Petition No. 1555
Earthlight Technologies
1.9 MW AC Solar Photovoltaic Electric Generating Facility
1 Hamilton Road, Windsor Locks

Staff Report
March 24, 2023

Introduction

On December 22, 2022, the Connecticut Siting Council (Council) received a petition from Earthlight Technologies (Earthlight) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the construction, operation and maintenance of a 1.9 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility located at 1 Hamilton Road in Windsor Locks, Connecticut, and associated electrical interconnection (Petition or Project).

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40 on or about October 20, 2022, Earthlight notified abutting property owners, Town of Windsor Locks (Town) officials, Town of Windsor officials,[1] Town of East Granby officials,[2] and state officials and agencies of the proposed Project. No comments were received.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take an action on a petition for a declaratory ruling within 60 days of receipt. On February 2, 2023, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than June 30, 2023, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

On February 8, 2022, the Council issued interrogatories to Earthlight. Earthlight submitted responses to the interrogatories on March 15, 2023, one of which included photographic documentation of site-specific features intended to serve as a "virtual" field review of the Project.

Municipal Consultation

On October 13, 2022, Earthlight met with the Town First Selectman and Town Planner to discuss the Project. The Town did not comment on the Project. Earthlight also discussed the Project with the Windsor Town Planner on October 25, 2022 and the East Granby Town Planner on November 1, 2022. Both Town Planners indicated there were no concerns with the Project.

On December 27, 2022, the Council sent correspondence to the Town, the Town of Windsor and the Town of East Granby on January 4, 2023, stating that the Council has received the Petition and invited the municipalities to contact the Council with any questions or comments by January 21, 2023. No comments were received.

[1] The Town of Windsor is located within 2,500 feet of the proposed facility site.
[2] The Town of East Granby is located within 2,500 feet of the proposed facility site.

State Agency Comments

On December 27, 2022, pursuant to RCSA §16-50j-40, the Council sent correspondence requesting comments on the proposed Project from the following state agencies by January 21, 2023: Department of Energy and Environmental Protection (DEEP); Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Labor (DOL); Department of Administrative Services (DAS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA); and the State Historic Preservation Office (SHPO).

In response to the Council's solicitation, CEQ submitted comments on January 25, 2023 related to wildlife, stormwater control inspections and wetlands.[3]

No other state agencies provided written comments on the Project.

While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies.[4]

Public Act 17-218

Effective July 1, 2017, Public Act 17-218[5] requires, "for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j, the DOAg represents, in writing, to the Council that such project will not materially affect the status of such land as prime farmland **or** DEEP represents, in writing, to the Council that such project will not materially affect the status of such land as core forest."

The proposed solar facility has a generating capacity of 1.9 MW; therefore, it is exempt from the provisions of Public Act 17-218.

Public Benefit

The Project would be a distributed energy resource facility as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." The state Comprehensive Energy Strategy (CES) examines future energy needs and identifies opportunities to reduce ratepayer costs, ensure reliable energy availability, and mitigate public health and environmental impacts. CES Strategy No. 3 is "Grow and sustain renewable and zero-carbon generation in the state and region." The state Integrated Resource Plan assesses the state's future electric needs and a plan to meet those future needs, including, but not limited to, pathways to achieve a 100 percent zero carbon electric supply by 2040. Furthermore, the Governor's Executive Orders and Council on Climate Change examine existing policies and identify new strategies to combat climate change. The proposed facility will contribute to fulfilling the State's Renewable Portfolio Standard and Global Warming Solutions Act as a zero emission Class I renewable energy source.

[3] CEQ Comments January 25, 2023
[4] *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)
[5] Codified at Conn. Gen. Stat. §16-50k(a) and §16a-3k (2023)

Earthlight does not have any contracts to sell the electricity or the renewable energy certificates generated by the proposed facility at this time. The Project is designed to provide on-site power to Collins Aerospace for its manufacturing processes. It is anticipated all of the power would be used by Collins Aerospace, but if additional power is available, it would be exported to the local electric distribution system through net metering.

The Project will generate the most power during the summer electrical peak.

The Project may participate in an ISO New England, Inc. (ISO-NE) Forward Capacity Auction in the future.

Proposed Site

Pursuant to CGS §16-50x, the Council has exclusive jurisdiction over the proposed solar electric generating facility "site." The Council does not have jurisdiction or authority over any portion of the host parcel beyond the boundaries of the Project "site." This includes portions of the parcel retained by the landowner and portions of the parcel the landowner may lease to third parties. Once a facility is decommissioned, the Council no longer has jurisdiction or authority over the Project "site."

Earthlight proposes to construct the solar facility on an approximate 8-acre site[6] within a 257-acre parcel located at 1 Hamilton Road in Windsor Locks that is owned by Collins Aerospace. The host parcel, zoned Industrial IND-1, is developed with the Collins Aerospace manufacturing facility. The parcel contains multiple buildings, parking areas, fence lines, utility corridors, wooded areas, fields, and Hamilton Pond.

Earthlight would develop and construct the Project on behalf of Collins Aerospace, who would own the facility.

The Project site would be located behind the Collins Aerospace manufacturing facility in the southern portion of the host parcel, north and east of Route 20 (Bradley Airport Connector) and Rainbow Brook, mostly on grades of 0 to 10 percent except for bordering embankment areas where slopes reach 18 percent. The site generally has an elevation of 173 feet above mean sea level.

Land use surrounding the site consists primarily of industrial/commercial to the east and Bradley International Airport to the north. The nearest abutting property line to the site is Route 20, approximately 40 feet to the south. The nearest residential property line to the site is located across Route 20 approximately 270 feet to the south on Rainbow Road.

The facility site was selected due limited environmental impact, suitability, and use of existing infrastructure/disturbed areas. Portions of the host parcel contain subsurface areas of concern that are part of the DEEP Resource Conservation and Recovery Act Corrective Action and Property Transfer Program. These areas are outside of the Project Limit of Disturbance (LOD). The facility location would not interfere with ongoing remediation efforts on the host parcel. No additional subsurface investigations are required at the site.

[6] RCSA §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.

Proposed Project

The proposed Project consists of 4,700 photovoltaic modules, rated at 460 Watts, installed on driven posts or concrete ballasts depending on location. The panels would be installed in three distinct solar array areas, as follows:

Northern Array (Array 1) - 4 acre area located in a former parking lot on the southwest end of the host parcel;

Southwest Array (Array 2) - 2.7 acre area located in a wooded area between a utility corridor and an access road at the south end of the host parcel; and

Southeast Array (Array 3) - 1.3 acre area located in a wooded area between several outbuildings and an access road east of Array 2.

The Array 1 modules would be installed on a concrete ballast racking system within a parking lot, facing south at a 10-degree angle. The Array 2 and Array 3 modules would be installed on a fixed post racking system at a 15-degree angle. The panels would be approximately 10 feet above grade at the highest point and 2 feet above grade at the lowest point. The aisles between panel rows would be 6 feet wide in paved areas and 15 feet wide in vegetated areas. Other equipment includes 30 inverters and 8-foot by 15-foot concrete pads in each array area for Project switchgear and transformers.

Underground conduit would be installed in vegetated and paved areas from the Array 2 and Array 3 electrical pads to the Array 1 electrical pad. Underground conduit would continue north from the Array 1 electrical pad through paved areas for 1,500 feet to connect to an existing underground electrical vault on the host parcel.

The interconnection would occur entirely on Collins Aerospace property. No utility poles are proposed. An interconnection agreement with Eversource was executed on January 19, 2023.

The Project is not currently designed for a battery storage system, but the site could be modified in the future to support accommodate battery storage.

The Project's capacity factor is approximately 17.5 percent. The power output would decline over time with an anticipated annual power loss of approximately 0.25 percent.

The Array 1 area would be enclosed by a mix of new 7-foot high fencing and existing fencing. Array 2 and Array 3 would be enclosed by new 7-foot high fencing. Each array area would have 20-foot wide vehicle access gates.

Access to the solar facility would utilize existing driveways on the host parcel. No new access drives are proposed.

The solar racking would be installed on existing grades. Approximately 600 cubic yards of cut and 50 cubic yards of fill would be required to establish two permanent stormwater basins at the site. Excess cut would be used to smooth out grubbed areas or used elsewhere on the property. A turf grass seed mix which contains 10 percent white clover, a pollinator species, has been specified for Array 2 and Array 3.

Construction would occur over a 6-month period and should be completed by Fall 2023. Typical construction hours and workdays of the week are Monday – Friday, 7:00 AM to 6:00 PM and Saturday from 8:00 AM to 5:00 PM.

The Project is not proposed to be undertaken by state departments, institutions or agencies, and is not to be funded in whole or in part by the state through any contract or grant. The estimated cost of the Project is approximately $8 million.

Public Safety

The Project would comply with the National Electrical Code (NEC), National Electrical Safety with 15-foot wide aisles between the panel rows and perimeter fencing, in accordance with the CT State Fire Prevention Code, Section 11.12.3 – Ground Mounted Photovoltaic System Installations.

The Federal Aviation Administration issued a Determination of No Hazard to Air Navigation for the Project on August 18, 2022. Although not required, due to the proximity of Bradley International Airport abutting the host parcel to the north, Earthlight performed a glare analysis that determined there would be a low potential for glare effects.[7]

The proposed facility would be remotely monitored through a 24/7 data acquisition system with an alarm that measures site and inverter level production as well as site weather and irradiance data. Performance data to is continuous monitored to make sure that the system is performing as designed. Alarms would signal abnormal operation and crews would be dispatched for system maintenance and repair related issues. Manual disconnect switches would be located in each array area.

Earthlight would offer training and provide useful information to emergency responders related to fire safety at the site. Collins Aerospace has an existing mutual aid agreement with the Town and Connecticut Airport Authority (CAA). Collins Aerospace, the Town and CAA would coordinate Project emergency response training.

The proposed chain link perimeter fence around each array complies with the NEC fencing requirements[8]. New fencing would be installed with a 6-inch gap at the bottom to allow for small wildlife movement.

The proposed facility would be in compliance with DEEP Noise Control Standards. Noise modeling indicates noise from the Project inverters would be approximately 27 dBA at the nearest residential property line. Construction noise is exempt from DEEP Noise Control Standards.

The site is not located within a Federal Emergency Management Agency designated 100-year or 500-year flood zone.

Environmental Effects and Mitigation Measures

Historic and Recreational Resources

Earthlight submitted an archeological and historic review of the Project to SHPO in May 2022. SHPO determined no additional archaeological investigations were warranted, and no historic properties would be affected by the Project.

There are no public recreational resources proximate to the host parcel.

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[7] "Green glare" has low potential to cause flash blindness when observed prior to a typical blink response time.
[8] Section 691.4(2) of the National Electrical Code (NEC), 2020 Edition notes that, "Access to PV electric supply stations shall be restricted by fencing or other adequate means in accordance with 110.31…" Section 110.31 notes that for over 1,000 Volts, "…a wall, screen, or fence shall be used…A fence shall not be less than 7 feet in height or a combination of 6 feet or more of fence fabric and a 1 foot or more…utilizing barbed wire or equivalent."

Visibility

The Project is surrounded by industrial/commercial use and a highway. Forested areas and Collins Aerospace buildings would remain between portions of the Project, minimizing potential views from public viewsheds or private properties.

The proposed facility is not expected to be visible from a residential development located south of the site, across Route 20 due to intervening vegetation and topographic features. No visual screening or landscaping is proposed.

Agriculture

The host parcel contains prime farmland soils according to mapping maintained by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Under Public Act 17-218, "prime farmland" means land that meets the criteria for prime farmland as described in 7 Code of Federal Regulations (C.F.R.) 657, as amended from time to time. 7 C.F.R. 657 defines prime farmland in relevant part as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses."

The parcel has not been farmed in over 50 years. It is developed with a manufacturing facility. According to mapping maintained by the USDA NRCS, approximately 0.5-acre of prime farmland soils would be impacted by the Project.

Wetlands and Watercourses

Petitioner performed a wetland and watercourse survey in March 2022, identifying two wetland corridors and a watercourse near the proposed site. No vernal pools were identified.

Rainbow Brook and an associated bordering wetland (Wetland 2) occur west and south of Array 1 and west of Array 2 before the brook is channelized to flow under Route 20. The LOD for Array 1 and Array 2 would be greater than 100 feet from Rainbow Brook and its associated wetland.

Another wetland corridor (Wetland 1) extends in a north-south direction in the eastern portion of the host parcel. The LOD for Array 3 would be 50 feet from the Wetland 2 at its closest point to accommodate a permanent stormwater basin. Post-construction, the solar modules would be 100 feet from the wetlands, in compliance with DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit).

Earthlight would establish erosion and sedimentation controls consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* prior to the commencement of construction.

Wildlife

The site is located within the watershed of the eastern pondmussel, a State Special Concern species. DEEP issued a Natural Diversity Data Base (NDDB) Determination letter on March 17, 2022, with recommended construction measures to protect the pondmussel. These measures include, but are not limited to, minimization of turf grass and impervious surfaces, no increase in impervious surfaces within 100 feet of wetlands, prevention of the introduction and spread of invasive plants and bivalves, inspections by a qualified inspector, and avoidance of soil stockpiles within 10 feet of waterways.

The DEEP NDDB also provided general recommendations to enhance wildlife habitat, including restoring native vegetation to attract pollinators, enhance sand barren habitat and use of fencing that allows for wildlife movement through the solar array areas.

Earthlight would install silt fencing to isolate the work areas, preventing the spread of invasive species. The Project would result in a minimal increase in impervious surfaces (electrical pads) and there would be no impervious surfaces within 100 feet of wetlands. Earthlight would be willing to utilize a pollinator-friendly seed mix in areas of disturbance. A draft sand barren conservation and mitigation plan, dated February 24, 2023, was developed and submitted to DEEP for review in the event that sand barren species are present on site. A field survey would be conducted in the spring to determine if sand barren habitat and/or species exists at the site, and if so, the conservation and mitigation plan would be implemented.

The northern long-eared bat (NLEB), a federally-listed and state-listed Endangered Species, occurs in Connecticut. According to DEEP records, the Project is not located within 0.25-mile of known NLEB hibernaculum or within 150 feet of a known NLEB maternity roost tree[9]. Thus, the Project is not expected to impact the NLEB.

Forest

Approximately 3.5 acres of trees would be removed to develop the site (Array 1: 0.5 acres, Array 2: 1.9 acres, Array 3: 1.1 acres). Tree clearing would occur along the edge of or between existing cleared areas. No core forest would be impacted by the development of the solar facility.

Air Quality

The Project would not produce air emissions as a result of operation. The Project would not produce emissions of regulated air pollutants or greenhouse gases during operation.

Water Quality

The site is not located within a DEEP-designated Aquifer Protection Area (APA) or a public water supply watershed area. Ground water under the host parcel and in adjacent areas is classified as GB, designated for use as industrial process water and cooling waters and not suitable for human consumption without treatment.

The facility would not use or discharge water during site operations.

Stormwater

Pursuant to CGS Section 22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater discharges. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. The DEEP General Permit requires implementation of a Stormwater Pollution Control Plan (SWPCP) to prevent the movement of sediments off construction sites into nearby water bodies and to address the impacts of stormwater discharges from a project after construction is complete.

A DEEP-issued General Permit is required prior to commencement of construction activities, as defined in the General Permit. The General Permit and associated SWPCP incorporates project designs consistent

[9] Northern Long-Eared Bat Map (ct.gov)

with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and the *2004 Connecticut Stormwater Quality Manual*.

A construction sequence on the site plans includes the establishment of erosion control measures, site clearing and construction and installation of sediment traps and stormwater management basins. No grubbing would occur in the tree clearing area located on the embankment west of Array 1 to limit soil disturbance. Once disturbed areas are stabilized, installation of site infrastructure would commence.

The General Permit requires the designing qualified professional to conduct the SWPCP Implementation Inspection that confirms compliance with the General Permit and the initial implementation of all SWPCP control measures for the initial phase of construction. The SWPCP also requires a qualified inspector to inspect the work areas at least once per week and within 24-hours after a rain event that meets certain permit criteria. The qualified soil erosion and sediment control professional or a qualified professional engineer would inspect the area and confirm stabilization and compliance with the post-construction stormwater management requirements.

Earthlight discussed the Project with the DEEP Stormwater Division on September 8, 2022. The Stormwater Division did not comment on the proposed stormwater management design.

A post-construction stormwater analysis concluded that Array 1 would not require a stormwater detention basin due to its location on an existing paved parking area that would remain as impervious. Associated curbing and a stormwater drainage system would remain in place. Array 2 and Array 3 would each require a stormwater detention basin to maintain post-construction runoff below pre-construction levels. After construction is completed, turf-forming grasses would be planted in the Array 2 and Array 3 areas to stabilize the topsoil to reduce erosion, erosion, sequester nutrients and pollutants, and lower stormwater runoff rates.

In compliance with Stormwater Permit Appendix I, Earthlight would not install stormwater control features within 50 feet of wetlands.

Operations and Maintenance

A post-construction Operations and Maintenance Plan has been developed that includes provisions for periodic inspections of physical site features and structural and electrical components. Collins Aerospace would be responsible for operations and maintenance of the site.

An evaluation of the facility and performance of preventative maintenance measures would be conducted in accordance with manufacturer's specifications. The evaluation would include the electrical system/components, physical infrastructure, and solar array and stormwater basin vegetation. Turf grass within the array areas would be mowed periodically and maintained to a height to reduce the risk of fire. If necessary, grass would be replanted in bare areas to ensure erosion control is maintained. In areas where paved surfaces exist, repairs would be made on an as needed basis to prevent deterioration.

Replacement modules would not be stored on-site. Damaged modules would be detected though routine inspections.

Module cleaning, if necessary, would utilize water and soft bristle brooms. Accumulated snow would be allowed to slide off of the modules. Snow removal is not anticipated.

Decommissioning

The Project has a minimal operational life of 20 to 30 years. At the end of the Project's useful life, it would be decommissioned by Collins Aerospace within 180 days. The site restored to its original condition or to a condition that accommodates another use.

It is anticipated that the steel racking system, electrical component and wiring and solar modules would be recycled as applicable. All recyclable materials would be transported to appropriate recycling facilities.

Any non-recyclable materials will be properly disposed of in accordance with applicable permits and regulations. The transformer and interconnection equipment pads would be removed. Disturbed areas would be backfilled with soil and seeded.

The selected solar panels for the Project meet current Toxicity Characteristic Leaching Procedure (TCLP) criteria for characterization as nonhazardous waste in the event the solar panels are not recycled at the end of the Project's life.

Conclusion

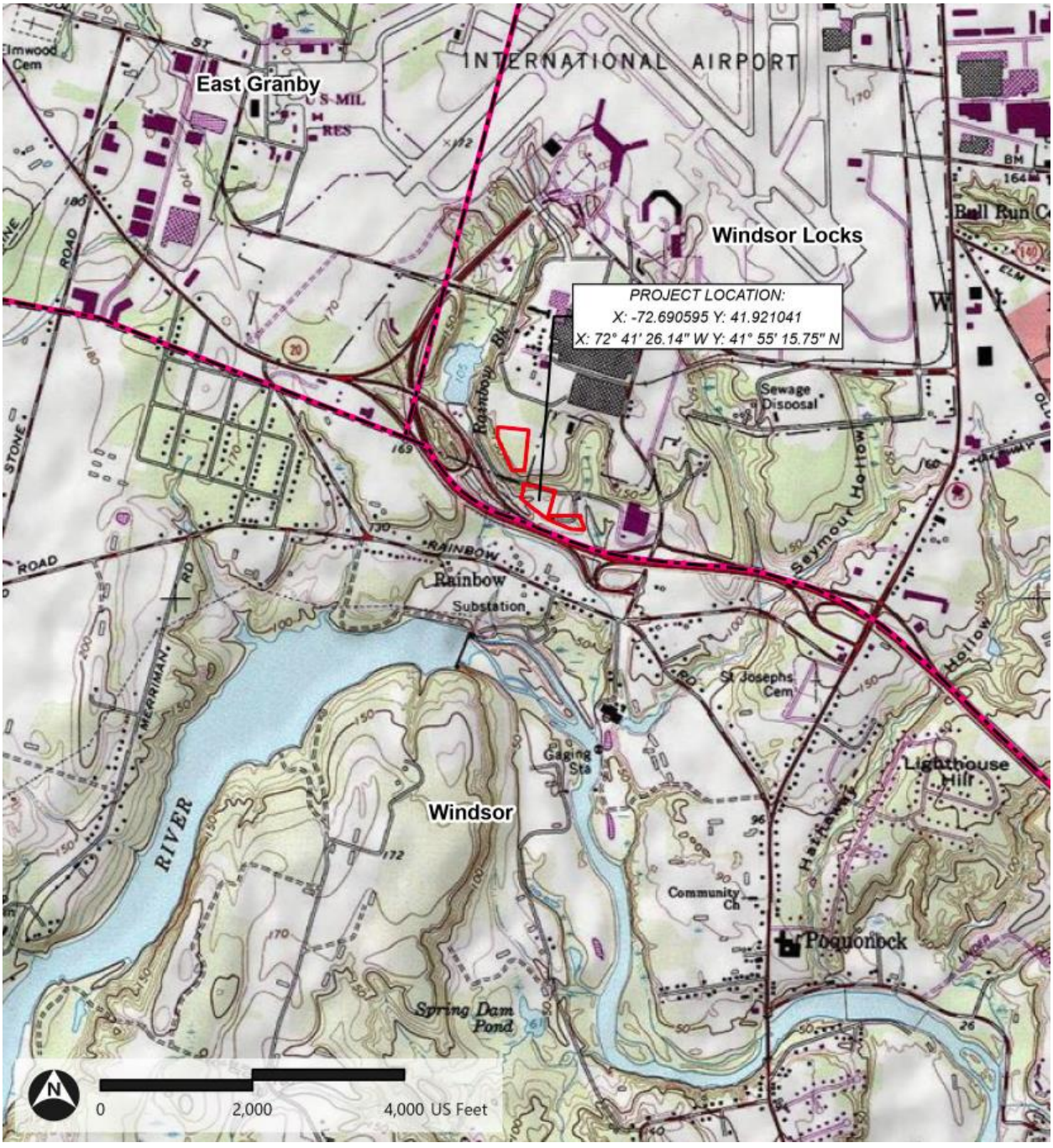
The Project is a customer-side distributed energy resource with a capacity of not more than sixty-five megawatts, meets DEEP air and water quality standards, and would not have a substantial adverse environmental effect. The proposed project will not produce air emissions, will not utilize water to produce electricity, was designed to minimize environmental impacts, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources.

Recommendations

If approved, staff recommends inclusion of the following conditions:

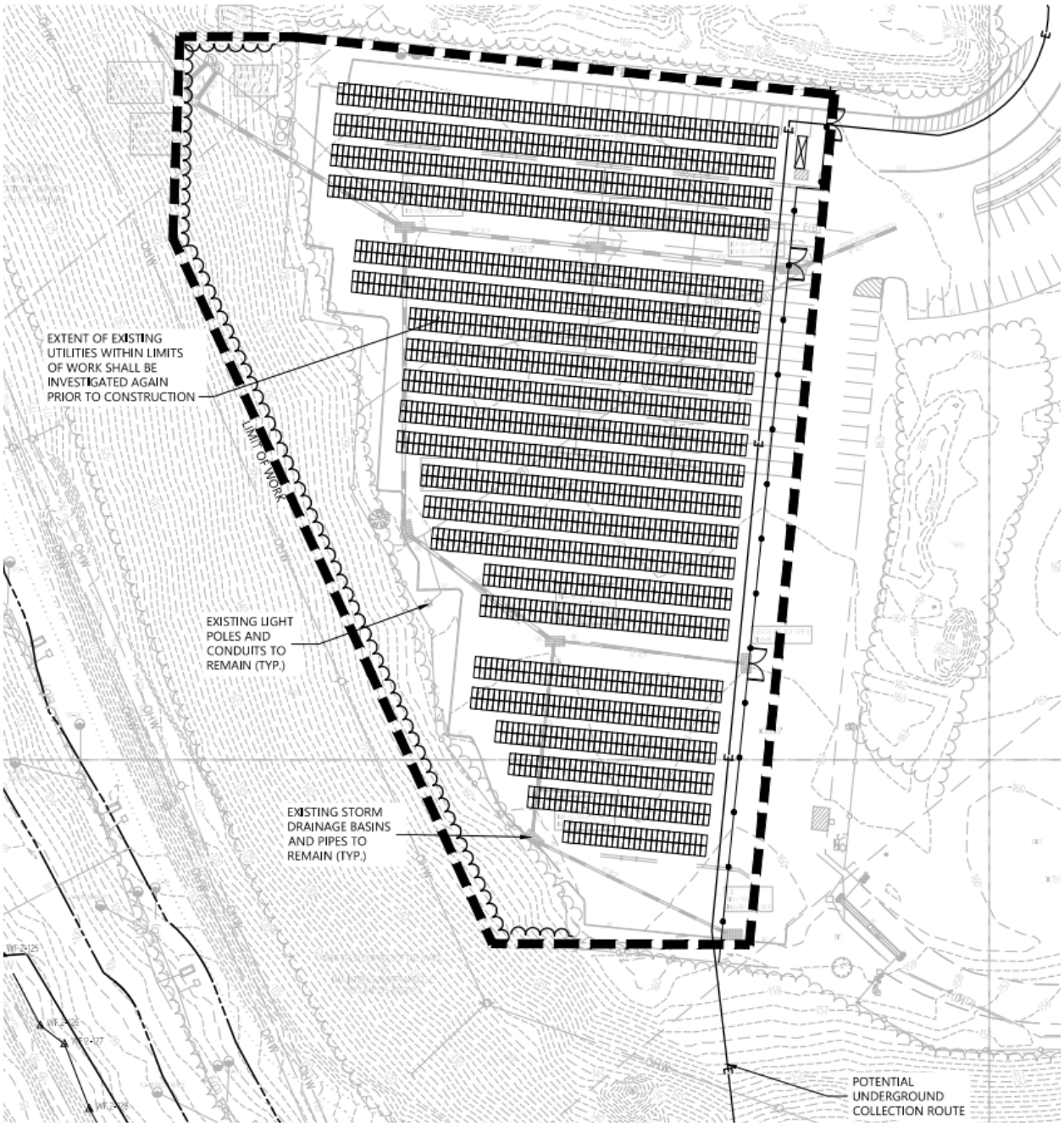
1. Approval of any project changes be delegated to Council staff;
2. Submit a copy of the DEEP Stormwater Permit prior to the commencement of construction;
3. Submit the final structural design for the racking system stamped by a Professional Engineer duly licensed in the State of Connecticut prior to commencement of construction;
4. Provide training to emergency responders that includes an itemized list of necessary fire suppression equipment, and
5. Utilize a seed mix that contains greater than 10 percent pollinator species within the solar array areas.

Site Location



Proposed Conditions

Site Plan – Array 1



Site Plan – Array 2 and Array 3