PETITION NO. 1310A - Quinebaug Solar, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 50 megawatt AC solar photovoltaic electric generating facility on approximately 561 acres comprised of 29 separate and abutting privately-owned parcels located generally north of Wauregan Road in Canterbury and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut. Reopening of this petition based on changed conditions pursuant to Connecticut General Statutes §4-181a(b).	}	Connecticut Siting Council April 23, 2020

Findings of Fact

Introduction

1. On June 15, 2017, Quinebaug Solar, LLC (QS or Petitioner) submitted a petition (Petition) to the Connecticut Siting Council (Council), pursuant to Connecticut General Statutes (CGS) §16-50k and §4-176, for a declaratory ruling for the construction, maintenance, and operation of a 50 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility on approximately 561 acres comprised of 29 separate and abutting privately-owned parcels located generally north of Wauregan Road in Canterbury, Connecticut and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #1)

2. QS is a Delaware Limited Liability Company, wholly owned by NextEra Energy Resources, LLC (NEER), a subsidiary of NextEra Energy, Inc., with headquarters at 700 Universe Blvd., Juno Beach, Florida. QS was previously an affiliate of Ranger Solar, LLC (Ranger Solar) of Yarmouth, Maine. Ranger Solar was acquired by NEER in early 2017. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #3)

3. QS is an independent electrical generating entity participating in the ISO New England, Inc. (ISO-NE) market, selling power to existing distribution and transmission utility companies. QS is not an electric distribution company nor does QS provide electricity directly to retail customers. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #2)

4. The parties to the original Petition 1310 proceeding were QS and Troy & Meghan Sposato (collectively "the Sposatos"). (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #4)

5. The proposed project would generate renewable electrical energy from solar power. Solar power is considered a Class I renewable energy source. (QS 1c, p. 4-1; CGS § 16-1(a)(20))

6. The proposed project would be a "grid-side distributed resources" facility under CGS § 16-1(a)(37). (QS 1c, p. 7-1; CGS § 16-1(a)(37))

7. QS would sell power to electric distribution companies of Connecticut, Massachusetts and Rhode Island pursuant to its selection under the New England Clean Energy Request for Proposals. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #9; QS 1c, p. 4-1)

8. The State legislature established a renewable energy policy under CGS §16a-35k that encourages the development of renewable energy facilities to the maximum extent possible. (CGS § 16a-35k)

9. On December 7, 2017, the Council voted to deny without prejudice the petition for a declaratory ruling to QS for the 50 MW AC solar facility because the Council determined that the project would have a substantial adverse environmental effect and would not comply with the Department of Energy and Environmental Protection (DEEP) water quality standards. (Council Administrative Notice Item No. 52 – Petition 1310, Decision and Order, p. 1)

10. On November 12, 2019, pursuant to CGS §4-181a(b), QS filed a Motion to Reopen and Modify (Motion to Reopen) the Council's decision to deny without prejudice the petition for a declaratory ruling to QS for the 50 MW AC solar facility. (QS 1 – Motion to Reopen)

11. On November 13, 2019, the Council issued a memorandum to the service list for the original Petition 1310 proceeding requesting comments or statements of position in writing with respect to whether the Motion to Reopen should be granted or denied and whether a public hearing should be held on this request by November 27, 2019. No comments were received. (Council Memorandum dated November 13, 2019; Record)

12. At a public meeting held on December 5, 2019, the Council voted to grant QS' Motion to Reopen, to schedule a public hearing and to grant QS' Motion for Protective Order (MPO) pursuant to CGS §1-210(b) and RCSA 16-50j-22a(d) related to the disclosure of Volume II of the Phase 1B/Phase II Cultural Resources Report (Exhibit Q). (Council Meeting Minutes of December 5, 2019; Council Memorandum dated December 6, 2019)

Procedural Matters

13. On December 6, 2019, all parties and intervenors to the original Petition 1310 proceeding were notified of the reopening. (Council Memorandum dated December 6, 2019)

14. On December 9, 2019, the Council sent a letter to the Towns of Brooklyn, Canterbury and Plainfield to provide notification of the scheduled public hearing and to invite the municipalities to participate. (Council Hearing Documents, dated December 9, 2019)

15. Pursuant to CGS §16-50m, the Council published legal notice of the date and time of the public hearing in The Bulletin on December 11, 2019. (Record)

16. On December 18, 2019, the Council held a pre-hearing conference on procedural matters at the office of the Council, 10 Franklin Square, New Britain, Connecticut for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the site scheduled for January 14, 2020. QS and the Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) participated in the pre-hearing conference. (CSC Pre-Hearing Conference Memoranda, dated December 10, 2020 and December 27, 2020)

17. On December 23, 2019, Eversource filed a motion for party status in this proceeding. In Eversource's motion for party status, Eversource noted that, as part of QS' electrical interconnection, Eversource would design, construct, own and maintain a new 115-kV switching station in Canterbury, connect the switching station to existing transmission in Canterbury and upgrade the transmission system via a transmission line separation project in the City of Norwich. (Eversource 1, p. 2)

18. Pursuant to R.C.S.A § 16-50j-21, on December 31, 2019, QS erected two signs measuring six feet by four feet: one along Wauregan Road near a proposed access road for the site and one on Rukstela Road along the northern portion of the proposed site notifying the public of the type of facility proposed, the public hearing date and contact information for the Council. (Transcript 01/14/2020, 3:00 p.m. [Tr. 1], pp. 20-21; Council Pre-Hearing Conference Memorandum dated December 10, 2019; QS 8, Sign Affidavit)

19. At a public meeting held on January 2, 2020, the Council granted party status to Eversource. (Council Decision on Eversource Party Status dated January 3, 2020)

20. On January 7, 2020, pursuant to CGS §1-210(b), QS filed a MPO related to the disclosure of QS' response to Council interrogatory number 35 – the updated estimated cost of the project. At the public hearing held on January 14, 2020, the Council denied QS' MPO on the basis that the estimated project costs were publicly disclosed in Petition 1310. (QS MPO dated January 7, 2020; Council Decision on MPO dated January 15, 2020; Tr. 1, pp. 7-9)

21. On January 9, 2020, the Council sent a letter to the City of Norwich to provide notification of Eversource's proposed modification of an approximately 0.75-mile segment of existing electric transmission lines between Bean Hill Substation and Wawecus Junction in Norwich. The Council provided notice of the public hearing schedule and to invite the City to participate. (Council Letter to City of Norwich dated January 9, 2020)

22. The Council and its staff conducted a public inspection of the proposed site on January 14, 2020, beginning at 1:30 p.m. The field inspection commenced at the parking lot for the athletic field on the site. The site walk included, but was not limited to, the herpetofauna protection area and other areas identified in the environmental studies conducted for the proposed project. (Council Hearing Notice dated December 9, 2019; Tr. 1, pp. 21-22)

23. Pursuant to CGS § 16-50m, the Council, after giving due notice thereof, held a public hearing on January 14, 2020, beginning with the evidentiary session of the hearing at 3:00 p.m. and continuing with the public comment session at 6:30 p.m. at the Brooklyn Community Center, 31 Tiffany Street, Brooklyn, Connecticut. (Council's Hearing Notice dated December 9, 2019; Tr. 1, p. 1; Transcript 01/14/2020, 6:30 p.m. [Tr. 2], p. 1)

24. On January 28, 2020, pursuant to CGS §1-210(b), Eversource filed a MPO related to the disclosure of Eversource's response to Council interrogatory number 8 on the basis that it contains Critical Energy Infrastructure Information. At a public meeting held in New Britain on January 30, 2020, the Council granted Eversource's MPO. (Eversource MPO dated January 28, 2020; Council Decision on MPO dated January 31, 2020)

25. The evidentiary hearing session was continued on February 4, 2020 at 1:00 p.m. at the office of the Council, 10 Franklin Square, New Britain, Connecticut. (Transcript 02/04/2020, 1:00 p.m. [Tr. 3], p. 1)

Municipal Consultation and Community Outreach

26. Beginning in 2015, QS held meetings with project abutters and municipal officials and hosted multiple public presentations. As part of the project redesign, QS has continued to coordinate with municipal officials, state agencies, and the local communities. QS will continue to work with municipal officials, state agencies, and the local communities throughout the construction and operation phases of the project. (QS 1c, p. 5-1)

27. Eversource conducted outreach to the First Selectman of Canterbury and the Mayor of Norwich, informing both of its Motion for Party Status in this proceeding and its planned construction in each municipality. Eversource advised both officials of its previously conducted and planned outreach to property owners adjacent to the proposed construction and work sites. (Eversource 2, pp. 25-26)

28. QS held a public information session in the Town of Brooklyn at the Brooklyn Middle School on January 26, 2017. (QS 1c, Tab M – Project Outreach Information and Letter Sent to Project Abutters prior to January 26, 2017 Public Information Meeting)

29. QS held a public information session in the Town of Canterbury at the Canterbury Elementary School on February 7, 2017. (QS 1c, Tab M – Project Outreach Information and Public Notice for February 7, 2017 Information Session)

30. A public open house for Brooklyn and Canterbury residents, abutting property owners, and municipal officials was held at the Canterbury Elementary School on May 30, 2019 and was publicized in local media and on municipal websites/social media. (QS 1c, p. 5-1)

31. An additional presentation to the Canterbury Board of Selectman was held in July 2019. (QS 1c, p. 5-1)

32. QS discussed the project with the First Selectman of Plainfield on October 7, 2019. (QS 1c, p. 5-1; QS 1c, Tab M – Public Outreach Information, Public Outreach Log, p. 3)

33. By letter dated January 7, 2020, the Town of Canterbury Board of Selectman, Inland Wetlands and Watercourses Commission, Planning & Zoning Commission, and Economic Development Committee expressed support for the proposed project and noted that it would help Connecticut meet renewable energy goals and reduce carbon emissions and generate tax revenues for the Town of Canterbury. The Town of Canterbury also noted that QS worked with the Town officials, residents and neighbors since early 2016. Additionally, the redesigned project adopts Canterbury's setback requirements, even when not required. (Town of Canterbury Comments, received January 9, 2020)

34. By letter dated January 9, 2020 and by a limited appearance statement at the January 14, 2020 public comment session, Canterbury First Selectman Chris Lippke expressed support for the proposed project because it would help Connecticut meet its renewable energy goals and would provide the Town of Canterbury with tax revenue over its years of operation. (Town of Canterbury Comments, received January 9, 2020; Tr. 2, pp. 99-100)

35. At the January 14, 2020 public comment session, Brooklyn First Selectman Richard Ives gave a limited appearance statement and expressed support for the proposed project. He noted that the project helps the state and the Town of Brooklyn. First Selectman Ives also noted that, while the construction time period has an end point to it, he hopes that construction of the proposed project in Brooklyn can be done in a way that affects the least amount of people for the least amount of time. (Tr. 2, pp. 101-102)

36. The Town of Plainfield did not comment on the proposed project. (Record)

37. The City of Norwich did not comment on the proposed project. (Record)

38. CGS § 22a-20a and DEEP's Environmental Justice Guidelines require applicants seeking a permit from DEEP or the Council for a new or expanded facility defined as an "affecting facility" that is proposed to be located in an environmental justice community to file an Environmental Justice Public Participation Plan (EJPPP). The proposed solar facility is not an "affecting facility" under CGS §22a-20a because it uses non-emitting and non-polluting renewable resources. Thus, Environmental Justice does not apply to the facility and an EJPPP is not required. (QS 1c, pp. 1-1 and 6-2; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #32; CGS § 22a-20a)

State Agency Comments

39. Pursuant to RCSA §16-50j-40, on December 9, 2019, the following state agencies were requested to submit written comments regarding the proposed facility: 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 Consumer Protection (DCP); 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). (Council Hearing Documents, dated December 9, 2019)

40. On January 10, 2020, the Council received comments from DEEP, which are attached hereto. (DEEP Comments received January 10, 2020)

41. On January 13, 2020, the Council received comments DOAg, which are attached hereto. (DOAg Comments dated January 13, 2020)

42. On January 13, 2020, the Council received comments from CEQ, which are attached hereto. (CEQ Comments dated January 13, 2020)

43. 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. (Council Administrative Notice Item No. 84)

44. The following agencies did not respond to the Council's request for comment on the proposed facility: DPH, PURA, OPM, DECD, DESPP, DCP, DOL, DAS, DOT, CAA, and SHPO. (Record)

Changed Conditions

45. In QS' Motion to Reopen, QS noted several changed conditions including, but not limited to, the following:

    a) Significant modification of the project layout based on the results of environmental surveys, current best development practices, and guidance from the Council's December 8, 2017 decision;
    b) Reduction of the development area of the project from 270 acres to 227 acres;
    c) Modifications to wetland and watercourse buffers and setbacks, a herpetofauna protection area, and vernal pool directional buffers;
    d) Utilization of an existing network of roads already impacted by human activities and avoidance of tree clearing in areas that were previously proposed to be cleared;
    e) Wetland buffers at a minimum of 100-feet, except in the vicinity of existing gravel roads, or in areas that have been heavily impacted by agricultural activities;
    f) Sediment and erosion control plan to protect natural resources; and
    g) Stormwater management plan with detailed construction sequencing that would be synchronized with the stormwater control phasing, to minimize the movement of soil to protect water quality.

    (QS 1, Motion to Reopen, pp. 5-6)

New England Regional System Planning

46. New England's electric power grid is planned and operated as a unified system of transmission owners and market participants. The New England system integrates resources with the transmission system to serve all regional load regardless of state boundaries. Therefore, electrical performance in one part of the system affects all areas of the system. (Council Administrative Notice Item No. 25 – 2019 ISO-NE Regional System Plan, p. 27)

47. Created in 1997, ISO-NE is the independent, not-for-profit corporation responsible for the reliable operation of New England's electric power generation and transmission system, overseeing and ensuring the fair administration of the region's wholesale electricity markets, and managing comprehensive regional electric power planning. (Council Administrative Notice Item No. 42 – ISO FCA #13 Press Release dated February 28, 2019, p. 2)

48. ISO-NE's primary responsibility is electric reliability. ISO-NE is fuel and technology neutral and takes no position on any proposed energy projects. ISO-NE does not own any transmission or distribution lines or power plants. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #42)

49. The physical power from the proposed facility would be delivered to the ISO-NE grid via a transmission connection. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #43)

50. On October 31, 2019, ISO-NE issued the 2019 Regional System Plan (2019 RSP) to identify the New England region's electricity needs and plans for meeting these needs for 2019 through 2028. (Council Administrative Notice Item No. 25 – 2019 RSP, pp. i and iii)

51. ISO-NE holds an annual auction to acquire the power system resources needed to meet future demand for the New England region. The annual Forward Capacity Market Auction (FCA) is held approximately three years before each capacity commitment period to provide time for new resources to be developed. Capacity resources can include traditional power generation, renewable generation, imports, and demand-side resources such as load management and energy efficiency measures. Resources clearing in the auction will receive a monthly payment during the delivery year in exchange for their commitment to provide power or curtail demand when called on by ISO-NE. (Council Administrative Notice Item No. 42 – ISO FCA #13 Press Release dated February 28, 2019, pp. 1-2)

52. ISO-NE computes and annually updates an installed capacity requirement (ICR) for the New England Region. ICR is a measure of the installed resources that are projected to be necessary to meet both ISO-NE's and the Northeast Power Coordinating Council's (NPCC) reliability standards, with respect to satisfying the peak load forecast for the New England Balancing Authority while maintaining required reserve capacity. (Council Administrative Notice Item No. 31 – ISO-NE ICR Report dated January 2016, p. 9)

Generating Capacity Retirements in New England

53. ISO-NE identifies the following power plants as "closed" or "retiring."

Power Plant	**Fuel**	**Summer Capacity**	**Status**
Vermont Yankee	Nuclear	604 MW	Closed
Mount Tom	Coal	146 MW	Closed
Salem Harbor	Coal and Oil	750 MW	Closed
Mystic No. 7	Oil	575 MW	Retired
Mystic Jet	Oil	9 MW	Retired
Pawtucket Power	Natural Gas	54 MW	Retired
Pilgrim	Nuclear	677 MW	Retired
Brayton Point Nos. 1-4	Coal and Oil	1,535 MW	Retired
Bridgeport Harbor No. 3	Coal	383 MW	Projected to retire in 2021
Norwalk	Oil	342 MW	Closed
Total		**5,075 MW**	

(Council Administrative Notice Item No. 52 – Petition 1310, Findings of Fact #47 and #48; Council Administrative Notice Item No. 30 – ISO-NE 2019 Regional Electricity Outlook, p. 18; Council Administrative Notice Item No. 25 – 2019 RSP, pp. 10, 69 and 116; Council Administrative Notice Item No. 27 – ISO-NE 2018 CELT Report, Section 4.3 - Qualified and Cleared Capacity)

54. The 2019 Regional Electricity Outlook (2019 REO) identifies the roughly 4,600 MW as "generation at risk" of retiring in coming years. These "at risk" power plants are listed below.

Power Plant	Fuel	Summer Capacity
Yarmouth Nos. 1-4	Oil	811 MW
Merrimack No. 1-2	Coal	436 MW
Newington No. 1	Oil/Natural Gas	400 MW
Schiller Nos. 4&6	Coal	95 MW
Canal No. 1-2	Oil	1,121 MW
West Springfield No. 3***	Natural Gas/Oil	94 MW
Middletown Nos. 2-4*	Oil/Natural Gas	744 MW
Montville Nos. 5-6**	Oil/Natural Gas	467 MW
New Haven Harbor	Oil/Natural Gas	447 MW
Total		**4,615 MW**

*Middletown No. 4 is oil-fired only. Middletown Nos. 2 and 3 are oil/natural gas.
**Montville No. 5 is oil/natural gas. Montville No. 6 is oil-fired only.
***While primarily fueled by natural gas, these are steam turbine units.
(Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #52; Council Administrative Notice Item No. 30 – ISO-NE 2019 Regional Electricity Outlook, p. 18)

55. The ISO-NE 2019-2028 Forecast Report of Capacity, Energy, Loads, and Transmission identifies several recent new large* electric generation projects that went into service. Such power plants with their in-service dates are listed below.

Power Plant	Fuel	Summer Capacity	In-Service Date
Towantic	Natural Gas/Oil	758 MW	2018
Footprint	Natural Gas	677 MW	2018
Bridgeport Harbor No. 5	Natural Gas/Oil	484 MW	2019
Canal No. 3	Natural Gas/Oil	333 MW	2019
West Medway Jet Nos. 4 and 5	Natural Gas/Oil	196 MW	2019
Wallingford Nos. 6 and 7	Natural Gas	88 MW	2018
Total		**2,536 MW**	

*For interconnection purposes, ISO-NE considers a "large generator" to be greater than 20 MW.

(Council Administrative Notice Item No. 28 – ISO-NE 2019 CELT Report, Section 2.1 – Generator List; Council Administrative Notice Item No. 25 – 2019 RSP, p. 108)

QS' Participation in ISO-NE's Forward Capacity Market Auction

56. QS participated in FCA 13 in 2019 for the Capacity Commitment Period 2022-2023, but QS did not clear the auction. QS also received Qualified Summer Capacity in the amount of 24.9 MW to participate in FCA 14 which took place on February 3, 2020. QS believes that it did clear FCA 14 at roughly 11 MW*, subject to final results to be released by ISO-NE in the coming weeks.

*The monthly capacity payment that a generator entity receives is proportional to the auction clearing price and amount of MWs that cleared the auction.

(Tr. 1, pp. 23-24; QS 4, response 1; Tr. 3, p. 192-193; Council Administrative Notice Item No. 42 – ISO-NE February 28, 2019 Press Release)

57. For solar resource capacity, ISO-NE counts a percentage of a project's nameplate capacity (i.e. the MW it should produce under optimal conditions) and its measurable day-to-day performance, which can differ significantly due to the weather-dependent nature of solar resources. Additionally, the solar peak and the grid/system peaks are not necessarily coincident. For example, the summer solar peak could occur roughly in the 12:00 p.m. to 1:00 p.m. time period while the summer peak hours for the grid for reliability purposes is roughly in the 2:00 p.m. to 6:00 p.m. time period. (Council Administrative Notice Item No. 53 – Petition 1312, Finding of Fact #56; Council Administrative Notice Item No. 24 – 2017 RSP, p. 127; Council Administrative Notice Item No. 24 – 2017 RSP, p. 127; Council Administrative Notice Item No. 25 – 2019 RSP, p. 157)

Regional Collaboration Among the New England States

58. In September 2013, the Governors of the six New England states in the ISO-NE region entered into a commitment to advance a regional energy infrastructure initiative that diversifies the region's energy supply portfolio while ensuring that the benefits and costs of investments are shared appropriately among the New England states. (Council Administrative Notice Item No. 53 – Petition 1312, Finding of Fact #59)

59. In April 2015, the Governors of the six New England states in the ISO-NE region convened a Northeast Forum on Regional Energy Solutions focused on energy infrastructure challenges and regional collaboration to support energy infrastructure solutions, and reaffirmed their commitment to work together toward a cleaner, more reliable and more affordable energy future. The Governors released a six-state action plan that includes, but is not limited to, continuing to invest in energy efficiency and distributed generation, utilizing existing authority to procure clean energy generation and transmission, and securing and utilizing state authority to find solutions to infrastructure challenges. (Council Administrative Notice Item No. 53 – Petition 1312, Finding of Fact #60)

60. Two types of standards are generally used to implement policy objectives in the electric power sector: Renewable Portfolio Standards (RPS) and Clean Energy Standards. Both standards have a requirement that regulated utilities or others providing certain services to consumers must either buy the desirable environmental attributes of certain power generation sources or pay a fee. (Council Administrative Notice Item No. 53 – Petition 1312, Finding of Fact #61)

61. A renewable energy certificate (REC) certifies that one megawatt-hour (MWh) of renewable electrical energy has been generated. RECs create a market to separate renewable energy attributes and resource output. Environmental attributes are sold into the REC markets. (Council Administrative Notice Item No. 53 – Petition 1312, Finding of Fact #62)

State of Connecticut Planning and Energy Policy

62. PA 11-80 was the legislation that restructured the Department of Environmental Protection as the Department of Energy and Environmental Protection. Section 51 of PA 11-80 requires that DEEP prepare a Comprehensive Energy Strategy (CES) every three years that reflects the legislative findings and policy stated in CGS §16a-35k. As such, this statute consolidated Connecticut's energy planning for the first time. The final version of the state's inaugural CES was published on February 19, 2013 (2013 CES). It advocated smaller, more diversified generation projects using renewable fuels, as well as smaller, more innovative transmission projects emphasizing reliability. (Council Administrative Notice Item No. 45 – Council 2014/2015 Forecast Report, pp. 48-49; Council Administrative Notice Item No. 60 – 2013 CES; CGS §16a-3d)

63. On February 8, 2018, DEEP issued the 2018 Comprehensive Energy Strategy (2018 CES). Guided by the long-term vision of transitioning to zero-carbon economy, the 2018 CES highlights eight key strategies to guide administrative and legislative action over the next several years. Specifically, strategy No. 3 is "Grow and sustain renewable and zero-carbon generation in the state and region." (Council Administrative Notice Item No. 61 – 2018 CES, p. 14)

64. Biennially, DEEP, in consultation with the electric distribution companies, is required to prepare an energy and capacity resource assessment. Resource needs are required to first be met through all available energy efficiency and demand reduction resources that are cost-effective, reliable and feasible. Thereafter, needs for generation capacity and transmission and distribution improvements are considered. (CGS §16a-3a)

65. Pursuant to CGS §16a-3a, DEEP, in consultation with the electric distribution companies, is required to review the state's energy and capacity resource assessment and approve the Integrated Resource Plan (IRP) for the procurement of energy resource, including, but not limited to, conventional and renewable generating facilities, energy efficiency, load management, demand response, combined heat and power facilities, distributed generation and other emerging energy technologies to meet the projected requirements of customers in a manner that minimizes the cost of all energy resources to customers over time and maximizes customer benefits consistent with the state's environmental goals and standards. The goal of the IRP is to lower the rates and cost of electricity. (CGS §16a-3a)

66. Annually, the procurement manager of the PURA, in consultation with each electric distribution company, shall develop a plan for the procurement of electric generation services and related wholesale electricity market products to enable the electric distribution companies to manage a portfolio of contracts to reduce the average cost of standard service while maintaining cost volatility within reasonable levels. The Procurement Plan shall provide for the competitive solicitation, including contracts for generation or other electricity market products and financial contracts and an explanation of why such purchases are in the best interest of ratepayers. (CGS §16-244m)

67. From time to time, in accordance with the IRP and the Procurement Plan, DEEP shall initiate a generation evaluation and procurement process if it is determined to be in the best interests of Connecticut customers. The evaluation process entails a nonbinding prequalification process to identify potentially eligible new generators. Generators shall demonstrate how they will reduce electrical rates for Connecticut ratepayers while maintaining or improving reliability, improving environmental characteristics of the Connecticut generation fleet and providing economic benefit to Connecticut. (CGS §16-244m)

68. Determination of generator eligibility is based on a showing of project attributes, including, but not limited to, ratepayer, environmental and economic benefits, as well as a demonstration of reasonable certainty of completion of development. If a determination of eligibility is made by DEEP, it shall issue a request for proposals. (CGS §16-244m)

Connecticut's Renewable Portfolio Standards

69. RPS requirements are stimulating the need for and the development of renewable energy resources and energy efficiency in the region, which reduce emissions. States typically develop RPS to facilitate the development of new renewable energy sources with the goals of stabilizing long-term energy prices, enhancing environmental quality and creating jobs. RPS targets are designed to achieve a certain level of renewable energy penetration, typically in proportion to total electricity sales. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #63)

70. CGS §16-245a establishes Connecticut's RPS. Up until recently, RPS required that 20 percent of Connecticut's electricity usage had to be obtained from Class I renewable resources by 2020. Under Public Act 18-50, RPS was updated to require 21 percent of Connecticut's electricity usage to come from Class I renewables by 2020 and increasing each year to reach 40 percent by 2030. (CGS §16-245a; Public Act 18-50; QS 1c, p. 4-1; Council Administrative Notice Item No. 61 – 2018 CES, pp. 110-112)

71. RECs provide additional revenue to qualifying renewable resources in proportion to the energy each resource generates. RECs create a market that reveals the additional price required, beyond energy and capacity payments, to make projects economically viable and also identifies when there is a need for additional resources. The REC-based compliance feature is designed to use competitive market forces to identify the appropriate level of economic support to achieve the policy goals. (Council Administrative Notice Item No. 52 – Petition 1310, Findings of Fact #65)

72. Connecticut electric utilities that do not obtain the required number of RECs are required to pay an Alternative Compliance Payment (ACP). According to DEEP's 2018 Comprehensive Energy Strategy for Connecticut (2018 CES), for Class I renewable energy in Connecticut, the ACP is $55 per MWh. (Council Administrative Notice Item No. 63 – 2014 IRP, Appendix D, pp. D-3 and D-4; Council Administrative Notice Item No. 61 – 2018 CES, Electric Power Sector, p. 112)

73. The 2018 CES notes that, "Most recent analyses indicate that there should be adequate Class I resources to meet Connecticut's Class I Renewable Portfolio Standards (RPS) goals in 2020*."

*This was based on the "20 percent Class I by 2020" requirement that was in place at the time the 2018 CES was prepared.
(Council Administrative Notice Item No. 61 – 2018 CES, p. 112)

74. Governor Lamont's 2019 Executive Order No. 3 declares the state's goal to reach 100% carbon free electricity by 2040.

Connecticut's Global Warming Solutions Act and Climate Change Preparedness Plan

75. The Global Warming Solutions Act (Public Act 08-98) sets a goal of reducing greenhouse gas (GHG) emissions by 80 percent by 2050. (QS 1c, p. 4-1; CGS §22a-200)

76. Section 7 of Public Act 08-98 required the Governor's Steering Committee on Climate Change to establish an Adaptation Subcommittee to evaluate the projected impacts of climate change on Connecticut agriculture, infrastructure, natural resources and public health and develop strategies to mitigate these impacts. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)

77. Adaptation strategies for agriculture, infrastructure and natural resources include, but are not limited to, best management practices to ensure water recharge, sustainable water capture and storage and water reuse guidelines for industry; research, monitoring and education to analyze competing demands on Connecticut water quantity and quality to develop new approaches while supporting multiple and conflicting needs; and policy, legislation, regulation and funding to protect critical soil landscapes, adopt a water hierarchy and encourage collaboration with other states and federal agencies. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)

DEEP Competitive Energy Procurements

78. On December 9, 2011, pursuant to Section 127 of PA 11-80, DEEP issued notice for a Request for Proposals (RFP) for 30 MW of zero emission Class I renewable energy sources. On December 23, 2011, DEEP issued its final determination in the RFP and selected 2 out of 21 proposed projects to enter into long-term power purchase agreements with the electric distribution companies (EDCs). The 2 projects selected were the 5 MW East Lyme Solar Park in East Lyme, Connecticut and the 5 MW Somers Solar Center in Somers, Connecticut that DEEP found will serve the long term interests of ratepayers. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #73)

79. On July 8, 2013, pursuant to Section 6 of PA 13-303, DEEP issued notice for a RFP for Class I renewable energy resources. On September 26, 2013, DEEP issued its final determination in the RFP and selected 2 out of 47 proposed projects to enter into long-term power purchase agreements with the EDCs for a combination of energy and environmental attributes. The 2 projects selected were the 250 MW Number Nine Wind Farm in Aroostook County, Maine and the 20 MW Fusion Solar Center in Sprague, Connecticut that DEEP found to be in the interest of ratepayers, consistent with the requirements to reduce greenhouse gas emissions and in accordance with the policy goals of the CES. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #74)

80. On October 8, 2013, pursuant to Section 8 of PA 13-303, DEEP issued notice for a RFP for run-of-the-river hydropower, landfill methane gas and biomass Class I renewable energy resources. On January 31, 2014, DEEP issued its final determination in the RFP and selected 3 out of 28 proposed projects to enter into long-term power purchase agreements with the EDCs for a combination of energy and environmental attributes. The 3 projects selected were a 21.5 MW portion of an existing 43 MW biomass facility located in New Hampshire, a 5.4 MW portion of an existing 54 MW biomass facility located in Vermont and a 2.7 MW portion of an existing 54 MW biomass facility located in Vermont. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #75)

81. On November 12, 2015, pursuant to Section 1(c) of PA 15-107 and Sections 6 and 7 of PA 13-303, DEEP issued notice for a RFP, in coordination with Rhode Island and Massachusetts, for Class I renewable energy sources (Tri-State RFP). Project selection occurred on October 25, 2016. On June 27, 2017, DEEP issued its final determination in the RFP and selected 9 out of 31 proposed projects to enter into long-term power purchase agreements with the EDCs for a combination of energy and environmental attributes. The 9 projects selected were as follows:
    a) 21 MW Antrim Wind Project in New Hampshire;
    b) 49 MW Sanford Solar Project in Maine;
    c) 49 MW Chinook Solar Project in New Hampshire;
    d) 49 MW Quinebaug Solar Project in Connecticut (the subject of this Petition);
    e) 49 MW Farmington Solar Project in Maine;
    f) 20 MW Enfield Solar Project in Connecticut;
    g) 126 MW Cassadaga Wind Project in New York;
    h) 20 MW Woods Hill Solar Project in Connecticut;
    i) 20 MW Hope-Scituate Solar Project in Rhode Island.

    (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #76)

82. On March 9, 2016, pursuant to Section 1(b) and 1(c) of PA 15-107, DEEP issued notice for a RFP for Class I renewable energy sources and Class III sources with a nameplate capacity rating of more than 2 MW and less than 20 MW (Small Scale RFP). Project selection occurred on November 28, 2016. On June 27, 2017, DEEP issued its final determination in the RFP and selected 25 out of 107 proposed projects to enter into long-term power purchase agreements with the EDCs for a combination of energy and environmental attributes. The 25 projects selected were as follows:
    a) 15 MW Pawcatuck Solar Center in Connecticut;
    b) 19.99 MW Hecate Energy Solar Greene County Project in New York;
    c) 6 MW Swantown Road Solar Project in Connecticut;
    d) 5 MW Holiday Hill Community Wind Project in Massachusetts;
    e) 19.99 MW Hecate Energy Solar Albany County Project in New York;
    f) 19.80 MW Litchfield Solar Plant and Park in Connecticut;
    g) 5 MW Kidder Hill Community Wind Project in Vermont;
    h) 17.50 MW Swanton Wind Project in Vermont;
    i) Incremental Energy Efficiency in Connecticut;
    j) 10 MW North Stonington Solar Plant in Connecticut;
    k) 14.69 MW W. Portsmouth St. Solar Project in New Hampshire;
    l) 19.59 MW Constitution Solar Project in Connecticut;
    m) 19.60 MW Highgate Solar Project in Vermont;
    n) 19.58 MW Hinckley Solar Project in Maine;
    o) 19.58 MW Randolph Center Solar Project in Vermont;
    p) 19.63 MW Sheldon Solar Project in Vermont;
    q) 19.58 MW Winslow Solar Project in Maine;
    r) 19.58 MW Davenport Solar Project in Vermont;
    s) 19.60 MW Nutmeg Solar Project in Connecticut;
    t) 4.98 MW GRE-15-North Haven-CT Solar Project in Connecticut;
    u) 19.99 MW Wallingford Renewable Energy Solar Project in Connecticut;
    v) 3.50 MW Wind Colebrook South Project in Connecticut;
    w) 12.50 MW Minuteman Wind Project in Massachusetts;
    x) 17.73 MW GRE-29-Waterford-CT Solar Project in Connecticut;
    y) 19.59 MW Coolidge Solar I Project in Vermont.

    (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #77)

Power Purchase Agreement

83. QS has contracts, known as power purchase agreements (PPAs), to sell the electricity that would be generated by the proposed project to various utilities. The percentages of the electricity to be sold to each utility are listed below.

Connecticut Utilities	**Percentage**
Eversource	40.18
The United Illuminating Company	9.82
Massachusetts/Rhode Island Utilities	
NSTAR Electric Company	18.84
Western Massachusetts Electric Company	3.28
Massachusetts Electric Company and Nantucket Electric Company	19.98
Fitchburg Gas and Electric Light Company	0.4
Narragansett Electric Company	7.5
Total	100

(QS 1c, p. 3-1)

84. Under QS' PPAs, the RECs and electrical energy are sold to the utilities in a bundled package. (QS 1c, p. 3-1; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #79)

85. The PPAs were filed with PURA for review on or about August 25, 2017. The PPAs were approved by PURA on September 13, 2017. There are no provisions for extending the PPAs beyond its 20-year term. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #80)

86. Due to the change in the target commercial operation date associated with this reopened proceeding, QS had to file an extension for PPA project milestones, but the PPAs are still largely in the same form. No additional PURA approvals were necessary. (Tr. 1, p. 22; Tr. 3, p. 145)

87. QS plans on operating the facility for the 20-year term of the PPAs and then an additional 10-year merchant term. (Tr. 1, p. 23)

Public Benefit

88. A public benefit exists when a facility is necessary for the reliability of the electric power supply of the state or for the development of a competitive market for electricity. (Conn. Gen. Stat. §16-50p(c))

89. Public Act 05-1, An Act Concerning Energy Independence, established a rebuttable presumption that there is a public benefit for electric generating facilities selected by the Department of Public Utility Control (DPUC, now known as PURA) in a Request for Proposals. (Public Act 05-1)

Public Act 17-218

90. Effective July 1, 2017, Public Act 17-218 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 land as core forest." Because the proposed project was selected by DEEP in a solicitation prior to July 1, 2017, the proposed project is exempt from this provision of Public Act 17-218. (QS 1c, p. 3-1; CGS §16-50k)

91. Public Act 17-218 also requires that the Council not find a substantial adverse environmental effect in its exercise of jurisdiction over facilities eligible to be approved by declaratory ruling under CGS §16-50k. There are no exemptions from this provision of Public Act 17-218. (CGS §16-50k)

Site Selection

92. QS investigated alternative site parcels within Connecticut that were greater than 50 acres in size and located within one mile of existing electrical transmission infrastructure that is typically 115-kV. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #84)

93. QS also investigated brownfield sites, but brownfield sites are typically not large enough to host projects of this size, and they are often not found in as close proximity to electrical infrastructure as the proposed site. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #85)

94. The proposed site is the only site QS was able to secure that had both willing landowners and close proximity to existing electrical infrastructure. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #86)

95. In its July 17, 2017 letter to the Council in Petition No. 1310, DOAg suggested a "cluster development" with rooftop solar on a portion of the property with the remaining farmland, forestland and wetlands protected with a conservation easement might be a more preferable alternative. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #87 and DOAg letter received July 17, 2017)

96. The property could be developed for any permitted use. A "clustered development" is not proposed by the property owner or QS, and QS found that the cluster development is not a feasible alternative. Notwithstanding, incorporating agricultural elements into the project such as sheep or crops could be considered by QS. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #88; Tr. 1, p. 43)

Site

97. The proposed site is generally bounded by Wauregan Road to the south in Canterbury, Blackwell Brook and Cold Spring Brook to the west, Rukstela Road, Allen Hill Road and forested areas to the north in Brooklyn, and the Quinebaug River to the east. (QS 1c, p. 3-3)

98. QS has secured the land via a combination of lease and option to purchase agreements. (QS 1c, p. 3-4)

99. Of the 30 separate and abutting parcels that comprise the approximately 599-acre proposed site, 27 are owned by River Junction Estates, LLC (RJE). The remaining three parcels are owned by Founders Bee Property and Investments, Canterbury Sand and Gravel, LLC and Strategic Commercial Realty Inc., respectively. (QS 1c, pp. v and 3-5)

100. The proposed site consists of gently sloping hills, large level areas, and a few moderately to steeply sloping areas that currently contain a combination of previously developed areas, overgrown former pasture lands, mixed second-growth woodlands, active gravel mines, and agricultural fields. Existing access traverses the project area. (QS 1c, p. 3-3)

101. Land uses to the south of the proposed site include gravel mining, residential development, forested undeveloped land, and agriculture. The Quinebaug River and the DEEP Quinebaug Valley Trout Hatchery are located to the southeast. Immediately to the east of the proposed site is undeveloped forested land. Farther to the east along Christian Hill and Maynard Road, the current land use is residential. Land uses to the north of the proposed site include agricultural land, forested undeveloped land, and single-family residential uses. Land uses to the west of the proposed site include gravel mining (to the northwest), forested undeveloped land, and agriculture. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #93)

102. The subject properties in the Town of Brooklyn are located in the Residential-Agricultural (RA) Zone. (QS 1c, p. 3-3)

103. The subject properties in the Town of Canterbury are located in the Rural District (RD) Zone. (QS 1c, p. 3-3)

104. At the time RJE acquired the subject parcels, RJE approached the Town of Brooklyn to establish a recreation development district, which was approved. This district was created in order to permit the construction of a golf course and 182 housing units on the property. Additionally, lands near Wauregan Road in Canterbury and Brooklyn were acquired, and a portion of the property was intended to be used as a point of ingress to the golf course. RJE created a 15-lot subdivision north of Wauregan Road, which was approved by the Town, and the remainder of the property was used for gravel extraction. These developments were deemed economically unviable at the time because of the housing market decline in the 2000s. Consequently, the owner solicited solar developers to lease the property. Under current market conditions, however, there has been substantial interest in developing the property for residential housing. However, QS believes that those development plans were abandoned by RJE. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #96)

105. The project site is comprised of 304 acres of unmanaged forest, 147 acres of agricultural fields, 68 acres of wetlands and open water, 11 acres of access roads, and 17 acres of shrub/scrub. There is also a gravel extraction operation within the area. Of the approximately 147 acres of agricultural fields, approximately 108 acres is currently being used by third parties for agricultural purposes. (QS 1c, p. 3-6; QS 4, response 3)

106. The closest off-site residences in Brooklyn to the proposed project perimeter fence are located on a gravel road accessed via Allen Hill Road. The parcel containing the gravel road is approximately 34 feet from the proposed facility perimeter fence. (QS 4, response 3)

107. The closest off-site residences in Canterbury to the proposed project perimeter fence are located at 265 and 267 Wauregan Road at distance of approximately 111 feet from the edge of the residential structures to the proposed facility perimeter fence. (QS 4, response 3)

108. The Sposato residence at 192 Wauregan Road in Canterbury is located approximately 98 feet west of the limits of construction of the existing southern access (to be improved) that is located off of Wauregan Road. (QS 4, response 3; QS 7, Late Filed Exhibit g; Sposato 1, Pre-file Testimony, p. 1)

Project Description

109. The proposed project consists of a solar photovoltaic facility consisting of approximately 179,128 fixed solar panels at approximately 410 Watts direct current (DC) each, for a total of approximately 73.44 MW DC. (QS 1c, p. 3-7; QS 4, response 4; Tr. 1, p. 44)

110. The proposed solar panels would be installed in a portrait fashion on linear arrays on racking systems generally in an east-west orientation with the panels facing the south. The panels would be oriented at an angle of approximately 18 degrees above the horizontal. (QS 1c, p. 3-7; QS 4, response 16)

111. There would be an approximately 7.5-foot to 10-foot wide (or about 8.7-foot wide average) aisle between solar racking systems (measured from panel edge to panel edge). This inter-row spacing minimizes row-to-row shading, takes into account topography and allows for necessary maintenance access. (QS 1c, p. 3-7; Tr. 1, pp. 38-39; QS 1c, Tab G, Sheet C-086, Solar Racking System Detail)

112. Electricity from the panel arrays would be transmitted to the centralized inverter locations via DC collector lines. To feed the centralized inverters, the collector lines would generally be underground within a certain perimeter and aboveground at the arrays. (QS 1c, p. 3-7; Tr. 1, pp. 30-31)

113. Approximately 24 inverters would convert the 1.5-kV DC output produced by the solar panels to 600 Volt AC. The 600 Volt AC output would then be raised to 34.5-kV by transformers located next to the inverters. Inverter and transformer skids would be located on gravel pads. The inverter/transformer skids would reach a maximum height of about 10 feet. (QS 1c, p. 3-7; Tr. 1, p. 42-43; QS 4, response 15; QS 1c, Tab F – Inverter Specifications)

114. QS would need to cross public roads in two locations for its underground 1.5-kV DC solar panel wiring. Specifically, QS would cross Allen Hill Road and Rukstela Road in the northern portion of the project site. (QS 4, response 18; QS 1c, Tab A, Figure 6 – Proposed Conditions; Tr. 1, p. 29)

115. The Quinebaug Collector Substation would receive the project's output from the 34.5-kV collector lines and boost the voltage to 115-kV via the generator step up (GSU) transformer. See section titled "Quinebaug Collector Substation." (QS 1c, p. 3-8)

116. Eversource would own certain portions of the underground 34.5-kV collector lines that intersect a public right-of-way (ROW) by crossing Liepis Road and also Wauregan Road in the southeastern portion of the site. Eversource would lease such line portions back to QS for the project. (QS 1c, p. 3-8; Tr. 1, pp. 29-30; QS 4, response 18; Eversource 2, p. 5; QS 1c, Tab A, Figure 6 – Proposed Conditions)

117. The total AC power output (or nameplate rating) of the project would be approximately 49.36 MW at the point of interconnection, taking into account losses. See section titled "Electrical Interconnection." (QS 4, response 5)

118. The ground within the development area would be planted with native seed mix to establish a meadow habitat that would be maintained for the life of the project. (QS 1c, p. 3-9)

119. The top of the solar arrays would reach a height of approximately six feet. The bottom of the solar arrays would be located approximately 24 inches above grade. (QS 1c, Tab G, Sheet C-086, Solar Racking System Detail)

120. Most of the developed area would be surrounded by a 6-foot tall chain link fence with one foot of barbed wire along the top. A three-inch gap at the bottom of the fence would be used in publicly accessible areas to accommodate the passage of small animals while being limited in size for security purposes. The wildlife gap would be increased to six inches in areas farther away from public access roads. (QS 1c, p. 3-9; Tr. 1, pp. 34-35)

121. Access to the site during construction and operations would be from Wauregan Road, Canterbury; Rukstela Road, Brooklyn; and Liepis Road, Canterbury. QS intends to utilize existing access that traverses the project area wherever feasible. In addition, a series of gravel access roads would be constructed to provide access to the solar arrays, substation and centralized inverter/transformer stations. The proposed access roads would be 12 feet wide and total 3.3 miles in length. Of the 3.3 miles total, about 0.88 miles would consist of existing access roads and about 2.42 miles would be new construction. The proposed substation access road would be about 20 feet in width. Grading would be required along the proposed access roads in select locations to address minor variations in site topography. (QS 1c, pp. 3-3 and 3-8)

122. The existing access from Wauregan Road, Canterbury has a portion that is currently paved, and the remainder of the access is gravel. Improvements to this existing access such as grading or additional gravel may be necessary for the project. (Tr. 1, pp. 32-33)

123. While the originally proposed configuration in Petition 1310 was intended to minimize the land area necessary to achieve the electrical capacity target, QS further reduced the development area from 270 acres to 227 acres. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #115; QS 1, p. 5)

124. QS has a commitment to a (just under) 50 MW capacity target under its PPA as well as under its selection in the Tri-State RFP. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #116)

125. The total estimated cost of QS' project is listed below:

QS' Solar Facility & Collector Substation Cost	$82.6M
Eversource Project Cost	$13.4M
Total Estimated Cost	**$96.0M***

*The entire cost of the project would be borne by QS.

(Tr. 1, p. 48; Eversource 2, p. 5; Tr. 3, p. 132)

Quinebaug Collector Substation

126. The proposed Quinebaug Collector Substation (QCS) would be located south of Wauregan Road and directly west of the existing Eversource 115-kV electric transmission line ROW. QCS would be installed directly to the north of Eversource's proposed Canterbury Switching Station (CSS). (QS 1c, Tab A, Figure 6 – Proposed Conditions; Eversource 2, Attachment A-1, Location Map – CSS)

127. QCS would be approximately 234 feet by 199 feet (or about 1.07-acres in area). The base of the substation would be gravel. (QS 1c, Tab G – Sheet C-083; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #119)

128. QCS would include the 34.5-kV to 115-kV GSU transformer, as well as a high-voltage circuit breaker, disconnect switch and instrument transformers. A control enclosure would also be installed within QCS. (QS 1c, p. v)

129. The tallest piece of equipment in the QCS would be the static mast (for lightning protection) which would reach a height of about 70 feet. The termination structure would be approximately 60 feet in height. (Tr. 1, pp. 28-29; QS 4, response 19)

130. QCS would have a seven-foot tall chain link fence with an additional 1-foot of barbed wire on top. There would not be a wildlife gap at the bottom of the fence. (QS 1c, p. 3-9; Tr. 1, p. 36)

131. A new permanent access road off of Wauregan Road would be constructed and maintained by QS. (Eversource 2, p. 9; QS 1c, Tab A, Figure 6 – Proposed Conditions)

132. The point of change of ownership (from QS to Eversource) is anticipated to be where the conductor leaves the structure at the collector substation to connect to Eversource's CSS. (Tr. 1, pp. 28-29)

Eversource Canterbury Switching Station

133. The project includes a new switching station that would be constructed, operated and owned by Eversource. (QS 1c, p. v)

134. CSS would be located south of Wauregan Road and directly west of the existing Eversource 115-kV electric transmission line ROW. CSS would be installed directly to the south of QCS and on a 60-acre parcel that is part of QS' subject property. (QS 1c, Tab A, Figure 6 – Proposed Conditions; Eversource 2, Attachment A-1, Location Map – CSS)

135. The CSS site is within and surrounded by an active sand and gravel operation, which is generally free of vegetation. A portion of this parcel, near Wauregan Road, has been used for growing corn or other seasonal crops. The land to the northeast, east and south of this parcel is primarily wooded and undeveloped with residential development located to the north and east at a distance of over 0.25 mile away. (Eversource 2, p. 8)

136. The dimensions of CSS would be approximately 206-feet 7-inches by 209-feet 6-inches (or about 0.99-acre in area). The base of CSS would consist of a four-inch layer of traprock. (Eversource 2, Attachment A-2, Layout Sketch – CSS; Eversource 3, response 3)

137. The following equipment would be included within CSS:

a) Three 115-kV circuit breakers with foundations;
b) Seven circuit breakers manually operated disconnect switches;
c) Three motor operated disconnect switches;
d) Two station service voltage transformers;
e) Nine capacitor coupled voltage transformers to be installed in sets of three;
f) One wave trap;
g) Two line terminal structures;
h) Bus work, bus support and switch support structures and foundations;
i) A 24-foot by 40-foot by 12-foot high pre-fabricated control enclosure; and
j) Lightning masts, if necessary, would be comparable in height to terminal structures.

(Eversource 2, p. 6)

138. The tallest structures inside CSS would be the terminal structures which would reach a height of about 55 feet above final grade. (Eversource 2, p. 9)

139. CSS would have a seven-foot tall chain link fence with an additional 1-foot of barbed wire on top. There would not be a wildlife gap at the bottom of the fence. (Eversource 2, p. 6; Tr. 1, p. 36)

140. Eversource would utilize QS' new permanent access road off of Wauregan Road. QS would convey the necessary rights to Eversource to use the road for access to CSS. (Eversource 2, p. 9; QS 1c, Tab A, Figure 6 – Proposed Conditions)

141. No tree or vegetation removal would be required to construct CSS. (Eversource 2, p. 8)

142. The total estimated cost to construct CSS is approximately $8.3M. (Eversource 2, p. 5)

Electrical Interconnection

143. The existing Eversource transmission line ROW contains a single row of double-circuit 115-kV structures that currently support the #1607 Line and the #1505 Line. Eversource would connect CSS to the #1607 Line using a loop-through configuration. This would split the #1607 Line into the #1132 Line (from CSS to Eversource's existing Killingly Substation) and the #1316 Line (from Eversource's existing Tunnel and Fry Brook Substations to CSS). (Eversource 2, p. 4)

144. To accommodate the interconnection with the electric transmission system, Eversource would install two 95-foot tall single-circuit weathering steel dead-end structures (Tap Structures) in the ROW adjacent to an existing approximately 94-foot tall Structure No. 7259, which currently supports both the #1607 Line and the #1505 Line. One of the proposed Tap Structures would support the new #1132 Line, and the other would support the new #1316 Line. Both Tap Structures would facilitate the transmission interconnection to the CSS terminal structures. (Eversource 2, pp. 6-7, 9)

145. The existing double-circuit Structure No. 7259 would be modified by removing the #1607 Line arms and conductor. The remaining structure would continue to support the #1505 Line. (Eversource 2, p. 7)

146. Access to the transmission line taps would be provided by a new access road to be constructed by QS, or through the existing Eversource transmission ROW. (Eversource 2, p. 9)

147. In the area of the proposed transmission tap, limited vegetation removal would be required where vegetation has been allowed to grow within Eversource's maintained ROW to facilitate the use of existing access roads by large construction equipment. (Eversource 2, p. 8)

148. The closest residence to the proposed CSS and associated Tap Structures is located approximately 1,000 feet to the north-northwest. (Eversource 2, p. 9; Eversource 3, response 6)

149. On July 16, 2018, ISO-NE issued its System Impact Study report that concluded the project, along with identified network upgrades, would not have an adverse effect on ISO-NE's transmission system. See section titled, "Transmission Upgrades in Norwich." (QS 1c, p. 3-13)

150. QS entered into a large generator interconnection agreement with ISO-NE and Eversource on February 4, 2019. (QS 1c, p. 3-13; Eversource 2, p. 2)

151. The total estimated cost to loop the #1607 Line into the new three-breaker bus is approximately $1.8M. (Eversource 2, p. 5)

Transmission Upgrades in Norwich

152. In Norwich, between Bean Hill Substation and Wawecus Junction, Eversource has an existing ROW with wood laminate double-circuit structures that currently support the 115-kV #1000 Line and #1080 Line. (Eversource 2, p. 4)

153. As part of the ISO-NE System Impact Study that was required for the evaluation of QS' solar project, it was determined that connection to the Eversource transmission system would result in the potential for an unacceptable risk of thermal overload* in the event of a simultaneous interruption of both the #1000 and #1080 circuits. The proposed line separation would mitigate the possibility of thermal overloads on the transmission system.

*The location(s) of the thermal overloads are subject to a Protective Order that was granted by the Council.

(Eversource 2, p. 11; Eversource MPO dated January 28, 2020; Eversource 3, response 8; Council Decision on MPO dated January 31, 2020)

154. Eversource would replace five laminated wood double-circuit structures with ten new weathering steel single-circuit monopoles along a 0.75-mile section of existing ROW between Bean Hill Substation and Wawecus Junction in Norwich. (Eversource 2, p. 11)

155. The existing double-circuit structures range between 74.5 to 92.5 feet tall. The proposed single-circuit monopoles would range between 84 and 93.5 feet tall. (Eversource 2, p. 16)

156. In the existing double-circuit electric transmission ROW, the existing vegetation management corridor would be expanded by 35 to 55 feet from a typical width of 50 to 70 feet to a width of approximately 105 feet, resulting in the removal of trees along the length of the ROW segment. Based on the 50 foot minimum width of the cleared portion of the Eversource ROW and the plan to clear up to an additional 55 feet, Eversource conservatively estimates that approximately 3.6 acres of clearing would be required. (Eversource 2, p. 17)

157. The closest residence to the proposed transmission upgrade project in Norwich is located approximately 300 feet to the southeast of the edge of the ROW. (Eversource 2, p. 16; Tr. 3, p. 119)

158. The total estimated cost to separate the double-circuit #1000 Line and #1080 Line is approximately $3.3M. (Eversource 2, p. 5)

Project Construction

159. A DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit) would be obtained before commencement of construction activities. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #128)

160. The proposed construction sequence would be in five phases:
    a) Perform staging activities and construct access roads;
    b) Grub previously wooded areas and also the QCS access road route;
    c) Construct solar arrays in open and grassed areas;
    d) Construct solar arrays in previously wooded areas; and
    e) Construct QCS.

(QS 1c, pp. 3-10 to 3-12)

Solar Arrays

161. Of the approximately 599 acres of the subject property, approximately 227 acres would be developed to construct the proposed project. (QS 1c, p. v)

162. A total of approximately 71 acres of vegetation would be cleared to allow for construction and operation of the project and to minimize shading impacts. Of the 71 acres, about 19 acres would be cleared specifically for minimizing shading impacts and would have stumps left in place. (QS 1c, p. 3-9; QS 4, response 24)

163. Cleared and grubbed areas would be stabilized, and construction period erosion controls would be installed after clearing and grubbing. QS would avoid having more than ten acres of soil exposed in each sub-drainage area at any given time during clearing and grubbing by installing stormwater controls and stabilization materials (mulch) during the clearing and grubbing period. (Tr. 1, pp. 27-28)

164. QS would utilize a continuous clearing, grubbing and stabilization process for the up to 10-acre areas. Specifically, as clearing and grubbing occurs, silt fence or other recommended measures would be installed around the area, and then erosion control mix and stabilization materials would be placed on the exposed soil. (Tr. 1, pp. 27-28)

165. QS estimates it would take roughly two to four days to complete the clearing to stabilization process for a 10-acre area. (Tr. 1, pp. 27-28)

166. The construction contractor would determine whether it is more efficient to have the entire project area cleared and stabilized (in up to 10-acre sections) before beginning to install the solar facility equipment or to install equipment within each up to 10-acre area after it has been cleared and stabilized. (Tr. 1, pp. 27-28)

167. While steeper areas within the proposed solar array footprint would require grading, the general site topography would be maintained. (QS 4, response 37)

168. The access roads would require approximately 7,227 cubic yards of cut and 14,235 cubic yards of fill. The solar field grading would require approximately 62,195 cubic yards of cut and 28,150 cubic yards of fill. (QS 4, responses 37c and 37d)

169. The topsoil removed would be redistributed in a broadcast manner on site and stabilized within the limits of work in accordance with the Farmland Soil Mitigation Plan, as applicable. (QS 4, response 37e)

170. The posts that support the solar racks would have an average total length of 10 to 16 feet with an average embedment depth of approximately 6 to 9 feet. (QS 4, response 31)

171. The posts would typically be installed using a pile driver. Backup methods for post installations include a drill, vibratory hammer, or ground screws. However, use of a drill is not expected unless determined to be necessary by the contractor. (Tr. 1, p. 39; QS 1c, p. 3-7)

172. A vibratory hammer is typically an air hammer which has a higher frequency than a pile driver. A pile driver is a slower hydraulic hammer. In order of preference, pile driver would be the primary choice, vibratory hammer would be the second choice, and drill would be the last choice. (Tr. 1, pp. 40-41)

173. If the proposed project is approved, QS estimates that construction would commence in the fourth quarter of 2020 with mobilization of equipment and land clearing efforts. Further site work and land preparation would be complete by the end of second quarter of 2021. Final site stabilization, testing and commissioning would be complete in the third quarter of 2021. (QS 1c, p. 3-9)

174. Construction hours would typically be on weekdays during daylight hours. Some weekend work may be necessary due to unforeseen circumstances. (QS 1c, p. 3-9)

175. QS would include the final construction hours in the D&M Plan, if required. (QS 1, p. 3-9)

Canterbury Switching Station

176. The proposed construction sequence for CSS would be the following:

a) Mobilization and installation of temporary fencing;
b) Civil construction, as required to properly compact and grade the site, including installation of below grade foundations for the new control enclosure and other associated equipment and support structures;
c) Installation of the grounding grid and ground rods;
d) Installation of the underground race way (e.g. conduits);
e) Installation of the major equipment, e.g. transformers, disconnect switches, and circuit breakers;
f) Installation of new control enclosure (to be delivered to the site in sections);
g) Installation of steel supporting structures;
h) Installation of permanent fencing and gates; and
i) Testing and commissioning.

(Eversource 2, p. 10)

177. QS is responsible for civil construction work including any pre-construction and post-construction protective measures, permits and monitoring requirements prior to Eversource installing the proposed CSS, which is planned in an area adjacent to QCS. (Eversource 3, response 2)

178. Equipment used to perform the CSS installation would typically include excavation equipment such as an excavator, back hoe, bucket loader and bulldozer, a compactor, dump trucks, all-terrain fork lifts, pickup trucks with tools, concrete trucks, and cranes. Electrical work would also utilize boom trucks, drill rig and cable pulling equipment. (Eversource 2, p. 10)

179. The proposed construction sequence for the transmission work in Norwich would be the following:

a) Establish staging areas;
b) Perform clearing and vegetation removal;
c) Install erosion and sediment controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control* (2002 E&S Guidelines) and *Eversource's Best Management Practices Manual for Massachusetts and Connecticut* (Eversource BMPs);
d) Improve existing access and install new access within the ROW;
e) Utilize timber matting for a temporary crossing of on-site Wetland 1;
f) Install work pads;
g) Install structure foundations;
h) Assemble/install structures;
i) Relocate conductor and shield wire;
j) Restore the site by removing construction debris, signage, flagging, temporary fencing, construction mats and work pads, and re-grade the site as practical and stabilize via re-vegetation; and
k) Dispose of and/or recycle waste materials and manage soils in accordance with Eversource BMPs.

(Eversource 2, pp. 17-22)

180. The existing access drive off Philanne Drive would need to be widened slightly and improved with top grading to accommodate the safe passage of construction vehicles, emergency vehicles and equipment. Such improvements typically include trimming adjacent vegetation and widening roads, as needed, to provide a minimum travel surface that is approximately 12 to 16 feet wide. Additional width may be needed at turning or passing locations. (Eversource 2, pp. 19-20; Tr. 3, pp. 122-123)

181. If the proposed project is approved, Eversource estimates that construction of its projects related to QS' interconnection would commence in the summer of 2020 and be completed by summer of 2021. (Eversource 2, p. 24)

182. Eversource's construction hours would normally be from 7:00 a.m. to 7:00 p.m., Monday through Saturday. Sunday work hours may be necessary if delays occur due to inclement weather and/or outage constraints. (Eversource 2, p. 25)

Traffic

183. QS anticipates that construction vehicles would utilize Interstate 395, Route 6, Route 14, and/or Route 12, depending on their point of origin. From there, vehicles would likely access the gated entry point from Wauregan Road via Route 205. (QS 4, response 34)

184. The proposed project would have a limited impact on traffic flow. Approximately 10 to 20 additional vehicles (primarily for construction and deliveries) would access the site along Wauregan Road per day. Of the daily total, approximately 5 to 12 would be for deliveries. (QS 4, response 34; Tr. 3, pp. 149-150; QS 9, response 15)

185. After the solar facility is operational, approximately two to five operating staff would be expected to visit the site a few times per day during the week. (QS 4, response 34)

Facility Operation

186. The 18 degree angle of the panels above the horizontal was selected to optimize energy production within the proposed development footprint that was reduced from the original Petition 1310 project and includes more buffer and wildlife protection areas. (QS 1c, p. 3-7; Tr. 3, p. 228)

187. The estimated capacity factor (on an AC MWh/AC MWh basis) of the project would be approximately 22.2 percent in the first year of operations and an average of about 20.89 percent over the 30-year life of the project. (QS 4, response 7)

188. The proposed project would be expected to produce approximately 97,951,000 kilowatt-hours (kWh) or 97,951 MWh of AC electrical energy in the first year of operation. (QS 1c, Tab L – Greenhouse Gas Assessment, p. 2)

189. As the solar panels age, power output would decline by roughly 0.5 percent per year. (QS 4, response 8)

190. The proposed solar facility would be expected to have a useful life of approximately 30 years. (QS 1c, p. 3-13)

191. A battery storage system is not proposed for this project. Additionally, given the current contractual obligations under the PPAs, the terms of the generator interconnection agreement, and without energy storage, the project cannot be designed to serve as a microgrid. (QS 4, responses 9 and 10)

192. QS provided a decommission plan including plant infrastructure removal plans and site restoration plans. At the time of decommissioning, QS' Farmland Soils Mitigation Plan (FSMP) includes restoring farmland soils to pre-determined baseline conditions to the greatest extent practicable. (QS 1c, Tab K – Decommissioning Plan; (QS 1c, Tab E – FSMP, p. 5)

Public Safety

193. The proposed project would comply with the National Electrical Code (NEC), the National Electrical Safety Code (NESC) and any applicable National Fire Protection Association codes and standards. (QS 4, response 20)

194. Prior to operation, QS would meet with first responders from the Towns of Brooklyn and Canterbury to provide an orientation to the project and information regarding response to emergencies at the project site. (QS 1c, p. 6-1; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #154)

195. Adequate access for fire and emergency service equipment would be provided via the proposed access roads. (QS 1c, p. 6-1)

196. All disconnect switches would be clearly marked for use in an emergency. The project would be remotely monitored and would feature remote shutdown capabilities. (QS 1c, p. 6-1)

197. The solar facility would have a protection system to shut the plant down in the event of internal or external disturbances (e.g. faults) as well as during power outage events. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #157)

198. Snow and ice would be allowed to accumulate on the panels and natural slide or melt off of the panels. The solar modules and racking system would be designed to meet the State Building Code for wind and snow loading. (QS 1c, p. 3-7; Tr. 1, p. 42; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #159)

199. All work for CSS would be designed, constructed and operated in accordance with sound engineering practices and in full compliance with Eversource's standards, the NESC and good utility practices. (Eversource 2, p. 24)

200. Eversource works with emergency response personnel on training for electrical safety on an ongoing basis throughout its service area. (Tr. 3, pp. 133-134)

Electric and Magnetic Fields

201. Electric fields (EF) and magnetic fields (MF) are two forms of energy that surround an electrical device. Transmission lines, for example, are a source of both EF and MF. (Council Administrative Notice Item No. 44 – Council's Best Management Practices for the Construction of Electric Transmission Lines in Connecticut)

202. EF is produced whenever voltage is applied to electrical conductors and equipment. Electric fields are typically measured in units of kilovolts/meter. As the weight of scientific evidence indicates that exposure to electric fields, beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields are sufficiently addressed by adherence to the National Electrical Safety Code, as amended, health concerns regarding Electric and Magnetic Fields (EMF) focus on MF rather than EF. (Council Administrative Notice Item No. 44)

203. MF is produced by the flow of electric currents. The magnetic field at any point depends on the characteristics of the source, the arrangement of conductors, the amount of current flow through the source, and the distance between the source and the point of measurement. Magnetic fields are typically measured in units of milligauss (mG). (Council Administrative Notice Item No. 44)

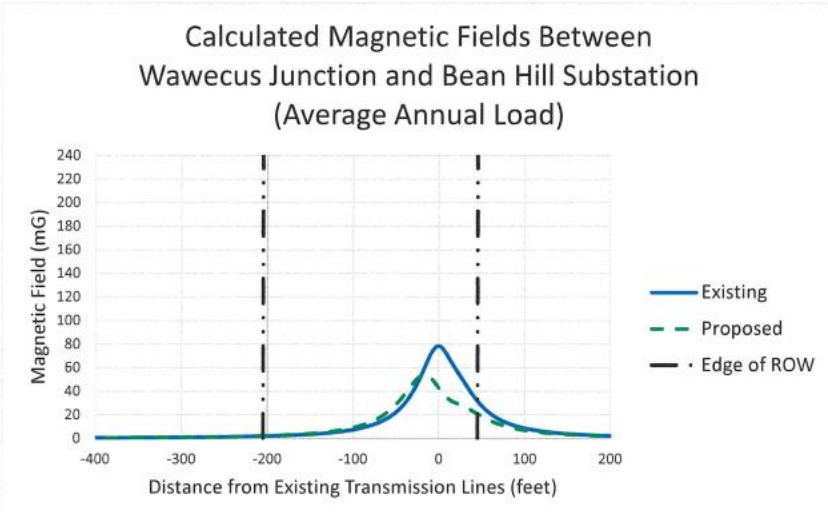
204. International health and safety agencies, including the World Health Organization, the International Agency for Research on Cancer (IARC), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), have studied the scientific evidence regarding possible health effects from MF produced by non-ionizing, low-frequency 60-Hertz alternating currents in transmission lines. Two of these agencies attempted to advise on quantitative guidelines for mG limits protective of health, but were able to do so only by extrapolation from research not directly related to health: by this method, the maximum exposure advised by the International Commission on Electromagnetic Safety (ICES, part of IARC) is 9,040 mG, and the maximum exposure advised by the ICNIRP is 2,000 mG. Otherwise, no quantitative exposure standards based on demonstrated health effects have been set world-wide for 60-Hertz MF, nor are there any such state or federal standards in the U.S. (Council Administrative Notice Item No. 44)

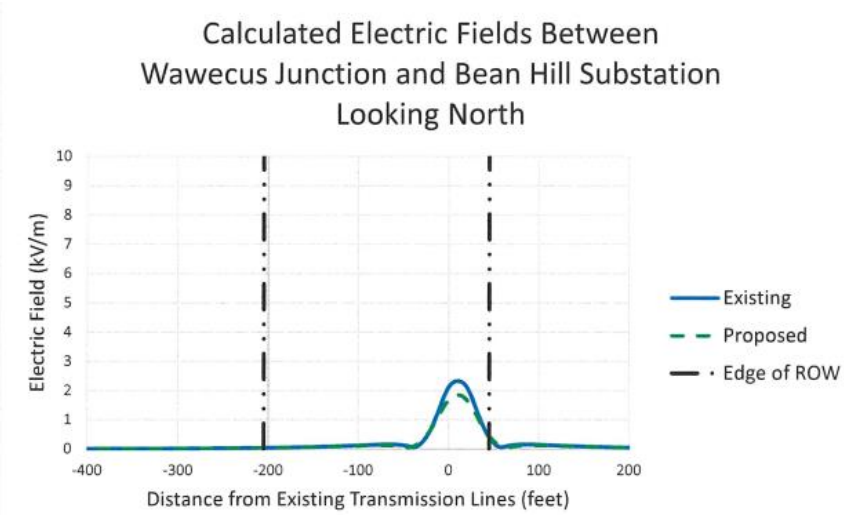
205. Along the property boundaries at the CSS and QCS site, the primary sources of EMF would be the Eversource transmission lines and any distribution lines. The contributions to such EMFs from the proposed QCS would be negligible. (Eversource 3, response 12)

206. The EMF in the vicinity of the proposed CSS would increase in the area beneath where the lines enter and interconnect to the station, which is on the west side of the existing transmission line corridor and the east side of CSS. Away from the point of interconnection, the changes to the fields would be negligible. (Eversource 2, p. 26)

207. For the proposed Eversource transmission upgrades in Norwich, the maximum MF levels in the ROW (under average annual load conditions) would decrease from a pre-construction maximum of 78.4 mG to a post-construction maximum of approximately 53.9 mG. EF would decrease from a pre-construction maximum of 2.33 kV/m to a post-construction maximum of 1.85 kV/m. The EMF data and profiles are listed below.

Wawecus Junction to Bean Hill Substation		West ROW Edge	Max in ROW	East ROW Edge
Magnetic Fields (mG)	Existing	2.2	78.4	24.0
	Proposed	2.5	53.9	16.8
Electric Fields (kV/m)	Existing	0.04	2.33	0.39
	Proposed	0.04	1.85	0.44





(Eversource 2, pp. 27-29)

Aviation Safety

208. The nearest federally-obligated airport is Green Airport in Warwick, Rhode Island, located approximately 25 miles east of the proposed solar facility. (QS 4, response 21)

209. By letters dated August 19, 2019, the Federal Aviation Administration (FAA) issued Determinations of No Hazard to Air Navigation (No Hazard Determinations) for the proposed project based on QS' filings for the 17 points along the perimeter of the project. The No Hazard Determinations expire on 02/19/2021 unless construction commences or it is extended/revised by the FAA. (QS 1c, Tab P)

210. Per previous correspondence with an FAA Obstruction Evaluation Specialist, QS has confirmed that a glint/glare analysis is not required. Also, no marking or lighting is required for aviation safety. (QS 1c, p. 6-4 and Tab P – No Hazard Determinations; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #162)

211. No notice to the FAA is required for any proposed Eversource structures associated with CSS in Canterbury based on its preliminary design or the transmission modification work in Norwich. (Tr. 3, pp. 123-124; Eversource 2)

Environmental Effects

Air Quality

212. During construction of the proposed project, any air emissions would be temporary and controlled by enacting appropriate mitigation measures, e.g. water spraying for dust abatement, minimizing engine idle times and sequencing early morning vehicle startups. (QS 1c, p. 6-2)

213. During operation, the proposed project would not produce air emissions of regulated air pollutants or GHGs. Thus, no air permit would be required. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #165)

214. Given the loss of carbon dioxide sequestration over the estimated 30-year life of the facility due to tree clearing and the carbon dioxide emitted from the manufacture of the solar equipment versus the net carbon dioxide emissions reduction resulting from the solar facility eliminating the need for equivalent natural gas-fueled conventional generation, the "carbon debt payback period" would be approximately two years. (QS 1, Tab L – Life Cycle Greenhouse Gas Assessment, pp. 1-7)

215. The proposed project would meet DEEP air quality standards. (QS 1c, p. 7-1)

216. Potential temporary construction-related mobile source emissions would include those associated with construction vehicles and equipment, but potential air quality impacts related to construction activities would be considered de minimis. (Eversource 2, p. 15)

217. All on-site and off-road equipment would meet the latest standards for diesel emissions as prescribed by EPA. (Eversource 2, p. 15)

218. The three circuit breakers at CSS would contain sulfur hexafluoride (SF_6), a greenhouse gas, for insulating purposes. QCS would have one circuit breaker containing SF_6. Each breaker would contain about 60 pounds of SF_6. (Tr. 3, pp. 124-125, 155-156)

219. Upon completion of construction and during operation, the proposed line separation would have no effect on air quality. (Eversource 2, p. 15)

Water Quality

Hydrology

220. The proposed project would meet DEEP water quality standards. It would not consume water during its operation. (QS 1c, p. 7-1; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #169)

221. No work is proposed within the 100-year or 500-year flood zone. (QS 1c, Tab A, Figure 3 – Existing Conditions and Figure 6 – Proposed Conditions)

222. The proposed project is not located within a DEEP-designated Aquifer Protection Area. (QS 1c, p. 6-12)

223. The proposed site is not located in proximity to the Area of Contribution to a Public Water Supply Well. (QS 1c, p. 6-12)

224. The proposed project would not be expected to impact the groundwater recharge of Cold Spring Brook and Blackwell Brook. (Tr. 3, p. 151)

225. No impacts to private wells or groundwater in the area are anticipated. Specifically, due to the composition of the posts and the limited amount of post material that would be in contact with the ground, no impacts to groundwater quality would be expected. (QS 1c, p. 6-12; QS 4, response 31)

226. The GSU transformer would have a detailed Spill Prevention Control and Countermeasures Plan, prepared by a licensed Professional Engineer, and such plan would meet all federal regulatory requirements. (QS 1c, pp. 3-7 and 3-8)

227. The main vehicular access roads to the proposed site would be stabilized with gravel sufficient to eliminate visible dust from vehicular travel and wind erosion. Notwithstanding, when necessary, a water truck would be used to maintain moist disturbed surfaces and actively spread water during visible dust episodes to minimize dust emissions. (QS 1c, Tab H – Operations and Maintenance Plan, p. 3)

228. Generally, QS does not plan to clean the solar panels. However, QS and/or its subcontractor might clean the solar panels if the system output is a noticeably lower wattage AC or if there is an accumulation of dirt on the modules. Cleaning of the panels would be performed with water and a soft-bristled broom if necessary. (QS 1c, Tab H – Operations and Maintenance Plan, p. 3; Tr. 3, pp. 188-19)

229. Eversource's proposed work in Canterbury is not located within a DEEP-designated Aquifer Protection Area. (Council Administrative Notice Item No. 99 – DEEP Aquifer Protection Area Map of Canterbury dated August 26, 2019)

230. There are no surface or groundwater resources or public drinking water supply/private wells within or proximate to Eversource's work area in Norwich. (Eversource 2, p. 15)

Stormwater

231. DEEP retains final jurisdiction over stormwater management. (CGS §22a-430b; DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015); Council Administrative Notice No. 53 – Petition 1312, DEEP Comment Letter, September 21, 2017).

232. The project has been designed to comply with the *2004 Connecticut Stormwater Quality Manual* (2004 Stormwater Manual) and the 2002 E&S Guidelines. (QS 1, p. 6; QS 1c, p. 6-13)

233. The stormwater design has been developed in direct consultation with DEEP staff and in conformance with the recommendations from DEEP outlined in "Stormwater Management at Solar Farm Construction Projects" dated September 8, 2017 (2017 DEEP Stormwater Recommendations). (QS 1c, p. 6-13; Council Administrative Notice Item No. 52 – Petition 1310, DEEP Comments dated September 14, 2017, 2017 DEEP Stormwater Recommendations)

234. As of approximately January 6, 2020, the DEEP Stormwater Program issued new guidance for solar farm developers concerning effective management of runoff during the design, construction and operation of solar facilities. This new guidance neither conflicts with nor supplants the 2017 DEEP Stormwater Recommendations. See attached comments from DEEP dated January 10, 2020. (DEEP Comments dated January 10, 2020, p. 2; Tr. 1, p. 25)

235. During rain events, water would fall onto the solar modules and flow off the module edges onto the vegetated surface or stabilized areas and flow along existing natural flow paths. The only solar modules that would be considered impervious (for stormwater analysis purposes) would be the most up-gradient modules located in each subcatchment area. The remaining solar modules within the limits of work would be equivalent to non-grazed meadow for stormwater analysis purposes. (QS 1c, pp. 6-13 and 6-14)

236. In addition to regular stormwater controls, particular attention would be given to areas directly upslope from Blackwell Brook and Cold Spring Brook. The project would control stormwater and protect water quality of these watercourses as they provide habitat for a variety of species, in particular, mussels. This includes regular inspections of stormwater controls, biological monitoring, training of construction and operations personnel, and documentation and reporting of observations. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, p. 5)

237. Eversource would develop a project-specific Stormwater Pollution Control Plan and would register for a DEEP General Permit. (Eversource 2, pp. 18-19)

Wetlands and Watercourses

238. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, et seq.)

239. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)

240. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)

241. A total of 30 wetlands (totaling 70 acres) are identified within the project's 516 acre study area. The majority of the wetlands within the study area are palustrine forested wetlands with some instances of palustrine emergent wetland, palustrine scrub shrub wetland, and unconsolidated bottom/open water wetland. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, pp. 2-3)

242. A total of 10 watercourses are identified within the study area. Such water resources include intermittent and ephemeral streams, and two larger perennial streams (Blackwell Brook and Cold Spring Brook) located along the western boundary of the project site. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, pp. 2-3)

243. QS would apply a standard 100-foot "no disturbance" upland buffer around the majority of (higher quality) wetlands and watercourses. Of the 30 wetlands in the study area, 22 would have the 100-foot buffers. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, p. 3)

244. Wetlands that are proposed to maintain a minimum of 50-foot buffers for the project have the greatest amount of existing disturbance. These wetlands occur in fields that are regularly used for growing corn, soybeans, and hay, or they are bisected by an existing road. Specifically, Wetlands 1, 2, 8, 9, 18, and 20 would have 50-foot buffers. Wetland 6 would have a 90-foot buffer, and Wetland 7 would have a 70-foot buffer. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, Table 1 – Summary of All Project Wetlands Functions and Values)

245. No wetlands or watercourses would be directly impacted by the proposed project. No clearing would occur in wetlands or watercourses. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, p. 3; QS 1c, Tab D – Wetland and Watercourse Delineation Report, p. 7; QS 1c, Tab C – Environmental Site Conditions Report, p. 25)

246. Short term, temporary impacts to water resources from construction activities would be avoided or minimized with specific erosion and sedimentation controls that would be installed and maintained in accordance with the 2002 E&S Guidelines. (QS 1c, Tab C – Environmental Site Conditions Report, p. 26)

247. Water resource buffers as noted in the Herpetofauna Avoidance and Mitigation Plan (HAMP) dated April 2019 would be maintained during construction and operation of the project. (QS 1c, Tab C – Environmental Site Conditions Report, p. 26)

248. At the Eversource Norwich site, no wetlands or watercourses were identified within the proposed work pad areas or the majority of the proposed access road route. One wetland is located at the southwestern limits of the work area where Eversource would access the ROW. This wetland consists of a narrow hillside seep system that contains an interior shallow/narrow intermittent watercourse. (Eversource 2, p. 14)

249. Eversource would utilize a temporary crossing of this wetland to gain access into the ROW for the proposed work activities, resulting in approximately 563 square feet of temporary wetland impact associated with the use of construction matting. Work would be conducted in accordance with Eversource BMPs to avoid unnecessary impacts to wetland resources. (Eversource 2, p. 14)

Vernal Pools

250. Vernal pool surveys were conducted by Verdanterra, LLC (VLLC) during the spring of 2016, and eight vernal pools were identified within the study area. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, p. 4)

251. In the spring of 2018, FB Environmental Associates (FBE) conducted another independent vernal pool assessment. During the assessment, FBE did not identify any additional vernal pools beyond the known eight pools previously identified by VLLC. (QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, p. 4; QS 1c, Tab D –Herpetofauna Avoidance and Mitigation Plan, p. 1; QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, p. 4)

252. In spring of 2019, one additional vernal pool known as Vernal Pool No. 9 (VP9) was observed on the subject property directly north of Wauregan Road and approximately 800 feet west of the existing access drive. VP9 is not located in an area that is proposed for development.

(QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, p. 4; QS 4, response 29; QS 1c, Tab A, Figure 6 – Proposed Conditions)

253. Of the eight vernal pools in the study area, VP1, VP2 and VP3 are located within the floodplain of Blackwell Brook. VP1 and VP2 are shallow depressions, and VP3 is an oxbow. VP4 and VP5 are long, linear pools along the bed of a relict stream channel situated roughly perpendicular to Blackwell Brook. VP6 is a modified-natural or manmade pool alongside Rukstela Road. VP7 is an abandoned manmade impoundment (i.e. an old farm pond), and VP8 is a shallow pool within a forested wetland complex (i.e. a cryptic vernal pool). (QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, pp. 4-5)

254. VP4, VP5, VP6, and VP8 meet the criteria for consideration as Tier I pools. VP1, VP2, VP3, and VP7 meet the criteria for consideration as Tier III pools. (QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, pp. 4-5)

255. While no development would occur within the 100-foot Vernal Pool Envelopes, the proposed project development would extend into the 100-foot to 750-foot Critical Terrestrial Habitats (CTH) of all eight vernal pools. The pre-construction and post-construction percent developed areas within the CTHs of the vernal pools are as follows.

Vernal Pool Designation	**Pre-construction %CTH developed**	**Post-construction % CTH developed**
VP1	8.00	14.10
VP2	8.60	16.10
VP3	6.69	12.63
VP4	7.86	50.87
VP5	0.00	48.64
VP6	2.31	25.40
VP7	3.59	36.63
VP8	0.20	61.32

(QS 1c, Tab D – Herpetofauna Avoidance and Mitigation Plan, Appendix C, Post-construction Vernal Pool Analysis Maps; QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory dated March 2019, Appendix C, Vernal pool analysis maps)

256. QS proposes vernal pool best management practices (VP BMPs) that include, but are not limited to, a 100-foot buffer around all vernal pools, a directional buffer around more productive pools, and a herpetofauna protection area. QS' VP BMPs are consistent with the U.S. Army Corps of Engineers New England District Vernal Pool BMPs. (Tr. 1, p. 54-55)

257. No vernal pools are located within or proximate to the Eversource Norwich project work area. (Eversource 2, p. 14)

Visibility

258. The solar panels would be dark blue or black with an anti-reflection coating. No direct or sky-reflected glare is anticipated as part of this project. (QS 1c, pp. 3-7 and 6-4)

259. QS proposes to plant approximately 5,980 total linear feet of vegetative screening to mitigate potential visual impacts in the following locations: along Wauregan Road (in the vicinity of Liepis Road), along Liepis Road in the southeastern portion of the project area, and along portions of Allen Hill Road and Rukstela Road in the northern portion of the project area. Variable planting arrangements would be utilized to replicate natural vegetation spacing patterns and to blend in with the natural character of the landscape. (QS 1, p. 3-9)

260. The Last Green Valley National Heritage Area (LGVNHA) extends over an area of approximately 1,085 square miles around the Quinebaug and Shetucket Rivers systems in northeastern Connecticut and south-central Massachusetts. The LGVNHA encompasses architecturally and culturally significant structures, attractions, villages and open spaces. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #215)

261. QS' proposed project would not result in a direct impact to any identified resources within the LGVNHA. The Blackwell Brook Trail is the closest identified resource located approximately 155 feet west of the limits of work/development area and approximately 220 feet west of the perimeter fence. This approximately 2-mile loop trail is located on a property currently managed as a transfer station. The project would maintain a natural vegetation buffer, and no visual impacts are anticipated. (QS 4, response 27a)

262. Route 169 is a State-designated scenic road. Given the distance from Route 169 to the proposed solar facility, the visual impact is not expected to be significant. (QS 4, response 27b)

263. The nearest recreational area to the proposed solar project is the Quinebaug River Wildlife Management Area (QRWMA), a state hunting area, located immediately adjacent to the southernmost project parcel. The QRWMA totals more than 1,400 acres and is inclusive of the Sugar Brook Field Trail Area (SBFTA) and the Quinebaug Valley State Trout Hatchery (QVSTH). The SBFTA is a public hunting area that features marked and unmarked trails. The QVSTH features fourteen wells that supply water for fish production and also has an onsite children's fishing pond. Privately-owned parcels, site topography, proposed vegetative screening and existing vegetation located outside of and within the project situated between the project site and these resources would prevent significant viewshed impacts to recreational open space. (QS 4, response 27c)

264. QS' proposed project would not have a substantial adverse visual impact on residences because immediate views into the proposed site would be limited due to existing and/or proposed vegetative screening as well as project site topography. (QS 1c, p. 6-3)

265. The use of low-profile project components e.g. racking system, solar panels and inverters also significantly reduces the potential visual impact of the project. (QS 1c, p. 6-3)

266. Site lighting is not proposed for the project. Temporary lighting would be used at the staging area during construction. (QS 1c, p. 6-7)

267. Lighting at QCS would be consistent with NEC requirements. A small exterior light at the control house within the QCS would be motion-activated to enable safe access in the event work is required at the substation. (QS 1c, p. 6-7)

268. The introduction of CSS and the associated Tap Structures would not be expected to result in a significant visual effect on the surrounding area. The new structures would be set back approximately 1,000 feet from the road and would be approximately the same height as the existing approximately 94-foot tall transmission line structure. (Eversource 2, p. 9)

269. In general, year-round and seasonal visibility of the proposed monopoles in Norwich would be consistent with existing conditions. Even with the addition of the new structures and vegetation management activities necessary for construction, the ROW would retain sufficient tree cover and distances to receptors such that there would be no substantive increase in visibility to the surrounding area. (Tr. 3, p. 117)

270. To the west of the ROW in Norwich, there are neighborhoods in the vicinity of Philanne Drive and Beachwood Boulevard. However, such neighborhoods do not have substantive views of the existing double-circuit arrangement, but there are some views of the adjoining ROW. Views would not be expected to significantly change from such vantage point. (Tr. 3, pp. 120-121)

271. The nearest home to the proposed transmission upgrade project in Norwich (located approximately 300 feet to the southeast of the edge of the ROW) is at a substantially lower elevation than the ROW. Thus, there is not a direct line of sight to the existing structures. Even with an approximately 10-foot increase in height associated with the new structures, no direct views are anticipated. (Eversource 2, p. 16; Tr. 3, pp. 119-120)

272. As the ROW approaches the Route 2 corridor to the north, the view from Route 2 is of a cliff with direct views of the existing structures (on top of the cliff) when looking directly at the transmission line ROW. From an overall visibility standpoint, the post-construction views would not be expected to change substantively from the pre-construction views. (Tr. 3, pp. 121-122; Eversource 2, Attachment C – Quinebaug Double Circuit Tower Split, Map Sheets, Map 2 of 2)

273. There are no scenic resources proximate to the ROW in Norwich. The nearest public resource, the Yantic River Water Access, is located approximately 0.15 mile north of the proposed structures. (Eversource 2, p. 13)

274. Eversource's proposed work in Canterbury and Norwich would not impact the LGVNHA. Specifically, the existing transmission corridor that Eversource would upgrade is already minimally visible, and the increase in structures heights would be on the order of 10 feet. There are also no environmental resources proximate to the project area in Norwich. In Canterbury, Eversource's proposed CSS and Tap Structures would be developed in concert with QS' solar facility and would be located in an area that has existing electric transmission. Thus, it would not have a substantive additional effect on existing visual impacts. (Tr. 3, pp. 116-117)

275. Eversource would install lighting at the CSS for nighttime work such as for maintenance or electrical switching operations. Typically, the lights would otherwise be turned off. (Eversource 2, p. 7)

Noise

276. QS performed a noise assessment study for the proposed project to take into account the inverters and the GSU transformer, which would be the sources of the noise for the proposed project. (QS 1c, Tab O – Acoustic Analysis, p. 1)

277. The sources of noise for the proposed project would only operate in the daytime when electricity would be produced by the solar panels. (QS 1c, Tab O – Acoustic Analysis, p. 1)

278. The proposed project would be considered a Class B noise emitter, and its surrounding areas are treated as Class A residential receptors. The DEEP Noise Limit for a Class B source emitting to a Class A receiver is 55 dBA during the daytime. (QS 1c, Tab O – Acoustic Analysis, pp. 1-2; QS 4, response 40)

279. The proposed facility would be in compliance with DEEP Noise Control Standards because the maximum worst-case noise level at any nearby residences would be 36.9 dBA, which is below the DEEP Noise Limit of 55 dBA. (QS 1c, Tab O – Acoustic Analysis, p. 2)

280. Construction noise is exempt from DEEP Noise Control Standards. (RCSA §22a-69-108(g))

281. With respect to CSS, Eversource is not installing any equipment that would increase noise levels at the property boundaries. (Eversource 3, response 13)

282. Upon completion of construction and during operation, the proposed line separation project in Norwich would have no effect on noise or sound pressure levels. (Eversource 2, p. 15)

Historic and Archaeological Resources

283. The nearest historic resource listed on the National Register of Historic Places (NRHP) is the Wauregan Historic District (WHD). The WHD consists of a mill village established around a cotton mill that was powered by the Quinebaug River. The WHD is located approximately 0.5-mile from the eastern limits of construction for the proposed project. Due to the distance, the proposed project would not directly impact the WHD. The viewshed from the WHD would not be impacted by the proposed project because of the hilly and forested nature or terrain between the proposed solar facility and the WHD. (QS 4, response 28; Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #225)

284. A Phase 1A Cultural Resources Assessment Survey Report (Phase 1A Report) dated January 2017 was prepared by Heritage Consultants, LLC (Heritage) for the proposed project. The assessment concluded that 244 acres retain no to low archaeological potential, and approximately 300 acres possess a moderate to high sensitivity for producing archaeological resources. (QS 1c, Tab Q – Phase 1A Report, p. 46)

285. Heritage further notes that, since the no to low archaeological potential areas consist of previous disturbed, paved, mucky, and/or wet conditions, no additional archaeological investigation of these areas is recommended. The portions of the acreage that have been assessed as possessing moderate to high archaeological sensitivity and would be impacted by the proposed project should be examined using subsurface testing techniques as part of a comprehensive Phase 1B cultural resources reconnaissance survey (Phase 1B Survey), and the field methods for the Phase 1B Survey should be developed in consultation with SHPO. (QS 1c, Tab Q – Phase 1A Report, p. 46)

286. In Spring 2017, one additional 16-acre parcel (i.e. the substation parcel) was added to the southern portion of the study area. After a Spring 2017 reconnaissance site visit, Heritage concluded that the parcel possessed little, if any, archaeological sensitivity. Therefore, no additional archaeological research was recommended for this parcel. An addendum to the previously submitted Phase 1A Report was submitted to SHPO in May 2017. (QS 1c, p. 6-5)

287. The Phase 1A Report was reviewed by the SHPO. By letter dated May 17, 2017, SHPO noted that no properties listed on the NRHP have been documented within or immediately adjacent to the project. However, several archeological sites have been recorded along the edges of the project area such as a historic cemetery, agricultural complex (e.g. Mowrey House) and residential building (i.e. Butts/Cady/Harris House). SHPO found the submitted map to avoid impacts to these resources acceptable. Lastly, SHPO noted that it would review a Scope of Work for archaeological testing of remaining areas identified as having a moderate to high sensitivity that would be impacted by the project. (QS 1c, Tab Q, SHPO Concurrence Letter for Phase 1A Survey)

288. In August 2019, two additional parcels totaling 2.3 acres along Rukstela Road were added to the development area: the Rukstela Farmstead location and the former Butts/Cady/Harris House locations. The Phase 1A Report had recommended additional Phase 1B fieldwork at these locations if they could not be avoided. Phase 1B fieldwork for these two additional parcels was completed in August 2019. The Phase 1B survey concluded that proposed construction can occur in the vicinity of the former Butts/Cady/Harris House; however, a 50-foot avoidance buffer would be implemented to avoid impacts in the vicinity of the Mowrey Farmstead. (QS 1c, p. 6-5)

289. By letter dated January 9, 2020, SHPO affirmed and clarified previous recommendations during the Phase 1A investigations. A copy of SHPO's correspondence is attached hereto. (QS 6, Letter from SHPO dated January 9, 2020)

290. QS has reviewed the January 9, 2020 letter from SHPO and plans to follow the protocol that SHPO outlined in the letter, including, but not limited to, the establishment of 50-foot buffers around resources that are considered eligible for NRHP. Areas that are not eligible for NRHP either due to prior disturbance or a lack of resource potential can be developed. Additionally, QS consulted with SHPO with respect to small breaches of existing stone walls that would be needed to make the project area viable for truck traffic and construction, and QS would leave the remainders of the wall in place. SHPO also concurs with respect to the wall breach plans. (Tr. 3, pp. 150, 223-224)

291. QS has reached out to local Native American tribes and would continue to correspond with them regarding artifacts that may have been found on the site, as well as archeological survey work which includes both historical as well as Native American findings. (Tr. 1, p. 51-52)

292. Heritage conducted a Phase 1A/1B Cultural Resource Reconnaissance Survey of the work area in Norwich, and the site was identified to retain a moderate/high archaeological sensitivity. As part of the survey, Heritage excavated 57 test pits within the work area with no significant artifacts or cultural resources locations found. As a result, no additional survey or investigation was recommended. (Eversource 2, p. 13-14; Tr. 3, p. 131)

Geology

293. The shallowest bedrock consists of gray to dark gray well layered metamorphic gneiss of the Quinebaug Formation. The Black Hill Member of the Quinebaug Formation is also present at the site, which consists of schist and granofels. (QS 1c, Tab C, Geotech Report, p. 1)

294. Surficial soils within the project area are typically mapped as units of glacial till and sandy outwash soil. (QS 1c, Tab C, Geotech Report, p. 1)

295. There is a sand and gravel quarry in the southern portion of the project site. In addition, there is evidence of an old quarry in the central portion of the site. (QS 1c, Tab C, Geotech Report, p. 1)

296. The risk of seismicity at the proposed development area is considered low to moderate, and the foundation design should account for seismic conditions. (QS 1c, Tab C, Geotech Report, p. 1)

297. A Geotechnical Engineering Report (Geotech Report) dated February 2019 was prepared including the results of 16 geotechnical borings at the proposed site. (QS 1c, Tab C, Geotech Report, p. 10 and Table 1)

298. Based on available 2018 U.S. Geological Survey data, the groundwater depth at the monitoring station nearest to the proposed site is mapped as approximately 10.5 feet. The groundwater levels were measured while drilling and geotechnical borings were completed. Groundwater was observed in 11 geotechnical borings and was encountered at depths ranging from 5 to 30 feet below the existing grade. (QS 1c, Tab C, Geotech Report, pp. 2 and 10)

299. The long-term groundwater level was also evaluated from installed standpipe piezometers. The piezometers were installed during the investigation and measured approximately 4 weeks after installation. The results of the measurements indicated groundwater level at 4 weeks ranged from 5.9 to 27.3 feet below existing ground surface. (QS 1c, Tab C, Geotech Report, p. 10)

300. Many factors lead to water level fluctuations, such as heavy rainfall events, dry periods, and sand seams, and encountering groundwater at a small number of boring locations indicates that other locations around the project site may also encounter groundwater at similar depths. Based on the depth of water observed during drilling and from piezometer measurements, it appears that the static water levels may be within the foundation embedment depths. Should deeper foundations such as drilled shafts or driven piles be used, the contractor should be prepared to utilize casing to maintain hole stability. Also, the presence of shallow groundwater may complicate construction and require a buoyant foundation, depending on the final embedment depth of the foundations. (QS 1c, Tab C, Geotech Report, pp. 2 and 10)

301. QS does not anticipate the need for dewatering, except for possibly the construction of the QCS due to its deep foundations. If dewatering is performed, it would be performed in accordance with DEEP General Permit rules. (Tr. 3, p. 168)

Wildlife

302. On October 7, 2016, a DEEP Natural Diversity Database (NDDB) Preliminary Assessment was provided to QS. The assessment identified the known extant populations of 12 state-listed species that occur within or near the boundaries of the proposed site. (QS 1c, Tab D – DEEP NDDB Letter dated October 7, 2016)

303. The 12 state-listed species referenced in the NDDB preliminary assessment include: eastern pearlshell, low frostweed, Alleghany plum, blue-spotted salamander, banded sunfish, eastern hognose snake, red bat, hoary bat, purple martin, eastern ribbon snake, brown thrasher, and eastern spadefoot. (QS 1c, Tab D – DEEP NDDB Letter dated October 7, 2016)

304. The proposed transmission line separation area in Norwich is not located within the shaded area of the NDDB. (Eversource 2, p. 13)

305. QS proposes a HAMP to protect reptiles and amphibians. The HAMP includes, but is not limited to, the following general components:

a) Limits of work restrictions including a 100-foot buffer around vernal pools and an approximately 40-acre area that has been excluded from the proposed development area;
b) Construction timing restrictions such as limiting tree clearing to November through March;
c) Construction personnel training regarding reptile and amphibians known to occur within the study area;
d) Exclusion fencing to prevent reptiles and amphibians from entering active construction zones;
e) Documentation and reporting to DEEP of any state-listed species found within the construction area; and
f) Operational avoidance practices such as plans to appropriately respond and relocated such species if encountered at the site and the use of a wildlife gap at the bottom of the perimeter fencing.

(QS 1c, Tab D – HAMP, pp. 4-6)

306. The HAMP also includes additional species-specific avoidance measures for the eastern spadefoot toad, the spotted turtle, the northern black racer, the fowler's toad, the spotted salamander, and the wood frog. (QS 1c, Tab D – HAMP, pp. 7-13)

307. QS submitted a copy of the Environmental Site Conditions Report, technical field reports, and the HAMP to DEEP on April 23, 2019 and requested a final determination regarding the NDDB. (QS 1c, Tab D – April 23, 2019 Letter from Katelin Nickerson of Tetra Tech, Inc.)

308. QS continues to consult with DEEP regarding NDDB and has also provided continuous supplemental information to DEEP through approximately late January 2020. More recently, QS received questions from DEEP regarding protections of the eastern spadefoot toad, and QS is currently responding to those questions. As of February 4, 2020, a final determination from DEEP regarding NDDB species has not yet been received. (Tr. 3, p. 155, 171)

309. In accordance with the DEEP General Permit, the Stormwater Pollution Control Plan cannot be filed for approval until the project receives a final determination from NDDB. (QS 1c, Tab D – Additional Wildlife and Resource Evaluation, p. 4)

Invertebrate

310. The eastern pearlshell, a state-listed Species of Special Concern mussel, is generally found in cold, nutrient-poor, unpolluted trout streams and smaller rivers with moderate flow rates. (QS 1c, Tab D – Environmental Site Conditions Report, p. 16)

311. The Blackwell Brook and Cold Spring Brook occur on the western side of the proposed project. The substrate of these watercourses is generally silty and sandy. While the eastern pearlshell has the potential to occur within these watercourses, the project development area avoids impacts to all wetlands and watercourses including Blackwell Brook and Cold Spring Brook. Potential sedimentation and erosion impacts to off-site waters are addressed in the stormwater plans. (QS 1c, p. 6-12; QS 1c, Tab D – Environmental Site Conditions Report, Additional Wildlife & Resource Evaluation, p. 2)

Plants

312. Alleghany plum is a state-listed Species of Special Concern. It is a tree or shrub forms thickets, particularly on moist soil. Alleghany plum occurs in anthropogenic habitats, river or stream habitats and floodplains and meadow and fields. (QS 1c, Tab D – Environmental Site Conditions Report, p. 16)

313. While there is presence of suitable habitat within the study area, due to its status as being extirpated from Connecticut and the lack of observations for the presence of this species in the study area during field surveys, Alleghany plum is unlikely to occur within the study area. (QS 1c, Tab D – Environmental Site Conditions Report, p. 16)

314. Low frostweed is a state-listed Species of Special Concern. Low frostweed is a perennial herb native to southern New England. Low frostweed inhabits dry, sandy woodlands, sandplains, and fields, but also occurs in anthropogenic areas, grasslands, meadows, and barrens. (QS 1c, Tab D – Environmental Site Conditions Report, p. 17)

315. Low frostweed is not expected to occur in the study area due to the absence of documentation of this species in Windham County and the lack of observations for the presence of this species in the study area during field surveys. (QS 1c, Tab D – Environmental Site Conditions Report, p. 17)

Fish

316. The banded sunfish is a state-listed Species of Special Concern. Banded sunfish prefer habitat with dense aquatic vegetation. Specifically, banded sunfish prefer, for example, warmer water systems, lakes and ponds, and typically beaver impacted streams. Such types of habitat do not occur at the proposed site. (QS 1c, Tab D – Environmental Site Conditions Report, p. 17; Tr. 3, p. 152)

Birds

317. The purple martin is a state-listed Species of Special Concern. Purple martins inhabit both urban and rural areas, preferring open, grassy areas and forested openings near streams, rivers, marshes, ponds or lakes. While the purple martin may have the potential to occur within the study area, this species prefers more developed habitats in their eastern range that contain suitable nesting sites such as man-made bird houses, hollow gourds, tree cavities or cliff crevices. Thus, purple martin is not likely to occur in the study area due to the lack of suitable nesting sites, and this species was not observed during field surveys. Notwithstanding, conducting forested tree clearing activities during the winter would avoid direct impacts to the purple martin. No further avoidance or mitigation measures are recommended. (QS 1c, Tab D – Environmental Site Conditions Report, p. 21)

318. The brown thrasher is a state-listed Species of Special Concern. This fairly large, slender songbird forages on the ground, below dense cover. Brown thrashers typically nest in scrubby fields, dense revegetating woods, and forest edges. (QS 1c, Tab D – Environmental Site Conditions Report, p. 21)

319. The study area is composed of mixed-growth forest and could potentially support the brown thrasher. However, field surveys did not document the presence of the brown thrasher. Notwithstanding, QS' plans to conduct forest clearing activities in the winter season would avoid potential direct impacts to the brown thrasher. (QS 1c, Tab D – Environmental Site Conditions Report, p. 21)

Mammals

Bats

320. The project area includes forested habitat interspersed with clearings and edge habitats, which could be used by foraging bats. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #244)

321. The project site could support northern long-eared bat (NLEB), a federally listed threatened species. QS conducted a bat acoustic survey in 2016 to determine the presence or absence of the bat species. NLEB were not found on the site but the little brown bat and the tri-colored bat, state-listed endangered species, were identified during the survey. No other rare threatened or endangered species were identified on the site. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #245)

322. Due to the presence of bats on the properties, tree clearing would be limited to the period between October 1 and March 31 to avoid potential impacts to bat roosting. (Council Administrative Notice Item No. 52 – Petition No. 1310, Finding of Fact #246; QS 1c, Tab D – Environmental Site Conditions Report, p. 26)

323. The transmission line work in Norwich is not located near maternity roost trees and would not be located within 0.25 mile of a known NLEB hibernaculum. The nearest NLEB resource is located in North Branford, approximately 35 miles to the southwest. Therefore, Eversource's proposed activities are not likely to adversely impact the NLEB. (Eversource 2, p. 13; Council Administrative Notice Item No. 64 – DEEP Endangered, Threatened and Special Concern Species 2015)

Reptiles

Snakes

324. The eastern hognose snake is a state-listed Species of Special Concern. Eastern hognose snakes prefer woodlands with loose, sandy, gravelly soils that are well drained. In Connecticut, the eastern hognose snake may occur throughout the state, although they are more common in inland areas with moderate elevations. The study area contains some suitable habitats consisting of sandy and gravely soil in small areas. (QS 1c, Tab D – Environmental Site Conditions Report, p. 18)

325. The eastern hognose snake was not observed during the 2018 herpetological surveys completed for the project. Additionally, no incidental observations were recorded during other field surveys. Eastern hognose snakes do not make large migratory movements, and based on the results of the survey and the rarity of the species, the eastern hognose snake is not expected to occur at the proposed site. (QS 1c, Tab D – Environmental Site Conditions Report, p. 18)

326. As a precaution, during the construction phase of the project, exclusion fencing and barriers would be used to keep the eastern hognose snakes outside of the construction areas. Any temporary barriers and exclusion fencing that is installed would be regularly monitored and maintained throughout the construction phase. The construction sequencing for the stormwater phasing plan will take into account the exclusion barriers required for snakes. Additional avoidance and mitigation for herpetofauna are included in the HAMP. (QS 1c, Tab D – Environmental Site Conditions Report, p. 18)

327. The eastern ribbon snake is a state-listed Species of Special Concern. The eastern ribbon snake is usually found near a body of water such as a pond or bog, but prefers open-canopy wet sedge meadows. (QS 1c, Tab D – Environmental Site Conditions Report, p. 19)

328. The study area contains some emergent wetland habitat; however, suitable habitat for the eastern ribbon snake does not occur within the development area because the project has been designed to avoid all direct impacts to water resources. In addition, this species was not observed during the 2018 herpetological survey completed for the study area, and no incidental observations were recorded during other field surveys. (QS 1c, Tab D – Environmental Site Conditions Report, p. 19)

329. Notwithstanding, as a precaution, the HAMP contains protective measures such as the use of exclusion fencing and barriers would be used to keep eastern ribbon snakes outside of the construction areas. (QS 1c, Tab D – Environmental Site Conditions Report, p. 19)

Turtles

330. The spotted turtle is a state-listed Species of Special Concern and, while not identified by DEEP on the October 7, 2016 NDDB letter, a single individual was identified during the 2018 herpetological inventory. The HAMP would be protective of this species. (QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, p. 18; QS 1c, Tab D – DEEP NDDB Letter dated October 7, 2016; QS 1c, Tab D – HAMP, pp. 1-13)

Amphibians

Vernal Pool Species

331. Vernal pool indicator species in Connecticut include wood frog, spotted salamander, marbled salamander, Jefferson salamander complex, blue-spotted salamander complex, and pure-diploid blue-spotted salamanders. (QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, p. 1)

332. Vernal pool surveys were conducted between April 19 and April 30, 2016. Another independent vernal pool survey was conducted in 2018 on April 16-19 and May 6-8. Pools were also visited during the general herpetological inventory that occurred on June 8, June 20-22 and September 19 and 21 of 2018. In 2016, spotted salamander egg masses were identified in seven of the eight pools, and wood frog egg masses were identified in two of the eight pools. In 2018, spotted salamander egg masses were identified in six of the eight pools, and wood frog egg masses were identified in three of the eight pools. (QS 1c, Tab D – Vernal Pool Survey and General Herpetological Inventory, p. 1)

333. Vernal pool surveys conducted in 2016 did not identify any evidence of blue-spotted salamander (pure diploid), a state-listed Endangered Species, breeding activity (e.g. specimens or egg masses) in the study area. Additional vernal pool surveys completed for the study area in 2018 also did not identify the occurrence of this species. Thus, this species is unlikely to occur at the proposed site. (QS 1c, Tab D – Environmental Site Conditions Report, p. 19)

334. The HAMP would be protective of the blue-spotted salamander because of its "no disturbance" buffer. These buffers would be maintained during the construction and operation of the project and would provide for conservation of potential habitat for this species. Additionally, a herpetofauna protection area on the western side of the project would leave this highly productive vernal pool intact and connected to Blackwell Brook. (QS 1c, Tab D – Environmental Site Conditions Report, p. 19; QS 1c, Tab D – HAMP)

Eastern Spadefoot Toad

335. The eastern spadefoot toad is a state-listed Endangered Species. Eastern spadefoot toads spend the vast majority of their lives alone in self-dug underground burrows in the uplands surrounding breeding pools. They do not breed on a rhythmic, annual cycle and can forgo breeding for numerous consecutive years. (QS 1c, Tab D – Eastern Spadefoot Survey, p. 1; Council Administrative Notice Item No. 64 – DEEP Endangered, Threatened and Special Concern Species)

336. Recorded eastern spadefoot toad occurrences in eastern Connecticut coincide with Hinckley soils. (QS 1c, Tab D – Eastern Spadefoot Survey, p. 2)

337. Of the study area, approximately 86 acres are Hinckley soils. In addition, DEEP's Predicted Spadefoot Habitat map shows that potential spadefoot habitat does exist on the site, and it roughly coincides with areas mapped as Hinckley soils. (QS 1c, Tab D – Eastern Spadefoot Survey, pp. 5-6)

338. While the proposed site contains Hinckley soils with slopes varying from 0 to 3 percent, 3 to 15 percent, and 15 to 45 percent, there may not be sufficient data to conclude that slopes affect the viability of the Hinckley soils as Spadefoot habitat. Thus, all Hinckley soils are considered potential spadefoot habitat regardless of slope. Notwithstanding, in general, the eastern spadefoot would be more likely to occur on a flatter area with sparse vegetation rather than a steep hillside. (Tr. 1, p. 55; QS 1c, Tab A, Figure 8 – Mapped Soils; Tr. 3, p. 154)

339. During the site surveys, a total of 161.5 hours were invested over 16 nights in June, July, August and September 2018 to survey for the presence of the eastern spadefoot toad at the proposed site. Visual encounter surveys were performed at night with the aid of high-output LED headlamps. Overall, the survey effort resulted in the detection of three individual eastern spadefoot toads. (QS 1c, Tab D – Eastern Spadefoot Survey, pp. 5-8)

340. Spadefoot A was captured on June 24, 2018 on the gravel road that provides access to the site, approximately 1,500 feet north of an access gate at Wauregan Road. Spadefoot B was captured on the road within approximately 10 feet of this location on June 28, 2018. Spadefoot C was captured at the southern edge of the gravel extraction area on September 4, 2018. (QS 1c, Tab D – Eastern Spadefoot Survey, p. 8)

341. During the 2018 vernal pool survey and general herpetological inventory, QS identified two potential eastern spadefoot breeding pools. The first pool (Pool A) lies northeast of the gravel extraction area at the center of the site. An access road to an adjacent hayfield traverses the pool. The second pool (Pool B) is an active agricultural field near the intersection of Rukstela Road and Allen Hill Road. The results of the 2018 eastern spadefoot survey suggest that the eastern spadefoot toads did not utilize either of the above potential breeding pools for breeding this year. (QS 1c, Tab D – 2019 Spadefoot Survey Memorandum dated October 7, 2019, p. 1)

342. All potential breeding pools at the study area were evaluated on eight separate occasions during 2019: April 17, June 7 and 20, June 7 and 20, July 26, August 7 and 29, and September 7 and 26. Survey efforts identified a third breeding pool (Pool C). Pool C is a small, short-hydroperiod pool in the agricultural field between the gravel extraction area at the center of the site and the athletic field. (QS 1c, Tab D – 2019 Spadefoot Survey Memorandum dated October 7, 2019, p. 2)

343. The results of the 2019 eastern spadefoot surveys suggest that the species did not utilize any of the potential breeding pools for a second consecutive year. Notwithstanding, of the three potential eastern spadefoot toad breeding pools A, B and C, QS is working with DEEP to conserve pool C. (QS 1c, Tab D – 2019 Spadefoot Survey Memorandum dated October 7, 2019, p. 2; Tr. 1, pp. 55-56)

344. The HAMP (dated April 2019) contains three species-specific mitigation actions for the eastern spadefoot toad and are listed below:
    a) Construction phasing;
    b) Post-construction population monitoring; and
    c) Monitor and protect potential breeding pools.

    (QS 1c, Tab D – HAMP, pp. 8-10)

Agriculture

345. The statutory mission of the Governor's Council for Agricultural Development (GCAD) is to develop a statewide plan for Connecticut agriculture. In 2012, GCAD recommended DOAg create an agriculture-friendly energy policy that includes, but is not limited to, on-farm energy production to reduce costs and supplement farm income, agricultural net metering for power production and transmission, and qualification of agricultural anaerobic digestion projects for zero-emissions renewable energy credits (ZRECs). (Council Administrative Notice Item No. 53 – Council Petition 1312, Finding of Fact #227)

346. Agriculture in Connecticut is likely to be adversely impacted by climate change. It is most affected by changes in temperature and both the abundance and lack of precipitation. The top five most imperiled agricultural products are maple syrup, dairy, warm weather produce, shellfish and apple and pear production, but there are opportunities for production expansion with the future climate, including, but not limited to, biofuel crops, witch hazel and grapes. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)

347. Adaptation strategies for climate change impacts to agriculture include promotion of policies to reduce energy use, conserve water and encourage sustainability. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)

348. Pursuant to CGS §22-26aa, *et seq.,* DOAg administers the Statewide Program for the Preservation of Agricultural Land (SPPAL) The main objective of the voluntary program is to establish a land resource base consisting mainly of prime and important farmland soils. A permanent restriction on non-agricultural uses is placed on the deed of participating properties, but the farms remain in private ownership and continue to pay local property taxes. (CGS §22-26aa, et seq.)

349. Connecticut preserved 1,289 acres of agricultural land in 2015, the most since 2009. Connecticut preserved 1,563 acres of agricultural land in 2016, the most since 2011. (Council Administrative Notice Item No. 80 – CEQ Report on Energy Sprawl dated February 3, 2017; Council Administrative Notice Item No. 53 – Council Petition 1312, Finding of Fact #281)

350. DOAg has not purchased any development rights for the proposed site as part of the SPPAL. Although an application for consideration in the SPPAL was filed in November 1993, the Brooklyn and Canterbury land records do not contain a notice from DOAg pursuant to CGS §22-26cc(b) that DOAg acquired any rights to the property. The property was subsequently sold in 2005 and immediately after the transfer, a notice to revoke any prior application for consideration in the SPPAL was recorded on the Brooklyn and Canterbury land records pursuant to CGS §22-26cc(a). (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #265)

351. Public Act 490 is Connecticut's Land Use Value Assessment Law for Farm Land, Forest Land and Open Space Land that allows land to be assessed at its use value rather than its fair market or highest and best use value for purposes of local property taxation. One parcel in Brooklyn, owned by Founders Bee Properties & Investments LLC (Tax Map Identification No. CT-019-30-12) is partially classified as open space under the Public Act 490 Program. (QS 4, response 2)

352. The proposed project would not qualify under Connecticut's Agricultural Virtual Net Metering Program because an agricultural virtual net metering facility is defined under CGS §16-244u(a)(7)(B) as having a nameplate capacity rating of 3 MW or less. (Council Administrative Notice Item No. 52 – Petition 1310, Finding of Fact #267)

353. Prime Farmland Soils are defined by the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) as having the ideal combination of chemical and physical characteristics to support crop production, such as for food, feed, forage, fiber and oil seed crops. These soils are also considered important for pasture land, range land and forest land. (QS 1c, Tab E – Farmland Soil Mitigation Plan, p. 1)

354. Statewide Important Farmland Soils do not meet all of the requirements to be considered Prime Farmland Soils, but they are equally as important in the production of food, feed, forage or fiber crops. (QS 1c, Tab E – Farmland Soil Mitigation Plan, p. 3)

355. Locally Important Farmland Soils do not meet the physical or chemical requirements of either Prime Farmland or Farmland of Statewide Importance soils, but they are still used for the production of food or fiber crops and support the local economy due to their productivity. (Council Administrative Notice Item No. 16 – USDA Soil Survey Manual; 7 C.F.R. §657.5 (2016) – Identification of Important Farmlands)

356. QS estimates that the area of disturbance to mapped Prime Farmland Soils would be approximately 1.23 acres. QS also estimates that the disturbance areas to mapped Statewide Important Farmland Soils and Locally Important Farmland Soils would be 0.41 acres and 1.41 acres, respectively. (QS 1c, Tab E – Farmland Soil Mitigation Plan, p. 3)

357. To reduce the potential impacts to agricultural soils and assure that their agricultural value is preserved during the construction, operation and decommissioning of the proposed solar project, QS has included its FSMP. (QS 1c, Tab E – FSMP, p. 1)

358. Removal of topsoil would be required in portions of the project development area where excavation would occur within the footprint of proposed access roads, equipment pads, Quinebaug Collector Substation, and utility trench construction. Removal of topsoil within the NRCS-mapped boundaries of all farmland soils, to a depth greater than eight-inches, would be evaluated by the contractor based on the following criteria to be observed in the field:
    a) Availability of 12-inches of mineral material soils; and
    b) Absence of stones, cobble and boulders.
(QS 1c, Tab E – FSMP, p. 3)

359. If the above criteria are met, including that the proposed disturbance would be in excess of eight inches of depth, and the area is mapped as Prime Farmland Soil or Statewide Important Farmland Soil or Locally Important Farmland Soil, topsoil would be redistributed. (QS 1c, Tab E – FSMP, p. 3)

360. Prior to construction, suitable areas for redistribution would be identified and staked on-site. Any temporary stockpiles would be surrounded by appropriate sediment controls during construction and prior to redistribution. Temporary stabilization of farmland soils during construction would be achieved through seeding and mulching, or appropriate best management practices to limit erosion. (QS 1c, Tab E – FSMP, p. 4)

361. Once earth-disturbing activities are complete, redistributed farmland soils would be permanently stabilized through the use of native seed mix. Following decommissioning of the project, these soils can be regraded for agricultural use. (QS 1c, Tab E – FSMP, p. 4)

362. Compaction of soils within designated areas of important soils would be limited during construction. Compaction of subbase materials would be required in areas of access roads, equipment pads, Quinebaug Collector Substation, and utility trenches to ensure proper construction. Long-term compaction outside of those identified areas would not be expected. (QS 1c, Tab E – FSMP, p. 4)

363. Deliveries of project components and infrastructure would be made to a designated area within each sub-array. This area would be located outside of the limits of important soils to the maximum extent practicable. (QS 1c, Tab E – FSMP, p. 4)

364. Restoration of disturbed farmland soils would be initiated at the time of decommissioning. These farmland soils would be restored back to pre-determined baseline conditions to the greatest extent practicable. (QS 1c, Tab R – SMP, p. 3)

Pollinator Habitat

365. Although applicable only to electric transmission line ROWs, CGS §16-50hh permits the Council to consider post-construction site restoration or revegetation that includes the establishment of model pollinator habitat. (CGS §16-50hh)

366. The meadow habitat proposed under and around the solar arrays would primarily serve the purposes of soil stabilization and stormwater control, but may have ancillary pollinator benefits depending on the final seed mix. (QS 7, Late Filed Exhibit h)

367. QS proposes to install tiered landscaping as a visual buffer at certain locations along the project boundaries. See Figure 1. The proposed landscape plantings, which contain some pollinator-friendly species, are listed below.

Species	Pollinator-friendly
PERRENIALS	
Purple Coneflower	Yes
Cardinal Flower	Yes
Scarlet Beebalm	Yes
Largeflower Tickseed	No
Black-Eyed Susan	Yes
SHRUBS	
Prague Viburnum	Yes
Mustead Lavender	No
Winterberry	Yes
TREES	
Eastern Red Cedar	No
Common Juniper	No

(QS 1c, Tab G, Sheet C-088; QS 7, Late Filed Exhibit h)

Neighborhood Concerns

368. The Petitioner has continued to meet with project abutters to identify concerns related to the project. Abutters received a project update notice from QS in April 2019, and several abutters attended both the municipal official presentations and the public open house. Most concerns raised were related to vegetative screening, construction noise and traffic, and stormwater management. (QS 1c, p. 5-1)

369. Pursuant to CGS § 16-50m, the Council, after giving due notice thereof, held a public comment session on Tuesday, January 14, 2020 at 6:30 p.m. at the Brooklyn Community Center, 31 Tiffany Street, Brooklyn, Connecticut. (Council's Hearing Notice dated December 9, 2019; Tr. 2)

370. One interested person provided an oral statement during the Council's public comment session and followed up with a written statement during the public comment period expressing concern about stormwater runoff. (Tr. 2, pp. 94-99; Record)

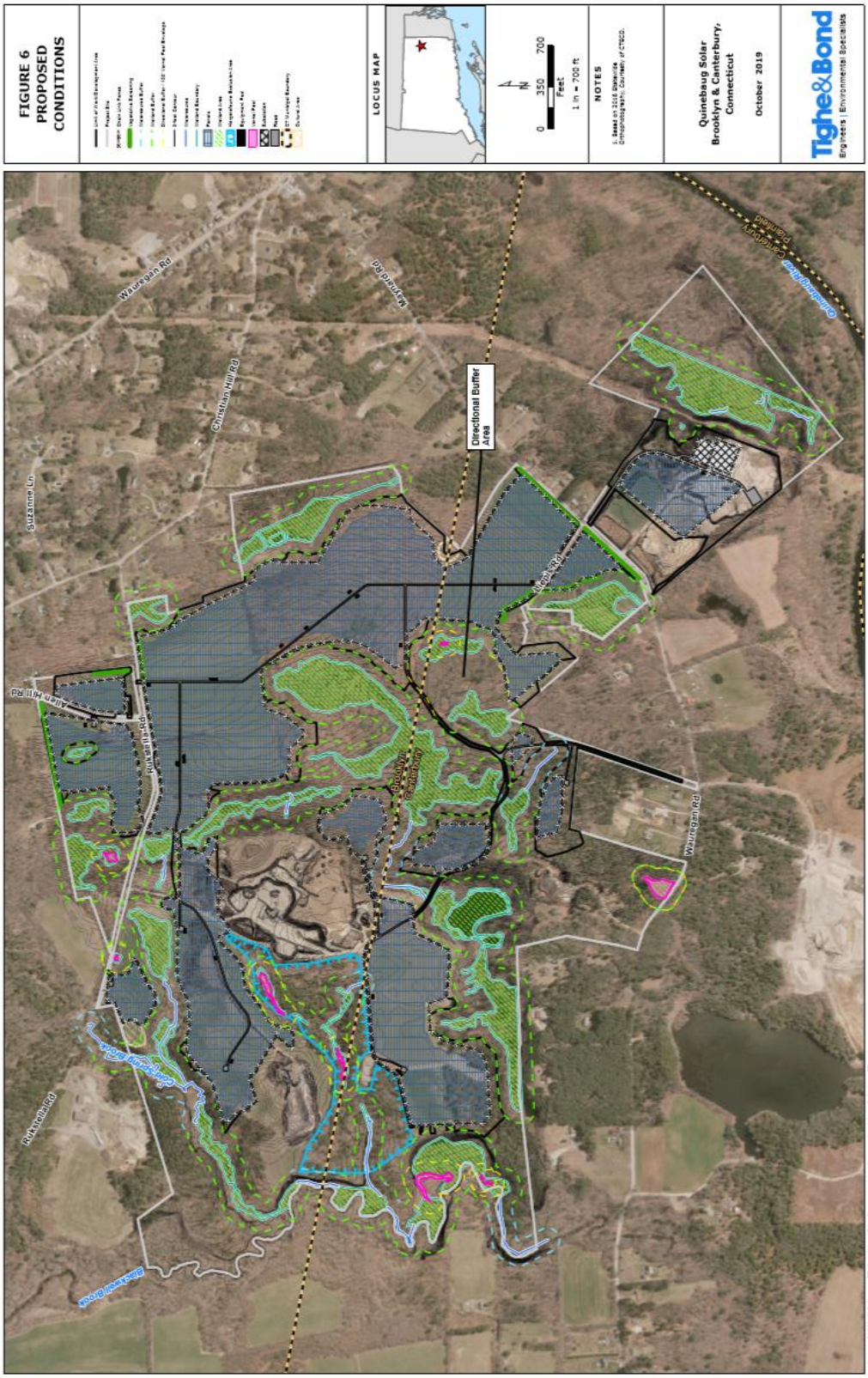
371. No written limited appearance statements were received. (Record)

372. With respect to concerns about vegetative screening, QS would install such screening along Wauregan Road to the east and west of Liepis Road and also along the limits of northernmost arrays off of Allen Hill Road. The tallest proposed plantings would be evergreen trees with an initial height of about six to seven feet tall. (QS 1c, Tab A – Figure 6 and Tab G – Sheet C-088; QS 7, Late Filed Exhibit h)

373. With respect to concerns about stormwater runoff, QS' construction sequence was developed in close consultation with DEEP in support of QS' application for a General Permit. Additionally, during construction, QS would have a full-time environmental monitor present at the site to document conditions and ensure compliance with the terms of the DEEP General Permit. (QS 1c, p. 3-10)

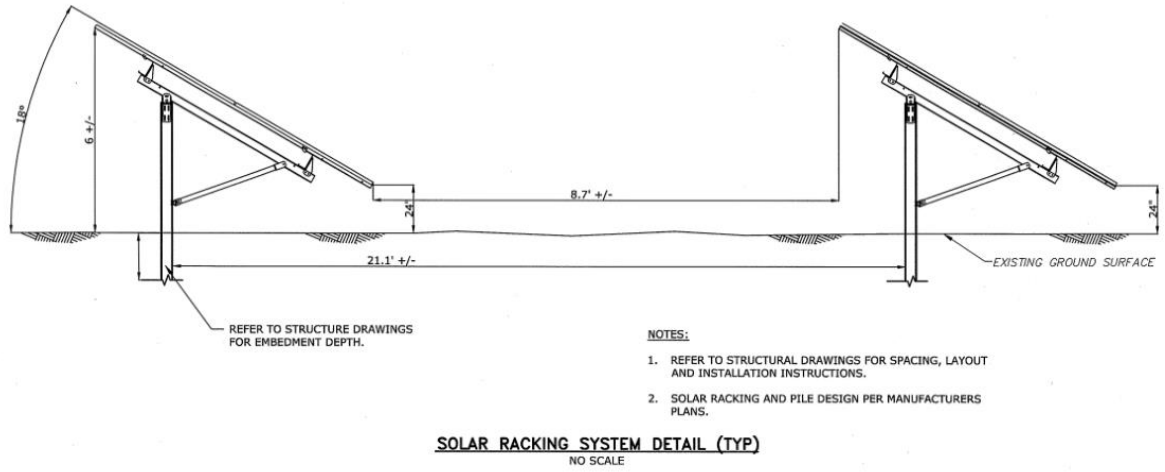
374. With respect to concerns about construction traffic, prior to construction, a traffic control plan would be developed in consultation with DOT, the Town of Brooklyn and Canterbury Department of Public Works. (QS 1c, p. 6-1)

Figure 1 – Proposed Site Plan



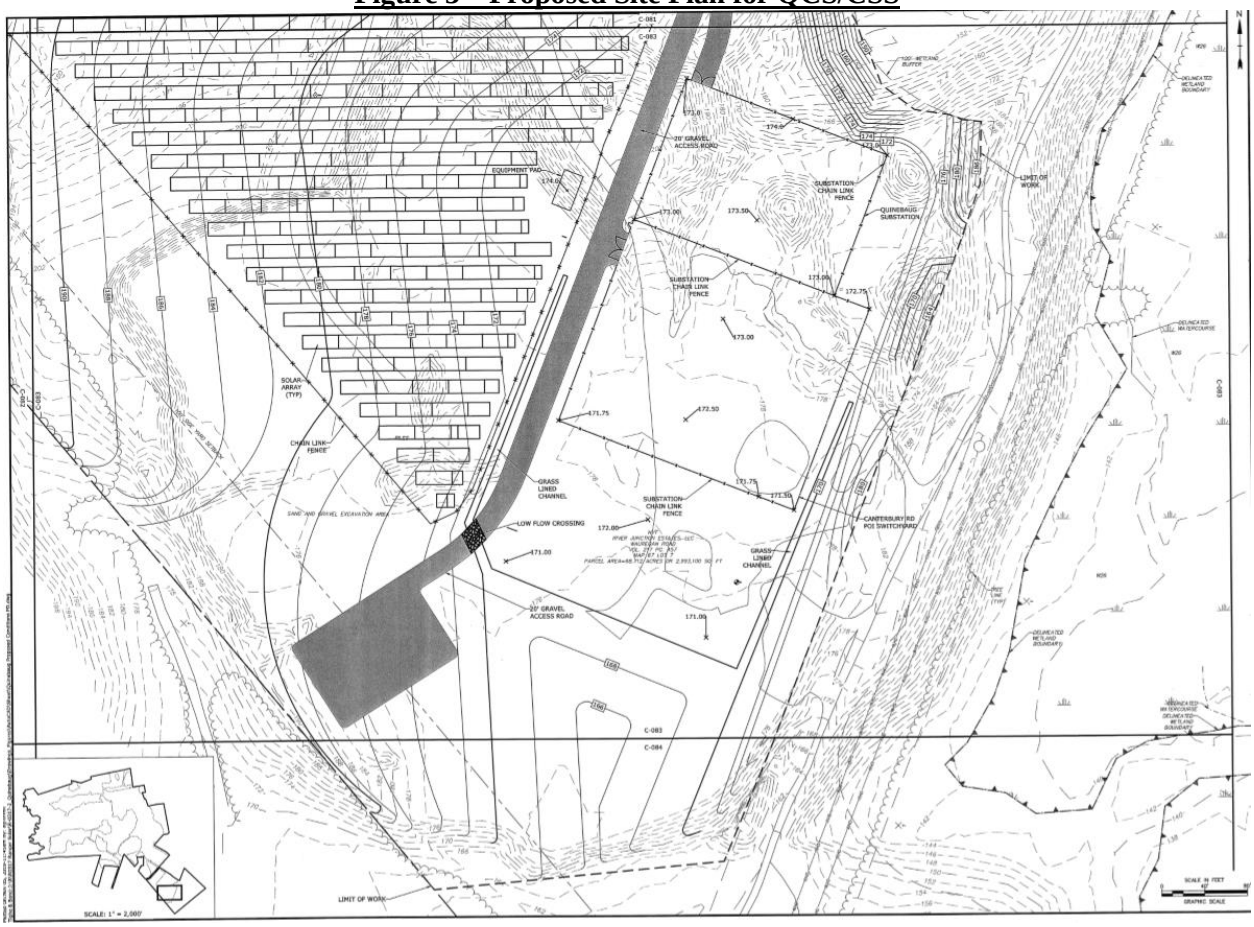
(QS 1c, Tab A, Figure 6 – Proposed Conditions)

Figure 2 – Proposed Solar Rack Side Elevation View



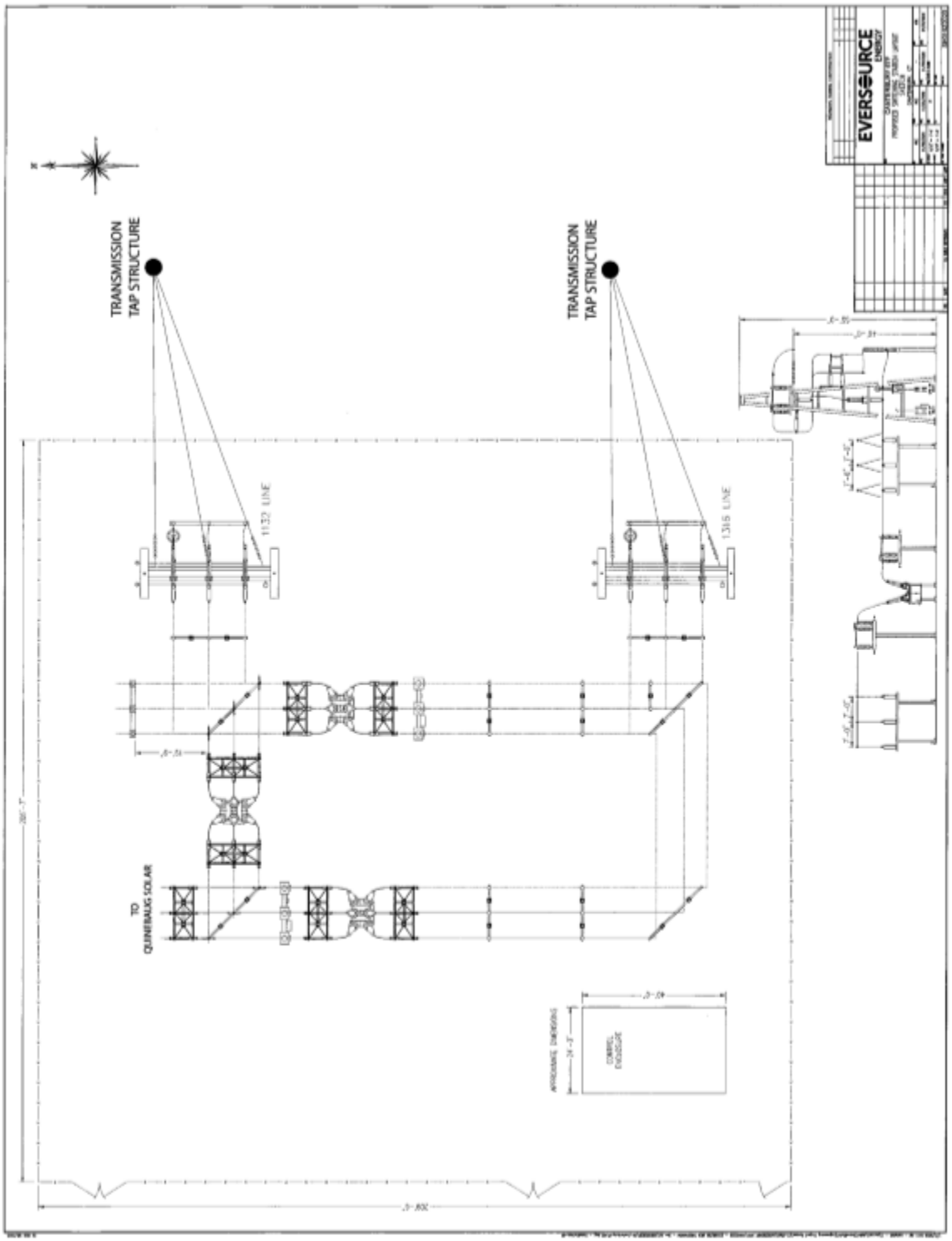
(QS 1c, Tab G, Sheet C-086, Solar Racking System Detail)

Figure 3 – Proposed Site Plan for QCS/CSS



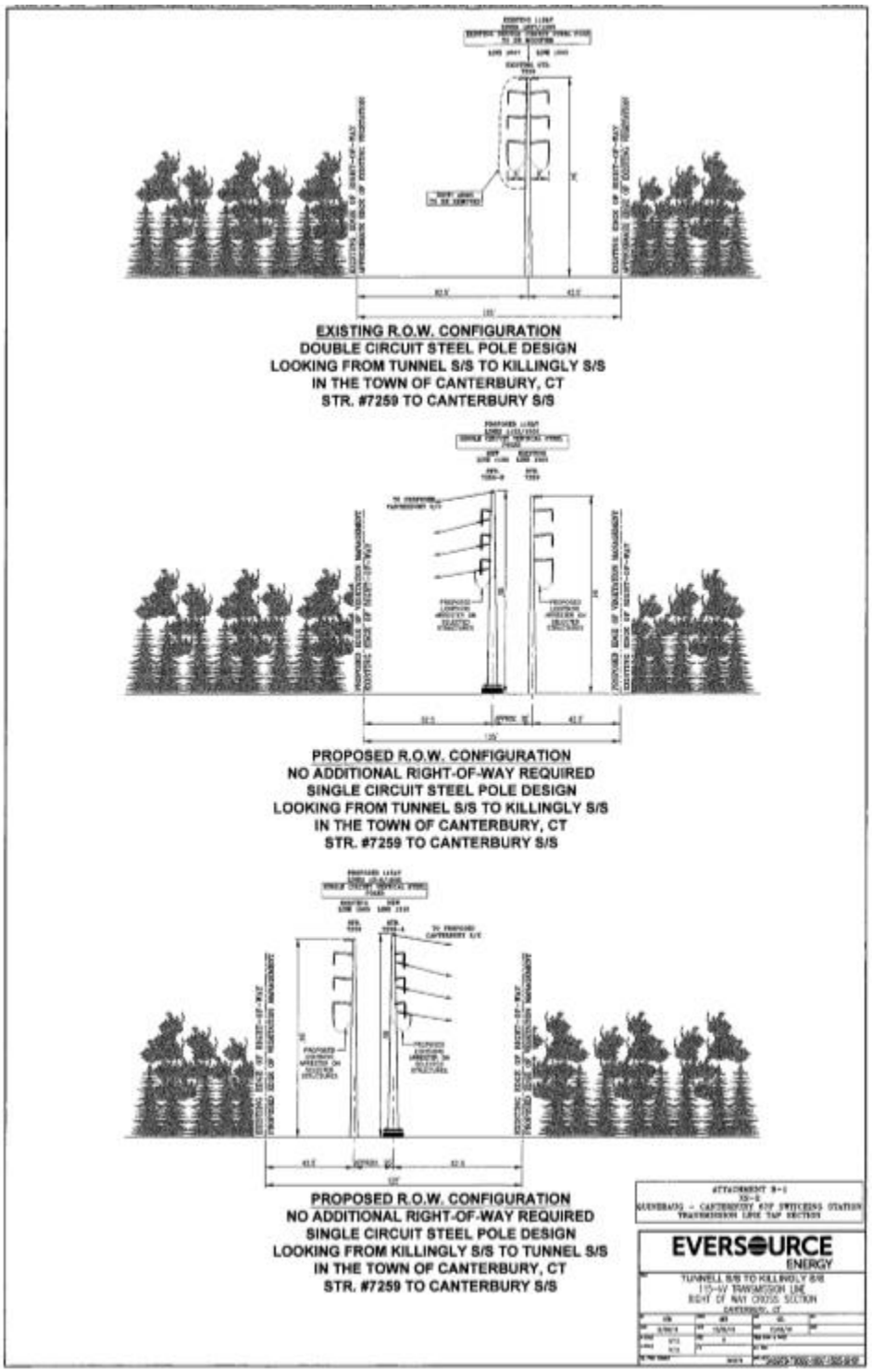
(QS 1c, Tab G, Sheet C-083)

Figure 4 – Proposed Site Plan for CSS



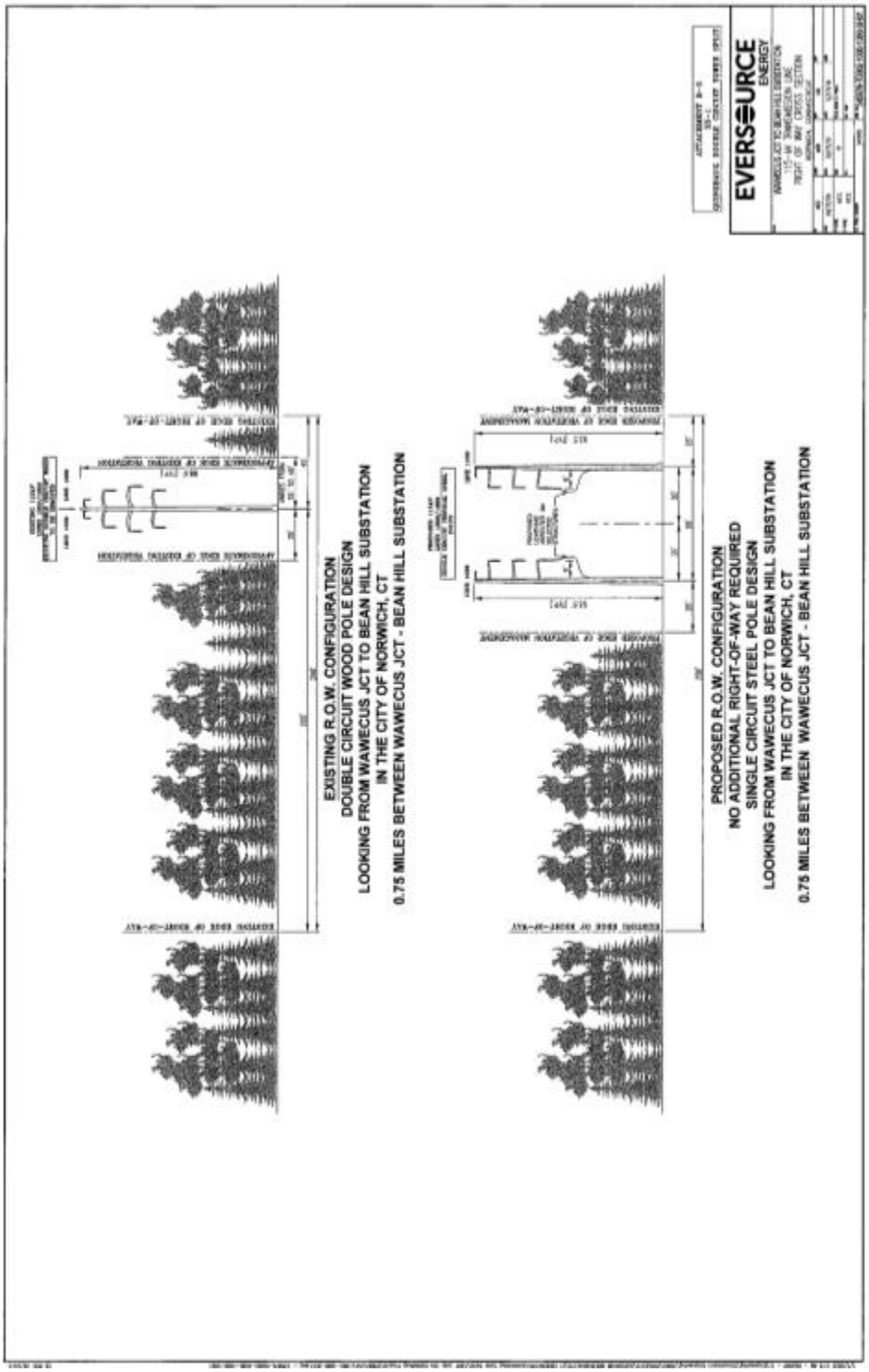
(Eversource 2, Attachment A-2, Layout Sketch – CSS)

Figure 5 – Proposed Interconnection to Existing Transmission



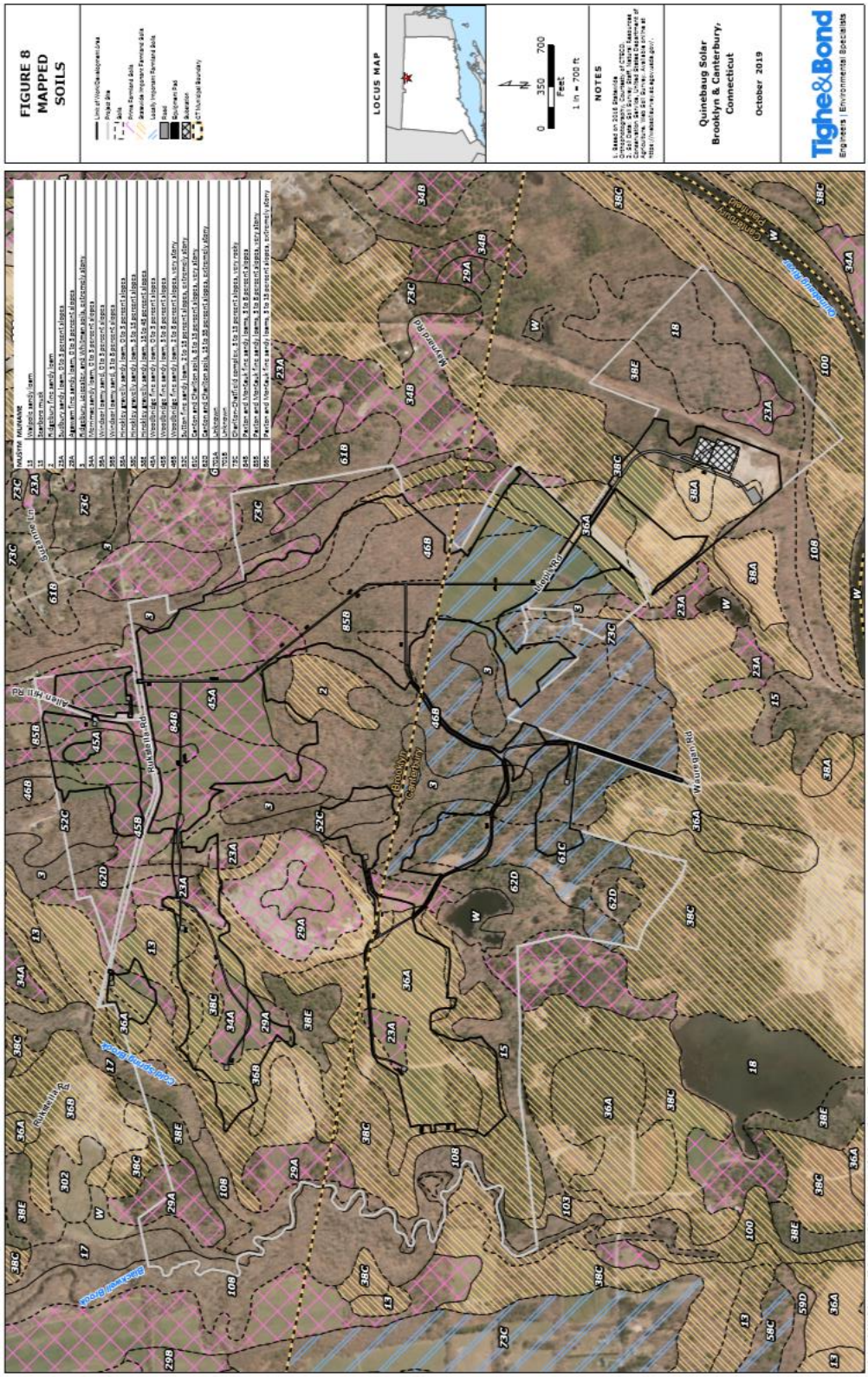
(Eversource 2, Attachment B-1, Cross Section XS-2 – Tunnel Substation to Killingly Substation)

Figure 6 – Proposed Transmission Modifications in Norwich



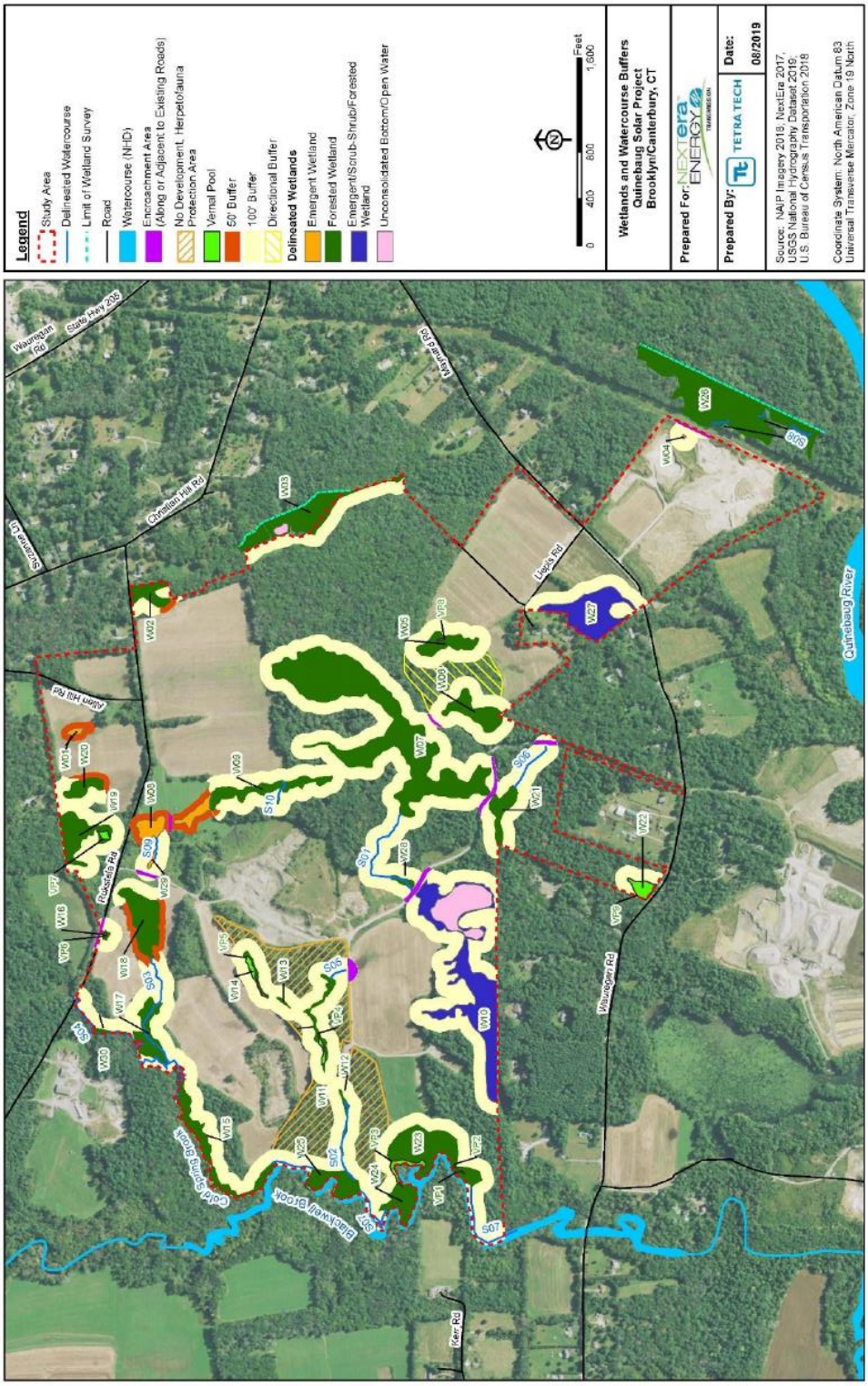
(Eversource 2, Attachment B-1, Cross Section XS-1 – Wawecus Junction to Bean Hill Substation)

Figure 7 – Soils Map



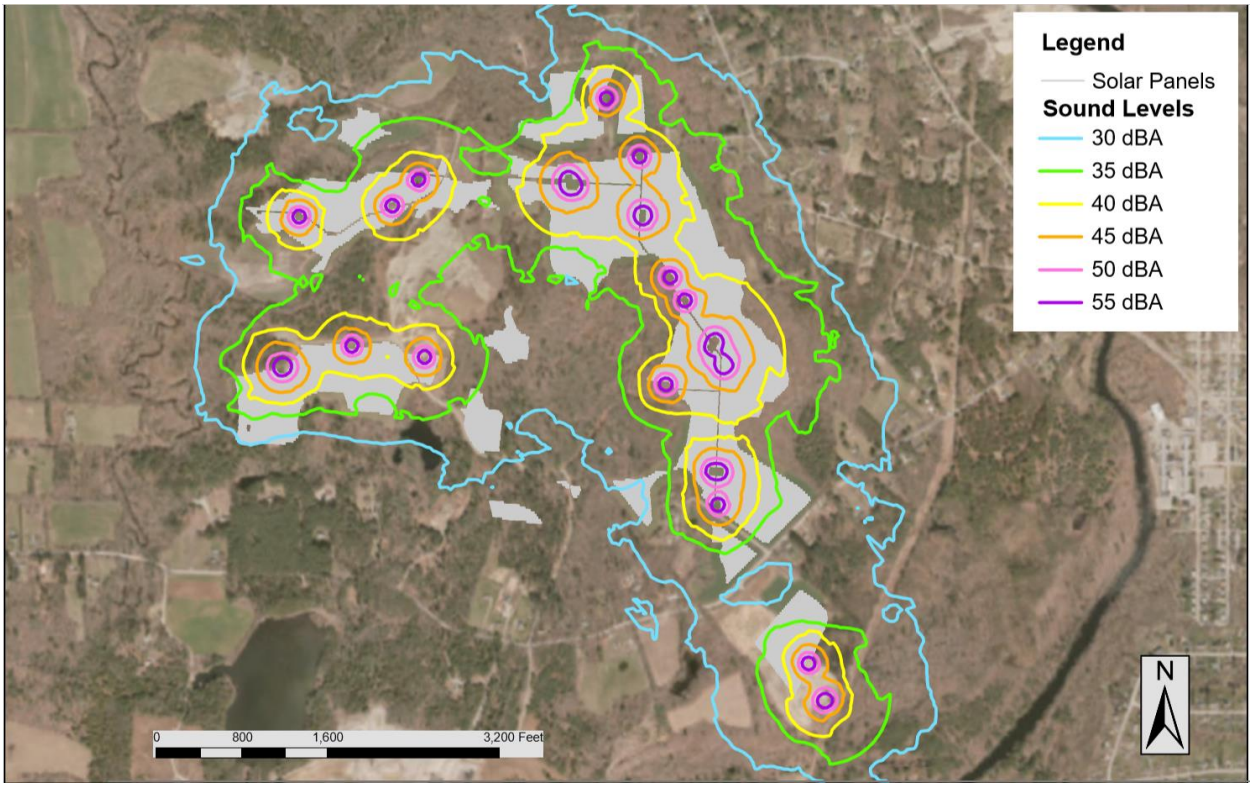
(QS 1C, Tab A, Figure 8 – Mapped Soils)

Figure 8 – Water Resources Map with Proposed Buffers



(QS 1b, Pre-filed Testimony of Katelin Nickerson and Dr. Kevin Ryan, Attachment 1 – Wetland Functions and Values Assessment, Figure 1, Wetlands and Watercourses and Proposed No-disturbance Buffers)

Figure 9 – Projected Sound Levels Map



(QS 1c, Tab O, Figure 3)

Appendix A – Comments from SHPO, DOAg, DEEP and CEQ

Connecticut®

Department of Economic and Community Development

State Historic Preservation Office

January 9, 2020

Mr. David R. George
Heritage Consultants
PO Box 310249
Newington, CT 06131

Subject: Phase IB Cultural Resource Reconnaissance Survey and
Phase II National Register of Historic Places Testing and Evaluation
Site 22-38 (Locus 2-1) and Sire 19-35 (Locus 11-1)
Quinebaug Solar
Booklyn and Canterbury, Connecticut
ENV-20-0320

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the archeological survey report prepared by Heritage Consultants, LLC (Heritage), dated November 2019. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act (CEPA). The proposed facility includes the installation of a 50MWac solar photovoltaic (PV) electric generating facility, to interconnect with the Eversource Energy electrical grid through Line 1607-1505, located approximately 1,500 feet west of the Quinebaug River. The facility is to occupy approximately 226.5 acres of a 556.2 acre study area, bordered by Allen Hill Road and forested areas to the north, to the south by Wauregan Road, to the east by the Quinebaug River, and to the west by Blackwell Brook. The central and western portion of the study area, which contain active sand and gravel pits, will not be developed as part of the undertaking. A central gravel area is proposed to be used as a temporary laydown/staging area, while an existing access road is proposed to be utilized during construction and facility maintenance. The submitted report is well-written, comprehensive, and meets the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources.*

SHPO would like to affirm and clarify previous recommendations made during the Phase IA investigations. An historic wellhouse, the Rukstella farmstead, the Harris/Butts/Cady Farmstead, and nine of 12 recorded stone wall segments were identified and evaluated during these

investigations. None of these resources are considered eligible for listing on the National Register of Historic Places (NRHP) as either individual or contributing resources applying the criteria for evaluation (36 CFR 60.4). No additional documentation of these resources is warranted. In addition to these historic resources, the Bennett/Gallagher/Taylor cemetery with two wall segments, a stone town boundary marker with stone wall segment, and the Mowrey farmstead were also recorded. SHPO recommends that the Bennett/Gallagher/Taylor cemetery should be protected with a 50 foot buffer extending from its exterior wall. SHPO understands that the two wall segments that connect to the cemetery must be breached for construction access. SHPO recommends that these wall segments not be breached within the 50 foot buffer of the cemetery. Similarly, the historic town boundary monument should be preserved in place and protected with a 100 foot buffer area to include the stone wall segment connected to it, as well as a historic archaeological site subsequently identified in its vicinity (Locus 12-1, see below). The buffered areas for the monument, cemetery, and stone wall segments should be clearly marked on project construction maps as sensitive resource areas and protected in the field during construction with fencing to ensure that there are no inadvertent impacts. SHPO requests that areas to be breached in the walls extending from the cemetery also be clearly marked on project maps and in the field so that construction crews can minimize harm to only what is needed to complete the project. Lastly, the Mowrey farmstead represents a well preserved example of early historic settlement of the region. SHPO affirms its appreciation for avoiding this potentially significant resource. If project plans change to include impacts within the site area, we request additional consultation.

In addition to the resources identified during the previously reviewed Phase IA survey, a total of 32 archaeological resources were recorded during the subsequent Phase IB survey. SHPO concurs that 26 of the newly recorded archaeological loci do not retain the qualities essential to listing on the NRHP. No further archeological investigation of these loci (Loci 4-2, 5-1, 7-1, 8-1, 8-2, 8-3, 8-4, 8-5, 9-1, 13-1, 15-1, 16-1, 16-2, 16-3, 16-4, 16-5, 17-1, 18-1, 18-2, 19-1, 19-2, 20-1, 20-2, 21-1, 23-1, and 24-1) is recommended. Of the six remaining archaeological resources, four (Locus 12-1, Site 22-36, Site 19-34, and Site 19-8) could be protected from project impacts and were not subject to a formal evaluation, but are considered potentially eligible for listing on the NRHP. Locus 12-1, an intact late 18th to early 19th century domestic site, will be avoided within the 100 foot buffer established above for the historic boundary marker. The site boundaries reported for pre-contact Sites 22-36 (Locus 4-1), 19-34 (Locus 6-1), and 19-8 (Locus 25-1) should be buffered by 50 feet and depicted on construction maps as sensitive resource areas to be avoided. Because Site 19-8 is located in an open field and not easily discernable on the ground, SHPO requests that fencing be erected prior to construction activities and under the guidance of the project archaeologist to protect the site from unintentional impacts. Sites 22-36

and 19-34 do not require fencing because they are located a sufficient distance from project development areas and are naturally protected within forested areas.

Project impacts could not be as easily avoided for the two remaining archaeological sites (Sites 19-35 and 22-38); therefore, they were subjected to Phase II investigations to better understand the nature and distribution of cultural material. The intensive testing process at Site 19-35 (Locus11-1) also included mechanical stripping. SHPO appreciates this additional effort to ensure that significant cultural features were not overlooked. Despite the identification and recovery of cultural features and diagnostic artifacts, it was demonstrated that the majority of Site 19-35 (Locus 11-1) exhibited integrity issues related to plowing, erosion, and nearby gravel mining that diminished the research potential of the site. Based on the information provided to our office, SHPO concurs that archeological Site 19-35 is not eligible for listing on the NRHP and no additional testing of it is needed. SHPO has no objection to project development at this location. Site 22-38, however, yielded a diverse artifact assemblage and a variety of feature types derived from primarily intact deposits. Site 22-38 retains significant research potential relating to the Middle and Late Archaic and SHPO concurs that this site is eligible for listing on the NRHP. SHPO has reviewed the plan to avoid/minimize harm to the site; it consists of recommendations for tree removal and the creation of exclusion areas. As recommended, tree removal should be restricted to a time when the ground is stable, preferably frozen, to reduce the possibility of rutting. Trees should be cut in place without grubbing or grinding of the stumps. SHPO further recommends that vehicles used at this location should be fitted with low ground-pressure tires and/or the ground should be protected with matting or padding to avoid impacts. SHPO notes that there is disagreement, however, between the verbally described exclusion areas discussed in Volume I of the report and the areas depicted on Figure 154. SHPO concurs that, as depicted on Figure 154, impacts to the significant portion of Cluster 2, dating from the Middle Archaic, within Site 22-38 would be avoided by creating a 25 foot buffered exclusion area around the confluence of Excavation Units 1, 3, and 24. SHPO, however, requests that the exclusion area for the western part of Site 22-38, containing significant deposits dating from the Late Archaic, depicted on Figure 154 be revised to reflect the findings depicted on Figure 86. The Cluster 1 boundary on Figure 86 should also be buffered by 25 feet and identified as the exclusion area to avoid impacts to Site 22-38. The exclusion areas should be marked on construction maps as sensitive resource areas to be avoided and fencing should be erected at the buffered perimeter in consultation with the project archaeologist to prevent unintended intrusions into this significant archaeological resource.

SHPO does not want a new printing of the submitted report, but requests corrections to two pages. The second paragraph on Page 114 of Volume I begins, "Site 22-28 (Locus 21)." It should be correct to, 'Site 22-38 (Locus 2-1).' In addition, Figure 154 should be revised to accurately

Connecticut

Department of Economic and Community Development

State Historic Preservation Office

reflect the exclusion areas described in the report. Finally, SHPO acknowledges that there was a comprehensive effort made to relocate six previously record sites (19-2, 19-8, 19-9, 19-11, 19-15, and 19-16). Site 19-8 was relocated and will be avoided as described above, but no evidence of the five remaining sites was recovered.

If all of the recommendations can be taken into consideration, SHPO is of the opinion that the project will have no adverse effect on historic properties. Should construction plans change such that they would impact identified significant resources that are being avoided or, if any of the recommendations above cannot be implemented, this office requests additional consultation.

SHPO appreciates the cooperation of all interested parties in the professional management of Connecticut's cultural resources. We look forward to additional consultation if or when additional portions of the parcel are scheduled for development. These comments are provided in accordance with the Connecticut Environmental Policy Act. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357 or marena.wisniewski@ct.gov.

Sincerely,

Mary B. Dunne

Mary B. Dunne
State Historic Preservation Officer

STATE OF CONNECTICUT
DEPARTMENT OF AGRICULTURE
Office of the Commissioner

Bryan P. Hurlburt
Commissioner

860-713-2501
www.CTGrown.gov

January 9, 2020

RECEIVED
JAN 13 2020
Connecticut Siting Council

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

Re: Petition No. 1310A - Quinebaug Solar, LLC petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction, maintenance and operation of a 50 megawatt AC solar photovoltaic electric generating facility on approximately 561 acres comprised of 29 separate and abutting privately-owned parcels located generally north of Wauregan Road in Canterbury and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut. Reopening of this petition based on changed conditions pursuant to Connecticut General Statutes §4-181a(b).

Dear Executive Director Bachman:

While the Department of Agriculture has already provided comments on the original Petition for Declaratory Ruling in this matter (Petition No. 1310), we wanted to reiterate our concerns with this project. Our primary concern is that the project, although the impact has been somewhat reduced, still seeks to convert approximately 190 acres of Prime and Important Farmland Soils to a 50 megawatt solar voltaic development.

As stated in our previous comments, Prime and Important Farmland soils are recognized federal, state and locally significant natural resources, and through its adoption of Public Act 17-218, our legislature has formally acknowledged the importance of these resources. While aspects of this public act may not directly affect this petition, the Department of Agriculture believes it is important to document and make part of the record our concerns about the impacts projects such as this one have on farming and agriculture.

The loss of Connecticut farms significantly impacts our efforts to combat food insecurity, results in the importation of human food and animal feed from outside of our state, increases food waste, and increases the distance from which we bring in our food, thus increasing our carbon footprint. It is commonly held that well managed agricultural lands can store significant carbon and can play an important role in climate change mitigation.

In addition to taking agricultural lands out of production in the near term, this project's impacts will include but not be limited to those from the use of heavy equipment, holes from the installation of driven metal support posts, miles of trenching for electrical conduit, surface grading, and the construction of access roads and equipment pads. These manipulations and changes will have an adverse impact on the upper 24 inches of the soil which are critical to plant growth, and will have negative consequences for agricultural productivity.

We continue to believe the petition could have given more consideration to mitigation. For example, the developers could consider the purchase of conservation easements on farmland in the community, paying to restore farmland in the area or utilizing additional mined land on the parcel for solar arrays and then leasing out the farmland acreage.

In conclusion, the loss of large tracts of actively used prime and important farmland soils from an agricultural community that has a deficit of arable land will put additional farms at risk for failure and/or conversion to nonagricultural use. While the Department supports properly scaled renewable energy on farms and farmland where such projects are in concert with Connecticut's farmland protection goals and policies, we do not support this project.

Thank you for the opportunity to comment on this project. If you have any questions, please feel free to contact me.

Sincerely,

Bryan P. Hurlburt
Commissioner

Cc: Katie Dykes, Commissioner
Department of Energy and Environmental Protection

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Emplo

January 10, 2020

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: 50-MW Solar Photo-voltaic Generating Facility
Quinebaug Solar, LLC
Brooklyn and Canterbury, Connecticut
Petition No. 1310 Motion to Reopen

Dear Members of the Connecticut Siting Council:

Staff of this department have reviewed the above-referenced Motion to Reopen the 2017 petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need will be required for the construction of a 50-MW photo-voltaic generating facility to be constructed in southeastern Brooklyn and northeastern Canterbury and accessed off Wauregan Road in Canterbury. A field review of the site was conducted on January 2, 2020. Based on these efforts, the following comments are offered to the Council for your consideration in this proceeding. The Council is also asked to take administrative notice of DEEP's comments of September 14, 2017 on the original Petition No. 1310 including the Stormwater Management Guidance dated September 8, 2017 which was attached to those comments.

The project site consists of 30 parcels totaling 599 acres consisting of forestland, agricultural fields and gravel extraction pits. The project footprint covers 227 acres. The solar array would employ 179,128 photovoltaic panels.

Compared to the original 2017 proposal, the current project footprint has been reduced from 270 acres to 227 acres, vegetative clearing has been lessened from 118 acres to 71 acres, and buffers around wetlands have been increased.

<u>New England Clean Energy Multi-State Project Solicitation</u>

Quinebaug Solar submitted this project into the New England Clean Energy Request for Proposals (RFP), a three state solicitation by DEEP, in conjunction with Massachusetts and Rhode Island. Connecticut solicited and selected renewable energy projects issued pursuant to Section 1(c) of Connecticut Public Act 15-107, *An Act Concerning Affordable and Reliable Energy* (P.A. 15-107) and Sections 6 and 7 of Connecticut Public Act 13-303, *An Act Concerning Connecticut's Clean Energy Goals* (P.A. 13-303). The RFP process represents an important step forward in the implementation of Connecticut's vision for a more affordable, cleaner, and more reliable energy future for the ratepayers of Connecticut. Bringing more grid-scale renewable energy projects on line is instrumental in furthering this vision as these resources help diversify the regional fuel mix, assist the state in meeting its commitment to procure 20% of its electricity from Class I renewable

sources by 2020, and in implementing Governor Lamont's Executive Order No. 3 that DEEP investigate pathways to achieve a 100% zero-carbon electric sector by 2040. Developing grid-scale renewables is also imperative to the state's success in achieving its goal of reducing carbon emissions by 45% below 2001 levels by 2030 and by 80% below 2001 levels by 2050. In reviewing the bids in this RFP, DEEP applied both a quantitative and a qualitative analysis to arrive at a final score for each bid. After evaluating all the projects bid into the three state RFP process, DEEP selected the Quinebaug Solar LLC proposal as one of the projects authorized to enter into long-term power purchase agreements with the utilities. DEEP notes that the Siting Council's previous denial of Quinebaug Solar LLC's petition was not based on a failure to demonstrate a public need. It is DEEP's position that the public need to develop grid-scale renewable energy resources persists unchanged.

Construction Stormwater Management

Construction projects involving five or more acres of land disturbance require either an individual NPDES discharge permit from DEEP or they may register for coverage under the Department's General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015). This general permit is currently in the process of being revised and reissued.

Since the original Petition No. 1310 proposal in 2017, Quinebaug Solar and DEEP Stormwater Program personnel have met on several occasions, allowing DEEP to provide additional guidance to the applicant. No registration has yet been filed for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ("Construction GP") as such registration filing can occur only after a written affirmative determination has been obtained from the DEEP Wildlife Division that the construction will not threaten the continued existence of any species listed pursuant to section 26-306 of the Connecticut General Statutes as endangered or threatened, or result in the destruction or adverse modification of habitat deemed to be essential for such species, as required by section 3(b)(2) of the Construction GP. This determination letter has not yet been issued as ongoing evaluation of listed species data and suitable mitigation for impacts to listed species is still in process.

As of this past Monday, the DEEP Stormwater Program has issued new guidance for solar farm developers concerning effective management of runoff during the design, construction and operation of solar facilities. This new guidance, which is attached to these comments, neither conflicts with nor supplants the guidance document of September 8, 2017. It is provided with these comments both for the benefit of the petitioner and of Council members and staff.

Quinebaug Solar should also be aware that prior to initiating the construction of any engineered stormwater control measures, any proposed measures must be evaluated to determine if they may quality as dams as defined by the Regulations of Connecticut State Agencies Sec. 22a-409-1(10), which may require a Dam Safety Construction Permit. A determination on the need for this permit may be requested by contacting the DEEP Dam Safety Program at DEEP.DamSafety@ct.gov.

Natural Diversity Data Base

As indicated in Appendix D of the Petition, there have been numerous contacts between representatives of Quinebaug Solar and the biologists of the Natural Diversity Data Base over the last two years. The principal endangered species at the site is the eastern spadefoot, often referred to as the eastern spadefoot toad, *(Scaphiopus holbrookii)*, an amphibian which requires vernal pools and/or other temporary freshwater habitat as well as dry upland areas. DEEP and the applicant are engaged in on-going discussion concerning the provision of adequate upland habitat for this species, and to a lesser extent for eastern hognose snake *(Heterodon platirhinos)*, a species of special concern. Eastern spadefoot upland habitat appears to occur on the project site.

The proposed seasonal restriction of conducting all tree clearing from October to March is appropriate for the protection of any tree-roosting bat species at the site.

The hiring of an on-site environmental monitor, an aspect of the Herpetofauna Avoidance and Mitigation Plan contained in Appendix D, is a valuable aspect of the protection of listed species which may be resident on the project site and specifically within the construction area. The Council should require that this environmental monitor be a qualified herpetologist with education and experience with amphibians and reptiles in general and with specific experience with the eastern spadefoot. The monitor should also have or obtain a valid scientific collection permit from the DEEP Wildlife Division to work with eastern spadefoot and thereby be authorized and qualified to relocate any individuals encountered at the project site who need to be moved out of harm's way.

Miscellaneous Commentary

Given the 71 acres of land clearing proposed for this project and the intensity of the panel coverage within the limits of the construction area, the preservation of 91% of the stone walls with the development area, as cited on page 6-6 of the Petition, is a notable and commendable accomplishment.

There is a possible discrepancy between the figure on page 3-8 of 0.88 miles of existing roads on the project site being reused for the project and the statement on page 4 of the Vernal Pool Survey and General Herpetological Inventory for the Quinebaug Solar Site which cites the presence of 1.5 miles of existing dirt and gravel roads on the site. Does this difference reflect a difference between the areas covered by the terms 'development area' and 'the site', or are some of the existing roads not designated for reuse by the project?

Thank you for the opportunity to review this petition and to submit these comments to the Council. Should you, other Council members or Council staff have any questions, please feel free to contact me at (860) 424-4110 or at frederick.riese@ct.gov.

Respectfully yours,

Frederick L. Riese
Senior Environmental Analyst

Attachment: (1)
cc: Commissioner Katie Dykes

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

January 13, 2020

Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: PETITION NO. 1310A - Quinebaug Solar, LLC petition for a declaratory ruling for the proposed construction, maintenance and operation of a 50 megawatt AC solar photovoltaic electric generating facility on parcels located generally north of Wauregan Road in Canterbury and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut.

Dear Ms. Bachman:

The Council on Environmental Quality ("the Council") offers the following comments with regard to Petition No. 1310A (Petition).

1. Vegetative Management

The Petitioner, Quinebaug Solar, LLC, states that the disturbed areas in and around the work development area will be seeded with a native seed mixture to promote meadow habitat. The Council recommends that the Petitioner consider including species that are specifically identified as pollinator-friendly.

If efforts to reduce the spread of invasive species will include the application of herbicides, an attempt to avoid areas with pollinator-friendly plants is encouraged. Additionally, the Petitioner should identify what techniques, such as setbacks, will be employed to prevent pesticide overspray or runoff to sensitive receptors like aquatic plants.

2. State-Listed Species

The Council commends the Petitioner for establishing a herpetofauna protection area along the western side of the study area and for the detailed Herpetofauna Avoidance and Mitigation Plan. Absent, in the Petition filing, is a final determination from the Department of Energy and Environmental Protection (DEEP) Natural Diversity Database (NDDB) as to whether the proposed measures adequately protect State-Listed Species that are, or are likely to occur, on portions of the proposed site. The Council recommends that the Siting Council defer any

79 Elm Street, Hartford, CT 06106
Phone: (860) 424-4000 Fax: (860) 424-4070
http://www.ct.gov/ceq

decision on the proposed project until such time as the NDDB final determination has been received and its recommendations incorporated into the plan.

Similarly, there are two areas identified as potential breeding pools for Eastern spadefoot toads (Pool A and Pool B) located within the proposed project site that were identified. They were not delineated as wetlands or vernal pools due to their short "hydroperiods". The Petition stated that only a single year of data cannot rule out that these pools may contain breeding congresses in some years. The Council recommends that a buffer be established around both pools that is sufficient to protect those potentially vital breeding areas.

3. Inland Wetlands and Vernal Pools

The proposed site contains significant areas of inland wetlands. The Wetland and Watercourse Buffers Map, dated 4/2019, and the proposed site plans depict areas adjacent to wetlands 1, 2, 18, and 20 as having less than a 100 foot buffer, whereas other wetland areas, even those not located within the study area, are depicted with a 100-foot buffer. The Council recommends that the Petitioner maintain a minimum 100-foot buffer around all wetland areas and vernal pools to reduce impacts on the amphibians and other species that are dependent on those ecosystems. As stated in the Vernal Pool survey and Herpetological Inventory, "conservation strategies that only focus on protecting breeding pools (and not the associated critical terrestrial habitat) will most likely fail to maintain a viable amphibian population."

4. Construction Schedule and Phasing

The Petition (Section 3.5) includes details on the proposed activities within each of the five phases of construction and a very general construction schedule (Exhibit J). The Council recommends that specific details on the proposed time of year and the proposed duration for each of the proposed construction phases be provided.

Thank you for your consideration of these comments. Please do not hesitate to contact the Council if you have any questions.

Sincerely,

Peter Hearn
Executive Director