August 16, 2021

City of Haverhill Conservation Commission
4 Summer Street, City Hall Room 300
Haverhill, MA 01830

RE: Notice of Intent for Haverhill Solar Project at 139 Amesbury Line Road
MassDEP File #033-1499
Response to Peer Review Comments

Dear Commissioners:

On behalf of the applicant, Solar Smart LLC, Goldsmith, Prest & Ringwall, Inc. (GPR) is in receipt of comments from Comprehensive Environmental Incorporated (CEI) dated June 2, 2021 for the solar farm project at 139 Amesbury Line Road in Haverhill.

GPR provides the following responses to comments for your review and consideration.

Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Comment 1. Proposed check dams along the stone and grass swales should be shown in bold, black lines to better identify the locations.

RESPONSE: ***The graphic appearance of the proposed check dams has been boldened and darkened for clarity on the revised plans.***

Comment 2. Elevations for all stone overflows should be indicted on the plans.

RESPONSE: ***Elevations for all stone overflows are added to the revised plans.***

Comment 3. Widths for stone emergency spillways should be labelled.

RESPONSE: ***Widths for stone emergency spillways are labeled on the revised plans.***

Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

Comment 4. The HydroCAD model indicates post-development total runoff volume

for the 2 year storm at AP1 (located at Amesbury Line Road) is greater than the pre-development volume. The Subcatchment (P2) area for AP1 includes the access driveway from Amesbury Line Road to the Vehicular Turnaround Area #1, wooded land to the northeast of the driveway, Water Quality Swale #4 (WQS4) and a Stone Diaphragm (a stone trench with an underdrain pipe).

The stormwater runoff from Subcatchment P2 is primarily collected by a swale on the north side of the access driveway and turnaround area, conveyed to WQS4 and discharged through an outlet control structure which then discharges to the Stone Diaphragm between the north edge of the driveway and abutting property (Lot 430-11- 2A). The drainage system is designed to infiltrate runoff in WQS4 and the Stone Diaphragm. Promoting infiltration in this area may cause groundwater levels to rise above existing conditions during storm events and potentially impact abutting properties and existing on-site septic systems.

CEI recommends completing additional stormwater and groundwater evaluations, such as a mounding analysis and soil test pits, to better assess potential impacts to abutting properties. The Applicant's Engineer may also want to consider reducing stormwater flow toward Amesbury Line Road by grading the turnaround area to convey runoff to the west of the access driveway.

RESPONSE: ***Related to Standard 2, the peak discharge rate is compliant with the regulation, the design resulting in no post-development increase in peak discharge.***

Comment 5. HydroCAD analysis points should be located at each of the school driveway culvert crossings to better isolate and compare each wetland drainage area under pre and post- development conditions.

RESPONSE: ***The analysis points have been added as suggested as AP-2A and AP-2B.***

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures.

Comment 6. Calculations were provided to demonstrate the proposed Water Quality Swales are designed to provide infiltration for required recharge volumes below low flow orifices. The bottom elevations at Water Quality Swales 2, 3 and 4 do not appear to maintain a minimum 2-foot separation to estimated high groundwater elevations. The Applicant's Engineer may consider maintaining the existing grades at each water quality swale to establish a bottom elevation that would provide a 2-foot separation to groundwater.

RESPONSE: ***Water Quality Swales #2, and #3 have been adjusted to maintain 2-foot separations to estimated high groundwater. Water Quality Swale #4 has been converted into a wet facility, remaining 6" above estimated seasonal high groundwater.***

Comment 7. Backup calculations should be provided to demonstrate all BMPs designed to provide stormwater storage completely drain within 72 hours. Calculations should include the grass swales that are proposed along the slopes leading down to the Water Quality Swales.

a. Consideration should be given to the potential for swales located on the upper slope to influence the groundwater elevation and dewatering capabilities of the swales located toward the bottom of the slope.

Construction of the grassed swales require a cut in the slope to form the swale which will further reduce depth to groundwater.

RESPONSE: ***Backup calculations are provided as a supplement to the Stormwater Management Report demonstrating 72-hour drawdowns for all BMP's.***

Upgradient swales' influence on downgradient groundwater elevation and swale dewatering is taken into account, though negligible.

Grassed swales have been adjusted to remain at least two feet above estimated seasonal high groundwater.

Comment 8. The City of Haverhill WSPD Ordinance (Section 9.2.9.4) includes a design standard that requires all increase in runoff generated on the site shall be recharged on-site in a manner demonstrated to assure full protection of the water quality and quantity in the WSPD". CEI recommends the City of Haverhill make a determination on the proposed drainage design for compliance with this design standard.

RESPONSE: ***We agree with this recommendation. The drainage system is configured to recharge increases onsite.***

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

The proposed stormwater management design provides the required TSS removal.

Standard 5: For Land Uses with Higher Potential Pollutant Loads (LUHPPL), source control and pollution prevention shall be implemented.

The proposed project does not meet thresholds or characteristics of a LUHPPL.

Standard 6: Stormwater discharges near or to any critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices.

The proposed stormwater management system includes four discharge locations within the WSPD. Each location is located outside of the 25-foot No Disturbance zone and includes upstream BMPs that provide suitable treatment for managing discharges. The proposed land use does not appear to include equipment or activities that would pose a threat for an emergency spill or unexpected event which would require shutdown or containment.

Standard 7: Redevelopments projects are required to meet the Massachusetts Stormwater Management Standards only to the maximum extent practicable.

This project is not considered a redevelopment.

Standard 8: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities.

Comment 9. A Turf Reinforcement Mat detail is included on the plans but the proposed installation areas are not shown. Plans should include labels and shaded areas where the Mat is being proposed.

RESPONSE: ***Proposed turf reinforcement mat locations have been labeled and graphically clarified on the plans.***

Comment 10. The Construction Entrance detail should be revised to require a minimum length of 50 feet.

RESPONSE: ***The Construction Entrance detail has been revised to require a minimum length of 50 feet instead of 30 feet.***

Comment 11. Catch basin inlet protection should be required for all proposed catch basins during the construction period and removed once the site has been fully stabilized.

RESPONSE: ***Catch basin inlet protections are now noted on the plans and noted in the Erosion and Sedimentation Control Plan narrative.***

Comment 12. Erosion and Sediment Control Notes (Sheet C3.4) should include silt sock installation, inspection and maintenance notes.

RESPONSE: ***Erosion and Sediment Control Notes (Sheet C3.4) include noes for straw wattle installation, inspection and maintenance.***

Comment 13. Erosion and Sediment Control should include inspection requirements with minimum weekly inspections and after every ½" storm event.

RESPONSE: ***Erosion and Sediment Controls are noted to be inspected weekly and after every ½" storm event.***

Comment 14. The Applicant has acknowledged a SWPPP will be submitted as part of the NPDES Construction General Permit filing with EPA. The site owner and the contractor are each considered "operators" under that permit, and each will need to file an EPA Notice of Intent for coverage under that permit. Prior to filing a Notice of Intent, the applicant and its contractor must prepare a Stormwater Pollution Plan (SWPPP).

a. The Applicant shall provide the Conservation Commission with a copy of the SWPPP before land disturbance commences.

b. The Applicant shall provide the Commission with evidence that all "operators" (as defined in the NPDES Construction General Permit) have filed for coverage under the permit.

The Applicant shall obtain authorization from the Conservation Commission or its agent prior to filing a Notice of Termination under the EPA permit.

RESPONSE: ***The EPA NPDES with SWPPP will be filed in a timely manner and provided to the Conservation Commission prior to the start of construction.***

Comment 15. A phased Construction Plan is recommended to limit the area of disturbance, especially within the WSPD. Proposed water quality swales, outlet control structures and drainage swales should be stabilized and prepared to contain potential sediment runoff from upstream phased areas during the construction period. Any sediment that is collected in the BMPs shall be removed upon completion of work and re-stabilized as needed.

RESPONSE: ***Construction phasing is at the discretion of the Contractor's means and methods under the constraints of the Erosion and Sedimentation Control Plan and SWPPP that will be in established under the EPA NPDES permit, including inspection and removal of accumulated sediments with re-stabilization as needed.***

Standard 9: A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

The Applicant has provided an Operation and Maintenance Plan for the Site and associated stormwater BMPs that are included in the facility design.

Comment 16. Designated snow storage and disposal requirements should be added

in the O&M Plan and areas should be identified on the BMP Locus Plan.

RESPONSE: ***Designated snow storage and disposal requirements have been added in the O&M Plan and areas are identified on the BMP Locus Plan.***

Comment 17. Access driveway maintenance should be added in the O&M Plan to include requirements for regrading or repairing the gravel surface in order to maintain grading and properly convey runoff without causing channeling or erosion of slopes and drainage swales.

RESPONSE: ***Access driveway maintenance has been added in the O&M Plan to include requirements for regrading or repairing the gravel surface in order to maintain grading and properly convey runoff without causing channeling or erosion of slopes and drainage swales.***

Comment 18. Long-term water resource pollution prevention strategies should strongly prohibit herbicide, pesticide and fertilizer application in any area of the property.

RESPONSE: ***Long-term pollution prevention strategies are provided and include prohibitions on herbicides, pesticides and fertilizer applications in any area of the project.***

Standard 10: All illicit discharges to the stormwater management system are prohibited.

The Applicant has acknowledged an Illicit Discharge Compliance Statement is required and will be submitted prior to the discharge of any stormwater to post-construction BMPs.

General Comments:

Comment 19. Inspection and maintenance access ports should be included for all level spreader and underdrain pipes. Access ports should be indicated on the plans and details at both ends of each pipe.

RESPONSE: ***Inspection and maintenance access ports have been added for all level spreader and underdrain pipes. Access ports are indicated on the plans and details at both ends of each pipe***

Comment 20. Outlet Control Structures should include screens or cages for each orifice to help prevent clogging.

RESPONSE: ***Outlet Control Structures have been updated to include screened cages for each orifice to help prevent clogging.***

Comment 21. Typical Detail of the Solar Field Array Racking System should provide

information for the proposed surface (i.e. grass) beneath the rows of panels and specifically alone the drip line.

RESPONSE: ***Agreed. Grass is indicated as the permanent stabilization surface treatment beneath panels.***

Comment 22. Proposed check dams and stone overflow weirs should be shown as black, bold line type to better identify the proposed locations.

RESPONSE: ***Proposed check dams and stone overflow weirs have been graphically enhanced for clarity on the plans.***

Comment 23. Spot elevations at each stone overflow weir should be labelled.

RESPONSE: ***Spot elevations are labeled at each stone overflow weir.***

Comment 24. Design plans indicates a 195' stone diaphragm with a 6" underdrain pipe is proposed. The HydroCAD model includes a 100' long trench with an 8" underdrain pipe. Plans and model should be revised and consistent.

RESPONSE: ***Adjustments to the maintenance access driveway include adjustments to the stone diphragm consistent with the updated model and Stormwater Management Report.***

Comment 25. Staging area and stock pile locations are needed on the Erosion and Sediment Control Plan.

RESPONSE: ***Initial staging and stockpile areas are indicated, and will be field adjusted as appropriate by the Contractor throughout construction, with appropriate erosion control measures to be provided at all times as listed and detailed in the Erosion and Sediment Control Plan narrative.***

Comment 26. All proposed catch basins should require silt sack installation during the construction period. A silt sack detail should be added to the plans.

RESPONSE: ***Construction phase catch basin inlet protections are provided.***

Comment 27. A proposed 22 foot wide access driveway may be excessive for the intended use. Decreasing the driveway width and replacing it with additional vegetated cover would help reduce stormwater runoff.

RESPONSE: ***An alternative "Fire Lane Cart Path" treatment is proposed for the first section of the access from Amesbury Line Road. The remainder of the access is required by City Ordinance to be the 22' wide lane.***

We look forward to discussing and resolving all comments with the Commission. Please reach out to me at any time with questions at (978) 772-1590 or kburchard@gpr-inc.com .

Sincerely,

Kyle Burchard, P.E.
Project Manager

Copy to: Theodore Xenakis, Esq.
Peter Rundle, Solar Smart LLC
GPR file 181084