STATE OF CONNECTICUT SITING COUNCIL

PETITION NO. 1412

July 21, 2020

PETITION OF LSE PHOENIX LLC FOR A DECLARATORY RULING THAT NO CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED IS REQUIRED FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A 1.99 MW AC SOLAR PHOTOVOLTAIC FACILITY IN NORTH CANAAN, CONNECTICUT

PETITIONER LSE PHOENIX LLC'S RESPONSES TO SITING COUNCIL INTERROGATORIES SET TWO DATED JULY 1, 2020

Project Development

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

Petitioner will require a stormwater permit from the Department of Energy and the Environmental Protection ("DEEP"), the application for which will be submitted to DEEP prior to construction. Petitioner will file for and hold such stormwater permit upon issuance. In addition, Petitioner will require a building permit and electrical permit from the Town of North Canaan. Petitioner will hold the stormwater, electrical and building permits.

2. Referencing page 3 of the Petition, LSE Phoenix LLC (Lodestar or Petitioner) notes that, "The VNM agreements related to the Project are currently being negotiated with several municipalities including South Windsor." As an update, what is the status of such virtual net metering (VNM) agreements?

Petitioner has an executed letter of intent with the Town of Windsor and the Petitioner and the Town are working towards a definitive agreement. The COVID-19 pandemic and associated restrictions has delayed the timing of these reviews. The allocation of the virtual net metering credits to municipalities will be finalized when the virtual net metering agreements are finalized.

3. Referencing page 3 of the Petition, would all 1.99 megawatts (MW) alternating current (AC) be dedicated to VNM?

Yes.

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

Yes, the Petitioner may submit this Project in Forward Capacity Auction #15 for the 2024-25 period, via an initial submittal in the summer of 2021.

Proposed Site

5. Page 5 of the Petition notes, "Exhibit 1 includes the vicinity and land use maps which depicts the surrounding land uses within one-half mile of the Project site..." Which map in Exhibit 1 provides this information? If it was inadvertently omitted, please submit the map.

See Exhibit A attached hereto.

6. Is any portion of the site currently in productive agricultural use? If so, how many acres and is it used by the property owner or is it leased to a third party?

The Site is currently a rough meadow/hayfield. There is no evidence of recent haying activity or any other agricultural use. The property was previously logged by the land owner and has been held in forestry.

7. Would all components of the solar photovoltaic panels be recyclable? Could components of panels be reused to make photovoltaic cells or whole panels be used to make new solar panels at the end of the life of this project? Could the solar panels and/or associated components be repurposed for a different use or product?

Solar panels have a twenty (20) year or greater life expectancy and are capable of producing ninety percent (90%) of their nameplate capacity after this period. It would be likely that the panels could be recycled without being dismantled, or could be recycled into their component parts - aluminum and silica (solar cells). Based on what we know today, it is most likely they would be reused "as-is" without being dismantled if the system were to be decommissioned.

8. Referencing Page 15 of the Petition, Lodestar notes that, "The nearest potentially sensitive visual receptor to the Project was determined to be a residential structure one hundred (100) feet to the north." Is this the nearest off-site residence? If yes, provide the address of such residence and indicate what the 100-foot dimension represents, e.g, the distance from the proposed solar facility fence to the structure. If no, please provide the distance, direction and address of the nearest off-site residence from the solar field perimeter fence.

Correct, this dimension refers to the distance from the project fence line to the nearest off-Site residence. The address of this residence is 19 Ryan Ave, Canaan, CT 06018

Energy Output

9. Have electrical loss assumptions been factored into the output of the facility? What is the output in MW AC at the point of interconnection?

The 1.99 MW AC output rating of the Project is calculated prior to transformer and medium voltage line losses. Transformers generally incur a 1% efficiency loss and medium voltage line losses will be limited to 2% loss at full output. In effect, the maximum output at the point of interconnection is 1.931 MW.

10. What is the projected capacity factor (expressed as a percentage) for the proposed project? For clarity, is this capacity factor based on a ratio of AC MWh to AC MWh, or a ratio of AC MWh to DC MWh?

The projected capacity factor for the proposed Project is 19.1%.

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

There is no current plan for battery installation because such technology is not currently provided for under the existing regulatory regime. In the event that the regulatory environment changes, Petitioner may later seek to install batteries at the Project and, if so, would seek the required regulatory approvals to do so, including any approvals required by the Siting Council.

12. Would the impact of soft or hard shading reduce the energy production of the proposed project? If so, was this included in the proposed project's capacity factor?

Yes, soft and hard shading would have an impact on energy production. All loss factors including shade incurred from surrounding trees and soiling due to snow have been accounted for in the calculated capacity factor.

13. Could the project be designed to serve as a microgrid?

There is no current plan for this Project to service as a microgrid. Petitioner's interconnection agreement with Eversource is not designed for islanding the power and no energy storage is proposed on-Site.

14. If one section of the solar array experiences electrical problems causing the section to shut down, could other sections of the system still operate and transmit power to the grid?

This is partially correct. In the event there is an issue with a portion of the array, the inverter dedicated to this portion will issue a fault and safely restrict power flow. The operations and maintenance team will receive an alert that this inverter requires attention and will repair as necessary. The remainder of the inverters will remain operational during this repair/diagnostic period.

In the event there are abnormal conditions or a complete outage from the utility grid, all inverters will disconnect from the grid in unison, immediately, and automatically via the SEL vista switchgear.

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

Solar facilities and the upgrades that are coincident with their installation help ensure the stability of the electric distribution system. The proposed Project has undergone a rigorous study that was performed by an independent third-party engineering firm at the direction of the electric distribution company ("Eversource" or "EDC"), and paid for by Petitioner. This study was memorialized in a "System Impact Study" and formed the basis of the Interconnection Services Agreement ("ISA") executed by Eversource and the Petitioner. Upon the completion of the System Impact Study, Eversouce prepared a contract which included distribution system upgrades to accommodate the Project. The ISA incorporates all requirements to ensure the safe and stable operation of the electric distribution system within the operating parameters required by federal, state and local laws and regulations. The cost of all equipment required by the EDC as a result of the System Impact Study is funded by the Petitioner through its ISA payment.

Site Components and Solar Equipment

16. Referencing Exhibit 1 of the Petition, Sheets SP-1 and SP-2, is it correct to say that all electrical connections from the solar panels to the inverters would be underground in trenched conduits?

Yes, DC circuits that extend from modules/combiner boxes to the NE equipment pad are intended to be underground circuits.

17. Referencing Exhibit 1 of the Petition, Sheet SP-2, there is a note that states, "Remove existing electrical equipment as required. See electrical plans." Identify the existing electrical equipment that would be removed.

There is an existing transformer on-Site dedicated to an unused residential circuit. This was installed by the landowner in order to service the vacant lot in the SW corner of the parcel. This equipment is to be de-energized and removed.

18. How many panels will each rack hold?

Each row of modules will contain a different number of modules depending on the east/west dimension. Each module is approximately 39" wide with gaps of approximately ½" between modules. Site & utility plan SP-1 is to scale and demonstrates the module layout adequately for the 7,560 maximum number of modules proposed for the array area.

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

Yes, DC wiring is to be installed on the racking directly below the modules. The racking system is designed to incorporate the wiring close to the modules with no loose conductors. According to the National Electric Code, this circuitry must be comprised of a special conductor called USE-2 also known as "photovoltaic wire." USE-2 is specifically designed for this Project. Although the circuitry is mounted below the modules and not exposed to direct sunlight, USE-2 consists of a unique insulation that is resistant to UV exposure for extended periods. In addition, USE-2 wire consists of a thicker insulation jacket that shields the circuit from animal intrusion, chafing, etc. As a fail-safe for unanticipated events, each circuit is fuse-protected, which protects the circuit from thermal concerns and short circuits.

20. What is the length (in feet) of the existing access drive from Sand Road that would be utilized for this project? Are any upgrades, such as gravel, required to make it suitable for this proposed solar facility?

The existing access drive from Sand Road is approximately 1,300 linear feet. In the event that Petitioner is unable to utilize the access driveway off of Ryan Avenue, prior to construction, Petitioner will assess if the existing driveway is suitable for construction, and may require minor upgrades to support the construction activities.

21. What is the length (in feet) of the proposed access drive from Ryan Avenue? How many feet of this would be existing access?

The proposed access drive from Ryan Avenue will be approximately one hundred ten (110) linear feet. There is currently no existing gravel access from Ryan Avenue.

22. Referencing page 5 of the Petition and Sheet SP-2, if the proposed access drive from Ryan Avenue is "temporary construction access" and the proposed access from Sand Road is permanent, why does the Ryan Avenue entrance have a permanent chain link gate and the access from Sand Road does not have a gate?

Both the Ryan Avenue and Sand Road access driveways will have permanent locked gate at the fence line.

23. What is the minimum aisle width (between the solar panel rows from panel edge to panel edge) at which the solar panel rows could be installed?

The aisle width shown on the plans are at the minimum of fifteen feet for some rows due to interrow shading, as the slope goes downhill from north to south.

24. Referencing Exhibit 1 of the Petition, Figure 2 – Existing Conditions, the proposed site is located outside of the 100-year flood zone. Referencing Exhibit 1 of the Petition, the Federal Emergency Management Agency (FEMA) flood zone map, is the proposed project located in the FEMA unshaded Zone X, an area outside of the 500-year flood zone?

Yes, the Project is located entirely within Zone X and is outside the influence of both a 100-year and 500-year flood zone.

Interconnection

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

Due to the scale of the proposed project, ISO-NE does not require review.

26. Referencing page 6 of the Petition, Lodestar notes the "…installation of a transmission line and associated transmission line tap…" Referencing page 9 of the Petition, given the proposed interconnection to a 13.2-kV overhead circuit, would it be correct to say that Lodestar proposes the "…installation of a distribution line…?"

This statement is correct. The proposed Project does not interconnect to typical utility transmission level circuits.

27. Referencing page 9 of the Petition, how tall would the three proposed utility poles be (above grade)?

Approximately twenty feet (20').

28. Is the existing 13.2-kV distribution on Ryan Avenue three-phase or would it have to be upgraded from single-phase to three-phase?

It is three phase and does not require any upgrade.

Public Safety

29. Would the project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?

Yes.

30. Referencing Exhibit 1 of the Petition, Sheet DN-1, would the proposed fence have a wire mesh with six-inch spacing? Referencing page 6 of the Petition, Lodestar notes that the project would include a "...seven and one half (7.5) foot chain-link fence..." Would it be a seven-foot tall (nominal size) fence with a six-inch gap at the bottom of the fence for wildlife passage? Explain.

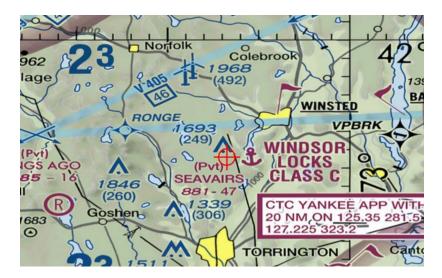
The fencing will be seven feet tall with a six inch (6") gap at the bottom for wildlife passage.

31. Referencing Exhibit 12 of the Petition, Noise Evaluation, the noise analysis takes into account the proposed inverters. Would the project transformer also need to be included, or would the inverters be the dominant source of noise on the equipment pad?

The inverters are the dominant source of noise for the Project.

32. Where is the nearest federally-obligated airport? Is a glare analysis required to comply with Federal Aviation Administration policy?

The nearest airport is a small private seaport (SEAVAIRS) located within Highland Lake located 1.25 miles east of the proposed Site. The FAA has performed their analysis and determined the structure does not pose any hazard to air navigation with respect to the proximity of this airport and surrounding. The FAA did not require a glare analysis due to the Determination of No Hazard received as a result of the FAA aeronautical study. In addition, PV panels are constructed of dark, light absorbing materials and are covered in an anti-reflective coating designed to maximize absorption and minimize reflection.



33. With regard to emergency response:

a. Is outreach and/or training necessary for local emergency responders in the event of a fire or other emergency at the site?

After construction completion and prior to energization, local emergency responders are provided on-Site training with the O&M team to ensure emergency response personnel are educated upon the location of specific components of the emergency response plan. The fire department is provided 24/7 access by installing their own lock on the access gate to the Site.

b. In the event of a brush or electrical fire, how would the Petitioner mitigate potential electric hazards that could be encountered by emergency response personnel?

In the event of fire, the site would be de-energized per the emergency response plan outlined in the Petitioner's petition, operations and maintenance plan, Exhibit 3.

c. Could the entire facility be shut down and de-energized in the event of a fire? If so, how?

Yes. The Site will be de-energized per emergency response plan outlined in the operations and Maintenance Plan, attached to the Petition as Exhibit 3.

Environmental

34. Referencing Exhibit 1 of the Petition, Figure 2 – Existing Conditions, can a similar figure be provided as Proposed Conditions, i.e. Figure 2 with the proposed project depicted?

Please see Exhibit B attached hereto.

35. Referencing page 6 of the Petition, Lodestar notes that, "Inverters will be mounted on a concrete pad to the northwest of the array." Would the pad be poured on-site? If yes, what are the plans for washing out the cement truck?

The pad would be poured on-Site. A construction washout area will be added to the plans between the proposed access road turnaround off of Ryan Avenue and the proposed fence.

36. Referencing page 7 of the Petition, the project would require approximately 6.39 acres of clearing. Referencing Exhibit 1 of the Petition, Sheet EC-1, the sum of the Phase 1 clearing and grubbing area (2.17-acre) and the Phase 2 clearing and grubbing area (4.22 acres) is correctly 6.39 acres. However, there is identified clearing and grubbing associated with the proposed swale and basin (in the northeastern corner of the project area) that totals 1.39 acres. Is the 1.39 acres a sub-area (i.e. subset) of the 2.17 acres? Explain.

The corrected total acreage of clearing is 7.78 acres with 2.17 acres of clearing and 5.61 acres of clearing and grubbing.

37. Under Connecticut General Statutes §16-50k, "Core forest" means unfragmented forest land that is three hundred feet or greater from the boundary between forest land and nonforest land, as determined by the Commissioner of Energy and Environmental Protection." Would any tree clearing occur within core forest? If so, how many acres? How would tree clearing affect the acreage of core forest and core forest edge? Provide an aerial photograph that depicts pre- and post-construction acreage of core and edge forest.

No tree clearing will occur within core forest. All the forest on the Site is considered edge forest. Referring to the attached graphics in Exhibit C, approximately 9.4 acres of edge forest will be

removed to accommodate construction of the facility. Approximately 0.1 acre of core forest would be impacted, as this area would be converted to edge forest habitat.

38. Did the Petitioner conduct a Shade Study Analysis? Would shading present any challenges for the proposed project? If so, provide acreage of trees (of the 6.39-acre total) that would be removed to mitigate for shading. How were the limits of tree shading determined?

Yes. The proposed Project layout is designed using industry leading design software to optimize efficiency while minimizing impact for surrounding forest. Surrounding forest heights were measured using drone technology. In total, 3.56 acres will be attributed to shade mitigation as noted on EC-1 of the site plan.

39. How many acres of Prime Farmland Soils are located on the subject property? How many acres of Prime Farmland Soils would be impacted by the proposed project?

Approximately 5.7 acres of prime farmland soil are located on the Site. Upon completion of the Project, approximately 3.8 acres of prime farmland soil would be occupied by the solar Project.

40. Referencing Exhibit 11 of the Petition, page 6, Lodestar states, "[I]t would be prudent to conduct breeding season bird surveys in concert with plant surveys from late May through early July to determine the presence/absence of alder flycatcher at the Site." Were such bird and plant surveys performed? What is the status?

Wildlife Biologist Eric Davison conducted breeding bird surveys on three (3) separate occasions in June 2020 (6/3, 6/8 and 6/17). That work focused on identifying the presence of Alder Flycatcher, a state-listed songbird considered to be potentially present by the NDDB due to their known occurrence in the region. The survey documented all birds present as observed (via sight and sound) following standard survey protocols. No Alder Flycatcher were present on the Site. The site was considered to be sub-optimal with respect to habitat for this species due to the lack of permanently flooded wetlands.

41. Are there any wells on the site or in the vicinity of the site? If so, how would the Petitioner protect the wells and/or water quality from construction impacts?

No on-Site wells were identified during the field survey of the site. While there may be wells within the vicinity of the Site, there are no anticipated impacts to ground water as a result of construction activities. The installation of racking and electrical trenching is not expected to have vibrations that would cause an impact to existing wells or water quality.

42. Would any fuels be stored on site during construction? If so, provide fuel storage/spill prevention control details.

No fuels will be stored on-Site.

43. What effect would runoff from the drip edge of each row of solar panels have on the site drainage patterns? Would channelization below the drip edge be expected? If not, why not?

The rows of solar panels are not considered "closed systems", because there are "gaps" between each module (both north/south and east/west). As such, the drop edge of each solar panel will not have an impact on the Site's drainage patterns, as stormwater will flow off the panels in various locations as the panels follow the contours of the existing land. Additionally, once the Site is fully stabilized post-construction, channelization along the drip edge is not expected. The Petitioner expects that the only time that channelization along the drip edge may be of concern is during construction in those areas that are not fully stabilized; however, such would be rectified upon final stabilization of the site.

44. What is the length of the posts and to what depth would the posts be driven into the ground to provide structural stability? Are any impacts to groundwater quality anticipated? If so, how would the Petitioner manage and/or mitigate these impacts?

The embedment depth of the racking posts is site specific and soil specific. This depth will be determined during final structural engineering for the proposed Project. Typical embedment depths are five to seven feet (5-7'). At this depth, no impacts to groundwater quality are anticipated. No impact to groundwater quality is anticipated.

45. Where is the nearest recreational area from the proposed site? Describe the visibility of the proposed project from this recreational area.

The nearest recreation area from the proposed site is Canaan Country Club, approximately 0.42 miles to the northeast. See Exhibit D attached hereto, Adjacent Recreation Areas and Scenic Roads figure. The existing topography and surrounding wooded areas will limit visibility of the Project from the Canaan Country Club.

46. Where is the nearest national, state and/or locally-designated scenic road from the proposed site? Describe the visibility of the proposed project from the nearby scenic road.

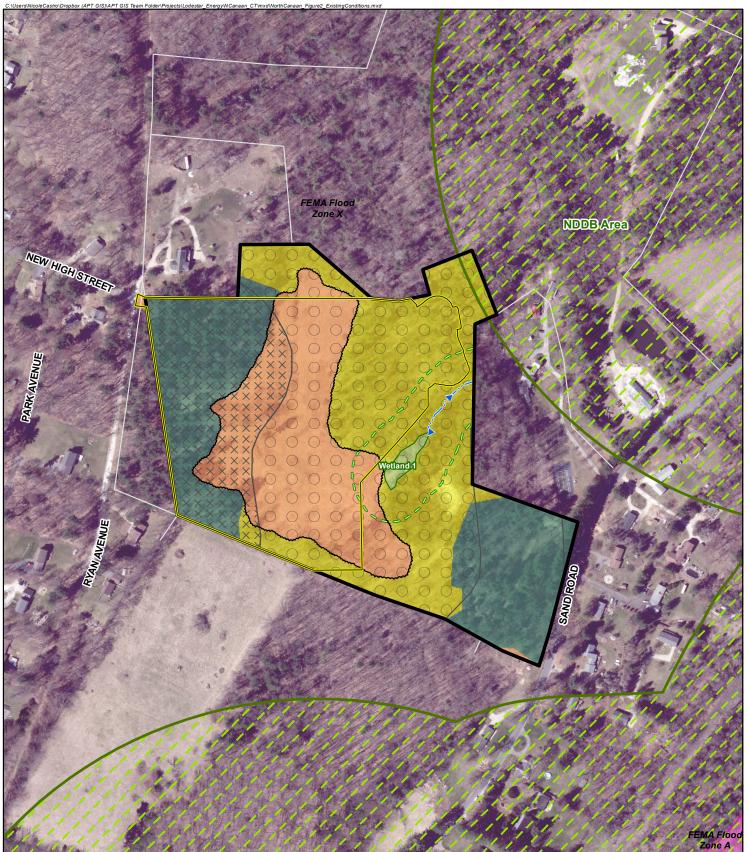
The nearest scenic road to the proposed site appears to be U.S. Route 44 in Salisbury, CT, approximately 0.64 miles to the southwest. See Exhibit D, Adjacent Recreation Areas and Scenic Roads Figure. The existing topography and surrounding wooded areas will limit visibility of the Project from U.S. Route 44.

Respectfully submitted,

Petitioner LSE PHOENIX LLC

By: Carrie Larson Ortolano Jeffrey J. Macel, Manager Carrie Larson Ortolano, Associate General Counsel % Lodestar Energy LLC 40 Tower Lane, Suite 201 Avon, CT 06001

EXHIBIT A



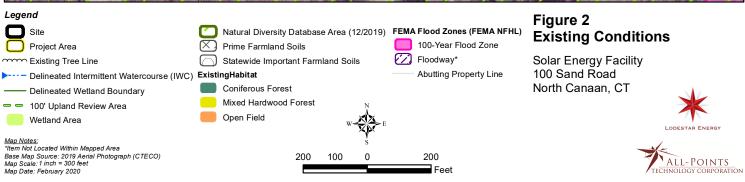
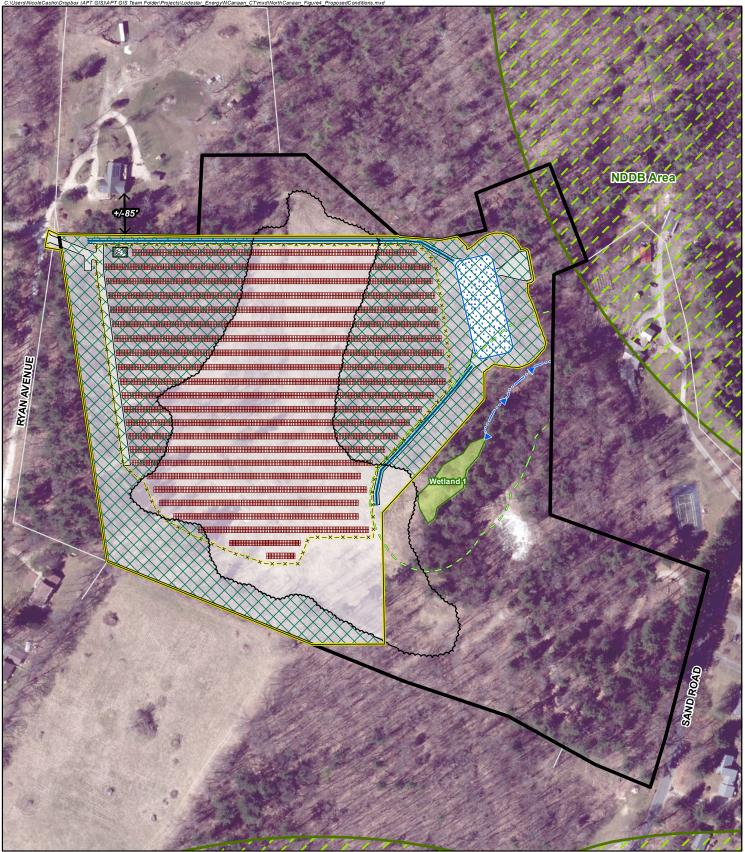
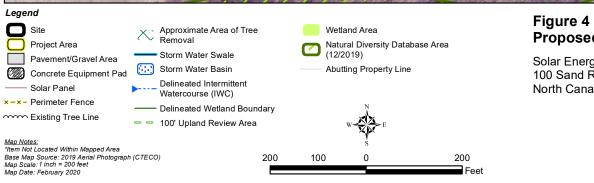


EXHIBIT B





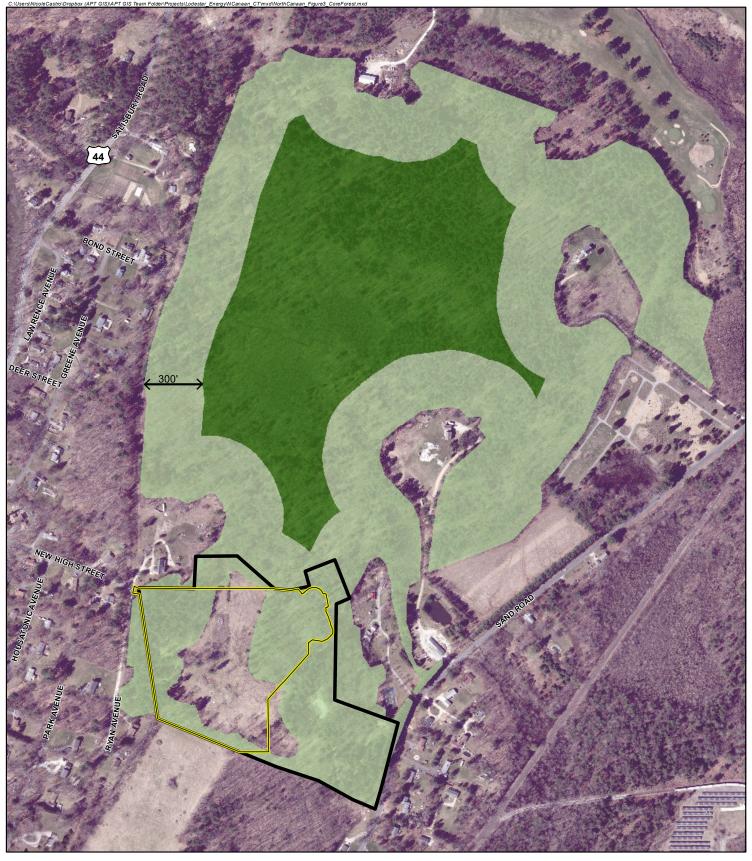
Proposed Conditions

Solar Energy Facility 100 Sand Road North Canaan, CT

Feet



EXHIBIT C



Legend



*Existing Forest within the Project Area: +/-7.7 Acres of Edge Forest

<u>Map Notes:</u> Base Map Source: 2019 Aerial Photograph (CTECO) Map Scale: 1 inch = 500 feet Map Date: February 2020

500 250

Figure 3 Existing Contiguous Forest

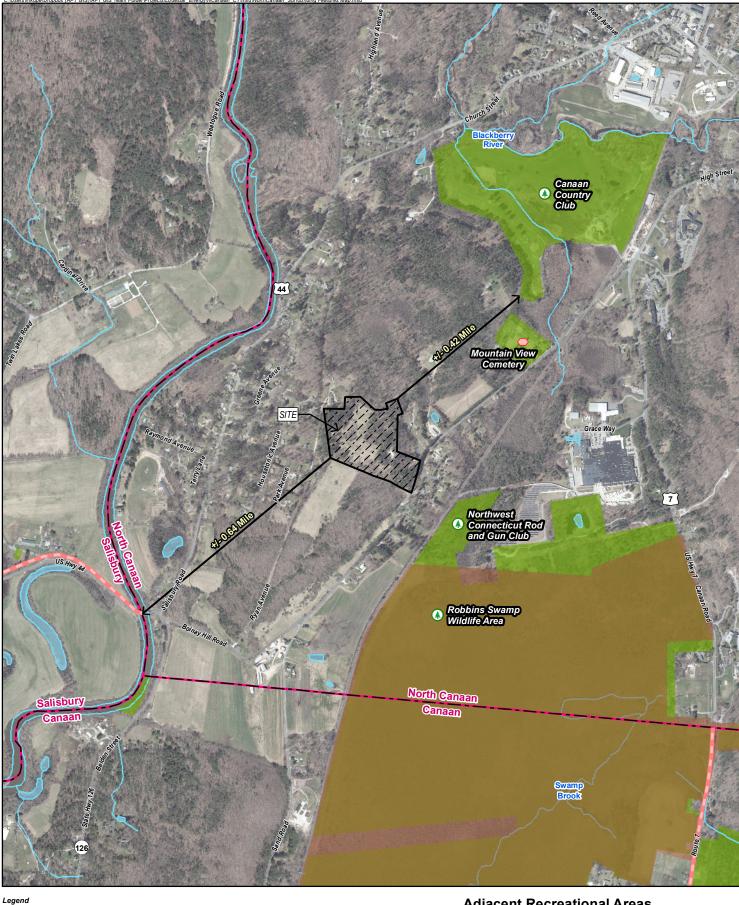
Solar Energy Facility 100 Sand Road North Canaan, CT

500

Feet



EXHIBIT D



Site Open Water (CTDEEP)

Open Space Property (CTDEEP) Municipal Boundary

Scenic Roads Surrounding Features Park / Recreation / Open Space

1.000

500

1,000 Feet

Cemetery

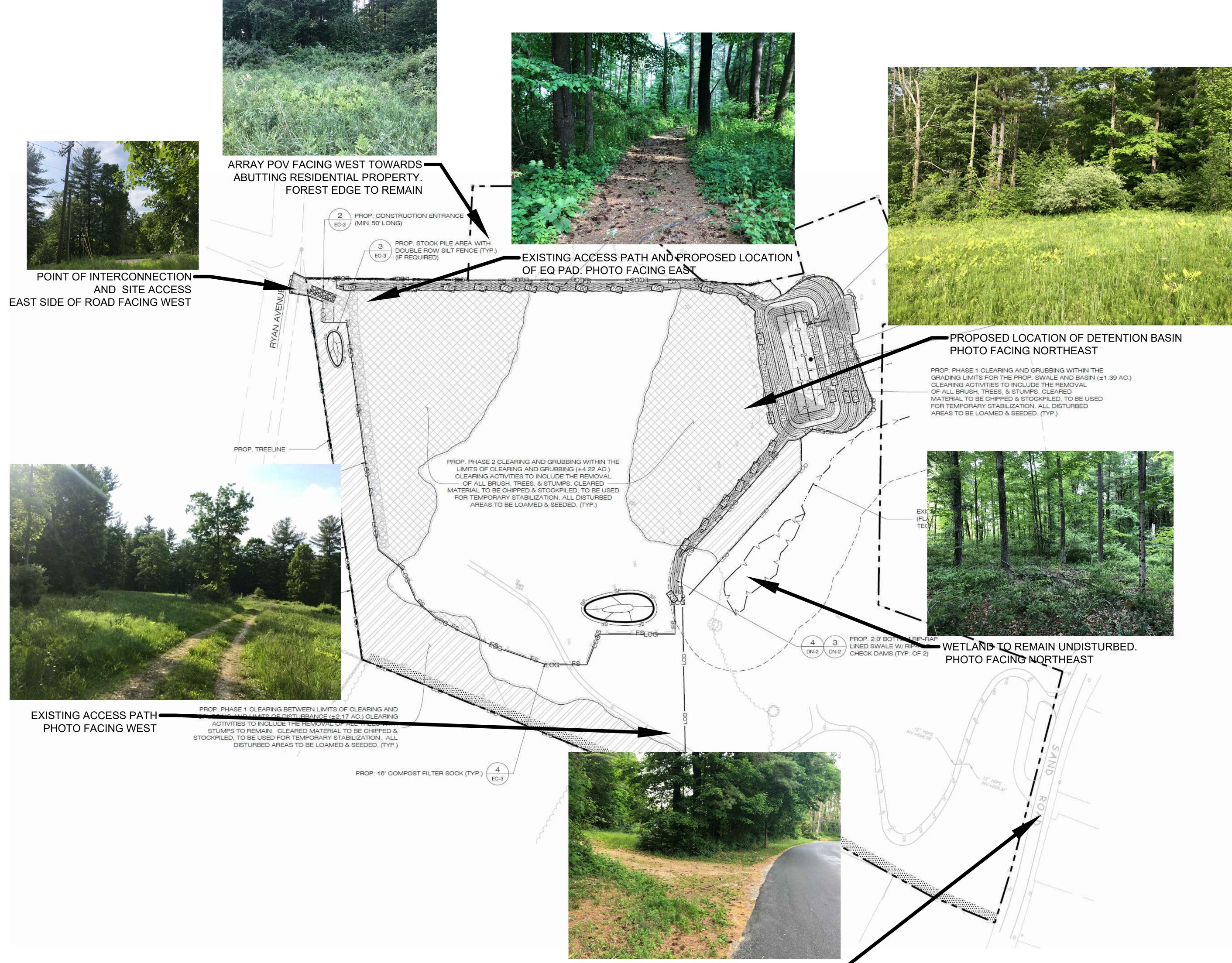
Adjacent Recreational Areas and Scenic Roads

Solar Energy Facility 100 Sand Road North Canaan, CT

<u>Map Notes:</u> Base Map Source: 2019 CT ECO Imagery Map Scale: 1:16,000 Map Date: July 2020

ALL-POINTS TECHNOLOGY CORPORATION

EXHIBIT E





DATE: 07/20/2020

REVISIONS

DATE	REVISION

