

February 2, 2021

Mr. George Barrett, Chair Wareham Planning Board c/o Mr. Kenneth Buckland, Town Planner 54 Marion Road Wareham, Massachusetts 02571

Via: FedEx and Email to <u>kbuckland@wareham.ma.us</u> and <u>sraposo@wareham.ma.us</u>

Reference: Response to Peer Review Comments Application for Site Plan Review, Case #8-20 140 Tihonet Road PV+ES Project <u>Wareham, Massachusetts</u> B+T Project No. 1833.112

Dear Planning Board Members:

On behalf of the Applicant, Borrego Solar Systems, Inc. (BSSI), Beals and Thomas, Inc. (B+T) respectfully submits this response to comments and revised plans for the above-referenced project in response to peer review comments by Charles L. Rowley, PE, PLS in a letter dated January 25, 2021. For ease of review, peer review comments are indicated in italicized font, with our responses in regular font.

Enclosed are nine hard copies of this letter with full size plans. We understand that the Board will distribute one of these copies to the peer review consultant for review, and an electronic copy has also been sent to Mr. Rowley. Separate copies of the letter and plans have been submitted directly to Wareham Fire and the Conservation Commission.

## <u>General</u>

1. The site is located off Tihonet Road on the southerly side of the electric easement that separates the project from a similar project at 150 Tihonet Road previously approved by the Planning Board.

No response required.

144 Turnpike Road Southborough, MA 01772

Regional Office: Plymouth, MA

> 2. The revised project area is 65.34 acres in size, according to a letter from Beals and Thomas dated January 19, 2021. However, Sheet C-1.0 of the plan set indicates the project is within Lot 1000F of a recorded plan showing 62.82 acres. The discrepancy should be accounted for. Of the latter acreage some is located within the electric easement which is not part of the project. This would further reduce the active area of the project site.

A new parcel boundary was created with an ANR plan prepared by Northeast Survey Consultants, dated September 29, 2020, which combined Lot 111-1000F with portions of Lots 111-1000H and 112-1000 for a new total lot area of 83.84 acres. The total lot area has been updated on the C-1.0 Existing Conditions Plan. The project limit of work noted in our prior letter was erroneous and actually reflected the extent of tree clearing (as there is an existing unvegetated road within the site). The actual limit of work associated with the prior design was 66.2 acres, and that limit of work is now reduced to 66.18 acres due to the current revisions. This limit of work is noted on Sheets C-3.1, 3.2, 4.1, 4.2, and 4.5.

3. Contours of the existing ground within the project area extend from elevation 48 in the southeast corner of the site to elevation 110 in the north-central portion of the site, a difference of approximately 62 feet.

No response required.

4. Sheet C-4.0 and following show a significant change in topography over the project area, lowering the overall site by as much as 25 feet at the higher elevations. Some of this change in contouring includes slopes close to the electric easement along the northerly boundary of the project. The new contouring appears to be incomplete leaving a difference of 10 feet or more in elevation not accounted for. This should be checked to be sure that there is no actual encroachment into the easement area.

The grading has been revised in the area noted such that no grading will occur within the transmission easement. Accordingly, the toe of slope has shifted south along with adjustments to the solar facility layout, access road and fence line.

5. Based on an average grading change in elevation of 20 feet over the project area it is estimated that approximately 2,108,000 cubic yards of material will need to be removed prior to the installation of any solar panels. The applicant should be prepared to discuss the need for an earth removal permit from the Board of Selectmen for this project to go forward under Division IV, Article III of the Town By-Laws.



The landowner is currently coordinating with a local engineering firm regarding earth removal permitting.

## <u>Plans</u>

- 1. Access
  - a. Access to the site is at two points. The southerly access point is over a parcel of land that is not part of the project limits for a distance of approximately 250 feet. Either the site limits should be adjusted or the access point should be relocated accordingly.

Formal access to the site at this location has been provided via an easement from the landowner over Tihonet Road and to the project site.

b. The second access is at the northwesterly corner of the site and southerly of the electric easement. The access divides into two separate sections for a length of approximately 450 feet. Is this dual access necessary? Could access be accomplished by removing one of the dual roadways in this area?

The dual access is necessary, but the design has been modified to reduce the amount of road to the minimum reasonable to meet utility design standards. For some context, the utility requires a minimum of 40' between poles for safety purposes. As a bucket truck extends upwards, they do not want the poles so close that during maintenance a linesman accidentally hits live wires. The utility also requires a compacted road for safety, so the bucket truck does not tilt during maintenance. Each road on these plans services a separate interconnection point and is designed with safety of utility personnel in mind over the 20-plus year operating timeframe.

c. Sheet C-3.2 of the plan set shows a proposed stormwater infiltration basin near an area labeled as "Potential Vernal Pool" and with no access for maintenance of the basin and with revised grades near the limit of the Conservation Commission 100' buffer surrounding the pool. Reasonable means of access should be provided.

A minimum clearance of 20-feet has been provided between the proposed panels and perimeter fence. Infiltration Basin-1 can be accessed along the western periphery of the array between the panels and fence from the northern access road, or from the central access road via the spaces between rows of panels, which meets the standards of reasonable access.



- 2. Wetlands Delineation
  - a. Sheet C-3.2 shows a line of wetland symbols beginning near Tihonet Road and Tihonet Pond and running southeasterly to a point near the southwest corner of the project. A parallel line to these symbols is labeled "Bank". This delineation should be described further as to what wetlands features are in the area. Is the bank near an intermittent or perennial stream that flows from Tihonet Pond to the cranberry bogs southerly of locus? Please clarify.

The bank line depicted represents the northern edge of an existing agricultural canal that connects Tihonet Pond to the southern cranberry bogs. A label has been added to the plans to clarify.

## 3. Grading

a. Sheet C-4.2 shows Infiltration Basin -3 with 3:1 slopes and an overflow weir leading directly onto the most southerly assess road around the site. The grade of the road east of the weir is at a 10%. It is recommended that the overflow weir be relocated so as not to potentially impact the access road. It is recommended that this access be eliminated starting at the westerly end and ending at the central access running north and south within the site. Access to the infiltration area should be limited to the existing road that appears at the southwest boundary of the project.

The section of road between Infiltration Basin-3 and the central access road through the array has been eliminated. The existing turnaround area at the southwest boundary of the site will be improved and slightly extended to provide access to the area on the south side of the Infiltration Basin-3 berm. The grades will be leveled off adjacent to the berm such that maintenance vehicles and equipment can access the basin.

b. Sheet C-4.2: How will construction vehicles get from Tihonet Road to the site access labeled with "Temporary Stabilized Construction Exit" without using the narrow existing road along the project boundary? What is the need for stabilized access as shown but with none shown at Tihonet Road?

A proposed temporary stabilized construction exit to accommodate truck turning movements is now shown at the intersection with Tihonet Road. Improvements along the existing road between Tihonet Road and the western site entry point will be made as needed to facilitate vehicular access.



> c. Sheet C-4.5 shows the northerly entrance to the site with an 8% grade to where the access road splits into two parts. The contours are such that the proposed stone trench will probably not receive much of the runoff from the road and may by-pass the trench entirely. The upper portion of the dual road shows contours that lead away from the trench and is at a grade of 7%. Adjustments should be made to the grading in this area. Provision should be made along Tihonet Road to intercept runoff before entering the travel way.

The grading of the northwestern entrance has been revised to increase the cross pitch of the access roads to ensure it is directed to the crushed stone trench. The western terminus of trench has been revised to transition to a roadside swale to dissipate flow.

## 4. Construction Details

a. Sheet C-5.0 shows a detail for "Gravel Access Road" and with a specification notation of M2.01.7 which is a Massachusetts Standard Specification notation for dense graded crushed stone to be used for sub-base construction. The use of three (3) inches of this material over steep grades and as surface material is unacceptable. A suitable alternative method of stabilization of the access road, especially in areas of steep grades should be used.

The detail referenced is the typical gravel road cross-section to be used through much of the proposed access road, in areas where the slope of the road is generally less than 6%. In the northwest portion of the site where the proposed road is approximately 8%, the alternative reclaimed pavement borrow material will be used as it is more resistant to erosion. The plans depict where the reclaimed pavement borrow material is to be used.

b. Sheet C-5.1 shows a detail for "Reclaimed Pavement Borrow Driveway". Note 2 of this detail refers to a Geotechnical Report for subgrade preparation. Is there a report recommendation that can be referenced specifically in this instance?

As is standard for all BSSI projects, geotechnical investigations will be performed between the permitting and construction phase of the project. The details for both "Gravel Access Road" on Sheet C-5.0 and "Reclaimed Pavement Borrow Driveway" on C-5.1 are the standard cross sections to be built, and both contained the note referencing the geotechnical report. As requested, this note has been removed from both of these details to avoid any confusion.



c. Sheet C-4.4 Infiltration Basin-3 indicates a spillway elevation of 32. According to the stormwater calculations the peak runoff elevation is 35.60. The spillway elevation needs to be corrected.

The spillway elevation callout note has been corrected to elevation 36.

d. Sheet C-4.3 Infiltration Basin-7 needs a spillway elevation.

An elevation has been added to the Basin-7 spillway on Sheet C-4.3.

e. An appropriate note needs to be added to the plans indicating that all disturbed areas will be treated with loam and seed and with suitable watering to establish substantial growth, especially on steep slopes.

A note indicating that all disturbed areas will receive loam and seed is present on Sheets C-2.0 (Note #3) and C-3.1, 3.2, 4.1, 4.2, 4.5 (Note #4). The notes have been expanded to read "Seeded areas will be watered as needed to achieve substantial vegetative growth."

- 5. Stormwater Calculations
  - a. The stormwater calculations provided with the plan set appear to show that runoff generated on the site for up and including the 100-year event are handled by the seven infiltration basins shown on the plan without overtopping.

No response required.

b. The Special Permit, should one be issued, should include a requirement to maintain slopes in good condition to prevent scouring and erosion at all times. Appropriate re-seeding should be done to ensure that such areas are again stabilized. Preferably all infiltration areas and other steep slopes should be stabilized prior to the installation of adjacent panels and points of access.

The Applicant does not object in concept to such a condition but does ask that both parties coordinate to make sure the condition is properly memorialized.



We trust that the information provided herein satisfies the comments on the Project. Please do not hesitate to contact us should you have any questions.

Very truly yours,

BEALS AND THOMAS, INC.

Stacy H. Minihane

Stacy H. Minihane, PWS Senior Associate

Hoffy R Muply

Jeffrey R. Murphy, PE Civil Engineer

Attachments: Revised Plans dated February 2, 2021 in 15 sheets (under separate cover)

cc: Wareham Conservation Commission (via email to: <u>dpichette@wareham.ma.us</u> and 2 hard copies via FedEx)

Wareham Fire Department (via Certified Mail)

MassDEP Southeast Regional Office (via email: <u>SERO NOI@mass.gov</u>)

Borrego Solar Systems, Inc. (via email)

A.D. Makepeace Company, James Kane (email and hard copy via US Mail with reduced plans)

Charles L. Rowley PE, PLS (via email to: <a href="mailto:crsr63@verizon.net">crsr63@verizon.net</a> and hard copy via Planning Office)

JRM/shm/aak/1833112LT007

