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May 7, 2024

DELIVERED BY E-MAIL AND HAND DELIVERY

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

Re: PETITION NO. 1609 – TRITEC Americas, LLC notice of election to waive exclusion from Connecticut Siting Council jurisdiction, pursuant to Connecticut General Statutes §16-50k(e), and petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 0.999-megawatt AC solar photovoltaic electric generating facility located at 250 Carter Street, Manchester, Connecticut, and associated electrical interconnection. **Petitioner Responses to Interrogatories from R. Welnicki.**

Dear Attorney Bachman:

On behalf of TRITEC Americas, LLC (“Petitioner”), please accept the enclosed responses to the interrogatories provided by Raymond Welnicki on April 18, 2024. The Petitioner submits fifteen hard copies of all necessary documents. Please feel free to contact me if you have any questions.

Very sincerely yours,

Paul R. Michaud

cc: Service List dated April 30, 2024
John F. Sullivan, Attorney for the Town of Manchester
Raymond Welnicki
Rachel and Dana Schnabel
Rosemary Carroll (MARSD)

Petition No. 1609 TRITEC Americas, LLC
250 Carter Street, Manchester, Connecticut Interrogatories to Petitioner
Submitted by Raymond Welnicki
April 18, 2024

Project Development

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

Response:

Siting Council, DEEP General Stormwater Permit, and building permits. Petitioner will hold these permits.

2. Please respond to these questions about the Agrivoltaics aspects of the facility described in the Petition:
 - a. The Petition states: “The Project Site and Host Parcel are currently an operating maple syrup farm with multiple maple syrup taps.” How long has this maple syrup farm been operating?
 - b. How many gallons of maple syrup per year has this farm produced in 2021, 2022 and 2023?
 - c. How many gallons of maple syrup is forecast to be produced in 2024?
 - d. How many gallons of maple syrup is forecast to be produced annually over the next 3 years?
 - e. What discussions has Petitioner had with local farmers to find other agricultural opportunities?
 - f. What agricultural opportunities, other than maple syrup farming, have been identified.

Response:

Petitioner objects to this interrogatory as it calls for proprietary business information.

3. The Petition indicates that “the Project would generate additional revenue for the Town through property taxes and fees”. What is your estimate of the annual

amount of taxes and fees that this project will generate for the Town. Put another way, what estimate have you included in your project budgeting forecasts for expenses related to property taxes and fees to the Town of Manchester?

Response:

This can't be determined until the proposed Project achieves commercial operation and the Petitioner meets with the Town Assessor.

4. The Petition indicates that the Project could “serve as an educational tool for local schools to teach the students about renewable energy, sustainability and environmental conservation.” Can you explain how you envision this as a benefit that the students could not get from viewing informational and instructional videos about a solar facility? Do you envision student visits to this facility? What transportation and safety considerations would this propose? Is this in fact a substantive benefit?

Response:

See testimony of Warren Horton in transcript from Hearing held on May 2, 2024.

5. The Petition states that the Project “would greatly benefit the abutters”. Please elaborate how the abutters would benefit greatly.

Response:

Question misstates the Petition. See Petition, testimony of Warren Horton in transcript from Hearing held on May 2, 2024 regarding the benefits to the local distribution system, and the testimony of Kevin Solli in transcript from Hearing regarding the proposed implementation of engineered stormwater basins that will help alleviate stormwater concerns.

6. Soil compaction is a leading cause for runoff. What techniques will Tritec employ during the construction of this site to minimize heavy equipment that compacts soil. Has bulk density of the soil been measured in its current “undisturbed” state. What is the anticipated bulk density for post completion? (see [Best Practices: Photovoltaic Stormwater Management at https://betterenergy.org/wp-content/uploads/2023/01/PV-SMaRT-Best-Practice.pdf](https://betterenergy.org/wp-content/uploads/2023/01/PV-SMaRT-Best-Practice.pdf))

Response:

Per the USDA NRCS Web Soil Survey, the soils located within the Project area considered to be hydrologic Group C and Group D soils. Group C soils have a slow infiltration rate. This group consists of soils with a layer that impedes the downward movement of water or fine textured soils and a slow

rate of water transmission. Group D soils have a very slow infiltration rate and high runoff potential. This group is composed of clays that have a high shrink-swell potential, soils with a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. The findings of the geotechnical investigation performed for the proposed Project are consistent with the NRCS mapping as a restrictive layer of soil was found consistently approximately 3-feet below existing grade, which prevents the runoff from effectively draining to the ground. Bulk density testing was not performed as part of the geotechnical investigation as the only proposed excavation that could potentially penetrate this restrictive soil layer will be in the areas of the grass-lined swale and the eastern area of the stormwater basin. Compaction associated with construction equipment will be negligible as noted above.

7. Photovoltaic Stormwater Management Best Practices state that panels should be positioned to promote greater variety of groundcover and deeper route penetration to maximize water absorption. Will Tritec position panels at least 36” from the ground and plant ground cover that will achieve this height? (see Best Practices: Photovoltaic Stormwater Management, *ibid.*)

Response:

The bottom of the proposed panels will be at least 36” from the ground allowing for the growth of vegetation beneath them.

Proposed Site

8. Are the distances from the fence to the nearest properties shown in Exhibit G, Table 1 of the Petition still accurate?

Response:

Yes.

9. What is the shortest distance between an inverter and the closest property and which property is it?

Response:

The inverters will be approximately 400 feet from the property located at 262 Blue Ridge Drive.

10. The 250 Carter St. Site is surrounded by 26 residential properties that abut the site and 30 additional residential properties that are adjacent to the abutting properties.

What is the Petitioner's experience in developing a solar photovoltaic electrical generation facility of a similar or larger size that had all of the following characteristics:

- a. is surrounded by at least as many abutting residential properties and adjacent-to- abutters residential properties,
- b. is located on a hill above abutting residential properties,
- c. included clearcutting of core forest of at least 7.5 acres,
- d. was a habitat for at least one protected or endangered species or a species of special concern,
- e. was near a natural gas line,
- f. crossed at least one wetland and was within 300 feet of additional wetlands,
- g. required diverting stormwater from at least 12 acres to an infiltration basin located more than 75 feet in elevation above residential properties,
- h. diverted infiltration basin overflows in the direction of abutting properties, and
- i. had residential abutting properties downslope of the facility that had known stormwater issues and/or groundwater exfiltration issues?

Response:

Petitioner has extensive experience in developing solar projects under a full range of site conditions.

11. If the Petitioner has not had such experience at sites with all 9 of the above characteristics has the Petitioner had such experience at sites with 8 of the characteristics? 7 characteristics? 6 characteristics?

Response:

See responses above.

12. If the Petitioner has any experience developing a solar facility at such a site, please provide details of the locations and resolution of the environmental and public safety issues related to the issues involved before and during construction and after the facility became operational.

Response:

Petitioner objects to this interrogatory as it is overbroad, unduly burdensome, and irrelevant. Notwithstanding this objection, and to the extent a response is required, Petitioner states that it has extensive experience under most of the conditions outlined above.

13. Has TRITEC consulted with the Town of Manchester regarding any Town-owned properties that may be suitable to host a solar facility without destroying a core forest? If yes, provide details.

Response:

No.

14. Same question but with respect to privately owned alternate sites?

Response:

No.

Energy Output

15. What is the estimated maximum total amount of energy, in megawatts, that you estimate to be generated by this facility on a given day (i.e., assume the maximum amount of full sun hours on the summer solstice).

Response:

The proposed Project will produce about 2,150,000 kWh in its first year and roughly 40,997 MWh over 20 years.

16. Please answer the same question but assume the maximum amount of full sun hours on the winter solstice.

Response:

The proposed Project will produce about 2,150,000 kWh in its first year and roughly 40,997 MWh over 20 years.

17. Based on average weather and cloud conditions in the Hartford area, please estimate the total annual energy, in megawatts, that you estimated by this facility over the course of a year.

Response:

The proposed Project will produce about 2,150,000 kWh in its first year and roughly 40,997 MWh over 20 years.

18. Please indicate if the amounts above will decrease over the 20-year expected life of this facility and, if so, what would be the expected energy degradation percent per year?

Response:

The proposed Project will produce 2,150,000 kWh in its first year and 40,997 MWh over 20 years. This includes the 0.5% energy degradation rate.

19. During days of full cloud cover would any electrical current be estimated to be present in the solar panels and, if so, can you provide an estimate of what the voltage, amperage and wattage would be?

Response:

During full cloud coverage, irradiance is present, therefore current and voltage are present. As the question requires an “opinion” of full cloud coverage it is an impossible question to answer with a definite response of actual voltage and amperage. Overall, the higher the irradiance, voltage will increase in the solar panels therefore producing usable wattage.

20. During night times, would any electrical current or energy be estimated to be present in the solar panels and, if so, can you provide an estimate of what the voltage, amperage and wattage would be?

Response:

Without Irradiance the solar invertors shut down, therefore no measurable voltage will be present.

21. Are the energy output estimates net of the consumption of power by the solar tracking motors?

Response:

Yes.

Proposed Facility and Associated Equipment

22. Will the facility employ battery storage of any kind? If so, please indicate the specifications and number of those batteries.

Response:

Petitioner does not intend to employ battery storage at the proposed Site at this time.

- a. If battery storage is not contemplated now but the Petitioner decides later to deploy battery storage will the Petitioner be required to obtain approval from the Siting Council?

Response:

Yes.

23. Why was the Sungrow model SG125HV inverter selected? The user manual states the inverter should not be used near residential neighborhoods. Is that correct?

Response:

The Sungrow SG125HV is a Commercial Grade inverter and is not intended for residential use. Petitioner chose this inverter as it provides superior quality and is among the quietest inverters produced.

24. What efforts has the petitioner made to reduce noise to the surrounding neighborhoods?

Response:

See response to Item 23.

25. What noise cumulative effects will exist with multiple inverters?

Response:

Please see the revised noise study.

26. How does the topology of the surrounding land affect the assumptions of the generic calculations for sound travel?

Response:

The submitted noise calculations do not consider topography or the wooded buffer that surrounds the proposed Project area.

27. What frequency of sound will the inverters emit? Has the Petitioner examined any of the literature on possible adverse effects on humans of exposure to persistent low frequency sounds even at modest decibel levels?
- b. One study example is “Assessment of annoyance from low frequency and broadband noises” as published in the *International Journal of Occupational Medicine and Environmental Health* in 2003.
 - c. Another example is an article entitled “Those Annoying Low-Frequency Noises...” in *Canadian Audiologist*, Vol. 7, Issue 1, 2020.
 - d. Examples such as these raise questions that suggest that decibel level alone are not dispositive of whether persistent low frequency sounds can be an adverse environmental effect for those who have negative mental responses to such noise as opposed to the risk of hearing loss. Can the Petitioner prove that no such adverse environmental effect will be triggered by the proposed solar facility?

Response:

The frequency of sound that the inverters emit is not provided in the manufacturer’s specification.

28. Please share details on the research conducted on the impact of inverter frequency on pets owned by adjacent homeowners.

Response:

No research was conducted regarding the impact of inverter frequency on pets owned by adjacent landowners.

29. What distance does the manufacturer of the inverter provide as a safe distance from flammable gas?

Response:

There is no information pertaining to the distance of the inverter to a flammable gas source in the manufacturer’s specification for the inverters.

30. Is every solar panel inspected before installation?

- a. Is the inspection done onsite?
- b. If the inspection is not onsite, what assurances are there that no damage is done in transporting the panels to the site?

Response:

Modules are inspected during installation, and any defective modules are not installed.

31. Please describe the inspection process
 - a. Is an electroluminescence (EL) test used?
 - b. What other tests are conducted prior to installation?

Response:

Modules are visually inspected for cracks and other defects. Further testing of the complete system are performed during the commissioning process.

32. What is the rate of defects discovered in testing of solar panels at other facilities the Petitioner has developed?

Response:

We have not experienced defects of modules in our installs, defects have been limited to transportation and relocation.

33. What are solar panel defect rates across the industry?

Response:

Not known.

34. What components have the highest rate of defects?

Response:

Broken glass.

35. Are there defects that cause electric arcing?
 - a. Which defects?
 - b. Has electrical arcing ever occurred at any of the Petitioner's facilities?
 - c. How many such instances?
 - d. What were the consequences of these instances? Did any fires occur as a result?

Response:

Petitioner has not experienced this on any of the projects constructed in Connecticut.

36. What site monitoring is done to assure that none of the solar panels have any cracks which can lead to leaching of toxic chemicals?

Response:

The system is monitored by a remote access dashboard to provide feedback of system status.

- a. How is the monitoring conducted?

Response:

Via remote dashboard.

- b. How often is the monitoring conducted?

Response:

Monitoring of the system is performed daily.

- c. Is each one of the thousands of solar panels inspected on this inspection frequency?

Response:

The system is tested and inspected bi-annually and withing 24 hours of any event that renders the system not in service.

- d. Can solar panels have cracks or other breaches that are not detected by onsite or remote monitoring and still appear to be fully functional?

Response:

Not known.

37. Now that the Commerce Department has found that TrinaSolar has been skirting US tariff laws, thus allowing them to charge lower prices than US manufacturers, will the Petitioner switch to panels manufactured in the United States?

Response:

Petitioner always strives to purchase the highest quality, best value panels and equipment for their projects, including panels that are manufactured in the

US.

38. On the bottom of page 2 of Exhibit G in the Petition it states: “The photovoltaic array will have the ability to be de-energized remotely in case of an emergency.” Please explain this further.

- a. Will the solar panels cease producing electricity once the array is de-energized even when the panels are exposed to sunlight?

Response:

Solar panels produce as long as irradiance is present, regardless of connection to the grid system.

- b. Assuming the answer to (a) is no, how much electric current will still be present in the solar array once it is de-energized in full sunlight?

Response:

If irradiance is at the maximum the system will produce at maximum capacity.

- c. If the answer to (a) is no, would the electric current in the solar array be of a magnitude that could cause thermal burns; muscle, nerve and tissues damage; falls from surprise shock; and death from electric shock, burns, or falls?

Response:

Any electrical system has the capability to harm humans.

- d. What do OSHA guidance and regulations say about the risks listed in (c) above in situations where the solar array is de-energized?

Response:

Solar systems are to be operated by qualified personnel only. Solar systems per the NEC are highly regulated as to safe operation to the qualified electrical staff operating them.

39. On Page 3 of Exhibit G it states “TrinaSolar TSM-DEG19C20 540W modules are solar panels consisting of a glass-cover, aluminum pane, and sealed back sheet, preventing rainwater from penetrating the panels and leaching out chemicals or substances.” Does this mean that it is not possible for defects, cracking, accidental breakage, deterioration, aging, weathering or similar effects to ever allow rainwater from penetrating the panels?

- a. What testing has been done to ascertain the above water penetration risks?

- b. Are you aware of the study “Leaching via Weak Spots in Photovoltaic Modules” published January 29, 2021 in the journal “*energies*” which may be found at <https://www.mdpi.com/1996-1073/14/3/692> ? That study concludes, among other things, that testing for rainwater penetration and leaching should be done over at least a one-year period. Did the TrinaSolar toxicity and leaching testing referenced in Exhibit G use a testing protocol with at least a one-year period?
- c. The study referenced in (b) above also indicates that the potential for leaching and the amount of leaching increases linearly over time. That is, for example, the amount of leaching that could be expected in the 10th year of use of a solar panel could be 10 times the amount of leaching expected in the 1st year of use. Do you agree with that indication? If no, what studies can you point to that refute that?

Response:

I have no basis to agree or disagree with the above statement.

40. Is the Test Report beginning on Page 10 of Appendix E of the Petition a toxicity report for the Trina Solar panels?
- a. Are these results from TCLP testing?
 - b. Is it your understanding that the test was conducted on a sample from the TrinaSolar solar panel described in Appendix E?
 - c. Does the testing result show that the TrinaSolar solar panel is not hazardous waste?
 - d. If that is the case, is it the Petitioner’s expectation that solar panels that are removed from the array (e.g., for non-performance) would not be hazardous waste and therefore would be sent to a trash facility?

Response:

Not known.

41. Please describe the TCLP testing of the solar panels proposed for this Project with respect to:
- a. Where is the testing performed?
 - b. How are the samples of the solar panel obtained from a representative solar panel?
 - c. What quality assurance measures are taken to verify that the samples provided are representative of the entirety of the solar panel?
 - d. Have any independent testing facilities in the United States confirmed the validity of the toxicity test results provided in the Petition?

Response:

Not known.

42. Please indicate for each solar panel the total weight of each of the elements and substances that are included in the TCLP testing in Appendix E of the Petition. Please also indicate the total weight of these elements and substances across the entire solar panel array.

Response:

Not known

43. The Project includes a 7-foot chain link perimeter fence, is that correct?
- Will there be any clearance between the bottom of the fence and the ground to permit small animals (e.g., foxes, turtles, etc.) to traverse from one end of the site to the other?
 - If so, how much clearance will there be?

Response:

There will be a 6-inch gap between existing grade and the bottom of the proposed fence to allow for small animals to travel through the Project area.

44. Page 11 of Appendix A shows the predicted year-round and seasonal visibility of the Project.
- Given the fact that the properties along Blue Ridge Drive as well as Blue Ridge Drive itself are at a higher elevation than the Project site, why isn't this map shaded in yellow to show predicted year-round visibility for the entirety of Blue Ridge Drive and the properties located along that road?
 - Is the Petitioner indicating that the height of the planted shrubs and trees along the eastern perimeter of the site will completely block the view of the Project from all the homes along Blue Ridge Drive?

Response:

Based on the visibility analysis it is anticipated that the combination of the existing deciduous trees, proposed evergreen trees and slatting in the proposed fence along the eastern edge of the Project area will combine to mitigate the view of the proposed Project from the residences along Blue Ridge Drive.

Electrical Interconnection

45. Please explain details about the interconnection

Response:

Interconnection to the Utility company is accomplished by connecting our Medium Voltage overhead cables to the Utility company's cables on their poles.

46. What is the anticipated noise the transmission lines will emit?

Response:

It is Petitioner's opinion at this voltage the system does not emit noise.

Public Safety

47. Do you know of any safety risks associated with a natural gas pipeline at a solar photovoltaic electric generating facility?

Response:

No.

48. Have you previously built a solar photovoltaic electric generating facility at natural gas pipelines? If yes:

a. Please explain how you eliminated risk – because mitigation is not sufficient when explosions are possible – at those sites?

Response:

Please see response to interrogatory 10 above.

49. How old is the oldest solar photovoltaic electric generating facility at a natural gas pipeline that you have built?

a. How have you eliminated risks at such sites on an on-going basis?

Response:

Horton Electrical Services built a project directly over a high-pressure gas line and it has been in service for over two years. The gas company has strict regulations to the work on or around gas lines. Horton Electrical Services worked directly with the gas company to follow their guidelines. This project does not require gas company involvement as Petitioner is not in direct contact or within their eased land.

50. If a panel is damaged and hazardous materials are released into the soil, how will

residents be notified and how will Tritec be held accountable to clean up these hazardous materials?

Response:

The premise of the question is speculative.

51. Has Tritec discussed this proposal with the representatives from the Algonquin Gas Line to ensure there are no concerns with the proximity to this gas line?

Response:

No.

52. Has TriTec had any conversations with the Manchester Fire Marshal? What training will they provide to the Manchester Fire Department? Describe the procedures that should be followed should an electrical fire occur?

Response:

Please see pre-filed written testimony of Warren Horton and testimony of Warren Horton in the transcript for the Hearing held on May 2, 2024.

53. It is my understanding that electrical fires are sometimes just “allowed to burn out” due to the difficulties of fighting electrical fires with water. Would this ever be an option at this site given the proximity of the surrounding homes and forest?

Response:

Please see pre-filed written testimony of Warren Horton and testimony of Warren Horton in the transcript for the Hearing held on May 2, 2024.

54. Please explain how you will mitigate the risk in a CT DEEP Natural Diversity Database (NDDDB) area for the Box Turtle?

Response:

See the Eastern Box Turtle Protection Program notes on the Environmental Notes & Details Plan Sheet 3.02.

a. Have you mitigated this risk successfully before?

Response:

Yes.

- i) Please explain specifically.

See petition and hearing transcript.

- ii) Have you seen adverse consequences to the box Turtle in any of your projects anywhere in their natural habitat/range in the United States?

Response:

Petitioner has worked closely with state regulators and followed the guidelines set forth and has never experienced any adverse impact to the Box Turtle on their projects.

55. Has the Petitioner determined the effect of the stormwater management plan on the groundwater recharge of the private wells on Blue Ridge Drive?
- a. What particulars does the Petitioner know about those wells?
- i. What particulars does the Petitioner know about the groundwater recharge area (location, shape, size, depth, etc.) for those wells?
 - ii. What proof can the Petitioner offer that any toxic chemicals that may leach from the solar panels will not find their way into the private wells on Blue Ridge Drive?
 - iii. What proof can the Petitioner offer that the diversion of stormwater runoff from the drainage area PDA-1B will not reduce the groundwater recharge of one or more of the private wells on Blue Ridge Drive?

Response:

As noted in Interrogatory Response No. 6, the hydrologic soil groups within the proposed Project area are not conducive to groundwater recharge. Furthermore, any wells located on Blue Ridge Drive are situated at elevations well above the Project area. It is not anticipated that the proposed Project will have any impact to existing wells on Blue Ridge Drive.

56. What studies, analyses and investigations into existing groundwater flows at 250 Carter Street and the properties downslope of 250 Carter Street did the Petitioner perform?

Response:

A geotechnical investigation was conducted for the proposed Project. In the investigation it was determined that there is a restrictive layer of soil approximately 3-feet below grade that prevents runoff from infiltrating into the subsoils, which are conducive to infiltration. With that said, the proposed stormwater management basin was designed to exceed CT DEEP requirements

by reducing the peak discharge rates from the proposed Project area from existing conditions by over 50% for all major storm events analyzed.

57. The Stormwater Management Report states on Page 4: “Similar to existing conditions, runoff from PDA-1A flows from east to west overland and into the proposed basin.” How is this similar to existing conditions given that PDA-1A would divert stormwater from its natural east-to-west flow and channel it northerly or northwesterly to the proposed infiltration basin? That is, wouldn’t the PDA-1A runoff flow be different than the EDA-1A flow?

Response:

The EDA-1 runoff flows unimpeded overland and within the top 3-feet of the soil, down to the restrictive layer, as noted in Interrogatory Response No. 56, to the west towards Amanda Drive. Runoff associated with PDA-1A flows into the proposed grass-lined swales that direct the runoff into a stormwater basin. The basin will control the runoff such that the peak discharge rates attributed from the proposed Project area will be reduced by over 50% from existing conditions for all major storm events analyzed.

58. Much of EDA-1 is part of a Core Forest and thus stormwater and groundwater volumes, patterns and flows are reflective of the effects that trees have on such volumes, patterns and flows.
- a. Would the Petitioner agree that the loss of trees within EDA-1 will cause the volumes, patterns and flows of stormwater and groundwater within PDA-1 to differ from existing EDA-1 volumes, patterns and flows?
 - b. Were the peak discharges and other metrics calculated for EDA-1 reflective of existing trees in that part of the site?
 - c. How do the models used by Solli in calculating peak discharges and other metrics reflect the loss of trees in PDA-1 vs. EDA-1?
 - d. In particular, what are the changes in peak discharges and other metrics for PDA- 1B compared to EDA-1B due to the loss of trees?

Response:

The hydrologic model prepared for the proposed Project was performed utilizing the HydroCAD stormwater modeling program developed by HydroCAD Software Solutions, LLC. HydroCAD is an industry-standard modeling software that takes into account groundcover based on hydrologic soil groups. The model for the proposed Project does take into account the conversion of the existing wooded area with a meadow-type ground cover in post-construction conditions. Due to the fact that the NRCS soil groups are C and D across the proposed Project area there is actually a reduction in the volume of runoff associated with the proposed Project. As noted previously herein, the proposed stormwater management basin has

been designed per CT DEEP requirements and is anticipated to reduce the peak discharge rates attributed from the proposed Project area from existing conditions by over 50% for all major storm events analyzed.

59. Has the Petitioner conducted any hydrology studies or analyses into the effect that the stormwater management plan in the Petition would have on groundwater exfiltrating onto the properties downslope of 250 Carter Street?

- a. Would the Petitioner agree that the amount of stormwater that would infiltrate into the ground at the bottom of the infiltration pond during and after a rainstorm of two inches or more in a 24-hour period or less would be a multiple of the amount of stormwater that would otherwise infiltrate into the ground at that location?

Response:

As previously noted herein, based on the results of the geotechnical investigation performed for the proposed Project, there is a restrictive layer of soil approximately 3-feet below existing grade that prevents runoff from infiltrating into the ground. It is unknown if the areas outside of the geotechnical investigation limits (proposed Project area) have the same soil characteristics. The proposed stormwater basin was not designed to take credit for infiltration as it could not be determined if the restrictive layer of soil will be fully penetrated to allow for infiltration.

- b. Can the Petitioner state that the stormwater infiltrating into the ground at the bottom of the infiltration basin will not significantly increase the amount of groundwater exfiltrating onto the properties lying directly and proximately below the infiltration basin?

Response:

The proposed stormwater basin was not designed to take credit for infiltration as it could not be determined if the restrictive layer of soil will be fully penetrated to allow for infiltration.

- c. How will the loss of trees at the site affect the amount of groundwater exfiltrating at the properties on Amanda Drive downslope of 250 Carter St.?

Response:

It is anticipated that the loss of trees will have a negligible effect on

the amount of groundwater exfiltrating downslope of the Project area.

- d. How will the loss of trees at the site affect the sourcing of water to the various wetlands at 250 Carter St. and the abutting properties?

Response:

It is anticipated that the loss of trees will have no effect on the sourcing of water to the various wetlands at 250 Carter Street.

60. What is the slope of the site where the drainage swales are proposed to be located? Does this slope fit within the parameter in the EPA document “Stormwater Best Management Practice – Grass Swales” shown at <https://www.epa.gov/system/files/documents/2021-11/bmp-grassed-swales.pdf>? That document states:” Sites with relatively flat slopes work best for grassed swales. Design documents generally recommend a 1 to 2 percent slope.”

Response:

The proposed grass-lined swales are utilized to direct runoff to the stormwater basin. As noted on the Grading & Drainage Plan Sheet 2.21, the northern swale is graded at an approximately 7.3% slope while the western swale is graded at an approximately 1.9% slope. The swales are equipped with check dams at 50-foot intervals to reduce velocities and allow for temporary ponding. The swales have been conservatively designed to pass a 100-year storm event.

61. Page 6 of the Stormwater Management Plan concludes: “The stormwater management for the proposed Project has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100-year storm events are less than the pre-development peak discharges.”
- a. Does Solli Engineering (“Solli”) maintain that this statement is accurate, and that this conclusion holds, not just for “discharges to the waters of the State of Connecticut” but also for each of the abutting properties downslope of the Project?
 - i. Can Solli show the peak discharges both pre-construction and post- construction separately for each abutting property downslope of the Project?
 - ii. Without this information, how can the Siting Council and the property owners know how each of these properties will be affected by the Project?
 - b. Does Solli maintain that this statement is accurate and that this condition holds for each of the areas designated PDA-1A and PDA-1B?
 - c. Did the analysis on which this conclusion is based include any storm events where the assumed rainfall would result in overflows from the infiltration

basin?

- i. If the answer is no, please explain how this could be by documenting the model's calculations for each storm event of the number of gallons of stormwater falling on the PDA-1A drainage area, the number of those gallons of that stormwater that reaches the infiltration basin, and the maximum number of gallons of water that would be in the infiltration basin at any time during the storm event and one hour after the storm event.

Response:

It is maintained that the stormwater management for the proposed Project has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100-year storm events are less than the pre-development peak discharges. None of the storm events analyzed resulted in a condition where the assumed rainfall would result in overflows from the basin, via the proposed emergency spillway. The basin has been designed per CT DEEP standards.

62. If the answer to the above is yes, wouldn't the stormwater overflows from the infiltration basin in such a storm event result in greater stormwater discharges onto at least some areas of one or more properties and/or one of the wetlands downslope of the infiltration basin?
 - a. Under each of the storm events modeled, how many gallons of stormwater were estimated to overflow from the infiltration basin? And how many gallons of water were estimated to flow out of the overflow culvert?

Response:

None of the storm events modeled resulted in stormwater overflowing from the basin. The proposed outlet culvert is the primary mechanism to control runoff from exiting the basin.

63. Were the storm events modeled based on 24-hour rainfalls?
 - a. If so, did the model assume a constant rate of rainfall per hour? If not, what varying hourly rainfall rates were assumed?

Response:

All storm events were modeled based on 24-hour rainfall events per the NOAA Atlas 14 rainfall data and CT DEEP requirements.

64. Do any of the modeled storm events consider that any stormwater falling in the area of PDA-2 would flow onto PDA-1A and/or PDA-1B?
 - a. If not, is this an assumption or is this based on actual conditions?

- b. Given the statement on P.4 of the Stormwater Management Report that “PDA-2 remains the same as EDA-2” has Solli conducted any tests that shows that in fact no stormwater from EDA-2 flows onto either or both of EDA-1A and EDA-1-B?

Response:

Based on the existing and proposed grades within the proposed Project area, it is unlikely that runoff from EDA-2 and PDA-2 will flow onto EDA-1 and PDA-1. The proposed stormwater basin has been oversized to reduce peak discharge rates by over 50% from existing conditions for all storm events analyzed and would have the capacity to handle additional runoff in the unlikely event that some water from those areas would find its way into the basin.

65. Page 5 of the Stormwater Management Report indicates “The proposed solar panels in the array that are within existing and post-construction slopes that are greater than 15% are considered impervious for the purposes of calculating the WQV. The remainder of the proposed solar panels that are proposed within existing and post-construction slopes that are less than 15% are not considered impervious cover”.

- a. In accordance with this statement, what percent of the solar panels in PDA-1A were assumed to not be impervious cover?
- b. Similarly, what percent of the solar panels in PDA-1B were assumed to not be impervious cover?
- c. How would the peak discharge and other calculations change for PDA-1A and separately for PDA-1B if all the solar panels were assumed to be impervious?
- d. In its Petition, TRITEC Americas states (emphasis added): “TRITEC Americas is a leading provider of solar PV project development, financing, and asset management services for the commercial and industrial solar market throughout the Americas.” Given its experience throughout the country, is TRITEC aware of other jurisdictions where permitting and applications require that solar panels be treated as impervious surfaces for purposes of stormwater analysis? What jurisdictions is TRITEC Americas aware of where this is the case?

Response:

None of the proposed solar panels reside on slopes greater than 15% therefore 100% of the panels were assumed to not be impervious cover. While not required by any agency with jurisdiction over the proposed Project, if the solar panels were assumed to be impervious, the proposed Project would still reduce peak discharge rates for all storm events analyzed.

66. What is the distance between solar panel arrays measured post to post?

Response:

The spacing between the rows of solar panel arrays, measured post to post is 16.8-feet.

67. How would the assumed infiltration rates for the drainage field, the drainage swales and the infiltration basin change when the ground is frozen to different depths?

- a. Is Solli Engineering aware of any studies that indicate that infiltration rates are reduced when the ground is frozen?
- b. The Hartford area has had periods of continuous below freezing temperatures for more than 7 days, such as in February 2021. In 1977, temperatures stayed below freezing for 26 consecutive days including 3 consecutive days of low temperatures of less than –10 degrees Fahrenheit. If a large rainstorm were to occur following a prolonged cold spell such as that wouldn't the stormwater flows into the infiltration basin and the overflows from the infiltration basin be significantly greater than produced by the model used by Solli Engineering? Does Solli Engineering have any means of calculating the number of gallons of stormwater in excess of baseline that would result from these conditions?

Response:

No infiltration is accounted for in the proposed stormwater design. The basin has been designed per CT DEEP requirements to reduce peak flows for all storm events analyzed, including the 100-year storm event.

68. The Stormwater Management Report includes a table of "Point Frequency Estimates" from NOAA Atlas 14, Volume 10, Version 3 for the Town of Manchester, CT. This table provides 90% confidence interval frequency estimates for particularly intense rainfalls at this location. The table included in the Stormwater Management Report has yellow highlights for the 24-hr row. Are the highlighted entries the amount of rainfall in inches that Solli Engineering used in modeling the stormwater discharges?

Response:

Yes.

69. This table appears to indicate that Manchester can be expected to experience very intense rainfall with some regularity. For example, according to the table, Manchester can be expected to experience 1.77 inches of rain in a 6-hour period at

least annually and a one-hour rainfall of 2.13 inches in a 25-year storm event. In either of these situations, would the proposed stormwater management design lead to a rapid concentration of stormwater into and then overflowing out of the infiltration basin with a resulting increase in stormwater discharge towards properties downslope of the infiltration basin compared to present conditions?

Response:

The proposed stormwater basin has been designed to reduce peak discharge rates from the Project area for all major storm events per CT DEEP requirements.

70. Our understanding is that the table was last modified in April 2017. Can Solli Engineering confirm this or indicate the modification date of the table? Given the increasing frequency of large storms and the increasing intensity of those storms expected as a result of climate change, would Solli Engineering agree that the storm events to be expected over the next 20 years would likely be greater than those used in its models?

Response:

The NOAA Atlas 14, Volume 10, Version 3 rainfall data utilized in the proposed stormwater model are the same rainfall rates that are outlined in page 3-12 of the Town of Manchester, Connecticut Public Improvement Standards, effective date: October 31, 2020. That document states that the, “Values obtained from NOAA Atlas 14 rainfall data for Manchester, CT published 9/30/2015 and adopted by CTDOT. The stormwater management analysis for the Project has been designed per CT DEEP standards.

71. Recently, a solar facility in Texas was heavily damaged by a hailstorm. Similar events have occurred in other locations. If the proposed solar facility experienced a similar event, would the Petitioner agree that there would likely be damage to solar panels including potentially damage to many of them?

- a. If this occurred, isn't it likely that toxic chemicals contained in the panels would leach out of the panels and mix with the stormwater?
- b. If that were to happen, can the Petitioner state unequivocally that no significant adverse environmental effects would occur, including to groundwater and the aquifers tapped by private wells in the area?
- c. How would the Petitioner respond to such an event to mitigate any adverse effects?

Response:

The question is speculative and thus makes it impossible to respond to.

72. The Manchester area is also susceptible to high winds such as occurs in nor'easters, gales, severe thunderstorms, microbursts, tornados and hurricanes. Can the Petitioner provide certainty that if any of these events were to occur, there would be no damage to solar panels resulting in leaching of toxic chemicals into groundwater and private wells?

Response:

The question is speculative and thus makes it impossible to respond to.

73. Some amount of stormwater and groundwater from 250 Carter St. makes its way to Birch Mountain Brook which feeds the watershed for the public water drinking supply well in the vicinity of Charter Oak Park in Manchester. Given this, can the Petitioner state that no amount of toxic substances will leach from the solar facility to this watershed?

- a. Please state the Petitioner's claim in this regard with respect to each of:
- i. Normal operations with no damage to any solar panels;
 - ii. Normal operations with micro cracks in one or more solar panels;
 - iii. Damage to solar panels as a result of natural occurrences such as hailstorm, hurricane, tornado, etc.;
 - iv. Damage to solar panels due to vandalism, fire, birds crashing into the panels, etc.

Response:

The question is only a hypothetical and is speculative and thus makes it impossible to respond to.

74. Will blasting be necessary at the site?

Response:

No.

75. Please explain the process for driving the rack posts into the ground – e.g., will a pile driver be used, commercial drilling equipment, etc.?

Response:

Yes, a pile driver and commercial drilling equipment will be used.

76. What noise levels can residents expect during construction and what would be the likely duration of such noise?

Response:

Normal construction noise between 7am and 3:30pm Monday through Friday.

77. What maximum ground vibrations can be expected from various aspects of the construction and can the Petitioner assure that there would be no adverse consequences to nearby house foundations, private wells and the natural gas pipeline?
- What party or parties will be responsible for any such consequences?

Response:

The question is speculative and thus makes it impossible to respond to.

78. What materials, including quantities, will be transported to the site, other than the materials comprising the solar array and the surrounding perimeter fencing?
- What size trucks would be used for this purpose and what gross vehicle weights would be expected including the associated materials load?
 - What effect would those vehicle loads have on soil compression in the vicinity of the wetlands that need to be crossed?

Response:

Not known at this time.

79. How will the site clearing and construction of the drainage swales and infiltration basin affect soil compaction?
- How will that soil compaction affect stormwater infiltration rates?

Response:

Petitioner will follow the DEEP storm water permit regulations and the civil construction plan submitted.

80. Please explain how forest clear cutting will be conducted:

Response:

Tree clearing and all site work related with preparing the site for development (i.e. Phase 1) will need to be carried out between July 31 – November 1 to protect the state listed eastern box turtles and federally listed northern long-eared bats. The eastern box turtle's active season is from April 1 – November 1 and the USFWS DKey states *"To minimize or avoid impacts to the northern long-eared bat, all activities affecting trees should not occur from December 15th to February*

15th and April 15th to July 30th.” This leaves an overlapping window of opportunity that eastern box turtles will be active and northern long-eared bats will not be impacted by tree clearing activity from July 31 – November 1. Tree clearing should begin during this time period. If need be, tree clearing can occur from November 1 – December 15, and from February 16 – March 31 if by November 1, the site has been sufficiently cordoned off during the active season and has been actively searched and surveyed for eastern box turtles during the active season and all individuals potentially encountered have been removed from the site before eastern box turtles enter brumation.

- a. What equipment will be used?

Response:

Forestry equipment (fellabunchers, stumpsheers, and skidders).

- b. How low to the ground will trees be cut?

Response:

Trees will be removed in their entirety.

- c. Will stumps be ground down to ground level or below?

Response:

Stumps will be removed from the ground and processed.

- d. Will tree cutting be done when birds such as woodpeckers, hawks, etc. and nesting squirrels will not be nesting?

Response:

Petitioner will follow state and DEEP-approved permit processes.

- e. Will the harvested wood be removed from the site? Where will it be transported to?

Response:

Harvested wood will be removed from the Site. The destination is not determined at this time.

- f. What noise levels from the clear cutting is anticipated in terms of noise levels and duration?

Response:

Normal construction noise levels and durations.

Facility Maintenance

81. How often will the site be mowed?

Response:

Please see the testimony of Warren Horton in the transcript of the Hearing held on May 2, 2024.

82. What equipment will be used to mow between panels?

- a. How will you assure that no accidents involving the solar panels will occur during mowing?

Response:

Gang mowers and walk behind, we take every precaution to avoid damage any part of the solar array during mowing operations by using our own staff whom have been trained in the safe workmanship around the system.

83. Will the mowing equipment and fuel be stored onsite?

Response:

Please see the testimony of Warren Horton in the transcript of the Hearing held on May 2, 2024.

84. What herbicides or other chemicals will be used to control vegetation?

Response:

Please see the testimony of Warren Horton in the transcript of the Hearing held on May 2, 2024.

85. What happens if Tritec goes out of business? Who will ensure this solar field remains a safe and viable facility?

Response:

The financiers would assign the proposed Project to a new solar company.

86. What happens if Tritec sells the business to another company? Will all

contractual terms and responsibilities continue?

Response:

Yes. All conditions and requirements under a Siting Council approval would be required to be assigned to the new entity.

Decommissioning

87. Please explain the details of the decommissioning plan.

Response:

See decommissioning plan submitted in the petition.

88. How many years after the facility becomes operational does the Petitioner anticipate the facility would be decommissioned?

Response:

20 – 25 years.

- a. Is the Petitioner representing to the Siting Council that the facility would be decommissioned after a particular number of years?

Response:

20 – 25 years.

- b. Does or will the lease with the property owner include any provisions regarding the time when the lease would expire?

Response:

Yes.

- c. Does or will the lease with the property owner include any provisions regarding the time when the facility would be decommissioned?

Response:

Yes.

- d. Does or will the lease with the property owner include any provisions regarding which party or entity would be responsible for the cost of the

decommissioning?

Response:

Yes.

89. The environmental assessment provided by the petitioner notes that “the canopy understory is mature,” and that “some very large specimen trees are located throughout the forest.” The petitioner indicated that at decommission the site would be returned to its current condition.
- a. How would that be accomplished?
 - b. Does or will the lease with the property owner specify what “the restoration of the site to its condition at the time of commencement of construction” means as stated in the Decommissioning Plan?
 - c. How would the current specified mix be duplicated?
 - d. How are the records kept to ensure this happens 20+ years from now and over different owners?
 - e. How long would it take for this core, mature forest to regain its current state?
 - f. What is the carbon impact of the deforestation, 20+ years without the forest, and the time it takes to get back to current state?

Response:

According to the historical aerial photos referenced in Exhibit G – Environmental Assessment § 3.4.1 Habitat Types Red Oak-Sugar Maple Transition Forest, forest is expected to re-establish within 15-20 years of the decommissioning of the proposed project, transitioning to an area dominated by trees with sufficient canopy coverage. The re-establishment of forest will in turn re-establish the 300-foot core forest buffer of the existing Small Core Forest proposed to be impacted by the project, increasing the total acreage of Core Forest onsite to existing conditions. From that point on, the forest will continue maturing.

90. Will permits be required (e.g., demolition permits) for the decommissioning phase?

Response:

No.

91. If the Project is approved, will Tritec post and maintain a bond to cover expected decommissioning costs?

Response:

Yes.