



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

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William Scanlan, Town Planner  
Town of Warren  
PO Box 609  
Warren, MA 01083

August 19, 2016

RE: Warren-DSWM- Landfill  
South Street  
Post Closure Use – Solar Power  
**Permit Approval-Revised**  
BWPSW36  
Transmittal #X271415  
SWM File #16-311-001

Dear Mr. Scanlan:

The Massachusetts Department of Environmental Protection (the MassDEP) is issuing this permit to the Town of Warren (“Permittee” and “Applicant”) approving the post closure use of the Town of Warren’s South Street Landfill (the “Landfill”) as a solar power farm (the “Solar Farm”).

On July 18, 2016, MassDEP received the BWPSW36 Major Post Closure Use permit application, under transmittal #X271415 (the “Application”).

On August 8, 2016, MassDEP received a Supplemental Submittal that included revised plans, structural (ballast block) calculations and responses to MassDEP comments included in an email dated July 19, 2016.

The Application and Supplemental Submittal were prepared by your consultant, Tighe & Bond, Inc. The Application bears your certification as the Town Planner and was prepared under the supervision of and bears the signature and seal of Brian S. Huntley, Massachusetts Registered Professional Civil Engineer # 46273.

The evaluations of the solar panel supports and ground pressures included as Appendix E, were prepared by, and bear the seal of, Brian S. Huntley.

The array layout and supports included in Appendix E were prepared by, and bear the seal of William P. Larson, Massachusetts Registered Structural Engineer # 48795.

This information is available in alternate format. Call the MassDEP Diversity Office at 617-556-1139. TTY# MassRelay Service 1-800-439-2370  
MassDEP Website: [www.mass.gov/dep](http://www.mass.gov/dep)

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The revised set of civil engineering plans bear the seal of David A. Murphy, Massachusetts Registered Civil Engineer #35482.

The structural design plans and the ballast fence structural calculations included in the Supplemental Submittal bear the seal and signature of David A. Dutl, Massachusetts Registered Structural Engineer #47373.

The electrical plans bear the seal and signature of Craig L. Munger, Massachusetts Registered Professional Electrical Engineer # 48101.

On August 16, 2016, a site visit occurred to review the project. Items discussed included:

- Possible relocation of the entrance to the proposed access road.
- Details of the proposed swale crossings.
- Maintenance/repair of the existing grass swales.
- Removal or cutting and capping of the two existing utility poles that penetrate the landfill cap.
- Existing gas vent locations.

On March 10, 2015, MassDEP issued a Permit approving the design of a solar farm at the Warren Landfill. The design has been revised necessitating the filing of the present Application. The present Application and this Permit supersede the March 2015 Permit and the original design approved therein.

#### Existing Facilities

The Warren South Street Landfill site consists of three Phases of solid waste disposal. The oldest phase (4 acres +/-) is located between South Street and an unnamed stream and was opened in the 1950s and reportedly ceased operations around 1977. This oldest landfill area is primarily located on a separate 3.17 acre parcel of Town owned land and will be referred to as the “West Landfill”.

The Phase 1 and Phase 2 landfills and the Town’s transfer station are located on a Town owned parcel of land of approximately 46 acres that is located to the east of the West Landfill and across a stream.

The Phase I unlined Landfill (approximately 10 acres) commenced operations in 1977. The Phase 1 Landfill was closed in three phases. The largest area consisting of approximately 6.83 acres was closed prior to 1991. A January 19, 1991 report entitled “As-Built Conditions, Partial Closure Plan” identified 6.83 acres as being capped with a cap that included the following elements:

1. A 6-inch thick intermediate cover;
2. A 12 to 18-inch thick clay cap with a permeability of less than  $1.0 \times 10^{-7}$  cm/sec;
3. A 6-inch thick gravel drainage layer;
4. Drainage swales; and
5. A 6-inch thick vegetative support layer.

The remainder of the Phase 1 Landfill included two areas. The portion to the northeast consisted of approximately 1.5 acres (“Phase 1NE”) and a portion to the southwest consisted of approximately

1.5 acres (Phase 1SW). These two areas, a total of approximately 3 acres, were closed in 1998. A December 14, 1998 report entitled “As-Built Plan, Completed Final Closure” indicated that an additional 2.95 acres of the Phase 1 Landfill was closed with a cap that included the following elements:

1. A 6-inch thick intermediate cover;
2. A 6-inch thick sand gas vent layer;
3. A 40 mil HDPE membrane;
4. A 6-inch thick sand drainage layer;
5. Drainage swales; and
6. A 12-inch thick vegetative support layer.

On December 31, 1998, MassDEP issued “Letter of Compliance” stating that the Phase 1 Landfill capping “had been carried out in compliance with the Department’s approved plans and specifications.”

MassDEP approved an Initial Site Assessment for the South Street landfill on May 15, 1991. The Comprehensive Site Assessment was approved by MassDEP on March 14, 1994.

On November 25, 2014, twelve (12) test pits were dug into the Phase 1 landfill cap to confirm the thickness of the cap soils. Soil thickness for area 1NE varied from 17” to 20” above the HDPE membrane for three test pits. Soil thickness for area 1SW varied from 21” to 24” above the HDPE membrane for three test pits. For the remainder of Phase 1 (1991), total soil thicknesses above the clay varied from 8” to 16” thick for six test pits.

The Phase II landfill commenced operations in 1997 and is a lined expansion with a leachate collection system.

On March 26, 2014, MassDEP received a Closure Certification Report documenting the closure of the Phase 2 landfill. The 2011 closure of the Phase 2 Landfill (approximately 2.3 acres) included the following components, from bottom up:

1. Gas vent layer constructed of a 6-inch thick layer of sand constructed over a geotextile;
2. A 40-mil textured geomembrane liner;
3. A 6-inch thick sand drainage layer with a geotextile placed on top;
4. A 12-inch thick vegetative support layer;
5. Drainage swales and piping; and
6. Vegetative cover.

The closure construction was substantially completed by February 1, 2012. Repairs were made to correct eroded slope areas in September 2012.

On September 29, 2014, MassDEP issued a Closure Certification for the Phase 2 portion of the landfill. The Closure Certification required post closure environmental monitoring and maintenance of the entire Landfill. In particular, condition 10 of the September 29, 2014 Closure Certification required repair and maintenance to the landfill cap located west of the stream referred to as the “West Landfill”.

The Town also operates a Transfer Station at the landfill site. Construction of the solar farm will require that all access for construction will be using the transfer station entrance access road and construction will impact Transfer Station operations.

### Summary of Proposal

The Application and Supplemental Submittal proposes the construction and maintenance of a 1.34 MW DC photovoltaic solar farm on approximately 4.9 acres of the closed and capped Phase 1 (including Phases 1NE and 1SW) landfill, as follows:

- The solar array will be placed on the landfill cap, on the flatter top portions of the Landfill, with the solar panels facing south;
- Placement of crushed stone or crushed ABC rubble locally under the ballast blocks as required for leveling.
- A total of 4,260 LG Solar LG315SN1C-G4 panel modules mounted on a rack system and attached to precast concrete ballast blocks.
- Sixteen (16) 60 kW and one (1) 30 kW Sungrow String Inverters.
- One (1) 13.2kVA Transformer, switches, and inverters will be installed on a concrete electrical equipment pad above the landfill cap on compacted gravel and crushed stone;
- Electrical conduits at the panels will be installed above the existing landfill cap;
- No excavation of the existing landfill cap is proposed.
- A permanent gravel access road will be built on portions of the landfill for vehicle access for construction and maintenance activities. Road construction will include placement of woven geotextile fabric on existing cap, covered with a 14 inch lift of processed gravel. The wear surface will be a six inch thick lift of dense graded crushed stone or crushed clean ABC rubble;
- Temporary access roads are proposed for two locations at the crossing of the existing drainage swales. The temporary crossings will include the placement of a geotextile fabric, installation of culvert pipes, and a modified rock fill within the swale. The proposed temporary roads on either side of the swales will be constructed by placing a geotextile fabric covered with a 6 inch thickness of gravel.
- Light displacement equipment will transport all materials from the road to the installation locations;
- A fence will be installed around the solar array to control access;
- The fence will be supported by ballast blocks placed above the existing landfill cap; and
- A locking gate, to allow access for maintenance of the solar farm, will be installed at the access road entrance to the solar farm.

Electrical transmission wiring from the solar modules will be mounted on the rack assemblies and will run to string inverter locations mounted above ground on the racking system. The wiring will then be installed in above ground conduits or cable trays from the string inverters to subpanels to combine the outputs of each inverter location before running to the main switchboard located at the electrical equipment pad. Wiring runs between the racks will be installed in above grade conduits or cable trays. All photovoltaic rack assemblies and above-ground wiring will be kept at least 10 feet from any landfill gas vents. Wiring located under or crossing roadways will be in concrete duct banks installed within the fill to be placed above the existing landfill cap. No excavation is proposed into the existing landfill cap

The electrical equipment pad area will be located near the center of the Phase 1 landfill. One (1) concrete equipment pad will be constructed on top of a crushed stone pad placed on top of gravel fill placed above the existing topsoil. No excavation is proposed for the construction of the equipment pad.

Calculations were submitted showing the potential ground pressure on the landfill cap from the weight of the ballasts, racks, panels. They indicate that the maximum pressure will be less than 7.0 pounds per square inch (psi).

The Application proposed the use of low ground pressure equipment directly upon the landfill cap. Section 4.1 of the Application states:

*“The maximum pressure LGP equipment used is assumed to be 7.0 psi. Calculated pressures exerted on the landfill by the solar system, as designed are within or below this threshold, and therefore the array will not negatively impact the landfill or the capping systems.”*

Section 6.2 of the Application, Qualitative Health and Environmental Risk Assessment states:

*“As a result of these analyses and precautionary measures, the installation of the solar array will not impact the surface water controls, the integrity of the cap, or the landfill gas collection and management system, or increase risks to human health and the environment.”*

There are no proposed changes to the existing, long-term monitoring program for the landfill.

An Environmental Notification Form for the proposed Solar Farm was not submitted pursuant to the Massachusetts Environmental Policy Act (“MEPA”). Section 7.3 of the Application states:

*“As proposed, the project does not exceed any MEPA thresholds and therefore MEPA review is not required.”*

### **MassDEP DETERMINATIONS**

Personnel of MassDEP have reviewed the Post-Closure Use permit application for the Landfill in accordance with MGL c. 111 s. 150A, MGL c. 30A, 310 CMR 19.000, and MassDEP’s publication Landfill Technical Guidance Manual (the LAC), revised in May, 1997. MassDEP has determined that the application is approved in accordance with MGL c. 111, s. 150A, MGL c. 30A and the regulations promulgated thereunder, subject to the conditions outlined below.

### **REGULATORY AUTHORITY**

This document is a permit issued pursuant to Massachusetts General Laws Chapter 111, Section 150A and the regulations promulgated thereunder at 310 CMR 19.000, subject to the conditions set forth at 310 CMR 19.043(5). This permit is subject to the standard conditions of 310 CMR 19.000 and the conditions presented herein. This permit does not convey property rights of any sort or any exclusive privilege.

**A. GENERAL PERMIT CONDITIONS**

1. This Permit approves the construction of the Solar Farm as proposed in the Application and referenced Supplemental Submittals. This Permit replaces and supersedes the previous Solar Farm Permit issued by MassDEP on March 10, 2015.
2. Borrego Solar System, Inc. (“Borrego”) is the Owner, Operator and Contractor for this post-closure use permit, for the construction and operation of the solar farm on the landfill, and is responsible to comply with the conditions of this permit, as an Owner, Operator and Contractor as defined by 310 CMR 19.000.
3. The Town of Warren (the “Town”), is the Applicant, Permittee and Owner of the landfill and is also responsible for continued maintenance and environmental monitoring of the landfill in accordance with the requirements of 310 CMR 19.000, the post closure environmental monitoring required by the September 29, 2014 Closure Certification Permit (as amended or revised) and this Permit.
4. The date for completion of the maintenance and repair of the West Landfill required by condition 10 of the September 29, 2014 Closure Certification Permit and as amended in a Permit Modification dated January 8, 2016 is extended.
  - a. Condition 10 of the Closure Certification Permit is revised:  
*“Not later than June 30, 2017, the Town shall complete the following maintenance and repair of the landfill cap located west of the stream...”*
  - b. At a minimum, the tasks that shall be completed for the maintenance/repair of the West landfill shall include those listed in the Permit Amendment/Extension issued by MassDEP on January 8, 2016.
  - c. Construction and operation of the solar farm may be completed prior to the completion of the repairs to the West Landfill.
5. Not later than 14 days prior to the commencement of construction, revised plans and design information shall be submitted to MassDEP that identifies all changes made through the review process consistent with this Permit and other communications between MassDEP and the Applicant, Owner or their Engineer. All changes or revisions shall be clearly summarized in a cover letter or report signed and sealed by a Massachusetts Professional Engineer in accordance with 310 CMR 19.011(2). Revised Plans shall be clearly marked to indicate the change and the date of the revision and sealed and dated by the Engineer. At a minimum, the submittal shall address the following items:
  - a. Detail on the cutting and capping of the two existing utility poles that penetrate the landfill cap;
  - b. Details on the maintenance/repair to the existing grass swales located within the solar farm fenced area;
  - c. Additional detail on the proposed crossings of the grass swales;
  - d. Confirmation of locations of existing gas vents; and
  - e. Evaluation of alternate access road entrance location.
6. The Permittee, Operator and Contractor and subcontractors shall install the solar panels

and modify the landfill only in accordance with the Application and Supplemental Submittals referenced above, except as modified by this permit or otherwise approved by the MassDEP in writing.

7. The Permittee, Operator and Contractor and subcontractors shall comply with the Order of Conditions or other determination issued by the Warren Conservation Commission.
8. A minimum of seven (7) days prior to the start of construction, the Permittee shall submit a detailed schedule for the project to MassDEP. Not later than seven (7) days after a change in schedule, the Permittee shall submit a revised schedule to MassDEP.
9. A minimum of seven (7) days prior to the start of construction, the Permittee shall submit a list of project personnel and their contact information. Not later than seven (7) days after a change in project personnel, the Permittee shall advise MassDEP in writing of any changes in the project personnel list.
10. A Quality Assurance/Quality Control (QA/QC) program shall be implemented during construction. The responsibilities described in the *Landfill Technical Guidance Manual - Revised May 1997* ("LAC Manual"), pp. 2-1 to 2-3 are hereby incorporated by reference into this permit.
11. Construction Oversight:
  - a. A third-party, independent Massachusetts-registered professional engineer knowledgeable in landfill design and construction (the "Construction Engineer") shall supervise the overall construction of the Solar Farm. The Construction Engineer and/or a qualified QA/QC officer shall be present at the site at all times during construction of the road, fence installation, and installation of the electrical equipment, ballast blocks, and rack/panel installation, and when any construction equipment is operating on the landfill cap. The QA/QC officer shall work under the direct supervision of the Construction Engineer.
  - b. The Construction Engineer's duties shall include, but not be limited to; oversee installation and construction of the components of the Solar Farm as outlined above; oversee quality assurance/quality control (QA/QC) testing and verify all data generated through the testing program; document all construction and QA/QC activities; and submit monthly construction progress reports to the MassDEP and the Town, which shall summarize the work performed during the month.
  - c. The Construction Engineer shall inspect the site at least once per week during periods when daily oversight is unnecessary. The Construction Engineer may contact MassDEP for guidance if the need for daily engineering oversight is unclear in a given circumstance.
  - d. The Construction Engineer shall have sufficient staff onsite to provide quality assurance/quality control (QA/QC) oversight for all construction work at the site, and shall submit monthly construction progress reports to MassDEP summarizing the work performed during the month.
  - e. Within 60 days following the completion of construction, the Construction Engineer shall submit a completion report, signed and stamped by a Massachusetts-registered

- P.E., either certifying that the work was completed in accordance with the approved plans and specifications and the conditions of this permit or detailing any and all deviations from this approval.
- f. MassDEP reserves the right to require greater or more frequent oversight by the Construction Engineer than specified herein if it believes such increased oversight is necessary to protect the landfill cover or appurtenances, public health, safety, or the environment.
12. The Construction Engineer's monthly construction report shall include at a minimum the following:
- Updated schedule;
  - Copies of daily field inspection reports;
  - Summary of any and all deviations from compliance with requirements approved or set forth in this Permit or subsequent MassDEP approvals;
  - Any actions taken to correct such deviations, as required by MassDEP or recommended by the Engineer;
  - Schedules to correct identified problems;
  - Review of quality assurance/quality control (QA/QC) testing data generated, and documentation for construction and QA/QC activities;
  - The construction report shall be signed, sealed and certified by the Engineer in accordance with 310 CMR 19.011 (1&2); and
  - The Engineer shall submit one copy of the monthly report to the MassDEP and one copy to the Town no later than seven (7) days following the end of the previous month.

## **B. SPECIFIC PERMIT CONDITIONS**

13. The Permittee, Owner, Operators and their Contractor(s) and subcontractors are responsible to ensure that all necessary precautions are taken to protect the health and safety of workers and the general public during both construction and maintenance of the solar farm. A copy of the site-specific Health & Safety Plan for the construction and maintenance of the Solar Farm shall be submitted to the MassDEP prior to the beginning of any construction work, which shall include protocols for monitoring of landfill gas as needed, and protocols for modifying work practices if landfill gas is detected at levels deemed unsuitable.
14. All necessary precautions shall be taken to ensure that the proposed construction and maintenance work associated with the solar farm shall not in any way damage the impermeable layer of the landfill cap, landfill stormwater control structures, landfill monitoring wells, or the landfill gas venting wells including:
- Prior to the commencement of construction activities, all landfill gas vents, landfill gas monitoring wells, groundwater monitoring wells, and other existing, above-ground structures of the landfill cap and appurtenances shall be flagged for visibility and protective barriers shall be placed around such structures if needed to prevent damage by vehicles and construction on the cap area. Barriers shall be placed above the landfill cap.
  - Prior to the commencement of construction activities, the entire solar array area including proposed access roads shall be mowed. All areas previously eroded or damaged shall be filled and reshaped to prior grades.



- c. Herbicides may not be used to control vegetation.
  - d. Prior to the installation of any fence posts, grounding systems, duct banks, power poles, guide wires or any other excavation within 10 feet horizontally of the landfill cap, test pit shall be excavated to confirm the location and depth of the landfill cap components, including sand thickness and elevation of HDPE or clay layer.
  - e. If any damage occurs to any of the above-listed landfill components, the Contractor shall notify MassDEP immediately (within 24 hours maximum), a written plan for repair of the components shall be submitted to MassDEP within 48 hours, and any repair work shall be completed on the schedule determined by MassDEP.
15. Disturbance of the landfill cap shall be limited to the proposed installations on top of the vegetative support layer of the cap, i.e. no excavations or other penetrations shall be performed into the vegetative support layer or sand or gravel drainage layers of the cap without separate written approval from the MassDEP.
- a. All equipment supports, pads and concrete blocks placed on the cap shall be placed on top of, or above, the vegetative support layer of the cap, unless otherwise approved by the MassDEP in writing.
  - b. Maximum loading from any equipment, fencing or other materials shall not exceed 7psi on the HDPE or other impervious layers of the cap.
  - c. Excavation into the existing landfill cap is not approved by this Permit except for that required to repair the West landfill.
  - d. Survey and control stakes shall not be driven into the landfill cap.
  - e. Erosion control devices within the limits of the cap shall not be installed using stakes.
  - f. Staples less than 12 inches total length may be used to hold erosion control devices.
  - g. There shall be no penetrations of any kind of the impermeable layer of the cap.
  - h. Power poles and guy wires for shall not be installed within 10 feet horizontal of the limits of the landfill cap.
16. The Permittee, Owners, Operators and Contractors are responsible to ensure that the inverter, transformer and other electrical equipment boxes on the landfill cap area will not accumulate landfill gas within the boxes during the construction and operation of the solar farm. Any landfill gas levels exceeding 10% of the Lower Explosive Limit (% LEL) within any electrical equipment box shall trigger the requirements of 310 CMR 19.132(5)(g), for notification and action. The additional requirements for the electrical equipment area includes the following:
- a. The maximum size and loadings of the electrical equipment concrete pad shall not exceed the dimensions proposed in the Application;
  - b. All photovoltaic rack assemblies, above-ground wiring and fences shall be kept at least 10 feet from any landfill gas vents.
  - c. The design of any transformers, inverters, and any other electrical cabinets/equipment shall not allow the entry of landfill gas, and in the event that gas does enter, the equipment shall be designed to prevent the ignition of the gas;
  - d. The electrical equipment boxes and equipment shall meet all electrical code requirements, including any requirements for fencing;
  - e. As part of the site-specific H&S Plan, a written protocol shall be prepared and submitted for the maintenance of the electrical equipment area, including provisions for landfill gas monitoring during maintenance of any electrical equipment box, and for regular

- calibration and maintenance of the landfill gas monitors used by maintenance workers on the site; and
- f. No additional or other equipment may be installed on the surface of the landfill or in proximity of the landfill (i.e. equipment not specifically identified in the application or subsequent correspondence), unless documentation and specifications for such equipment prior to construction are submitted to MassDEP for approval and review of it in relation to potential landfill gas impacts.
17. The Permittee, Construction Engineer, Operators, and the Contractor(s) are responsible to ensure that there is no significant rutting or other damage to the vegetative support layer or gravel surface of the cap of the Landfill. MassDEP shall be notified immediately of rutting or other damage and steps shall be taken to eliminate or avoid such damage. **In no case shall rutting or other damage greater than 6 inches deep into the vegetative support layer or other surface materials be allowed to occur.** Low-pressure construction equipment shall limit turning on the vegetative support layer as much as possible. If MassDEP determines that the use of any equipment is creating the potential for damage to the impermeable cap layer, the usage of such equipment shall cease immediately upon notification by MassDEP, or be modified as required by MassDEP.
18. Prior to the start of any construction on the landfill cap, the Permittee shall submit to MassDEP a written protocol for the use of equipment on the cap, including load restriction on the access road(s), and a restriction on the use of outriggers or stabilizers unless specifically approved by MassDEP.
19. Prior to the start of construction, the Construction Engineer, Operators and Contractor(s) shall determine the actual ground pressure of all equipment to be used on the cap, at fully loaded capacity (i.e. including full loads of grading materials or concrete ballast), and document that the load on the HDPE or impervious layer is less than 7 PSI. The Permittee shall provide to MassDEP the actual ground pressure of all fully loaded equipment to be used on the cap.
20. MassDEP specifically reserves the right to restrict or prohibit heavy vehicular loads from the landfill cap, either as a weight restriction or a usage restriction, should inspections or other information reveal the potential for damage to the cap from heavy vehicle loads. MassDEP also specifically reserves the right to impose, at any time deemed necessary by MassDEP, additional requirements for construction on the cap, should construction activities pose a danger to the integrity of the landfill cap or appurtenances.
21. If MassDEP determines that the use of equipment is creating the potential for damage to, or is damaging, the landfill cap, the usage of such equipment shall cease immediately upon discovery or upon notification by MassDEP, and alternative work practices for operation of equipment of the cap (i.e. placement of geotextile and gravel, as proposed) in the affected area(s) shall be instituted.
22. Construction access to areas east and west of the existing swales shall be limited to the use of the proposed "Temporary Swale Crossings".

23. The existing grass swales that will be located within the solar farm's fence shall be mowed and low spots shall be filled/ reshaped to eliminate low spots and provide adequate slope for proper drainage. Fill shall be suitable to support vegetative cover materials. All disturbed areas shall be reseeded. Design details shall be submitted to MassDEP for approval prior to performing the repair.
24. The two existing utility poles installed in concrete pipe sleeves that are located within the landfill cap, to the east of the solar farm, shall be cut and capped. The proposed methods and procedures shall be submitted to MassDEP for approval in accordance with condition 5 of this Permit.
25. The construction staging area(s) where equipment and materials will be unloaded or stored shall be located off of the Landfill cap unless the location is approved by MassDEP prior to use.
  - a. A written request shall be submitted to MassDEP for approval that details the location of the staging area.
  - b. Staging on the existing or proposed roadways is acceptable provided that access to and operation of the transfer station is not adversely impacted.
  - c. At a minimum, staging areas where equipment other than light displacement will be operated shall be prepared in accordance with Detail 3 on Plan Sheet C-501 of the Application unless otherwise approved by MassDEP.
  - d. The staging operations shall not interfere with Transfer Station operations.
26. The Town owned property on the east side of South Road and north of the entrance road is an inactive landfill (the "West Landfill") and may not be used as a staging area, for parking or for any purpose without written approval from MassDEP.
27. The existing access road located to the northeast of the landfill provides access to the below grade leachate collection tanks. This access road shall not be used for construction access or for staging.
28. Existing power poles or guy wires located within 10 feet of the landfill cap shall not be used for additional wires, equipment or other loads.
  - a. All new equipment, wires and other loads shall be supported on utility poles located a minimum of 10 feet horizontally from the limits of the landfill cap.
  - b. Guy wires shall not be installed within 10 feet horizontally of the landfill cap.
  - c. Existing pole UP 38-15 shall be abandoned, cut off at grade and the guy wire removed. The existing guy wire anchor may be abandoned in place.
29. The Permittee, Owners and Operators and their contractor(s) are responsible to ensure that the proposed work complies with all applicable local, state and federal electrical codes and permits, including the National Electrical Code (NEC), 2014 Edition and revisions, Article 690 –"Solar Photovoltaic (PV) Systems" in particular Part V; Grounding and Bonding requirements. MassDEP notes that Article 690.31(a) – "Wiring Systems" of the NEC states that "Where PV source output circuits operating at maximum system voltage greater than 30 volts are installed in readily accessible locations, circuit

conductors shall be installed in a raceway". The Permittee, Owners and Operators and their contractor(s) are also responsible to ensure that the proposed work complies with all other applicable local, state and federal regulations.

30. All grounding of the solar array shall be performed in accordance with the applicable portions of the NEC and state/local electrical codes. Grounding and electrical equipment shall not penetrate the landfill cap, unless specifically approved by MassDEP.
31. If the Permittee, Owner, Operators or their Contractor(s) modify the design and intends to use different solar panels, panel racks, ladder racks, or electrical equipment than those detailed in the application, the Permittee shall notify MassDEP and provide documentation that the alternative equipment does not increase calculated ground pressures or decrease calculated Factors of Safety for solar array stability. MassDEP will then make a determination of whether a new Permit Application is required.
32. Crushed stone or clean, crushed asphalt, brick and concrete (ABC rubble) may be used for leveling beneath ballast blocks.
  - a. The maximum size of the crushed ABC shall not exceed 1.0 inch in its maximum dimension.
  - b. Compaction of the leveling materials must not damage the geomembrane of the cap, and shall not be compacted more than 6 inches into the vegetative support layer.
  - c. Coated (painted or stained) ABC rubble shall **not** be used in the Solar Farm construction.
  - d. ABC rubble with exposed wire or rebar shall **not** be used in the Solar Farm construction.
33. All areas disturbed during construction shall be repaired. Additional vegetative support material shall be placed as required, seeded and acceptable grass shall be established except for gravel road surfaces.
34. The proposed Solar Farm array shall be fully fenced. In accordance with 310 CMR 19.130 (23) the Permittee shall provide sufficient fencing and other barriers to prevent access to the facility except at designated points of entry and all points of entry shall be equipped with locking gates that are secured when the operator is not onsite. The fence shall be constructed and in place prior to the operation of the solar farm. Fence posts shall not be placed directly into soil within 10 feet horizontally of the landfill cap and shall be supported with concrete footings.

#### **C. OPERATIONS AND MAINTENANCE CONDITIONS-SOLAR FARM**

35. The following conditions apply to the minimum required maintenance of the landfill:
  - a. The entire vegetated landfill surface of the landfill including those portions located within the solar system lease limits shall be mowed/cut at least once per year.
  - b. Vegetation that has been established in areas where stone surfaces exist shall be trimmed once per year to avoid the establishment of woody vegetation.
  - c. Herbicides may not be used to control vegetation.

- d. The condition of the fence and access gates shall be inspected at least once a month. Any damage to the fence or gates shall be repaired within 24 hours of discovery.
36. Following completion of the installation, inspections of the Solar Farm shall be performed on a quarterly basis by a qualified, independent third-party inspector in accordance with 310 CMR 19.018. After one year of quarterly inspections, the Permittee may petition MassDEP in writing to reduce the frequency of inspections. The following conditions shall apply:
- a. The entire landfill cap and access roads shall be walked and any problems with the landfill cap, erosion, unusual or excessive settlement, stressed vegetation, damage to landfill gas monitoring wells, vents, and other appurtenances, and any other problems with the landfill cap shall be identified.
  - b. Preparation and submittal of an inspection report summarizing the inspection.
  - c. Identification of any problems with access controls such as damaged gates and/or fences, as well as any evidence that unauthorized access to the solar array area that may have occurred.
  - d. Any damage to landfill gas monitoring wells or other monitoring points, landfill gas vents, or other landfill appurtenances.
  - e. A description of actions taken to correct any problems.
  - f. A signed and certified copy of the Inspection Report shall be submitted to MassDEP and to the Board of Health within 30 days of the date of the inspection.
37. The Permittee, Owners and Operators shall ensure that any erosion, unusual or excessive settlement, stressed vegetation, damage to landfill monitoring wells, vents, and other appurtenances, and any other problems with the landfill cap (inside or outside of the solar farm) shall be reported to MassDEP within 24 hours of discovery. Such problems shall be evaluated and appropriately repaired within 7 days of discovery or in accordance with an alternative schedule approved by MassDEP.
38. If the Permittee or Operator discontinues operation of the Solar Farm, the Permittee and the Operator are responsible to perform decommissioning activities as outlined in the permit application. The following actions shall be taken.
- a. All panels, racks, concrete blocks and pads located on the landfill cap, and exposed conduits shall be removed and sealed.
  - b. Buried conduits may remain provide they are cut off below grade and permanently plugged.
  - c. Landfill grades shall be restored and vegetative support layer shall be replaced/ repaired as necessary.
  - d. All disturbed areas except for gravel road surfaces shall be reseeded.
  - e. Vegetation shall be established and maintained.

#### **D. SUBMITTALS**

39. Submittals required by this Permit include but are not limited to the following:
- a. Revised plans and design information shall be submitted to MassDEP as required by

- condition 5 of this Permit;
  - b. Construction schedule as required by condition 8 of this Permit;
  - c. Project personnel list and their contact information and changes in accordance with condition 9 of this Permit;
  - d. Construction Certification Report in accordance with condition 11e of this Permit and 310 CMR 19.107;
  - e. The Construction Engineer's monthly construction report required by condition 12 of this Permit;
  - f. Health and Safety Plan in accordance with condition 13 of this Permit;
  - g. Ground pressure calculations in accordance with condition 19 of this Permit;
  - h. Quarterly Landfill/solar farm inspection reports in accordance with 310 CMR 19.018 and condition 36 of this Permit.
  - g. Maintenance/erosion/settlement notification in accordance with condition 35e of this Permit;
  - i. Notification of change in owner or operator in accordance with conditions 45 & 46 of this Permit; and
  - j. Environmental monitoring, notifications, maintenance and other reports required by the Closure Certification permit dated September 29, 2014 Permit or subsequent modifications.
40. All submittals to MassDEP shall be certified in accordance with 310 CMR 19.011 Certification and Engineer's Supervision which requires:

*(1) Signatories and General Certification. Any application for a permit, authorization to construct, authorization to operate, permit modification, and any determination, certification, report and any other document submitted to the Department pursuant to 310 CMR 19.000, shall be signed by the appropriate responsible official. Any person required by 310 CMR 19.000 or any order or other enforcement document issued by the Department, to submit any document to the Department shall identify himself or herself by name, profession, and relationship to the applicant and legal interest in the facility, and make the following statements:*

- I, [name of responsible official], attest under the pains and penalties of perjury that:*
- (a) I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification statement;*
  - (b) based on my inquiry of those persons responsible for obtaining the information, the information contained in this submittal is, to the best of my knowledge, true, accurate, and complete;*
  - (c) I am fully authorized to bind the entity required to submit these documents and to make this attestation on behalf of such entity; and*
  - (d) I am aware that there are significant penalties, including, but not limited to, possible administrative and civil penalties for submitting false, inaccurate, or incomplete information and possible fines and imprisonment for knowingly submitting false, inaccurate, or incomplete information; and*
  - (e) (for a responsible official submitting a third-party inspection report pursuant to 310 CMR 19.018(8)(b)1.) The facility [name of facility] provided any information*

*required by 310 CMR 19.018 and requested by the third-party inspector in a timely fashion and any employee or contractor of [name of facility] did not unduly influence the third-party inspector; and*

*(f) (for a responsible official submitting a transfer station certification pursuant to 19.035(4)):*

*1. I have accurately stated whether the transfer station is in compliance with its permit and all other applicable requirements in 310 CMR 16.00: Site Assignment Regulations for Solid Waste Facilities and 19.000 including, but not limited to, 310 CMR 19.043;*

*2. I have accurately identified any and all violations of 310 CMR 16.00: Site Assignment Regulations for Solid Waste Facilities or 19.000 or the terms and conditions of any permits or other approvals issued thereunder by the Department;*

*3. If the transfer station is not in compliance, I have stated what the owner and operator will do to return the transfer station to compliance and the date by which compliance will be achieved; and,*

*4. Plans and procedures to maintain compliance are in place at the transfer station and will be maintained even if processes or operating procedures are changed.*

*(2) Engineering Supervision. 310 CMR 19.011(2) does not apply to any documents submitted to the Department pursuant to 310 CMR 19.018. All papers pertaining to design, construction, operation, maintenance, or engineering of a site or a facility shall be completed under the supervision of a Massachusetts registered professional engineer knowledgeable in solid waste facility design, construction and operation and shall bear the seal, signature and discipline of said engineer. The soils, geology, air modeling, air monitoring and groundwater sections of an application or monitoring report shall be completed by competent professionals experienced in the fields of soil science and soil engineering, geology, air modeling, air monitoring and groundwater, respectively, under the supervision of a Massachusetts registered professional engineer. All mapping and surveying shall be completed by a registered surveyor.*

41. Unless otherwise directed herein, all submissions required pursuant to this permit shall be sent to:

Section Chief, Solid Waste Management  
Department of Environmental Protection  
436 Dwight Street  
Springfield, MA 01103

**E. STANDARD CONDITIONS**

42. This post-closure use permit shall be valid for a period of thirty (30) years from the date of this permit, provided that MassDEP may amend the term of the permit in accordance with an approved modification pursuant to either 310 CMR 19.032 or 19.033.
43. If construction of the solar panel installation has not been completed within three years of the date of issuance of this Permit, this Permit shall expire. The Permittee may apply to the MassDEP for an extension of the Permit at any time prior to or after it expires.
44. If the Operator intends to operate the Solar Farm after the expiration of this permit, the Permittee is required to submit a request for a renewal of the permit at least 90 days prior to the expiration of the permit.
45. If the Permittee intends to transfer this permit to any other entity, the requirements at 310 CMR 19.044, Transfer of Permits, shall be satisfactorily completed. The notification shall be submitted on an application form for a BWPSW49 Permit Transfer Certification with transmittal form and the applicable filing fee. Prior to a change in the Owner or Operator of the Solar Farm, MassDEP must be notified and approve a Permit Application for a Post Closure Use-Minor BWP-SW 37.
46. Not later than seven (7) days prior to a change in the Owner and/or Operator of the Solar Farm, MassDEP shall be notified in writing of the change. The notification shall include contact information for the new Owner/Operator.
47. This permit is issued subject to the conditions of joint liability of the Permittee, the Owner and the Operator in accordance with 310 CMR 19.043(3).
48. The Permittee, Owners, Operators their contractors and subcontractors and the Construction Engineer shall be considered Operators with respect to the construction of the Solar Farm and compliance with plans and specifications. The Permittee shall also be considered an operator during the operational life and decommissioning of the Solar Farm. As such, MassDEP may take enforcement action against the Permittee, Owners, Operators or the Construction Engineer, consistent with its authority under applicable Massachusetts law and regulation, for any failure to construct, operate or maintain the Solar Farm in accordance with approved plans and specifications of which the Permittee or the Engineer were, or should have been, aware. 310 CMR 19.006, defines "Operator" as:

*"Operator means any person who has care, charge or control of a facility subject to 310 CMR 19.000, including without limitation, an agent, lessee of the owner or an independent contractor."*

49. The Permittee, the Owners, the Operators, the Contractor(s), and subcontractors shall comply with 310 CMR 19.015 Compliance, which states:

*"No person shall construct, modify, operate or maintain a facility except in compliance with a site assignment, permit or plan approved by the board of health or the Department, as applicable, and any authorizations issued by the*



*Department and all conditions included in a permit, approval or authorization for said facility.”*

50. The Applicant in this permit application seeks no variances from any applicable regulations.
51. This approval pertains only to the Solid Waste Management aspects of the proposal and does not negate the responsibilities of the Permittee, Owners, Operators or Contractors to comply with any other local, state or federal laws, statutes and regulations or enforcement actions, including orders issued by another agency now or in the future. Nor does this approval limit the liability of owners, operators or otherwise legally responsible parties from any other applicable laws, statutes or regulations now or in the future.
52. MassDEP and its agents and employees shall have the right to enter upon the Landfill at all reasonable times, to inspect the landfill and any equipment, structure or land located thereon, take samples, recover materials or discharges, have access to and photocopy records, to perform tests and to otherwise monitor compliance with this Permit and all environmental laws and regulations. This right of entry and inspection shall be in addition to MassDEP's access authorities and rights under applicable federal and states laws and regulations, as well as any permits or other agreements between the Permittee and MassDEP.
53. MassDEP reserves the right to require additional or increased monitoring or maintenance activities in the event that the post-closure use is or may be having a detrimental effect on the landfill cap or appurtenances. MassDEP reserves all rights to suspend, modify or rescind this permit, should the conditions of this permit not be met, should the Solar Farm create nuisance conditions or threats to public health, safety or the environment, or should MassDEP otherwise determine that continued post-closure use is negatively impacting the landfill cap or appurtenances.
54. Compliance with submissions required pursuant to this approval shall be determined by the date of receipt by MassDEP or by the postmarked date, whichever is earlier.
55. All verbal notifications shall be followed by written notification within 48 hours of discovery.

This Permit is being issued as a Final Permit. Pursuant to 310 CMR 19.033(5):

*(a) Appeal. Any person aggrieved by the final permit decision, except as provided for under 310 CMR 19.033(4)(b), may file an appeal for judicial review of said permit decision in accordance with the provisions of M.G.L. c. 111, § 150A and M.G.L. c. 30A no later than 30 days following the date of issuance of the final permit decision to the applicant. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the final permit decision by a court of competent jurisdiction, the final permit decision shall be effective in accordance with 310 CMR 19.033(3).*

*(b) Notice of Action. Any aggrieved person intending to appeal a final permit decision to the Superior Court shall first provide notice of intention to commence such action. Said notices of intention shall include the Department file number and shall identify with particularity the issues and reason why it is believed the final permit decision was not proper. Such notice shall be provided to the Office of General Counsel of the Department and the Regional Director for the regional office which processed the permit application, if applicable, at least five days prior to the filing of an appeal.*

*(c) No allegation shall be made in any judicial appeal of a final permit decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in 310 CMR 19.000, provided that a matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the environmental impact of the permitted activity.*

The MassDEP File Number for this Permit is 16-311-001B. The appropriate addresses to which to send such notices are:

General Counsel  
Department of Environmental Protection  
One Winter Street  
Boston, MA 02108

Michael J. Gorski  
Regional Director  
Department of Environmental Protection  
436 Dwight Street  
Springfield, MA 01103

If you have any questions about this matter, please contact Charles Clines of this office at 413-755-2120.

Sincerely,

This final document copy is being provided to you electronically by the  
Department of Environmental Protection. A signed copy of this document  
is on file at the DEP office listed on the letterhead.

Daniel Hall  
Section Chief, Solid Waste Management

DH/CAC/cac

3111modsolar.0716

Certified Mail 7016 0340 0000 4822 5279, Return Receipt

Board of Health, Town of Warren, PO Box 478, Warren, MA 01083

Brian S. Huntley, P.E., Tighe & Bond, Inc., 53 Southampton Road, Westfield, MA 01085

Scott Sargent, Borrego Solar System, Inc., 55 Technology Drive, Suite 102,

Lowell, MA 01851