



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

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December 17, 2019

Kearsarge Haverhill, LLC
1200 Soldiers Field Road, Suite 202
Boston, MA 02134
Attention: Andrew Bernstein, Managing Partner

City of Haverhill
Department of Public Works
500 Primrose Street
Haverhill, MA 01830
Attention: Michael Stankovich, Director of Public Works

RE: HAVERHILL – Solid Waste Management
Haverhill Landfill
Old Groveland Road
FMF# 39347

BWP SW36 / Post-Closure Use – Major
Authorization Number: SW36-0000020

**Solar Power Generating Facility
Approval and Authorization to Construct**

Dear Mr. Bernstein and Mr. Stankovich:

The Massachusetts Department of Environmental Protection, Northeast Regional Office, Bureau of Air and Waste, Solid Waste Management Section (MassDEP) has reviewed your application, category BWP SW36 *Post-Closure Use – Major*, Application Number: 19-SW36-000004-APP (the Application), for the post-closure use of the Haverhill Landfill (Southern Mound) located on Old Groveland Road in Haverhill, Massachusetts (the Landfill). The Application was prepared and submitted to MassDEP on behalf of the City of Haverhill (the City) and Kearsarge Haverhill, LLC of Boston, Massachusetts (Kearsarge or the Developer) by Tighe & Bond, Inc. of Westfield, Massachusetts (Tighe & Bond).

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

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The Application proposes the installation of a 3.4-megawatt direct current (MW_{DC}) solar photovoltaic power generating facility (PV Facility) on a 7.8-acre portion of the Southern Mound area of the approximately 30.5-acre Landfill. The Application includes design plans for the solar array and an engineer's report describing and supporting the design of the facility.

In October 2019, Tighe & Bond submitted to MassDEP additional information to support the Application. The additional information includes details regarding the placement of electrical utility poles on an area of buried ash adjacent to the Southern Mound known as the "Lot 26 Ash Area", the energy storage system and the location of above-cap electrical conduit.

DISCUSSION

The Landfill is jointly owned by the City and Aggregate Industries-Northeast Region, Inc. (Aggregate). Capping of the Southern Mound of the Landfill was completed in 2013 and MassDEP issued approval of the closure certification report on April 15, 2015 (Transmittal Number: X62481). The cap includes a 40-mil thick very low-density polyethylene (VLDPE) flexible membrane liner (FML) as the impervious layer over waste. The design of the landfill cap provides 20 inches of soil cover over the FML (8-inch vegetative support layer and 12-inch drainage layer), and a 6-inch gas vent layer below the FML. The final cap has been constructed over the Southern Mound only. Additional remaining corrective actions are required at the Landfill, including final capping of both the Northern Mound and the Lot 26 Ash Area. The Applicant provided a conceptual closure plan and other details showing that the poles associated with the proposed electric transmission line crossing the Lot 26 Ash Area would not interfere with the future closure of this area. The capping and closure of the Northern Mound and Lot 26 Ash Area will be the subject of separate MassDEP review and approval.

The City will enter into a ground lease agreement with Kearsarge for installation of the PV Facility.

The proposed PV Facility will consist of approximately 8,582 PV modules. The PV modules will be supported by galvanized steel and aluminum brackets mounted on precast concrete foundation ballasts. The ballast blocks will be utilized to stabilize the brackets and panels from sliding and uplift from wind. The system will be connected to the National Grid electric utility grid and includes an approximate 9-megawatt hour (MWh) containerized energy storage system located off the landfill cap. Grounding plates and grounding conductors where installed on the landfill cap will be placed in the soil cover above the landfill cap membrane. A permanent access road will also be installed on top of the landfill cap to allow vehicle access to the solar arrays, inverter and transformer pad equipment for inspection and maintenance services.

The Developer will be responsible for the mowing and maintenance of the vegetative cover of the Landfill within the fenced area of the PV Facility. Post-closure operation and maintenance of the Landfill and environmental monitoring of the site will continue to be performed by City and Aggregate pursuant to the Landfill's existing post-closure environmental monitoring and maintenance plan (the PCMMP), included in the Final Southern Mound Corrective Action Design (CAD) which was approved by MassDEP on February 24, 2011, Transmittal Number:

X235333. The design and layout of the proposed project will allow for the continued environmental monitoring at the site.

The Landfill is listed on the National Priorities List (NPL) under the Comprehensive Environmental response, Compensation and Liability Act (CERCLA, also known as Superfund). While Aggregate is not an applicant for this project they have provided a letter in the Application indicating their support of the project.

DECISION

MassDEP has determined that the Application is administratively and technically complete and that, subject to the terms and conditions of this decision and permit, the proposed post-closure use complies with the applicable requirements of 310 CMR 19.000, the Massachusetts Solid Waste Regulations (the Solid Waste Regulations). The Application demonstrates pursuant to 310 CMR 19.143(3) that the installation and operation of the solar PV Facility as proposed and approved by this decision:

- Will not result in a disturbance of the Landfill cap that could cause an adverse impact to public health, safety or the environment;
- Will not impair the integrity or functioning of the final cover, the components of the containment system, the landfill gas control system, and the environmental monitoring systems; and
- Provides for the maintenance of the Landfill cap's storm water drainage facilities, basins, swales, and other erosion/sedimentation controls.

Therefore, in accordance with M.G.L. Chapter 111, § 150A and 310 CMR 19.143, MassDEP approves the Application and issues this Post-Closure Use Permit subject to the Developer's compliance with 310 CMR 19.000 and the following conditions, imposed by MassDEP pursuant to 310 CMR 19.043(1) *Items Subject to Conditions* and 310 CMR 19.142(7) *Additional Measures*. This decision is a Post-Closure Use Permit pursuant to 310 CMR 19.143 *Post-Closure Use of Landfills*. Kearsarge and the City are hereafter collectively referred to as the Permittee.

In issuing this decision, MassDEP is not approving the closure design or any other corrective actions for the Northern Mound or Lot 26 Ash Area. As discussed above, the capping and closure of the Northern Mound and Lot 26 Ash Area will be the subject of separate review and decision by MassDEP.

CONDITIONS

1. The Permittee shall comply with this permit and the requirements of 310 CMR 19.000, including, but not limited to, the requirements established at 310 CMR 19.043(5) *Standard Conditions*.

2. Pursuant to 310 CMR 19.043(5)(a) *Duty to Comply*, this decision does not relieve the Permittee, or any other person, of the responsibility to comply with all other applicable federal and state laws and regulations including, but not limited to, acquiring applicable permits and approvals, including local permits.
3. The Permittee shall ensure persons conducting activities¹ at the PV Facility and Landfill are familiar with the applicable provisions of this permit and the approved plans, and that all work performed at the Landfill complies with 310 CMR 19.000 and the applicable requirements of this permit.
4. The Permittee shall maintain copies of this decision and permit, the Application, the health and safety plan, and documentation that site personnel have been trained pursuant to the health and safety plan at the site during construction of the PV Facility.

5. Required Submittals:

- a. Notification of Construction: Not less than seven (7) days prior to commencing construction pursuant to the application and this permit, the Permittee shall notify MassDEP and the Haverhill Board of Health in writing of the scheduled date of the commencement of construction at the site. In addition, the notification shall include:
 - i. The projected schedule for completion of the major construction milestones of the PV Facility.
 - ii. The name and contact information for the Engineer of Record for the project;
 - iii. The name and contact information of an on-site contact for the project;
 - iv. A health and safety plan for MassDEP's files that includes, but is not limited to:
 - protocols for monitoring for landfill gas (methane, hydrogen sulfide, etc.) as needed;
 - protocols for modifying work practices if landfill gas is detected at levels of concern (action levels);
 - instruction and training of all personnel working on the site regarding the potential health and safety hazards at the Landfill including, but not limited to those associated with landfill gas;
 - instruction and training of all personnel in compliance with the conditions of this permit and how to perform authorized activities in a manner that is not hazardous to public health, safety, and the environment; and
 - v. The National Pollutant Discharge Elimination System (NPDES) Notice of Intent and Stormwater Pollution Prevention Plan (SWPPP) for the project.

¹ Activities include, but are not limited to, the construction, installation, operation, and maintenance of the PV Facility and the Landfill.

- b. Construction Certification Report: Prior to commencing operation of the PV Facility, and no more than ninety (90) days after the date of completion of the construction of the PV Facility, the Permittee shall submit for review and approval by MassDEP a construction certification report, as an application, category BWP SW45 *Alternative Review Process*, that includes, but is not limited to:
 - i. As-built plans for the final as constructed PV Facility amended to incorporate all modifications and alterations, if any, made during construction;
 - ii. A narrative, prepared by the Engineer of Record that discusses in part, any modifications made to the design of the PV Facility;
 - iii. Certifications by the Permittee and the Engineer of Record pursuant to 310 CMR 19.011; and
 - iv. A Copy of the Notice of Landfill Operation as recorded with the Registry of Deeds, or if the land is Registered Land, with the registry section of the land court for the district in which it lies, complying with M.G.L. Chapter 111, § 150A and 310 CMR 19.141.
 - c. Third-Party Inspections: The Permittee shall conduct third-party inspections and submit inspection reports to MassDEP pursuant to Condition 26.
 - d. PV Facility Decommissioning Plan: On or before thirty (30) days after the date the PV Facility ceases operation, the Permittee shall submit to MassDEP an application pursuant to 310 CMR 4.00 and 310 CMR 19.000 for the decommissioning of the PV Facility and the restoration of the Landfill cap and appurtenances thereto. The application shall include, but not be limited to, a narrative, plans and schedule for the decommissioning of the PV Facility and the restoration of the Landfill's cap and appurtenances.²
- 6. The Permittee shall not commence construction of the PV Facility until it has provided notification to MassDEP and the Haverhill Board of Health pursuant to Condition 5.a above.
 - 7. All construction work shall be completed and conducted under the supervision of an independent Massachusetts Registered Professional Engineer (Engineer of Record) who shall have sufficient qualified staff on-site to provide field supervision and quality assurance/quality control for all construction activities.
 - 8. The Permittee and the Engineer of Record are responsible to ensure that all necessary precautions are taken to protect the health and safety of workers and the general public during the construction and operation of the PV Facility and during its decommissioning.

² Appurtenances include, but are not limited to storm water controls, landfill gas control structures, landfill gas and groundwater monitoring wells.

9. Prior to construction of the PV Facility, any suspect settlement areas on the Landfill project area shall be surveyed to determine the lowest spot. The surrounding area should be surveyed to find the “relief point” defined as the lowest surrounding area where ponded water would flow off the Landfill cap. The elevation difference is defined as the “pond value.” Minor settlement shall be defined as less than 12-inch pond values. Any Landfill project area that has undergone minor settlement shall be corrected by the placement of additional vegetative support soil to promote runoff and the area shall be reseeded.

Major settlement is defined as a pond value of 12 inches or more. When this occurs, the final cover system must be repaired to prevent water from ponding above the low permeability layer. The Permittee may either:

- a. Strip off the final cover soils above the low permeability layer, inspect and repair the low permeability layer if/as necessary, place low permeability soil as necessary to promote runoff, replace final cover soils; or
- b. Expose the low permeability soil or geomembrane in a trench around the perimeter of the settled area. Fill the area with soil to form slopes promoting runoff. Cap the area with a new low permeability membrane, geosynthetic clay liner (GCL), or low permeability soil layer that ties into the existing low permeability layer at the identified perimeter. Place new drainage sand and vegetative support material over the new cap area.

Areas of minor settlement may be repaired as routine maintenance, provided the Permittee reports the settlement to MassDEP and states the intention to perform repairs, and provides to MassDEP the final survey results and a summary letter report as part of the construction certification report pursuant to Condition 5. Any proposal to conduct major settlement repair must be submitted to MassDEP together with an application, category BWP SW25 *Corrective Action Design*, which shall include, without limitation, detailed information of the proposed repair.

10. Vehicles operating on the Landfill cap shall only be operated and parked on designated access roads, except for low-pressure construction equipment, which may operate off the access roads. All operators of vehicles entering the capped area of the Landfill shall, prior to their arrival, be instructed by the Engineer of Record or his/her designee and/or contractor of the requirements of this decision and permit, to avoid damage to the Landfill cap and appurtenances thereto.
11. Only low ground pressure construction equipment (with ground pressures of less than 7 PSI) may operate on the Landfill cap off of the access road, and only in accordance with the conditions of this decision. Prior to use of any specific equipment off the access road on the cap, the Engineer shall document that the equipment, fully loaded, will have a ground pressure of less than 7 PSI.
12. The Permittee shall maintain a minimum ten (10) foot radius buffer between the closest edge of all solar equipment and all existing landfill gas venting structures.

13. Electrical grounding system components, security fence posts, and other solar project components shall not penetrate the FML.
14. Installation of underground conduit shall include properly installed and filled explosion proof seal-off(s) at each location the conduit daylight(s).
15. All disturbance of the Landfill shall be limited to the proposed excavations and installations as depicted and described in the Application and this permit. The Permittee and any contractors performing work at the Landfill shall without delay notify the Engineer of Record or his/her on-site representative upon encountering or damaging the FML component of the landfill cap.
16. If the landfill cap is damaged, the Permittee shall notify MassDEP without delay and in no case later than the close of business of the next business day after it becomes aware of any incident or such damage. This notification requirement is in addition to any other notification requirements required by statute or regulation including, but not limited to, 310 CMR 19.000 and 310 CMR 40.0000.
17. The Permittee shall comply with the notifications described in this decision and 310 CMR 19.043(5)(i), *Duty to Inform*. These notifications are in addition to, and shall not substitute for, any other notification(s) which are required pursuant to 310 CMR 40.0000, the Massachusetts Contingency Plan (the MCP), and 310 CMR 30.000, the Massachusetts Hazardous Waste Regulations or any other applicable state, federal, or local law or regulation.
 - a. The Permittee shall notify MassDEP and the Haverhill BOH within twenty-four (24) hours whenever possible, but in no case greater than within forty-eight (48) hours of the Permittee, the Engineer of Record or contractor(s), becoming aware of:
 - i. The occurrence of any conditions or events that result in off-site nuisance conditions or a threat to the public health, safety, welfare or the environment;
 - ii. The details of any incidents that resulted in the response of emergency personnel (fire, police, MassDEP Emergency Response personnel, the Occupational Health and Safety Administration, etc.) to the Facility; and
 - iii. The receipt by the Permittee of any complaint of off-site nuisance conditions attributed to the PV Facility construction.
 - b. This written notification shall be made by email simultaneously to the Solid Waste Section Chief, Deputy Regional Director of the Bureau of Air & Waste and the Department's assigned environmental engineer at MassDEP's Northeast Regional Office. Currently these individuals are as follows:

Mark Fairbrother, Solid Waste Section Chief
Email: mark.fairbrother@mass.gov
Telephone: (978) 694-3298

Susan Ruch, Deputy Regional Director, Bureau of Air & Waste
Email: susan.ruch@mass.gov
Telephone: (978) 694-3384

Richard Spieler, Environmental Engineer
Email: richard.spieler@mass.gov
Telephone: (978) 694-3317

- c. This notice shall, at a minimum, include a description of the incident and/or complaint, the impact on the construction activities authorized by this decision, and a description of any corrective actions the Permittee has taken or intends to take to minimize the potential for a recurrence.
18. Any and all damage to the FML shall be promptly repaired. The FML shall be restored to the conditions as specified within the approved closure/post-closure plans. All work to repair damaged FML shall be completed and conducted under the supervision of the Engineer of Record who shall have sufficient qualified staff on-site to provide field supervision and quality assurance/quality control for all cap repair activities. Any and all cap repairs shall be shown on the as-built plans and discussed in the construction certification report required by Condition 5 of this decision.
19. Excess topsoil generated by the installation of the PV Facility shall be taken off site for proper disposal or reuse according to applicable regulations or policies.
20. Pursuant to 310 CMR 19.043 *Standard Conditions*, MassDEP and its agents and employees shall have the right to inspect the Landfill, any equipment, structure or land located thereon, to take samples, to perform tests, and have access to and photocopy records, and to otherwise monitor compliance with this permit and all environmental laws and regulations administered by MassDEP.
21. Notice of the Landfill located on this site, including this decision, shall be recorded with the Registry of Deeds, or if the land is Registered Land, with the registry section of the land court for the district in which it lies, complying with M.G.L. Chapter 111, § 150A and 310 CMR 19.141. The Notice shall include the Facility Master File Facility Number (FMF# 39545) as part of identification of the MassDEP file for the Landfill.
22. MassDEP reserves the right to amend, modify, suspend or revoke this permit pursuant to 310 CMR 19.036 *Department's Modification, Suspension, or Revocation of a Permit*. This does not limit or restrict MassDEP from implementing any other applicable authority at the Landfill including, but not limited to authority pursuant to 310 CMR 40.0000.
23. This permit is effective on the date signed by MassDEP below, except as provided by the Notice of Appeal Rights below and 310 CMR 19.033(4)(b). This permit shall expire on December 31, 2039, provided that MassDEP may amend the term of the permit in

accordance with a modification pursuant to 310 CMR 19.033 or 310 CMR 19.034. The Permittee shall submit to MassDEP on or before June 30, 2039 either an application to renew the permit or notice of its intent to close the PV Facility. Wherein the Permittee elects to close the facility, the Permittee shall submit an application for the decommissioning of the PV Facility and the restoration of the Landfill cap and appurtenances thereto pursuant to Condition 5, above.

24. The Permittee shall not deviate from this permit and the approved design plans. The Permittee shall notify MassDEP prior to any modification(s) of the design and of any significant changes in the project schedule. MassDEP may, at its sole discretion, require the Permittee to submit an application to MassDEP for review and approval for any modification/alteration to the design. In the event that MassDEP determines that a permit application is required for a modification, the Permittee shall submit such application to the MassDEP in accordance with the schedule specified by MassDEP.
25. No transfer of this permit shall be permitted except in accordance with the requirements of 310 CMR 19.044. If at any time, the permittee for this project does not include a municipal entity, the permittee shall provide to MassDEP a financial assurance mechanism, in accordance with 310 CMR 19.051, for the costs of decommissioning and site restoration activities.
26. During the first year after completion of construction of the PV Facility, the Permittee shall ensure that inspections of the Landfill final cover system are conducted on a quarterly basis. Pursuant to 310 CMR 19.142(6), inspections shall be conducted by a Third-Party Inspector registered with MassDEP, pursuant to 310 CMR 19.018. Quarterly third-party inspection reports shall be submitted to MassDEP within thirty (30) days of the date of each inspection. Following the first year of operation of the PV Facility, after the submittal of four quarterly third-party inspection reports, and if no problems have been documented, third-party inspections of the Landfill shall be performed in accordance with the requirements of 310 CMR 19.018 at least once every two calendar years and third-party inspection reports shall be submitted to MassDEP within (30) days of the date of each inspection.

NOTICE OF RIGHT TO APPEAL

The City of Haverhill and Kearsarge Haverhill, LLC (hereinafter collectively referred to as the Applicant) are hereby notified that it may within twenty-one (21) days of the date of issuance file a request that this decision and permit be deemed a provisional decision under 310 CMR 19.033(4)(b), by submitting a written statement of the basis on which the Applicant believes it is aggrieved, together with any supporting materials. Upon timely filing of such a request, the decision shall be deemed a provisional decision with an effective date twenty-one (21) days after the MassDEP's receipt of the request. Such a request shall reopen the administrative record, and the MassDEP may rescind, supplement, modify, or reaffirm its decision. Failure by the Applicant to exercise the right provided in this section shall constitute a waiver of the Applicant's right to appeal.

Appeal. Any person aggrieved by the issuance of this decision may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A, and M.G.L. c. 30A, not later than thirty (30) days following the date of issuance of the final decision. 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 decision by a court of competent jurisdiction, the decision shall remain effective.

Notice of Action. Any aggrieved person intending to appeal this decision to the Superior Court shall first provide notice to the MassDEP of their intention to commence such action. Said notice of intention shall include the MassDEP's file number and shall identify with particularity the issues and reasons why it is believed the decision was not proper. Such notice shall be provided to the Office of General Counsel of the MassDEP and the Regional Director for the regional office which processed the application at least five (5) days prior to the filing of an appeal. The appropriate addresses to which to send such notices are:

General Counsel
Massachusetts Department of Environmental Protection
One Winter Street – 3rd Floor
Boston, MA 02108

and

Eric Worrall, Regional Director
Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, 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.

Should you have any questions relative to this approval, please contact Richard Spieler at (978) 694-3317.

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.

Mark G. Fairbrother
Section Chief
Solid Waste Management

MGF/RJS/rjs

Richard J. Spieler
Environmental Engineer
Solid Waste Management

Enclosure: Communication for Non-English Speaking Parties

cc: Susan Ruch, Deputy Regional Director, MassDEP-NERO, Bureau of Air and Waste
Email: susan.ruch@state.ma.us

Haverhill Board of Health
City Hall
4 Summer Street
Haverhill, MA 01830

Stephanie Herbster
Environmental and Land Manager
Aggregate Industries-Northeast Region, Inc.
1715 Broadway
Saugus, MA 01906

Brian Huntley, P.E.
Tighe & Bond, Inc.
Email: BSHuntley@tighebond.com

Bruce Haskell, P.E.
Langdon Environmental, LLC
Email: bhaskell@langdonenv.com

Janet Waldron, MassDEP-Boston/BWSC

Derrick Golden, U.S. Environmental Protection Agency - Region I
Email: golden.derrick@epa.gov