was referred to as Torrington Hollow, which appears to be a densely populated area with dozens of dwellings to the northeast of the project parcels.

The closest dwelling belonged to "A. W. Cowles." It abutted the northern bounds of the combined project parcels, although several more are noted approximately 250 meters (820 ft) further to the north. The 1859 map also notes the location of the "old" school house approximately 250 meters (820 ft) further to the south for the Facility. The project parcels themselves are abutted by Lovers Lane to the west and Goshen Road to the north. While the parcels appear to be located on the northwestern slope of a nearby hill and are not developed, it is unclear if the property was under agricultural cultivation or if it is forested land during the middle of the nineteenth century (Figure 3). The 1874 Beers map of Litchfield County demonstrates that little had changed in the vicinity of the project parcels in the 15 years since the last county map was produced. They are abutted by Lovers Lane to the west and Goshen Road to the north with the home of "A. W. Cowles" remaining on the west side of Lovers Lane Brook to the northwest of the parcels. A school stands to the northeast of the project parcels and there is little development to the south. The project parcels themselves appear to be undeveloped, although it remains unclear whether the land was under agricultural cultivation or if it was wooded (Figure 4).

During the twentieth century the area containing the Facility remained largely rural with little development in the immediate vicinity. A 1934 aerial photograph of the area depicts a cleared landscape under agricultural cultivation with some wooded areas. It is unclear what crops were being raised; however, the open fields may have been utilized as hay lots. Lovers Lane is evident along the western bounds of the project parcels whereas Goshen Road, known as Connecticut Route 4 since 1932, is visible to the north of the Facility (Figure 5; DeLuca 2020). Nearly four decades later the landscape appears much the same in a 1970 aerial photograph, which shows the project parcels as heavily wooded with several open lots which remained under agricultural cultivation. Lovers Lane and Route 4 were visible to the west and north of the project parcels, while there did not appear to be any signs of development in the vicinity of the Facility itself (Figure 6). In the twenty-first century, a 2004 aerial image indicates significant residential development along the northwest bounds of the project parcels known as "Country Woods of Torrington," which dates from 1988 according to signage at the development entrance. A second residential development was evident to the southeast of the Facility as well. Lovers Lane and Route 4 were visible in the image, while the project parcels themselves remain largely wooded with a large cleared field that remained under agricultural cultivation (Figure 7). An aerial image taken in 2019 depicts a landscape that has not undergone any significant further development although additional residential homes are visible within the existing housing development to the southeast of the Facility. Both Lovers Lane and Route 4 are clearly shown in the aerial image while the Facility area remain wooded with one cleared field, which was under agricultural cultivation (Figure 8).

Conclusions

The documentary review of the project region indicates that the proposed abutting project parcels along Lovers Lane in the City of Torrington are situated on the site of a long-time agricultural area that later largely reverted to forested land. Based on the past use of the land for agriculture, there is the possibility of encountering remains of outbuildings, stone walls, or other evidence of post-European Contact farming.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the proposed Facility in Torrington, Connecticut and it provides the comparative data necessary for assessing the results of the current Phase IA cultural resources assessment survey. It also ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Facility area are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites and National/State Register of Historic Places properties situated in the Project region (Figures 9 and 10). The discussions presented below are based on information currently on file at the CT-SHPO in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during 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 CT-SHPO, as well as the electronic site files maintained by Heritage, resulted in the identification of a single precontact era archaeological site (143-4) situated within 1.6 kilometers (1 mile) of the Project area (Figure 9). However, no National/State Register of Historic Places properties were identified within 1.6 kilometers (1 mile) of the Project area (Figure 10). A brief discussion of Site 143-4 is provided below.

Site 143-4

Site 143-4, which is also known as the Hewitt Site, is a precontact era site located in Torrington, Connecticut. It was reported by Connecticut Archaeological Survey (CAS) in 1979. The official Connecticut archaeological site form describes the site as an Archaic/Woodland period camp in fair condition; it was excavated by avocational archaeologists in 1970. The site yielded 2 steatite pots, Susquehanna Broadpoints, an Orient Fishtail, a Fox Creek stemmed, a Sylvan side-notched point, Brewerton side-notched points, 15 potsherds, and an unknown quantity of knives and scrapers. Site 143-4 was not assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The Hewitt Site is located approximately 0.9 km (0.56 mi) to the west of the Project parcel. While it will not be impacted by the proposed construction, it does indicate that the region containing the proposed Facility was occupied and used by precontact era Native Americans between ca., 6,000 and 500 years ago.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the current Phase IB cultural resources reconnaissance survey of the Facility area in Torrington, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated are provided below.

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all precontact era and post-European Contact period cultural resources located within the Facility area. Fieldwork for the project was comprehensive in nature and project planning considered the distribution of previously recorded archaeological sites located near the Facility, as well as an assessment of the natural qualities of the region. The methods used to complete this investigation were designed to provide complete and thorough coverage of the entirety of the project area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

Following the completion of all background research, a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing was completed. The field strategy was designed such that the entirety of the Facility was examined visually and photographed. The Phase IB survey was completed through the excavation of shovel test pits spaced at 20 meter (66 foot) intervals located along nine linear survey transects positioned 20 meters (66 feet) apart. In addition, a total of 11 shovel tests were excavated along the proposed interconnection and the proposed access road; they were also spaced 20 meters (66 feet) apart.

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 soils or immovable objects (e.g., boulders, large tree roots) 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-centimeter (0.25 in) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Curation

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

Dr. Sarah Sportman
Office of Connecticut State Archaeology, Box U-1023
University of Connecticut
Storrs, Connecticut 06269

CHAPTER VII
RESULTS OF THE INVESTIGATION

Introduction

This chapter presents the results of the Phase IB cultural resources reconnaissance survey of the proposed Facility along Lovers Lane in Torrington, Connecticut. As discussed in Chapters I and VI, the Phase IB fieldwork included pedestrian survey augmented by systematic shovel testing and photo-documentation throughout the limits of the Facility. The results of the Phase IB effort are presented below.

Results of Phase IB Cultural Resources Reconnaissance Survey

Pedestrian survey of the Facility indicated that 16.66 acres of it was characterized by level topography and well-drained soils. The area is defined by fallow agricultural fields and sparse mixed deciduous forest and is characterized by relatively even topography and low slopes that range from 247 to 314 meters (810.4 to 1030.2 feet) NGVD (Photos 1 through 7). During the Phase IB survey, 67 of 73 (92 percent) planned shovel test pits were excavated throughout the solar array area and proposed conduit. The six planned but unexcavated shovel tests fell within areas characterized by wetlands, modern disturbances, and wood piles (Figure 11).

A typical shovel test excavated within the Facility exhibited five soil horizons in profile and extended to a terminal depth of approximately 69 centimeters below surface (27 inches) below surface. The uppermost layer is described as a layer of organic material that extended from 0 to 5 centimeters (0 to 1.9 inches) below surface. The Ap-Horizon (plowzone) reached from 5 to 23 centimeters (1.9 to 9 inches) below surface and was characterized as a layer of dark yellowish brown (10YR 4/4) fine sandy loam. The underlying B1-Horizon extended from 23 to 38 centimeters (9 to 15 inches) below surface; it was characterized as a deposit of yellowish brown (10YR 5/6) fine sandy loam. The B2-Horizon extended from 38 to 59 centimeters (15 to 23.2 inches) below surface and was described as a layer of light olive brown (2.5Y 5/4) medium sand with silt, gravel, and cobbles. Finally, the glacially derived C-Horizon consisted of a layer of olive grey (5Y 5/2) medium to coarse sand with gravel and cobbles which extended to 69 centimeters (27 inches) below surface (Figure 12).

The field effort resulted in the recovery of six mid-nineteenth to early twentieth century artifacts that originated from the plowzone between 10 to 20 centimeters (4 to 7.8 inches) below surface, and a single artifact from B1-Horizon between 30 to 40 centimeters (11.8 to 15.7 inches) below surface. The six artifacts found in the plowzone are represented by two ceramic objects (pearlware and brick) and four highly corroded metal items (3 unidentified nails and 1 machine cut nail). A representative sample of the artifacts can be seen in Photo 8. A single unidentified ferrous metal fragment was recovered in the B1-Horizon in Shovel Test 1 along Transect 2, but it was likely an intrusive find and did not originate from the B1-Horizon. Due to the low-density nature of the archaeological deposits and the lack of associated above ground architectural features or soil anomalies, the post-European Contact period artifacts were characterized as unassociated field scatter and were assessed as not significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]).

Finally, LiDAR data and pedestrian survey revealed the presence of four dry laid stonewalls along the perimeter of the Facility area (Figure 13). The stonewalls could not be attributed to a specific type, function, or time period; however, it is recommended that these stone walls be protected in place,

included on construction maps, and marked with high visibility fencing in the field so that as many of the wall as possible are allowed to remain in place and can be worked into the development plan.

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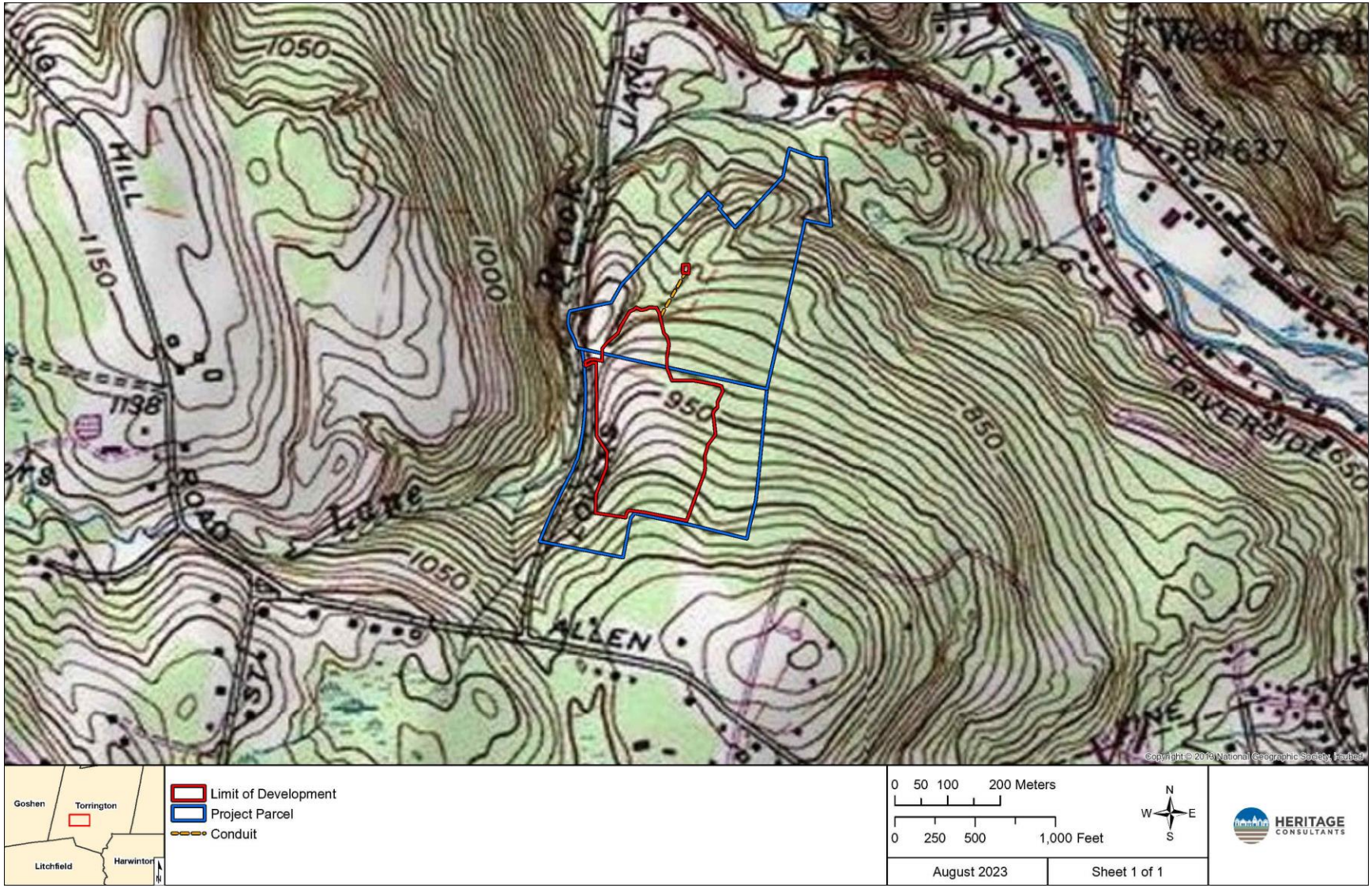


Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the project parcel and limit of development in Torrington, Connecticut.

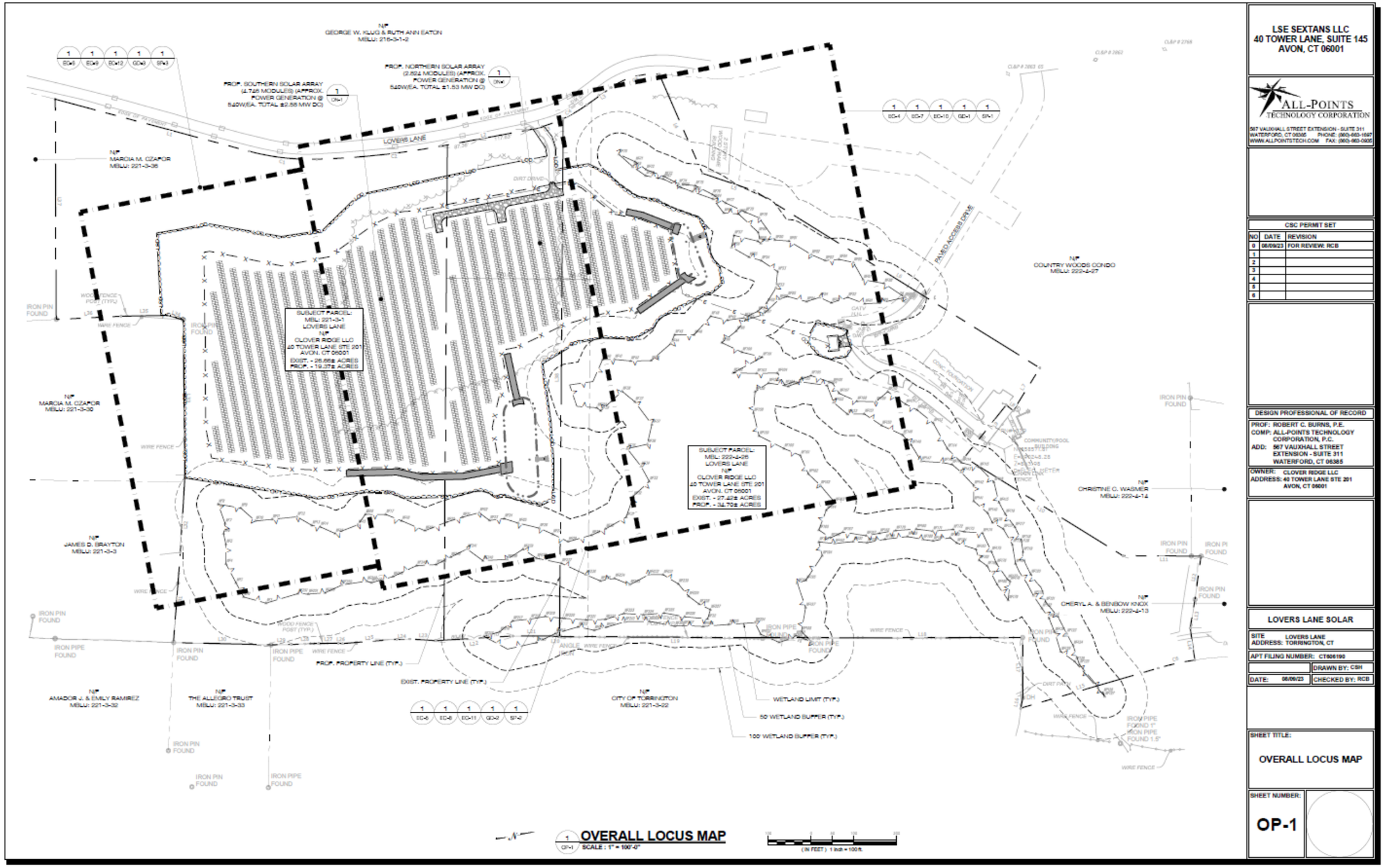


Figure 2. Project plans for the proposed solar facility along Lovers Lane in Torrington, Connecticut.

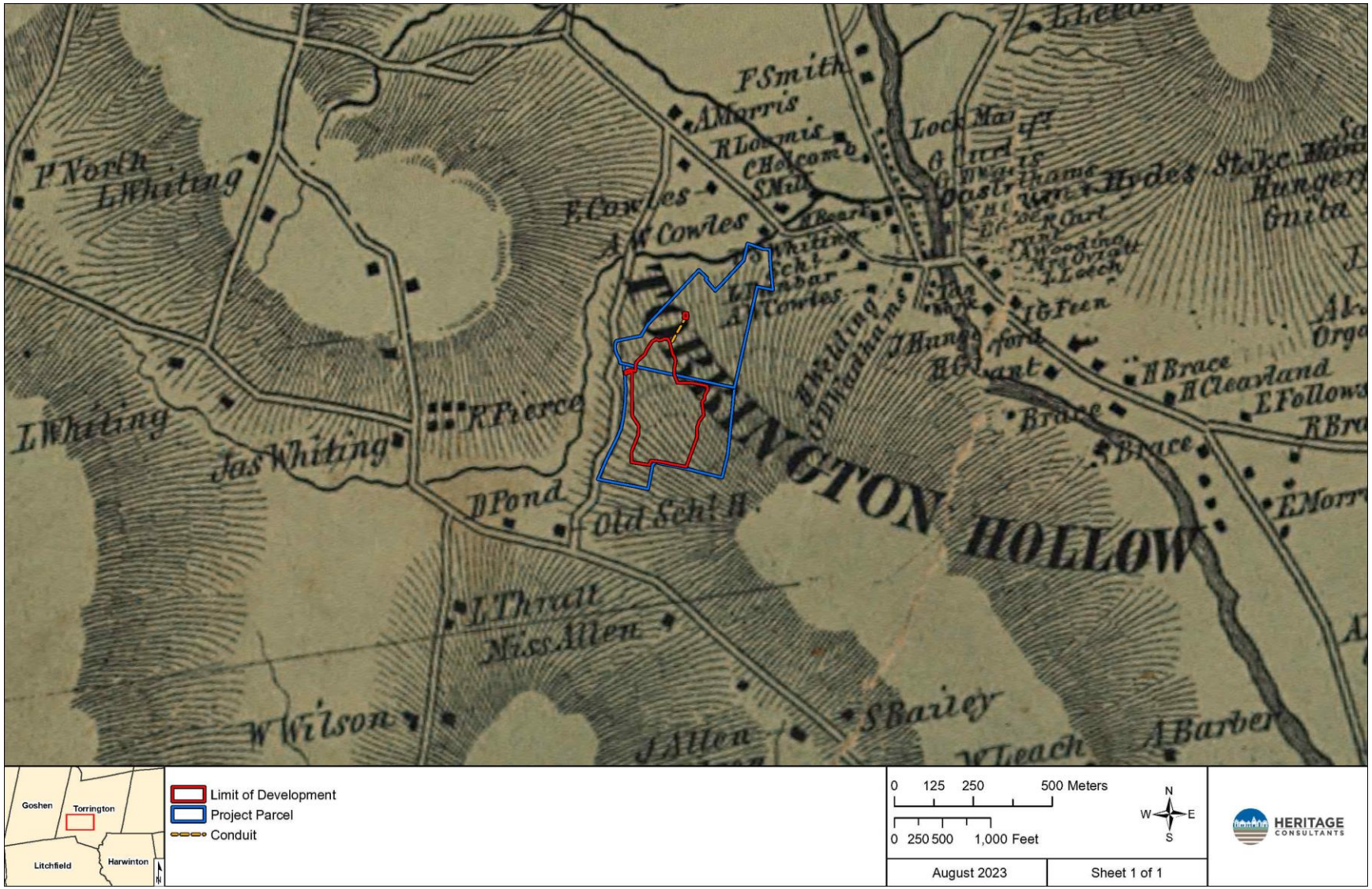


Figure 3. Excerpt from an 1859 historical map showing the location of the project parcel in Torrington, Connecticut.

Figure 4. Excerpt from an 1874 historical map showing the location of the project parcel in Torrington, Connecticut.

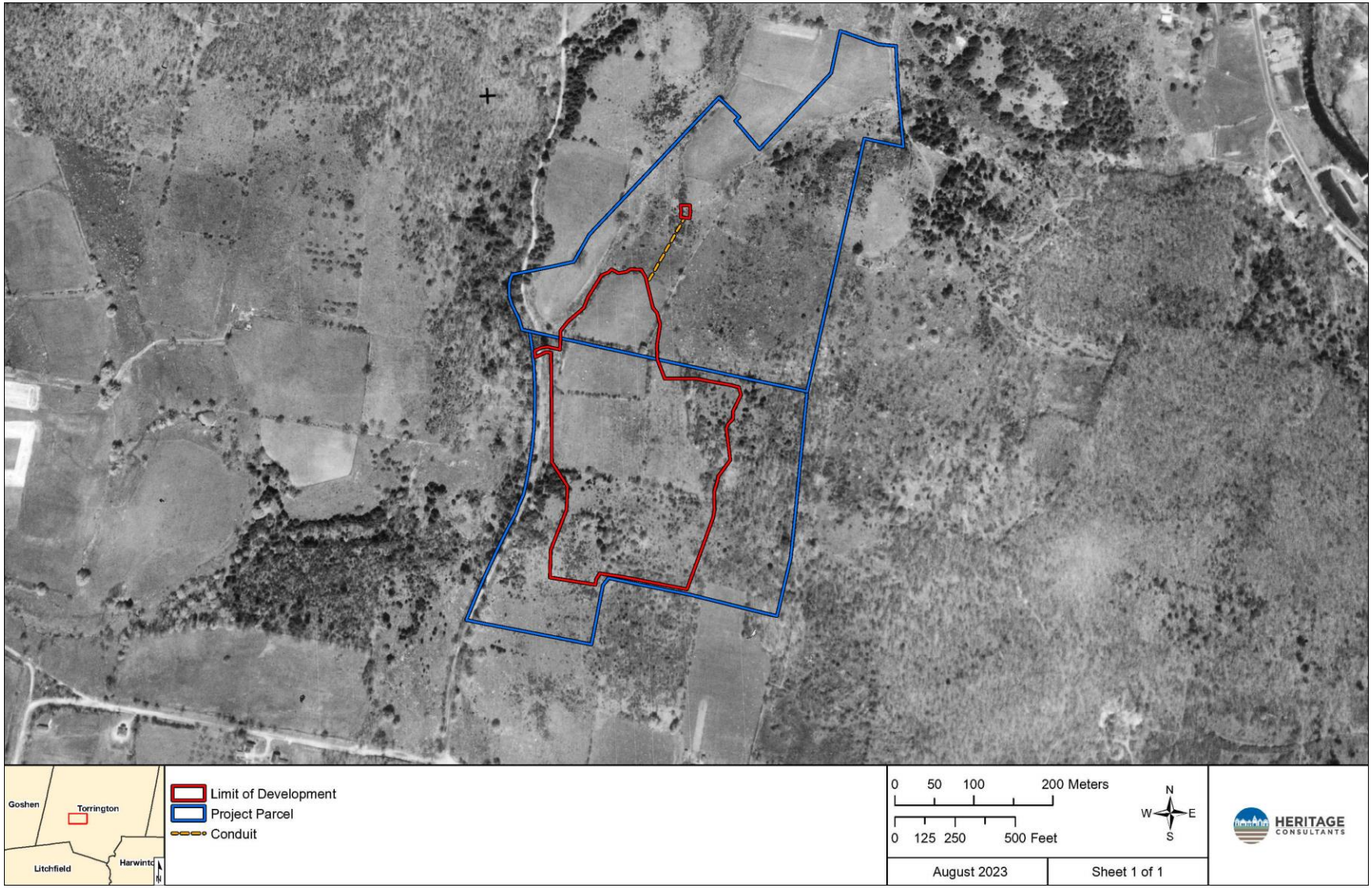


Figure 5. Excerpt from a 1934 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

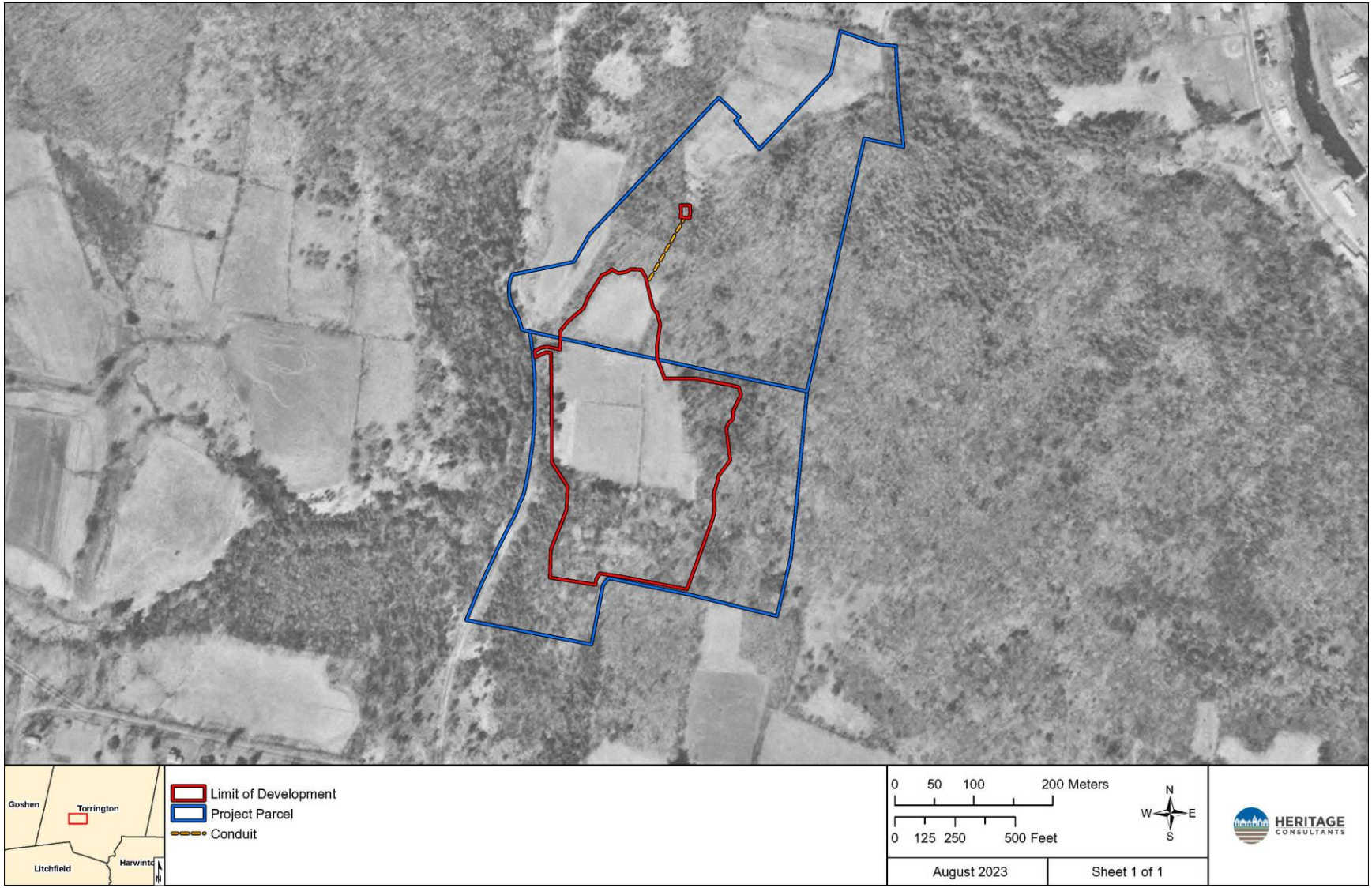


Figure 6. Excerpt of a 1970 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

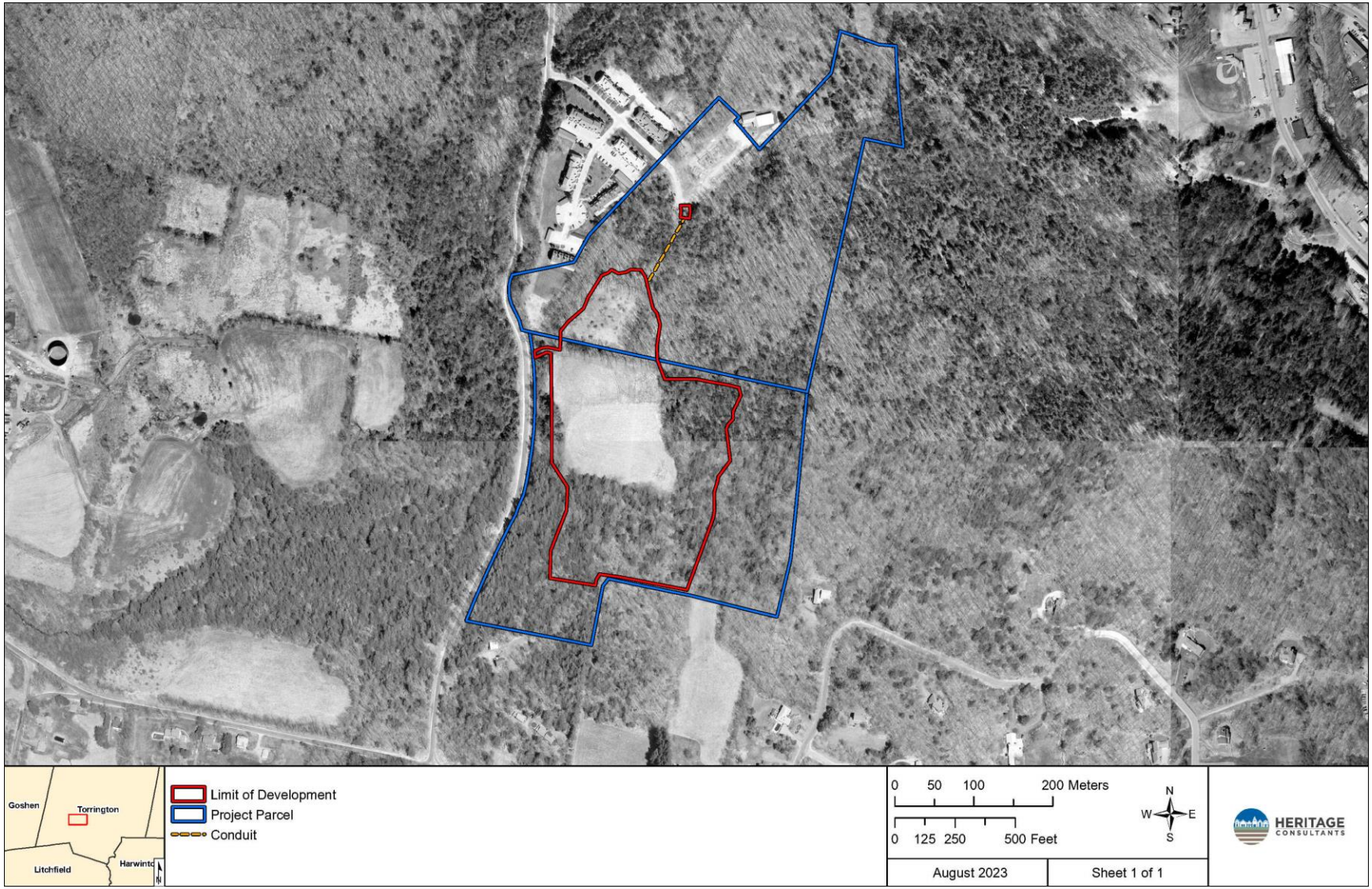


Figure 7. Excerpt of a 2004 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

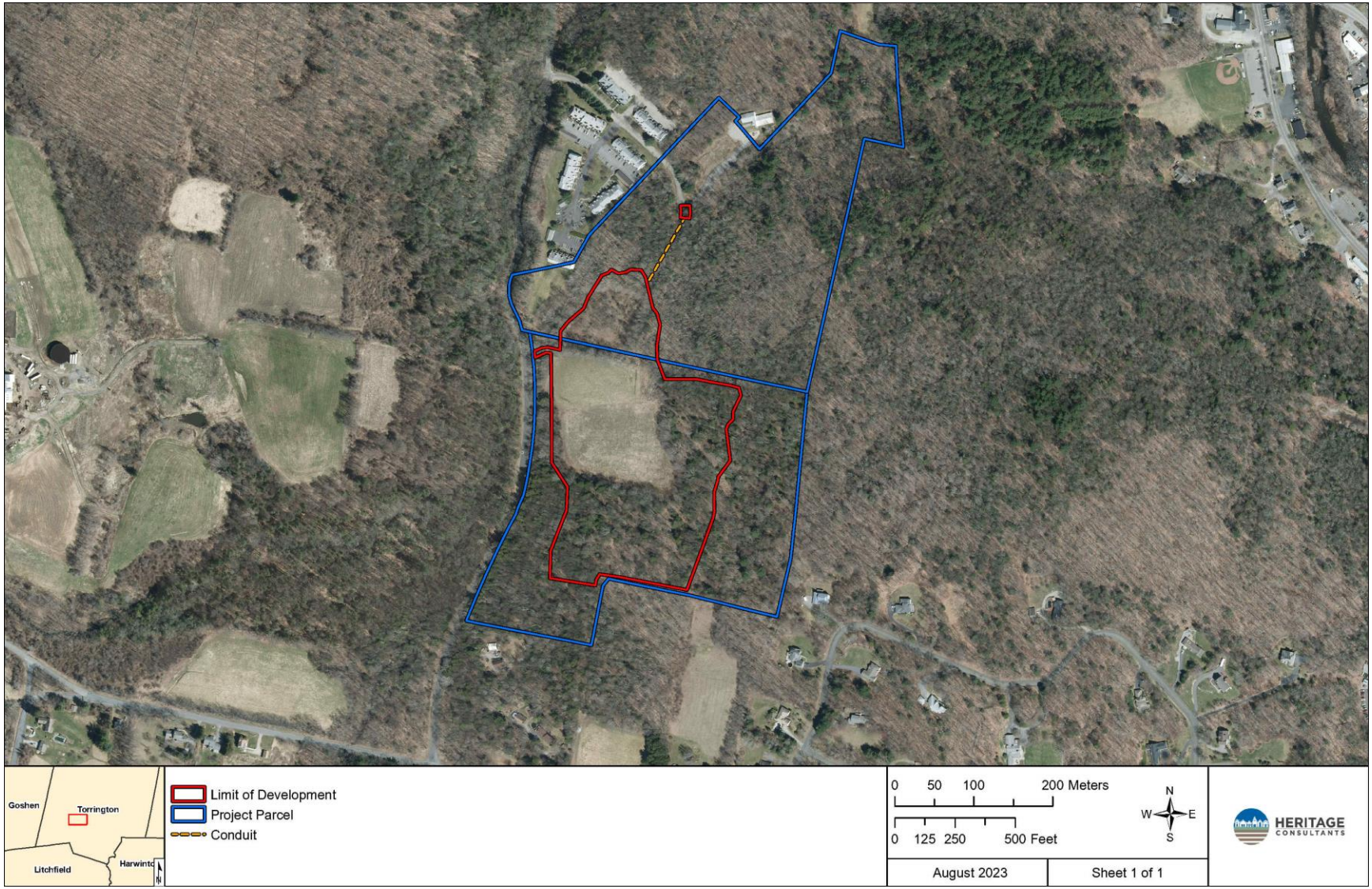


Figure 8. Excerpt of a 2019 aerial photograph showing the location of the project parcel in Torrington, Connecticut.

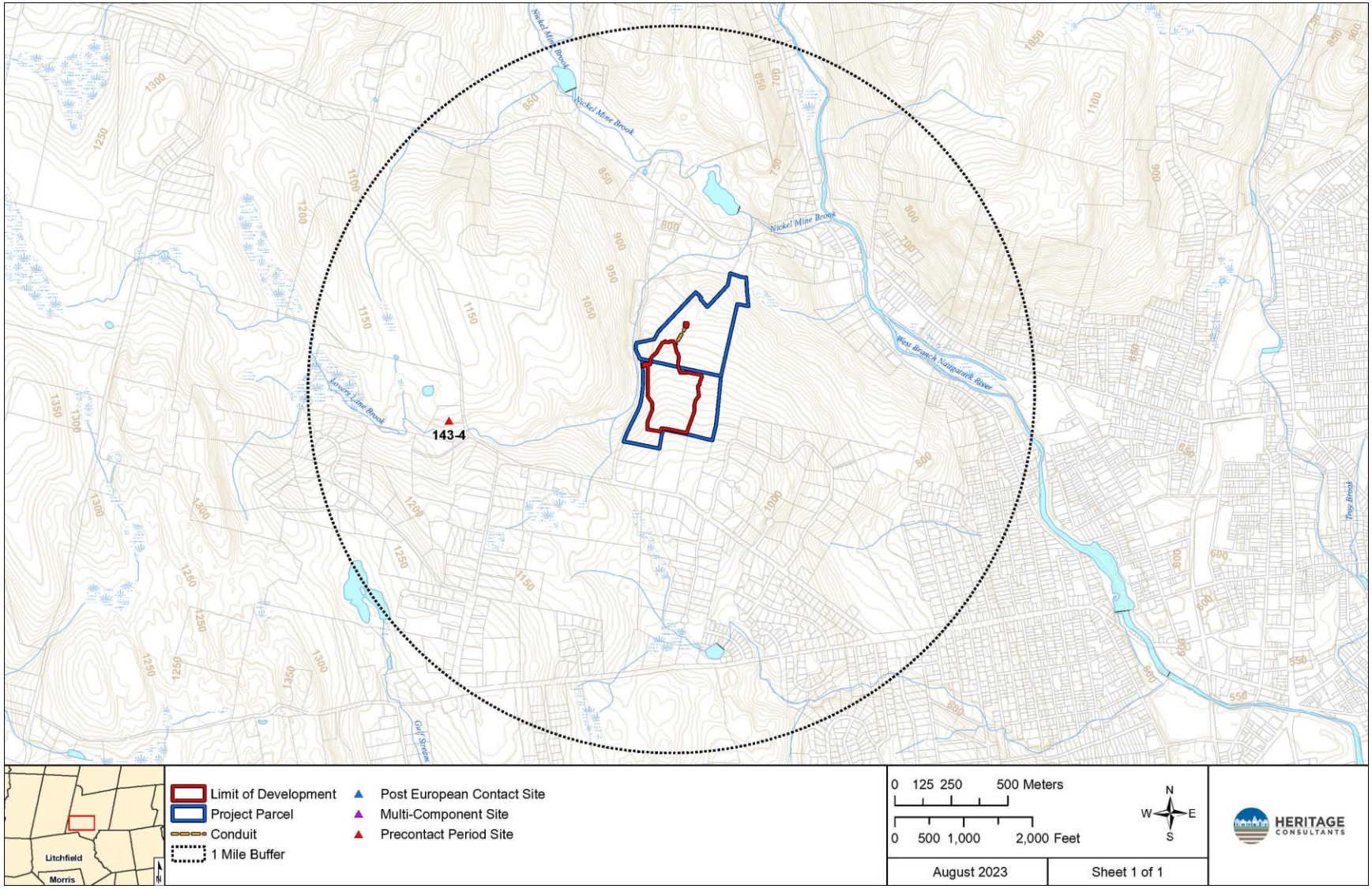


Figure 9. Digital map depicting the locations of the previously identified archaeological sites in the vicinity of the project parcel in Torrington, Connecticut.

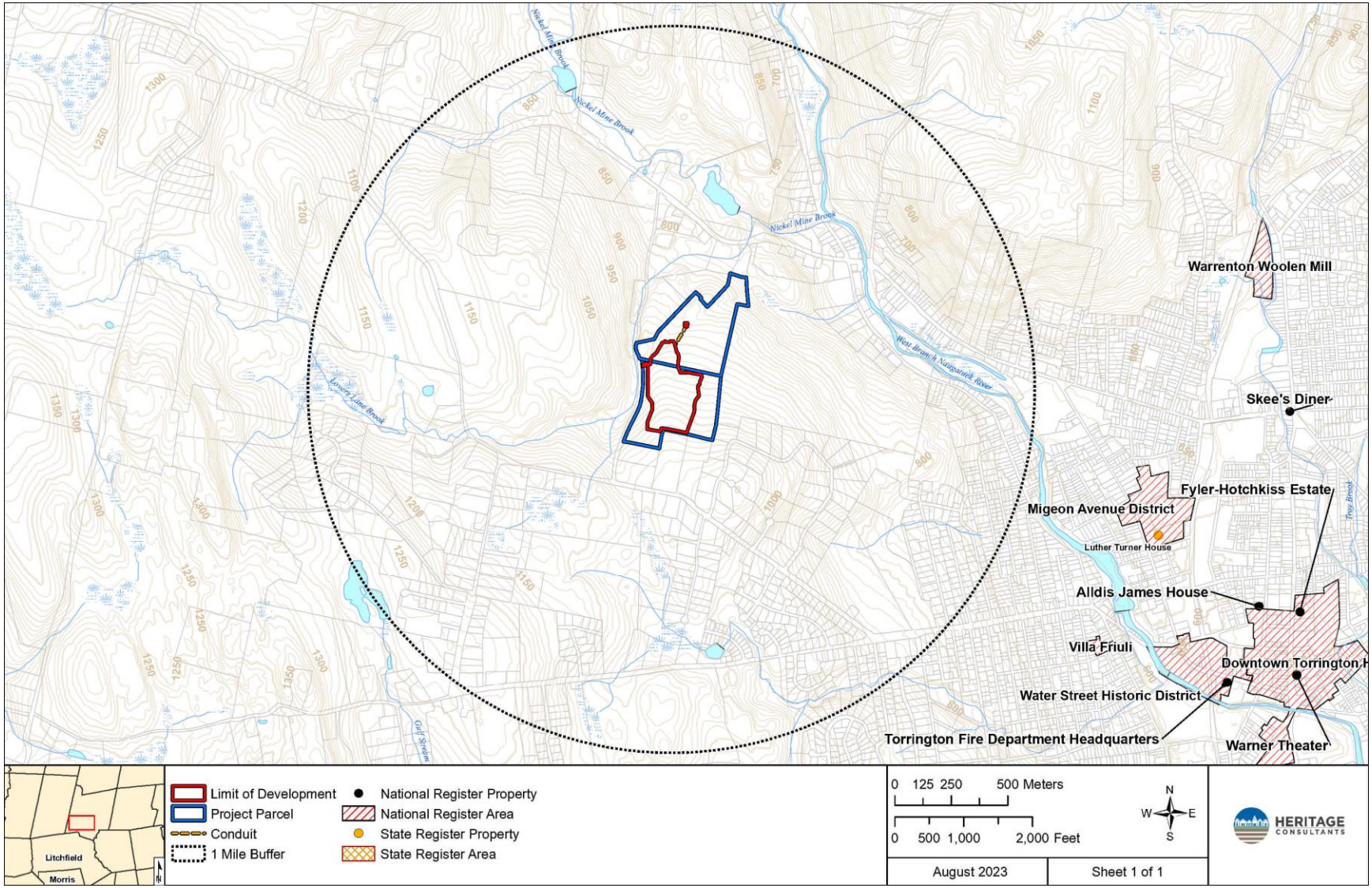


Figure 10. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Torrington, Connecticut.

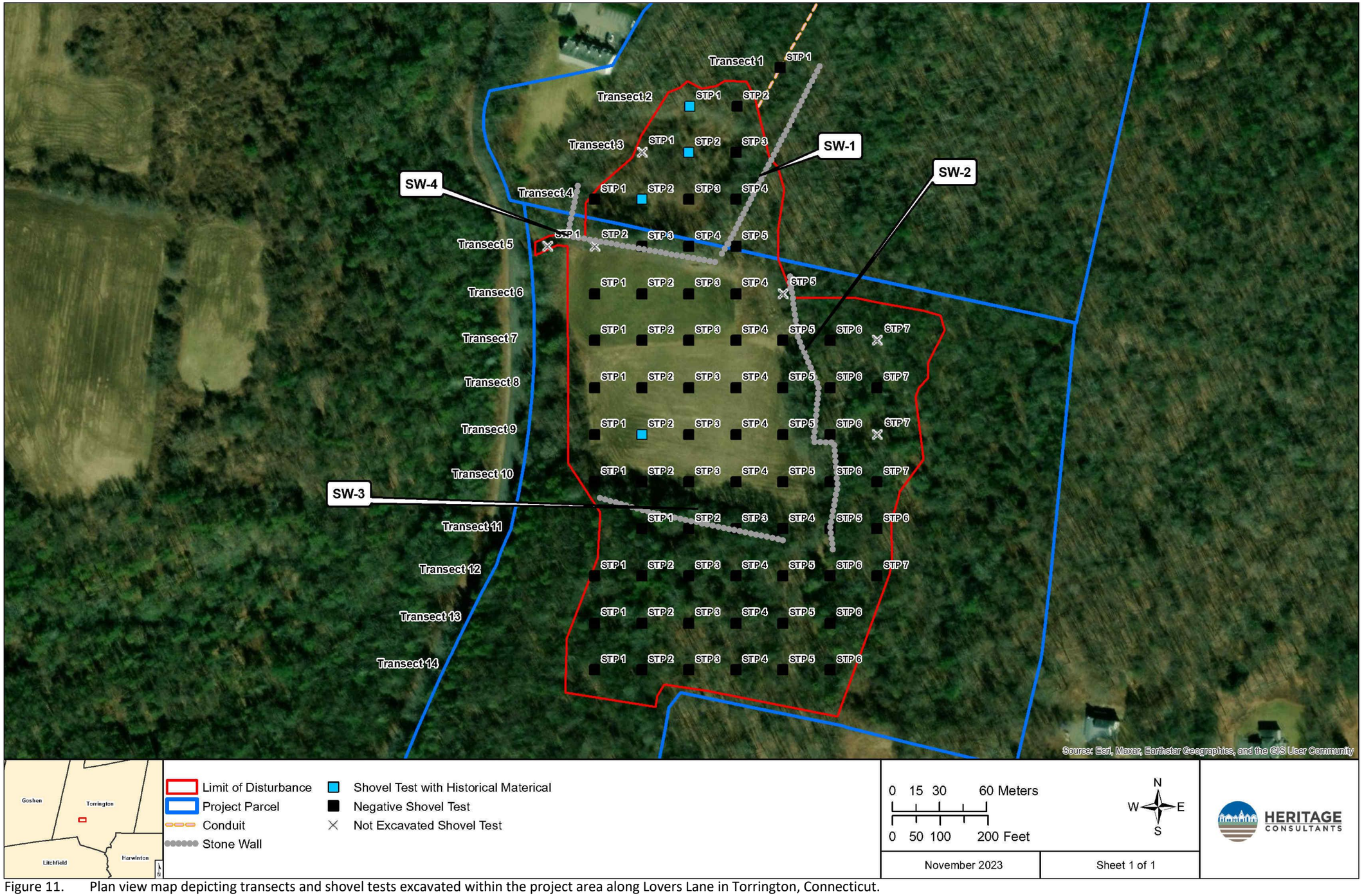


Figure 11. Plan view map depicting transects and shovel tests excavated within the project area along Lovers Lane in Torrington, Connecticut.

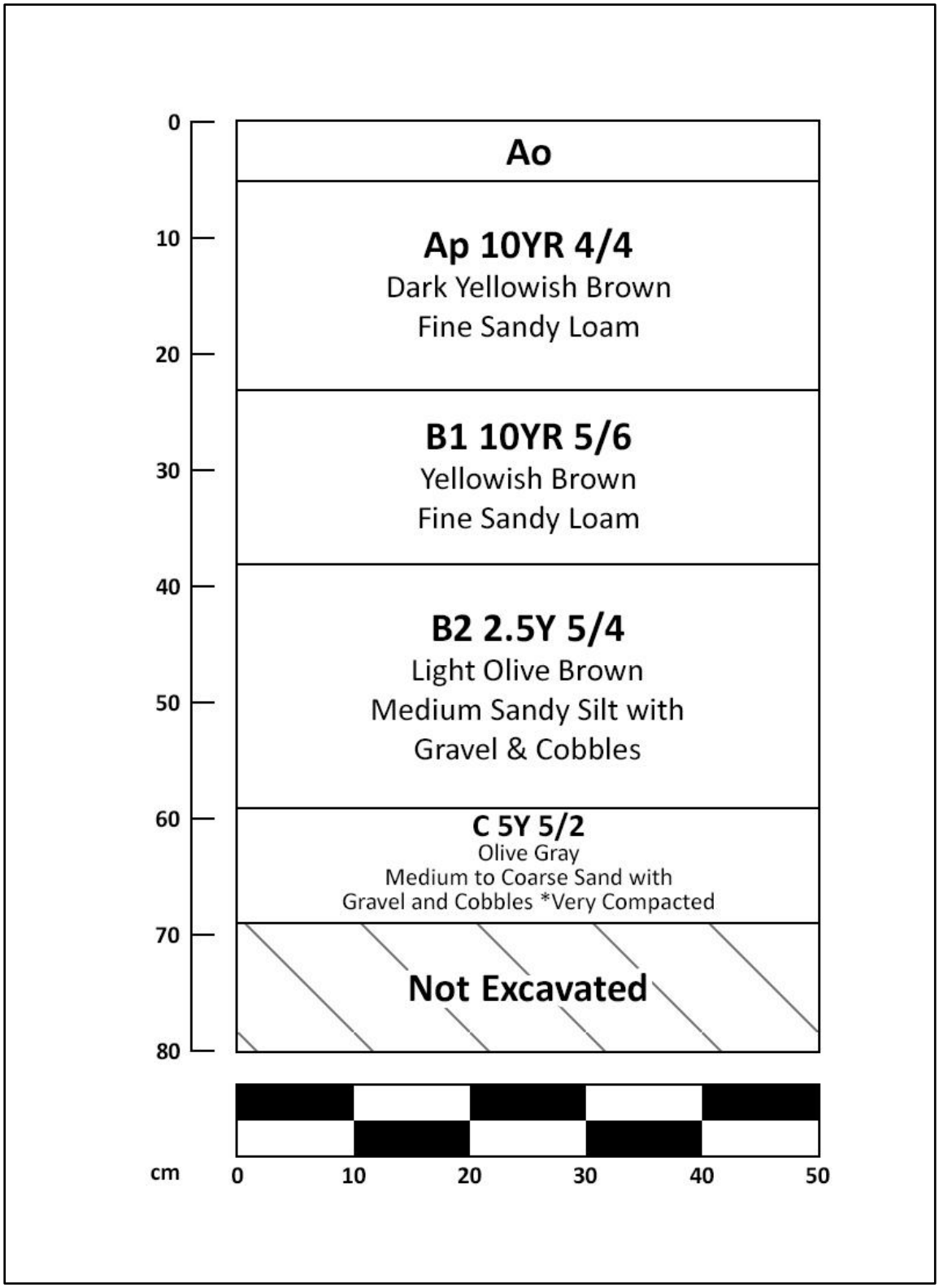


Figure 12. Typical shovel test profile within the project area along Lovers Lane in Torrington, Connecticut.

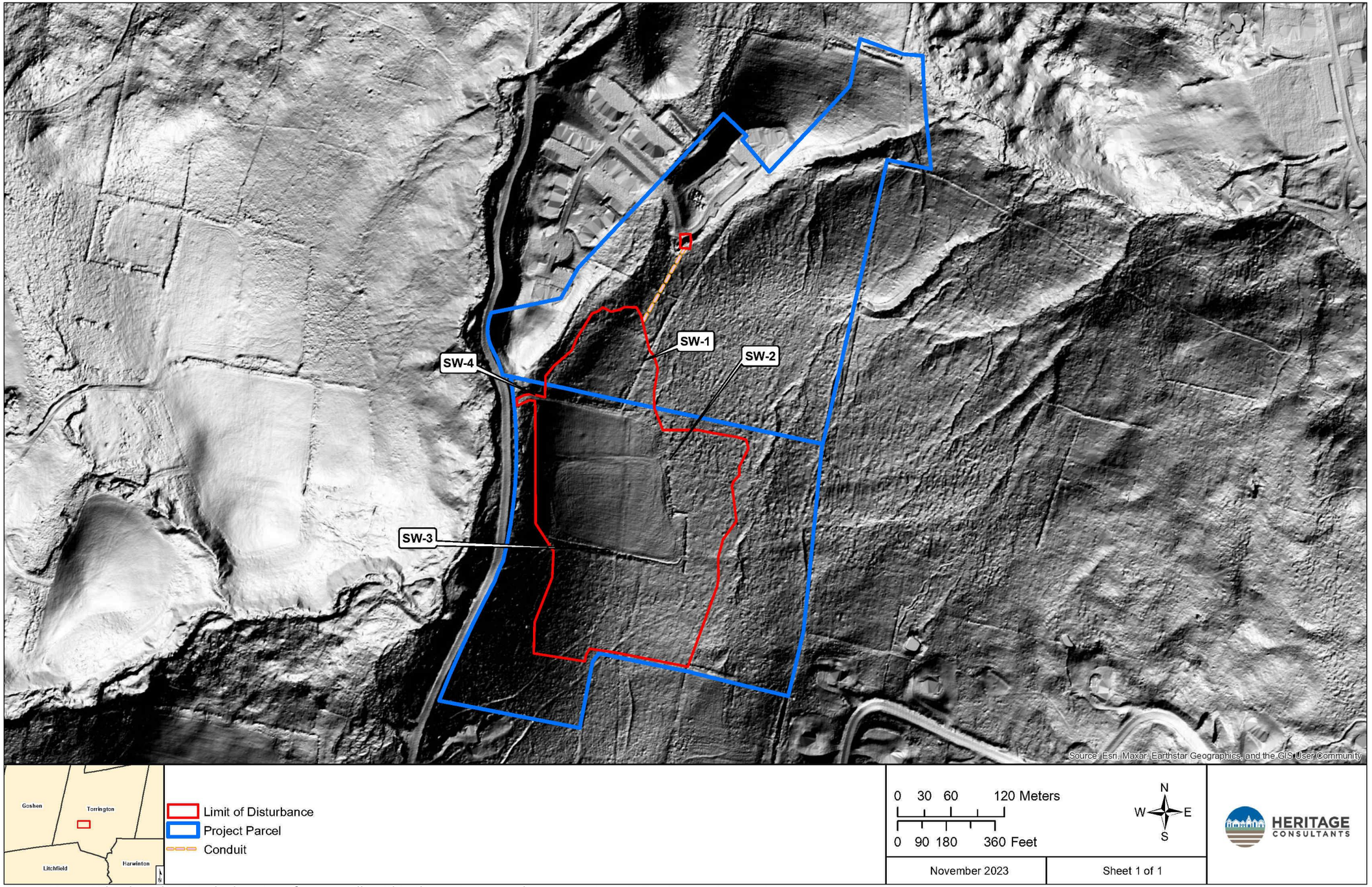


Figure 13. Lidar data showing the location of stone walls within the project area along Lovers Lane in Torrington, Connecticut.

Photo 1. Overview photo of the northern portion of the project area facing south.

Photo 2. Overview photo of proposed conduit area facing east.

Photo 3. Overview photo from western boundary of project area facing east.

Photo 4. Overview photo from southwestern boundary of project area facing east.

Photo 5. Overview photo from southern boundary of project area facing north.

Photo 6. Overview photo from southeastern boundary of project area facing west.

Photo 7. Overview photo from eastern boundary of project area facing west.

Photo 8. Sample of artifacts recovered during the Phase IB survey. From left to right, A) undecorated pearlware; B) machine made brick fragment.

State Historic Preservation Office
Department of Economic and Community Development

CONNECTICUT

December 22, 2023

Mr. David George
Heritage Consultants, LLC
830 Berlin Turnpike
Berlin, CT 06037
(sent only via email to dgeorge@heritage-consultants.com)

Subject: Archaeological Reconnaissance Survey for a Proposed Solar Facility
Lovers Lane
Torrington, Connecticut

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the technical report titled *Phase IB Cultural Resources Reconnaissance Survey of the Lovers Lane Solar Project, in Torrington, Connecticut* prepared by Heritage Consultants, LLC (Heritage), dated November 2023. The fieldwork was completed in support of an application to the Connecticut Siting Council. Based on the information submitted to our office, the fieldwork appears to meet the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*.

An archaeological reconnaissance survey of the project area was completed by Heritage in November of 2023. During survey, a total of 67 of 73 planned shovel tests were excavated at 20-meter intervals along transects placed 20 meters apart throughout portions of the Area of Potential Effect (APE) determined to retain archaeological sensitivity. The planned but unexcavated shovel tests fell within delineated wetlands, previous disturbances, or woodpiles. The field effort resulted in the recovery of six Post-Contact Period artifacts recovered the plowzone within four shovel tests. Recovered artifacts included a pearlware sherd, a rick fragment, three unidentified nails, and one machine cut nail. Heritage determined that the identified deposits were not eligible for inclusion on the National Register of Historic Places and recommended no further archeological investigation prior to construction. In addition, Heritage identified four dry-laid stone walls within the APE. SHPO recommends avoidance of impacts to the identified stone walls to the greatest extent possible. Based on the information submitted to this office, it is the opinion of SHPO that no historic properties will be affected by the proposed solar facility and no additional archaeological investigation is warranted.

This office appreciates the opportunity to review and comment upon this project. Comments will fulfill requirements of the Connecticut Environmental Policy Act and National Historic Preservation Act. Do not hesitate to contact Cory Atkinson, Staff Archaeologist and Environmental Reviewer, for additional information at (860) 500-2458 or cory.atkinson@ct.gov.

Sincerely,

Jonathan Kinney
State Historic Preservation Officer

450 Columbus Boulevard, Suite 5
Hartford, CT 06103
860-500-2300

APPENDIX F

NOISE ANALYSIS

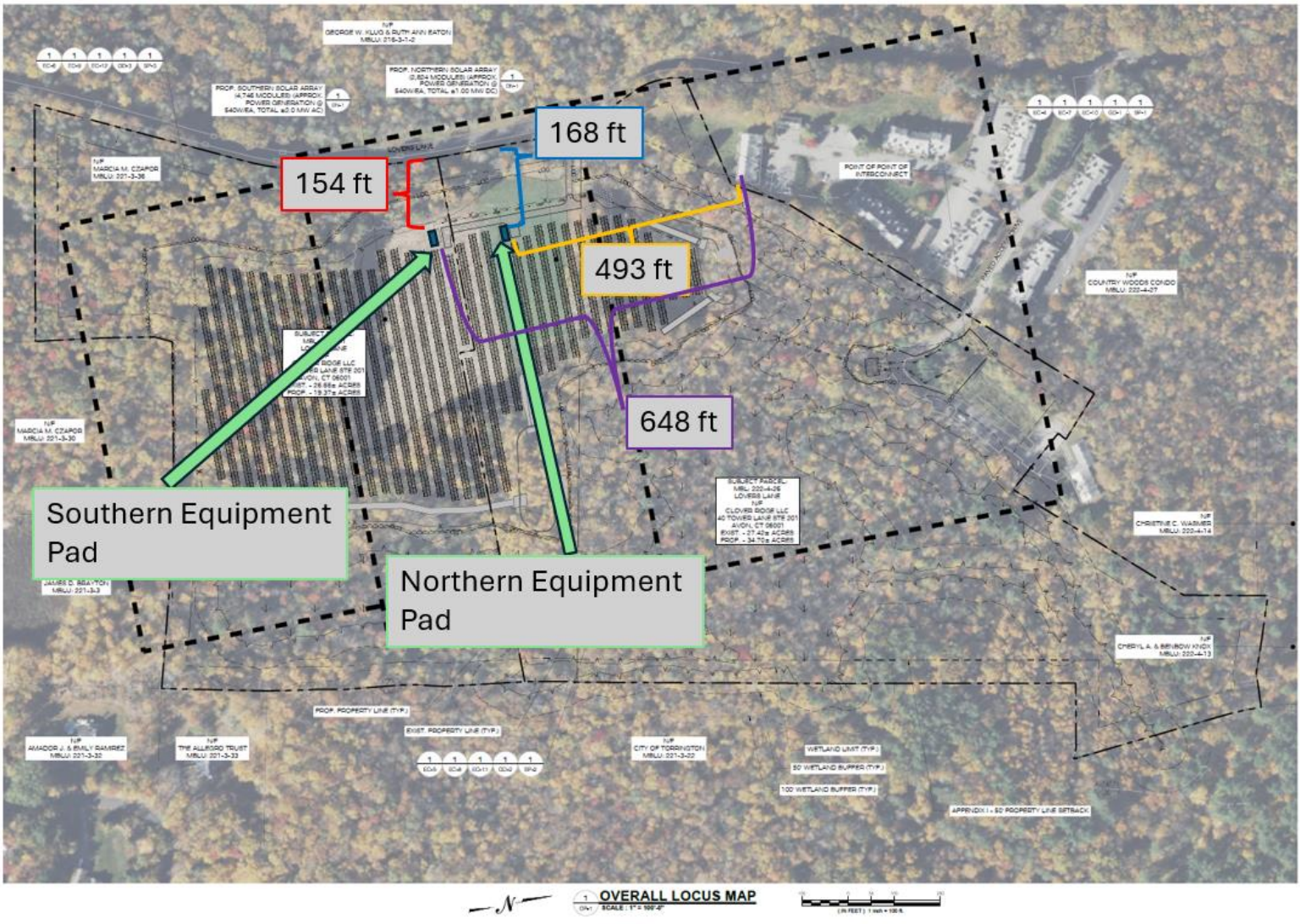
LODESTAR ENERGY

NOISE ANALYSIS

Introduction

Noise generated by this Project will derive from the operation of (12) Solectria XGI 1500-166/166kW inverters, (1) Maddox 2250kVA transformer on the southern equipment pad and (6) Solectria XGI 1500-166/166kW inverters and (1) Maddox 1250kVA on the northern equipment pad illustrated in Figure 1 below. A single Solectria inverter has an acoustic noise output of 73dBA at 1 meter (3.28 ft) from the unit, a single 2250kVA Maddox transformer has an output of 62 dBA at 1 meter (3.28 ft), a single 1250kVA Maddox transformer has an output of 60 dBA at 1 meter (3.28 ft).

Figure 1: Equipment Pad Location



LODESTAR ENERGY

As stated in Regulations of Connecticut State Agencies Sec. 22a-69-3.5, noise received within residential zones (Class A Receptors) shall not exceed 51dBA at night and 61dBA during the daytime in order to minimize disturbance to abutting and adjacent property owners.

Methods/Analysis Sound Intensity of All Equipment at a Common Point

To quantify the noise output of all inverters, a logarithmic formula is required to accurately determine amplification of sound. This formula and the processes related to calculating a result are illustrated below. A separate noise analysis is conducted for each equipment pad.

Southern Equipment Pad:

Equation 1. Decibel Addition

$$L = 10\,\mathrm{Log}_{10}\left(\sum_{i=1}^{n} 10^{(L_i/10)}\right)$$

(1) Solectria XGI 1500-166/166kW inverter = 73 dBA at 3.28 ft
(12) Solectria XGI 1500-166/166kW inverters = **83.9 dBA at 3.28 ft**
(1) Maddox 2250kVA transformer = 62 dBA at 3.28 ft
(8) Solectria XGI 1500-166/166kW inverters + (1) Maddox 2250kVA transformers = **83.9 dBA at 3.28 ft**

Equation 2. Audibility

The proposed Project design includes the installation of inverters. The 12 inverters and 1 transformer combined have an 83.9 dBA output. To quantify the reduction in sound from the point of origin to the closest abutting properties (154 ft away), the formula stated in Equation 2 utilizes the inverse square law for sound intensity. This formula states that the reduction in sound pressure is relative to the distance from the source. The formula is set forth below in equation 2 and applied to the instant case in which proposed site conditions are calculated:

$$\textit{Equation 2.}\ \ DL = L_{P2} - L_{P1}$$

Calculation

$$DL = 10\ log\ log\ (R_2/R_1)^2$$

$$DL = 20log\ (R_2/R_1)$$

$$DL = 20\ log(154/3.28)$$

DL= 33.4 dBA

83.9 dBA – 33.4 dBA = 50.5 dBA

Variables:
DL = difference in sound pressure (dBA)
L_{P1} = Sound pressure level at location 1 (1m)
L_{P2} = Sound pressure level at location 2 (Closest abutting property line)
R_1 = distance from source to location 1
R_2 = distance from source to location 2

The closest residence to the southern equipment pad is the southernmost building at the Country Woods Condominium Association. The southern equipment pad is 648 ft away from the closest residence.

Equation 2. $DL = L_{P2} - L_{P1}$

Calculation

$$DL = 10\ log\ log\ (R_2/R_1)^2$$

$$DL = 20log\ (R_2/R_1)$$

$$DL = 20\ log(648/3.28)$$

DL= 45.9 dBA

83.9 dBA – 45.9 dBA = 38 dBA

Variables:
DL = difference in sound pressure (dBA)
L_{P1} = Sound pressure level at location 1 (1m)
L_{P2} = Sound pressure level at location 2 (Closest residence)
R_1 = distance from source to location 1
R_2 = distance from source to location 2

Northern Equipment Pad:

Equation 1. Decibel Addition

LODESTAR ENERGY

$$L = 10 \log_{10}\left(\sum_{i=1}^{n} 10^{(L_i / 10)} \right)$$

(1) Solectria XGI 1500-150/166kW inverter = 73 dBA at 3.28 ft
(6) Solectria XGI 1500-150/166kW inverters = **80.8 dBA at 3.28 ft**
(1) Maddox 1250kVA transformer = 60 dBA at 3.28 ft
(6) Solectria XGI 1500-150/166kW inverters + (1) Maddox 1250 kVA transformers = **80.8 dBA at 3.28 ft**

Equation 2. Audibility

The proposed Project design includes the installation of inverters. The 6 inverters and 1 transformer combined have an 80.8 dBA output. To quantify the reduction in sound from the point of origin to the closest abutting properties (168 ft away), the formula stated in Equation 2 utilizes the inverse square law for sound intensity. This formula states that the reduction in sound pressure is relative to the distance from the source. The formula is set forth below in equation 2 and applied to the instant case in which proposed site conditions are calculated:

$$\textit{Equation 2. } DL = L_{P2} - L_{P1}$$

Calculation

$$DL = 10\ log\ log\ (R_2/R_1)^2$$

$$DL = 20log\ (R_2/R_1)$$

$$DL = 20\ log(168/3.28)$$

DL= 34.2 dBA

80.8 dBA – 34.2 dBA = 46.6 dBA

Variables:
DL = difference in sound pressure (dBA)
L_{P1} = Sound pressure level at location 1 (1m)
L_{P2} = Sound pressure level at location 2 (Closest abutting property line)
R_1 = distance from source to location 1
R_2 = distance from source to location 2

The closest residence to the northern equipment pad is the southernmost building at the Country Woods Condominium Association. The northern equipment pad is 493 ft away from the closest residence.

$$DL = 20log\ (R_2/R_1)$$

$$DL = 20\ log(493/3.28)$$

DL= 43.5 dBA

80.8 dBA – 43.5 dBA = 37.3 dBA

Variables:
DL = difference in sound pressure (dBA)
L_{P1} = Sound pressure level at location 1 (1m)
L_{P2} = Sound pressure level at location 2 (Closest residence)
R_1 = distance from source to location 1
R_2 = distance from source to location 2

Conclusion

In conclusion, during the daytime, the noise levels emitted from the inverters and transformers on the southern equipment pad will be 50.5 dBA at the closest abutting property line, which is 154 ft away from the origin of noise emanation and 38 dBA at the closest residence, 648 ft away from the origins of noise emanation. The noise levels emitted from the inverters and transformers on the northern equipment pad will be 46.6 dBA at the closest abutting property line, which is 168 ft away from the origin of noise emanation and 37.3 dBA at the closest residence, 493 ft away from the origin of noise emanation. At night-time, the equipment will not be in use and will make no noise, or 0 dBA. Noise will be further reduced at farther property lines and buildings. Therefore, the proposed Project and its components comply with the applicable regulations.

APPENDIX G

FEDERAL AVIATION ADMINISTRATION
DETERMINATIONS

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

Aeronautical Study No.
2023-ANE-4253-OE

Issued Date: 08/14/2023

Sam Valone
Sam Valone
40 Tower Ln
Suite 201
Avon, CT 06001

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

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

Structure:	Solar Panel Lovers Ln Solar
Location:	Torrington, CT
Latitude:	41-48-42.00N NAD 83
Longitude:	73-09-22.00W
Heights:	1007 feet site elevation (SE) 11 feet above ground level (AGL) 1018 feet above mean sea level (AMSL)

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

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

This determination expires on 02/14/2025 unless:

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

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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

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

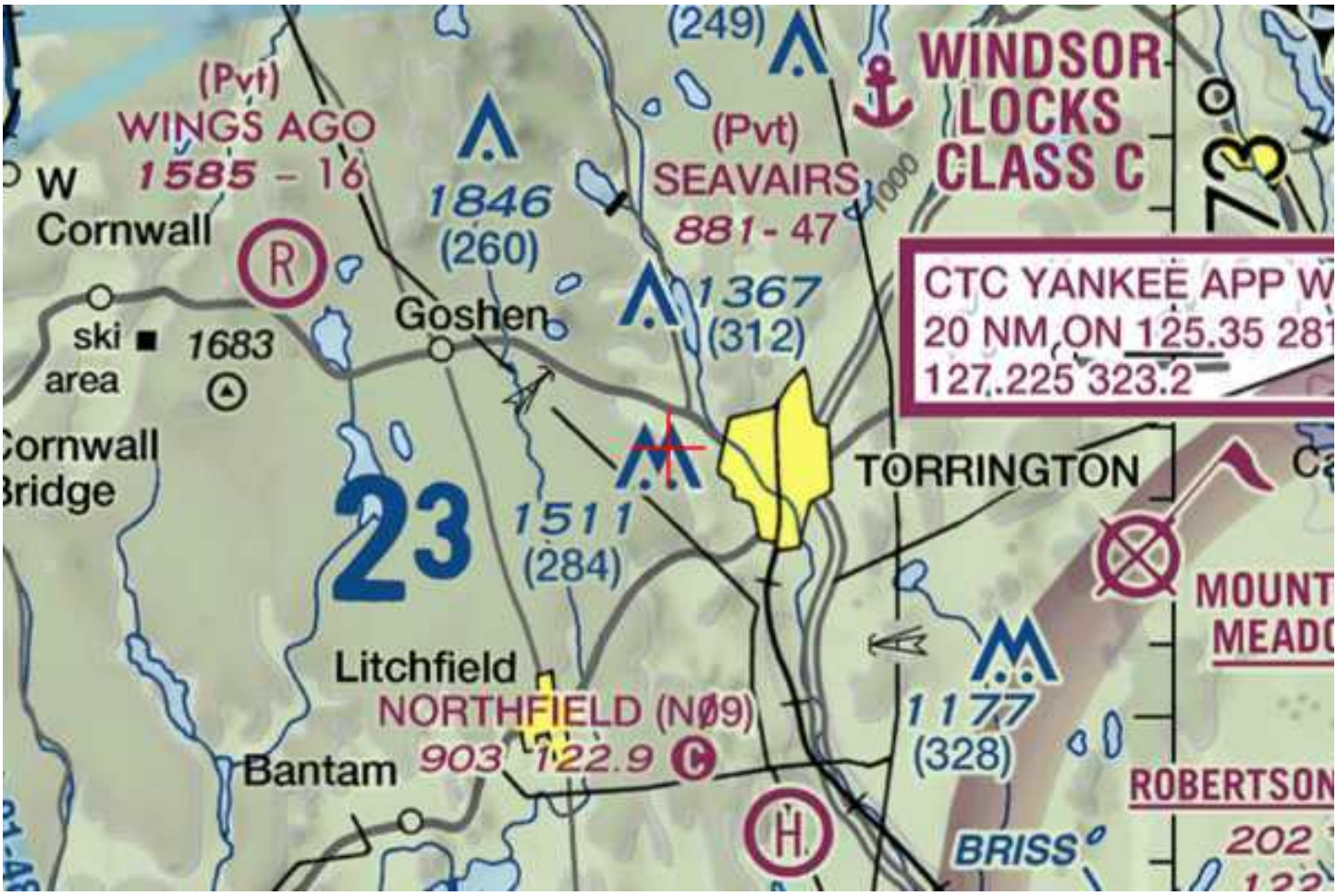
This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure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

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

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-ANE-4253-OE.

Signature Control No: 593681113-596359081 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)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BRISS
ROBERTSON
202

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Aeronautical Study No.
2023-ANE-4250-OE

Issued Date: 08/14/2023

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

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

Structure:	Solar Panel Lovers Ln Solar
Location:	Torrington, CT
Latitude:	41-48-53.90N NAD 83
Longitude:	73-09-20.00W
Heights:	897 feet site elevation (SE) 11 feet above ground level (AGL) 908 feet above mean sea level (AMSL)

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

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

This determination expires on 02/14/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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

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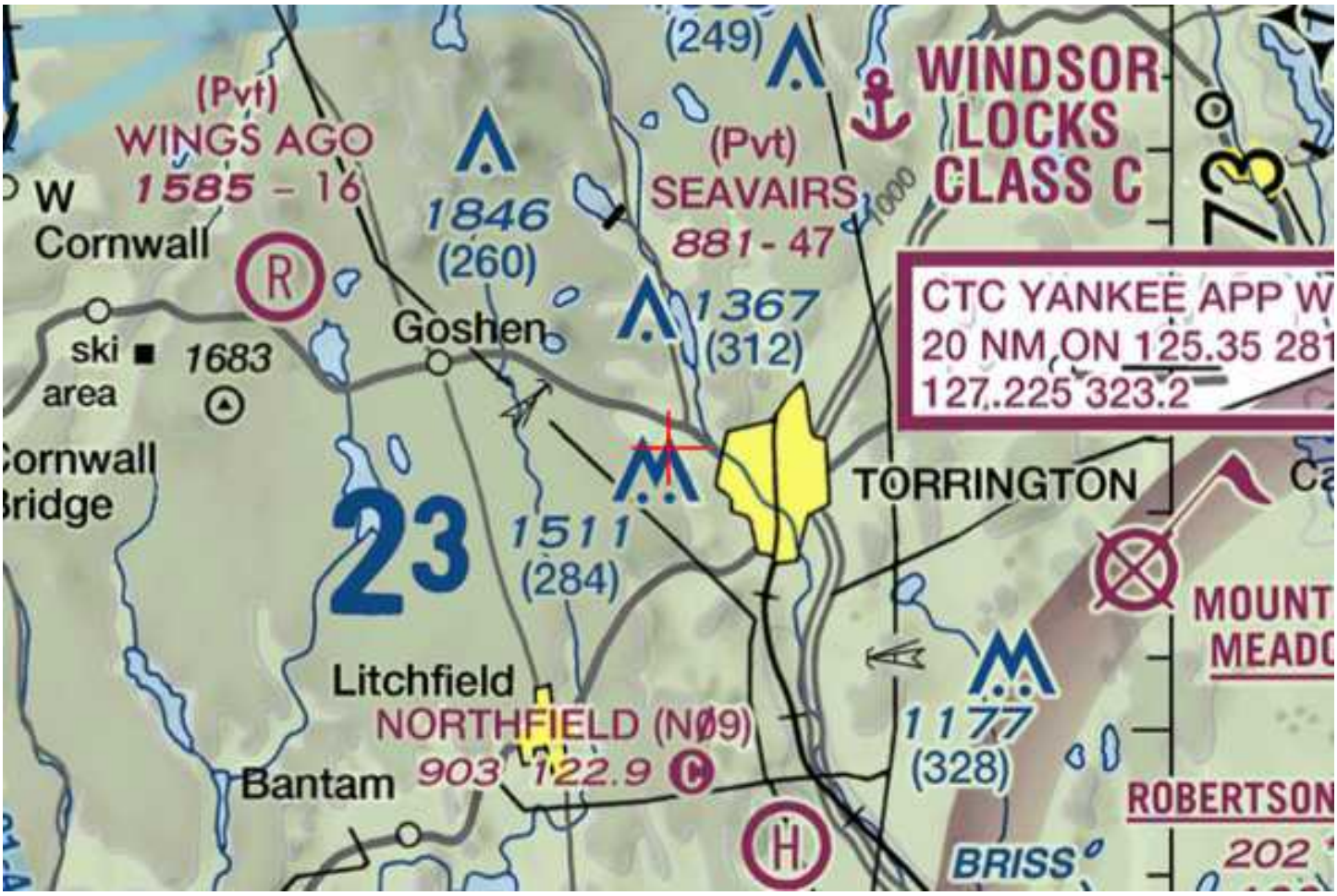
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-ANE-4250-OE.

Signature Control No: 593681110-596359082 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)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(284)
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MOUNT
MEADO
Litchfield
NORTHFIELD (NØ9)
903 122.9 C
1177
(328)
Bantam
ROBERTSON
H
BRISS
202

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Aeronautical Study No.
2023-ANE-4252-OE

Issued Date: 08/14/2023

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

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

Structure:	Solar Panel Lovers Ln Solar
Location:	Torrington, CT
Latitude:	41-48-40.90N NAD 83
Longitude:	73-09-13.00W
Heights:	1024 feet site elevation (SE) 11 feet above ground level (AGL) 1035 feet above mean sea level (AMSL)

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

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

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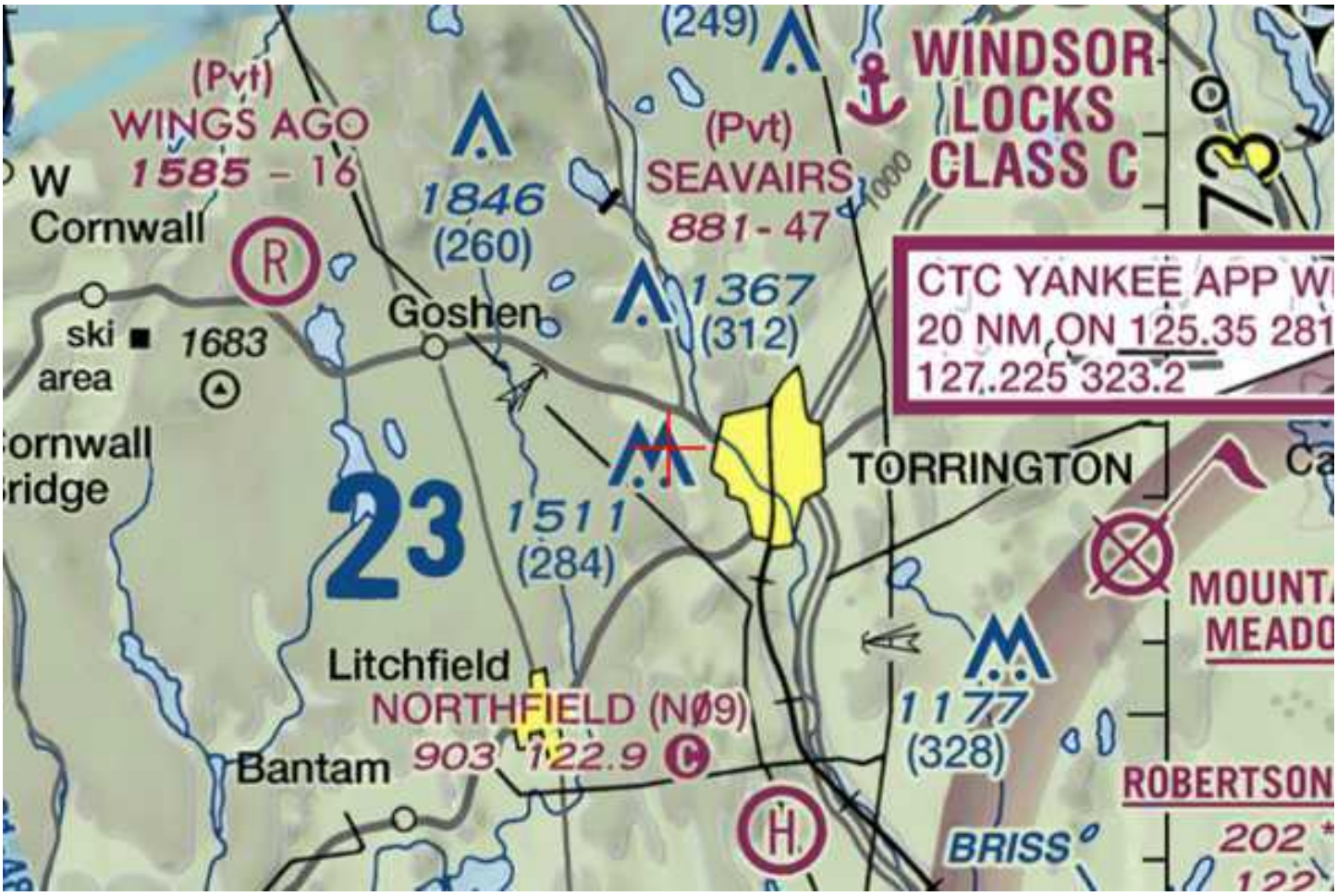
If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-ANE-4252-OE.

Signature Control No: 593681112-596359083 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2023-ANE-4252-OE



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Aeronautical Study No.
2023-ANE-4251-OE

Issued Date: 08/14/2023

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

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

Structure:	Solar Panel Lovers Ln Solar
Location:	Torrington, CT
Latitude:	41-48-53.70N NAD 83
Longitude:	73-09-12.10W
Heights:	912 feet site elevation (SE) 11 feet above ground level (AGL) 923 feet above mean sea level (AMSL)

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

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Signature Control No: 593681111-596359084 (DNE)
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Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2023-ANE-4251-OE