



September 9, 2021

Wales Conservation Commission
Attn: Norma Thompson, Chair
Town Office Building
3 Hollow Road, P.O. Box 834
Wales, MA 01081

Re: Notice of Intent Review Letter #1
Proposed Solar Project
40 Sizer Drive
Wales, Massachusetts
MassDEP File No. WE 314-0160

Dear Conservation Commission Members:

As requested, Lucas Environmental, LLC (LE) conducted a review of the Notice of Intent (NOI) documents as well as a site visit to review the delineated wetland boundaries for the property located at 40 Sizer Drive in Wales, Massachusetts. LE Professional Wetland Scientist (PWS), Joseph Orzel, conducted the field review on August 20, 2021. The Applicant's representative, Mr. Stephen Herzog of Wood Massachusetts, Inc. (Wood) and Commission member Hugh Bower were present during the review. LE reviewed regulated wetland resource areas and NOI documents according to the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40), and its implementing regulations (310 CMR 10.00 et seq.). The wetland review was performed in accordance with the Massachusetts Department of Environmental Protection (MassDEP) publication "Delineating Bordering Vegetated Wetlands" under the Massachusetts Wetlands Protection Act (1995).

Civil Design Group, LLC (CDG) has reviewed the project design plans, stormwater calculation/report, Storm Water Pollution Prevention Plan (SWPPP), stream crossing design, and best management practice (BMP) selection for the subject project. CDG's comments on the proposed project are included with this letter.

1.0 DOCUMENTS REVIEWED

The following documents and plans were reviewed:

- Notice of Intent application and accompanying materials prepared by Andrews Survey & Engineering, Inc. (ASE), dated February 8, 2019.
- Addendum to Notice of Intent, Sunpin Energy Services Proposed Solar Project, prepared by Wood and dated January 21, 2021.
- Shading Analysis (Appendix C) prepared by Sunpin Solar (undated).
- MassDEP WPA Form 3, revised March 18, 2021.

- Report entitled “Stormwater Management Report, Ground-Mount Solar PV Development, 40 Sizer Drive, Wales, MA 01081,” by Wood, dated January 2021 and last revised April 2021, 118 pages.
- Report entitled “Stormwater Pollution Prevention Plan (SWPPP) For Construction Activities At: Ground-Mount Solar PV Development, 40 Sizer Drive, Wales, MA 01081,” by Wood, dated January 2021 and last revised April 2021, 225 pages.
- Site Plans entitled “Sunpin Energy Services, LLC 4.493 MW DC Ground-Mount Solar PV Development, 40 Sizer Drive, Wales, Massachusetts”, prepared by Wood and dated April 29, 2021, last revised June 29, 2021. Labeled as “Draft”.

2.0 COMMENTS AND REQUESTS FOR ADDITIONAL INFORMATION

This review pertains to requirements under the Massachusetts Wetlands Protection Act and its implementing regulations, and does not pertain to Zoning or Planning Board requirements. After reviewing the wetland delineation and the documents listed above, LE offers the following comments.

Wetland Delineation Review

The entire wetland delineation, consisting of wetland flags AA-1 to AA-117, AB-1 to AB-72, and AC-1 to AC-22 was reviewed by LE.

1. LE is in general agreement with the delineation of resource areas on the property, however, there are a few areas where LE recommends modifications, as follows:
 - A. LE added flags delineating the Bank in the area of the proposed road crossing. These are labeled SB-A-1 through 4 (north side of the stream) and SB-B-1 through 5 (south side of the stream). These flags were located by Mr. Herzog using a hand held Trimble GPS and should be added to the plan. For the flags in the area of the proposed crossing, it is recommended that at a minimum sub-meter accuracy be obtained, and preferably one-foot or better accuracy. If this accuracy was not obtained by GPS, it is recommended that these flags be located by instrument survey.
 - B. LE added flag AA-62A between flags AA-62 and AA-63.
 - C. LE added revised flag AA-64R several feet upgradient of flag AA-64. Flag AA-64 should be eliminated.
 - D. LE added revised flag AA-68R several feet upgradient of flag AA-68. Flag AA-68 should be eliminated.
 - E. LE added revised flag AA-84R several feet upgradient of flag AA-84. Flag AA-84R should connect to flag AA-87, and flags AA-84, AA-85 and AA-86 should be eliminated.

- F. There were two flags labeled AB-33 on the site plans, the further downgradient of these should be removed from the plan.
 - G. LE added flag AB-17A between flags AB-17 and AB-18.
 - H. There were two flags labeled AC-7 in the field. The more downgradient of these should be eliminated from the plan.
2. A potential vernal pool is present in the general area of wetland flag AC-3. It is LE's understanding that Mr. Herzog and Mr. Bower have observed evidence of use by vernal pool species at this area but that observed evidence was insufficient to meet certification criteria. LE recommends that details of the observations made at this area be submitted for the record. Although evidence was apparently not sufficient for certification, the area apparently provides vernal pool habitat to some extent and the Commission may want to consider additional monitoring of this area. If sufficient evidence for certification is observed and the pool is certified, it becomes an Outstanding Resource Water (ORW) and may require modification of stormwater management design.
3. LE walked the upland portions of the site in the vicinity of the proposed project and did not encounter additional wetland resources other than what is indicated on the project site plans or has been noted above.

NOI Document Review

The documents noted above were reviewed for completeness and compliance with the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40), and its implementing regulations (310 CMR 10.00 et seq.). LE has the following comments relative to the documents reviewed.

4. Notice of Intent Application and accompanying materials prepared by ASE. Several issues were noted in the NOI application prepared by ASE. However, some of these were addressed in the revised documents prepared by Wood. LE believes the following items remain to be addressed.
- A. The NOI project narrative (ASE) states that wetland replication is proposed as part of the project to mitigate for impacted wetlands at the proposed crossing. No details regarding the construction of the replication area were observed in the documents reviewed. A detailed narrative and plan of the proposed wetland replication area construction should be provided.
 - B. The NOI Form 3 does not indicate any Bank impacts. This was corrected in the revised WPA Form 3 submitted for the project.
 - C. The Natural Heritage map referenced in the NOI has recently been updated. The current NHESP map is dated August 1, 2021. However, the current map continues to indicate no Estimated or Priority Habitats mapped at the project site.

- D. The Wetland Resource Evaluation prepared by EcoTec, Inc., references the 1982 USGS Southbridge Quadrangle as the current USGS Map of the site regarding review of the perennial or intermittent nature of the stream (Lamphier Brook) that flows through the site. There are several more current maps, including the current 2021 Wales, MA, CT Quadrangle. However, the current map still indicates the brook as intermittent at the project site. LE is in agreement that the StreamStats analysis for this stream shows it to be intermittent at the site, as well as to a point at least 200 feet north (downstream) of the northern property line.
- E. The NOI Wetland Fee Transmittal Form referenced fee categories 2(d), 2(g) and 4(a). Category 2(d) is for coastal Limited Projects. The project is not presented as a Limited Project and is clearly not covered under the coastal wetland regulations. Category 4(a) is for Limited Project stream crossings. Again, the project is not presented as a Limited Project; however, MassDEP – WERO does require the Limited Project fees be submitted if the project involves a crossing, even if not requesting Limited Project status. LE recommends that the filing fees be reviewed and adjusted if necessary.
5. Addendum to Notice of Intent prepared by Wood. LE has the following comments regarding this document.
- A. MassDEP Comment 4 requested justification, through a shade analysis, for clearing portion of the Buffer Zone beyond the proposed fence line, which was provided by Wood. However, MassDEP also stated that further analysis of possible adverse impacts to the hydrology of adjoining BVW and slope analysis regarding possible erosion and sedimentation is required, as well as a potential analysis of thermal impacts to adjoining forested BVW. Wood states that the area between the fence and limit of work will be cut but not stumped, and the ground surface left intact and allowed to regrow to woody shrub vegetation. LE agrees that this should minimize soil disturbance and maintain shading within this portion of the Buffer Zone. However, LE recommends that this area be monitored to insure it is revegetating as proposed and that there is no soil erosion occurring.
- B. MassDEP Comment 5 requested additional information on bankfull width at the crossing. Wood responded that the bankfull width at this location is approximately four to six feet and that approximately 110 linear feet of Bank will be impacted. Rough measurements of bankfull width in this area made by LE during the site inspection were generally six to eight feet. As noted above under 1.a., the Bank in this area was delineated in the field and should be added to the project Site Plans (with appropriate accuracy to accurately determine bankfull width on the Site Plans).
- C. Under Response 6, Wood indicates that unavoidable wetland impacts will be compensated by construction of a wetland replication area, as shown on plan sheets C-106 and C-107. It is not clear on these plan sheets exactly what is being considered as wetland replication area. LE recommends that the location of the replication area be better identified on the plans and that a detailed narrative be provided for the proposed construction and monitoring of this area.



- D. Under “Additional Information”, it is stated that the project will alter 110 linear feet of Bank and 684 square feet of BVW. The Revised WPA Form 3 states alterations will be the same for Bank but 555 square feet for BVW. The amount of BVW alteration should be clarified.
6. Revised WPA Form 3. LE has the following comments regarding this document.
- A. As noted above, the Revised WPA Form 3 states 555 square feet of BVW alteration is proposed; however, the NOI Addendum states 684 square feet. This should be clarified.
 - B. The revised Form 3 should be signed.
7. Stormwater Pollution Prevention Plan (SWPPP). This report is also being reviewed by CDG and additional comments are noted below.
- A. Page 5 of the SWPPP indicates that the project is not on a property of religious or cultural significance to an Indian Tribe. The source of this information is not provided.
 - B. Page 6 of the SWPPP indicates that there is no receiving water designated as a Tier 2, 2.5, or 3 Water. In Massachusetts, all wetlands, other than ORW wetlands, are considered Tier 2 (as noted in CGP Appendix F). Discharge to a Tier 2 Water requires the more intensive inspection schedule.
 - C. Page 17 of the SWPPP indicates that fueling of vehicles and equipment on-site should be avoided but may be performed. LE recommends that the Commission consider not allowing fueling of vehicles within the Buffer Zone.
 - D. On page 25 of the SWPPP, the Certification and Notification form is not signed. LE recommends that a completed copy of the SWPPP, with signed Certification and Notification Form, the EPA Notification and Authorization email and any signed subcontractors agreement forms, be submitted to the Conservation Commission for their records.
8. Site Plans.
- A. As noted previously, the Site Plans should be updated to show the revised wetland delineation flags.
 - B. As noted previously, the Site Plans should be updated to more clearly indicate the proposed wetland replication area.
 - C. The final plans submitted for the project should be stamped by a professional engineer.

3.0 STORMWATER REVIEW

CDG is pleased to provide the following review of the project design plans, stormwater calculation/report, SWPPP, stream crossing design, and BMP selection for the subject project. CDG offers the following comments.

9. CDG recommends that the Applicant submit stamped/signed versions of the plan sheets (the review set is stamped “draft”).
10. CDG recommends that the Applicant submit a copy of the existing conditions survey that was used as the basis for the Site Plans.
11. CDG is in agreement that the SWPPP generally meets the intent of the NPDES Construction General Permit. The project description (section 2.3 of the SWPPP) states that the construction will be phased to three- to four-acre increments to limit extents of disturbance areas. CDG would recommend that the Conservation Commission request further details of the phasing and perhaps a phasing plan to better understand how the construction will be sequenced to minimize potential impacts to wetland areas.
12. Sheet C-102: Note 4 states that it is assumed the Town of Wales will permit the alterations to the public road as shown on the Site Plans. CDG recommends that the Applicant provide a status update to the Conservation Commission on the road alteration and any other required local approvals.
13. Sheet C-102: CDG recommends adding a callout to clearly state that the existing pavement in Sizer Drive is to be removed prior to placement of the crushed stone access way (and a similar note should be added to Detail #2 on Sheet C-501).
14. Sheet C-104: CDG recommends providing proposed grades along the crushed stone access way. While we acknowledge that the proposed grades will generally conform to the existing grades for most sections of the road, it appears that more substantial re-grading will be necessary to accommodate roadway construction alongside Bioretention Basin 2 and in the vicinity of the stream crossing culvert.
15. Sheet C-104: For Bioretention Basin 1, the spillway is called out as elevation 893.0. However, Detail #5 on Sheet C-501 lists the overflow weir elevation as 893.5 which is consistent with the HydroCad modeling. Please update Sheet C-104 accordingly.
16. Sheet C-105: This sheet shows stationing on the access way. CDG suggests that the stationing also be shown on the site plan sheets C-102, C-103, and C-104.

17. Sheet C-107: Detail #2, Note 4 states that the final design of the box culvert will be performed by others. Please clarify the note to indicate that it pertains to the structural design plans (assuming that is the case) and to clarify that the cross-sectional geometry of the culvert will not be varied from what is ultimately approved by the Conservation Commission.
18. Sheet C-107: Table 1 indicates that the bankfull width is six feet but the detail calls it out as eight feet. On August 20, 2021, LE field confirmed the bankfull width as approximately eight feet within the span of the box culvert and as such, CDG recommends that the bankfull width in Table 1 be listed as eight feet for consistency with the detail and the field measurement, once the actual bankfull width is confirmed from the Bank delineation. This clarification should not require any modifications to the design of the box culvert as the proposed 16-foot span well-exceeds the minimum span requirement of 9.6-feet (1.2x the bankfull width) assuming an eight-foot bankfull width.
19. Sheet C-107: The box culvert detail appears to indicate that the structure will be set level, which is typical practice in this application, and would therefore have a larger open height at its downstream end than at its upstream end. However, the openness ratio calculations in row 4 of Table 1 indicate the open height as being the same at the upstream and downstream ends of the culvert. CDG requests clarification on the openness ratio calculations, which should utilize the open height at the upstream end representing the smaller of the two openings.
20. Sheet C-107: CDG suggests that the box culvert detail be updated to show the open height dimensions as well as critical elevations including the stream inverts and ceiling elevation at the upstream and downstream ends of the culvert.
21. Sheet C-107: CDG suggests that the box culvert detail clarify the thickness of the crushed stone layer over top of the culvert and the size of the riprap edge stones to show that they will adequately retain the crushed stone.
22. CDG is in agreement that the proposed sediment traps are a good practice to include as a construction period best management practice. Sheet C-502: Detail #14, note 2 states that the minimum storage volume for the sediment traps is based on one inch over the contributing area whereas the sizing calculations appear to utilize ½ inch over the contributing area. Section 2.2.12 of the NPDES Construction General Permit specifies a calculated storage volume based on either the 2-year, 24-hour storm or 3,600 cubic feet per acre drained. CDG requests clarification on the sizing calculations for the sediment traps.
23. CDG recommends that the designer revisit the constructability of Sediment Trap 2. It appears that it may be difficult to construct without significant re-grading given the existing elevation differential across its footprint area.

24. CDG is in agreement that bioretention basins are an appropriate best management practice for the proposed application. CDG requests confirmation that the bioretention basins are not proposed to be exfiltrating bioretention basins, as the test pit logs included in the stormwater report suggest that the bottom of the bioretention basin cells will extend into the groundwater table and ledge in some areas.
25. Sheet C-501: Detail #5, CDG requests clarification on whether the impermeable membrane liner is intended to run along the sides *and* underneath the filter or just along the sides as the callout suggests. CDG believes the bioretention basins are designed to be lined and that the intent is for the liner to wrap beneath the filter but this should be clarified in the detail to eliminate any confusion at the time of construction.
26. Sheet C-501: Detail #5, CDG suggests that the bioretention basin impermeable membrane liner not be extended as far up the side slopes of the bioretention area (upslope from the filter) as shown in the detail. Our concern is that when precipitation percolates into the topsoil, it will collect on the membrane potentially causing the topsoil to wash down into the bioretention basin.
27. Sheet C-501: Detail #5, CDG recommends that two to three inches of hardwood mulch be applied to the top of the bioretention soil mix consistent with the Massachusetts Stormwater Handbook (MSH) Volume 2 Chapter 2.
28. CDG is not in full agreement with the manner in which the bioretention basins have been modeled in HydroCad as follows:
 - A. Pond Storage: In cases where the filter media restricts the flow of water, which CDG feels is the case in this design, the pond storage definition should only include the open water volume above this point. The submitted HydroCad model accounts for the open water volume *and* the volume of voids within the filter media. CDG recommends updating the model to remove the volume of voids within the filter media.
 - B. Outlets: In cases where outflow is also potentially restricted by an underdrain pipe, which CDG feels is the case in this design, the outflow should be routed first through the filter media as exfiltration, and the exfiltration then routed through the underdrain pipe to its outlet point. For Bioretention Basin #2, the underdrain pipe should be routed through the downstream outlet control structure.
 - C. Infiltration Rate: CDG requests justification as to the use of an infiltration rate of 8.21 inches per hour for the bioretention filter media, which will consist of a mixture of sand, topsoil, and compost. This rate is very close to the “Rawls” infiltration rate of 8.27 inches per hour for pure sand and may be too high for this application. For context, the “Rawls” infiltration rate for loamy sand is 2.41 inches per hour and for sandy loam is 1.02 inches per hour.



29. CDG is in general agreement with the watershed delineations shown on the watershed maps with the exception of PR-S2.1, which flows to Bioretention Basin 2. Based on the grades, it appears possible that the western half of this watershed could potentially bypass around the northern end of the basin and contribute directly to DP-2. A berm or a swale may be necessary to ensure that the water from all of PR-S2.1 gets into Bioretention Basin 2.
30. For proposed watersheds PR-S1.1 and PR-S2.1, CDG recommends modeling the surface area of the bioretention basins as impervious area in lieu of brush or meadow to more accurately reflect what will happen with any precipitation that falls directly into these basins.
31. The stormwater report references an operation & maintenance (O&M) plan under separate cover. The O&M plan was not included in the documents that CDG received for review. CDG recommends that the Conservation Commission confirm that the O&M requirements for the proposed bioretention basins are consistent with those listed in the MSH.

LE and CDG have based this assessment on review of the submitted documents, thorough field reconnaissance, and discussions with the Applicant's consultant during the site inspection.

If you have any questions, please do not hesitate to contact Joe Orzel at 617.405.4118 or jho@lucasenvironmetnal.net, or Matthew Leidner at 978.794.5400 or matt.leidner@cdgengineering.com. Thank you for your consideration in this matter.

Sincerely,

LUCAS ENVIRONMENTAL, LLC

Joseph H. Orzel, PWS
Project Manager/Wetland Scientist

CIVIL DESIGN GROUP, LLC

Matthew A. Leidner, P.E.
Principal

Christopher M. Lucas, PWS, CWS, RPSS
Principal/Wetland & Soil Scientist