

**BWP SW 10 - APPLICATION FOR AUTHORIZATION  
TO OPERATE A LANDFILL  
PHASE 9 LANDFILL EXPANSION**

*Prepared For:*

**DEPARTMENT OF INTEGRATED SOLID WASTE MANAGEMENT  
TOWN OF BOURNE  
201 MacARTHUR BOULEVARD  
BOURNE, MASSACHUSETTS**

**Prepared By**

**SITEC Environmental, Inc.  
769 Plain Street, Unit C  
Marshfield, Massachusetts 02050**



**February 8, 2023**

**BWP SW 10 - APPLICATION FOR AUTHORIZATION  
TO OPERATE A LANDFILL  
PHASE 9 LANDFILL EXPANSION**

**DEPARTMENT OF INTEGRATED SOLID WASTE MANAGEMENT  
TOWN OF BOURNE  
201 MacARTHUR BOULEVARD  
BOURNE, MASSACHUSETTS**

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**SUMMARY**

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**PART I**  
**PERMIT APPLICATION FORMS**



Enter your transmittal number →

Transmittal Number

Your unique Transmittal Number can be accessed online:  
<https://www.mass.gov/service-details/transmittal-form-number-for-massdep-permit-application-payment>

## Massachusetts Department of Environmental Protection Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

**Copy 1 - the original** must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP  
P.O. Box 4062  
Boston, MA  
02211

\* Note:  
For BWSC Permits, enter the LSP.

### A. Permit Information

BWP SW 10 Authorization to Operate a Landfill  
1. Permit Code: 4-to-7-character code from permit instructions 2. Name of Permit Category  
Application for Authorization to Operate the Bourne Phase 9 Landfill Expansion  
3. Type of Project or Activity

### B. Applicant Information – Firm or Individual

Town of Bourne - Department of Integrated Solid Waste Management  
1. Name of Firm - Or, if party needing this approval is an individual enter name below:  
2. Last Name of Individual 25 Perry Avenue 3. First Name of Individual 4. MI  
5. Street Address  
Buzzards Bay MA 02532 508-759-0600 4240  
6. City/Town 7. State 8. Zip Code 9. Telephone # 10. Ext. #  
Daniel Barrett dbarrett@townofbourne.com  
11. Contact Person 12. e-mail address

### C. Facility, Site or Individual Requiring Approval

Town of Bourne Integrated Solid Waste Management Facility  
1. Name of Facility, Site or Individual  
201 MacArthur Boulevard  
2. Street Address  
Bourne MA 02532 508-759-0600 4240  
3. City/Town 4. State 5. Zip Code 6. Telephone # 7. Ext. #  
172356  
8. DEP Facility Number (if Known) 9. Federal I.D. Number (if Known) 10. BWSC Tracking # (if Known)

### D. Application Prepared by (if different from Section B)\*

SITEC Environmental, Inc.  
1. Name of Firm or Individual  
769 Plain Street, Unit A  
2. Address  
Marshfield MA 02050 781-319-0100 12  
3. City/Town 4. State 5. Zip Code 6. Telephone # 7. Ext. #  
A. Raymond Quinn, PE  
8. Contact Person 9. LSP Number (BWSC Permits only)

### E. Permit - Project Coordination

1. Is this project subject to MEPA review?  yes  no  
If yes, enter the project's EOEPA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit: 11333  
EOEPA File Number

### F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

#### Special Provisions:

- Fee Exempt: city, town, county, or district of the Commonwealth; federally recognized Indian tribe housing authority; municipal housing authority; the MBTA; or state agency if fee is \$100 or less. *There are no fee exemptions for BWSC permits, regardless of applicant status.*
- Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
- Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
- Homeowner (according to 310 CMR 4.02).

Check Number Dollar Amount Date



**Massachusetts Department of Environmental Protection**  
 Bureau of Waste Prevention – Solid Waste Management

Transmittal Number

**BWP SW 06 Authorization to Operate a Large Handling Facility**  
**BWP SW 10 Authorization to Operate a Landfill**  
**BWP SW 20 Authorization to Operate a Small Handling Facility**

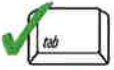
172356

Facility ID# (if known)

Application for Authorization to Operate a Solid Waste Management Facility

**A. Project Information**

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Which permit category are you applying for?  
 BWP SW 06     BWP SW 10     BWP SW 20
2. Is the attached application for:  
 a renewal, or     an initial authorization to operate a facility?

If initial authorization, complete sections **3** and **B**  
 If renewal authorization, complete sections **4** and **B**

**Directions:**  
 Specify the plan/report and page numbers in which the following information is located.

Enter NA if information requested is not applicable.

**Important Note:**  
 Engineering Plans must be stamped by a Registered Professional Engineer (PE).  
 Property Line Location must be stamped by a Registered Land Surveyor (RLS).

3. Authorization to Operate	Plan/Report #	Page #	DEP Use Only
a. Financial Assurance (310 CMR 19.051)	II _____	1 _____	_____
(1) Mechanism (310 CMR 19.051(12))	II _____	2 _____	_____
(2) Amount (310 CMR 19.051(5))	II _____	2 _____	_____
b. As-built Plans (310 CMR 19.042(3)(b))	II _____	2 & Figures _____	_____
(1) QA/QC documentation (310 CMR 19.107(1))	NA _____	_____	_____
(2) P.E. signed and stamped	NA _____	_____	_____
(3) Construction Certification (310 CMR 19.107(4))	NA _____	_____	_____
c. Construction Completeness (310 CMR 19.042(3)(c))	II _____	2 _____	_____
(1) Conformance with 310 CMR 19.030(3)	II _____	2 _____	_____
(2) Ditches, drains, roads, fences, water lines, collection systems & appurtenances	II _____	2 _____	_____
(3) Equipment	II _____	3 _____	_____
(4) Six month site preparation (if applicable)	II _____	3 _____	_____
(5) Staffing	II _____	3 _____	_____
(6) Recycling/composting implementation schedule	II _____	3 _____	_____
(7) Proof of other state, local, federal permits	II _____	3 _____	_____
(8) Compliance with other applicable portions of 310 CMR 19.000	II _____	3 _____	_____



**Massachusetts Department of Environmental Protection**  
 Bureau of Waste Prevention – Solid Waste Management

**BWP SW 06 Authorization to Operate a Large Handling Facility**  
**BWP SW 10 Authorization to Operate a Landfill**  
**BWP SW 20 Authorization to Operate a Small Handling Facility**

Transmittal Number

172356

Facility ID# (if known)

Application for Authorization to Operate a Solid Waste Management Facility

**A. Project Information (cont.)**

	<b>Plan/Report #</b>	<b>Page #</b>	<b>DEP Use Only</b>
d. 14 days of daily cover (310 CMR 19.130(15)(b)3)	II	4	
e. Compliance with Permit (or Authorization) to Construct Conditions of Approval	II	4	
f. Deed Notice (19.041(6))	II	4	
<b>4. Renewal of Authorization to Operate (310 CMR 19.042(4))</b>			
a. Renewal Content	NA		
(1) Date of expiration of current ATO			
(2) Changes in Operation and Monitoring			
(3) Narrative summary of monitoring data (previous 5 years)			
(4) Detailed report of monitoring data			
(5) Leachate management			
(6) Operation problems/solutions			
(7) List of Permit modifications			
(8) List of violations or enforcement actions			
(9) Remaining approved capacity			
(10) Documentation of recycling and waste restriction compliance			
(11) Financial assurance adequacy			
(12) Demonstration of compliance with 310 CMR 19.000			
b. Notification of host community and contract communities			



**Massachusetts Department of Environmental Protection**  
Bureau of Waste Prevention – Solid Waste Management

**BWP SW 06** Authorization to Operate a Large Handling Facility  
**BWP SW 10** Authorization to Operate a Landfill  
**BWP SW 20** Authorization to Operate a Small Handling Facility

Transmittal Number

172356

Facility ID# (if known)

Application for Authorization to Operate a Solid Waste Management Facility

**B. Certification & Engineer's Supervision: 310 CMR 19.011**

**Engineer's Supervision:**

All papers pertaining to design, operation, or engineering of this site or 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 monitoring and groundwater sections of the application or monitoring report shall be completed by competent professionals experienced in the fields of soil science and soil engineering, geology, 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.

**Certification:**

Any person, required by these regulations or any order issued by the Department, to submit papers shall identify themselves by name, profession, and relationship to the applicant and legal interest in the facility, and make the following certification: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties both civil and criminal for submitting false information including possible fines and imprisonment."

A. Raymond Quinn, PE

Print Name

*A. Raymond Quinn*  
Authorized Signature

Senior Project Manager

Position/Title

SITEC Environmental, Inc

Company

32861

P.E. #

*February 8, 2023*  
Date



Daniel Bartlett

Print Name

*Daniel Y. Bartlett*  
Authorized Signature

General Manager

Position/Title

*2/8/2023*  
Date

**PART II**  
**NARRATIVE REPORT**



**NARRATIVE REPORT  
BWP SW 10 – AUTHORIZATION TO OPERATE A LANDFILL**

**PHASE 9 LANDFILL EXPANSION  
BOURNE INTEGRATED SOLID WASTE MANAGEMENT FACILITY  
BOURNE, MASSACHUSETTS**

*Prepared for:*

**Town of Bourne  
Department of Integrated Solid Waste Management  
Bourne, Massachusetts 02532**

*Prepared by:*

**SITEC Environmental, Inc.  
769 Plain Street, Unit A  
Marshfield, Massachusetts 02050**



**February 8, 2023**

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**BOURNE, MASSACHUSETTS**

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**NARRATIVE REPORT  
BWP SW 10 – AUTHORIZATION TO OPERATE A LANDFILL**

**PHASE 9 LANDFILL EXPANSION  
BOURNE INTEGRATED SOLID WASTE MANAGEMENT FACILITY  
BOURNE, MASSACHUSETTS**

**1.0 INTRODUCTION**

**1.1 Purpose of Report**

This Narrative Report has been prepared in order to present and document the operations ready status of the Phase 9 Vertical Landfill Expansion at the Bourne Integrated Solid Waste Management (ISWM) Facility located at 201 MacArthur Boulevard, Bourne, Massachusetts. The Bourne ISWM Facility is owned and operated by the Town of Bourne. The immediate intent of this Authorization to Operate (ATO) Application is to obtain approval for landfill operations to be conducted in the Phase 9 Vertical Landfill Expansion.

**1.2 Project Description**

The Phase 9 Landfill Expansion project that is the subject of this ATO Application is a vertical expansion over previously lined landfill areas. Because of this, there will be no liner construction associated with the Phase 9 Landfill, consequently there is no construction to be conducted and no Construction Quality Assurance Report that is to be generated prior to operating the facility.

The proposed Phase 9 Landfill Expansion is located within the central portion of the original Landfill property. The total footprint of the area to be filled will encompass approximately 28 acres, which completely overlays previously lined and landfilled areas. Phase 9 will be an approximately forty feet (40') vertical expansion over portions of the Phase 2, Phase 3, Phase 2A/3A, Phase 4, Phase 5 and Phase 6 landfills, or in other words all of the existing lined landfill phases. Consequently, there is no liner construction to be conducted as part of the Phase 9 Landfill Expansion. The gross available volume for Phase 9 will be approximately 1,255,000 cubic yards.

**1.3 Permit Application Form Criteria**

The following directly address the criteria listed under the *Authorization to Operate, Section 3.* of Application Form in Part I of the Application.

**1.3.1 Financial Assurance**

As part of the overall operating permit of the Bourne Landfill, the Town must satisfy 310 CMR 19.051 of the Solid Waste Management Regulations which requires a Financial Assurance Mechanism (FAM) be established to cover the costs for closure and post-closure. In accordance with 310 CMR 19.051 (12) (b), the Town has established restricted accounts for closure and post-closure liabilities within the Integrated Solid Waste Management Enterprise Fund. Included in Appendix B is a January 26, 2023 letter from the Bourne Finance Director confirming that a

dedicated account for Phase 9 will be established as has been done for other phases of the landfill.

As presented in Appendix B - Financial Assurance Mechanism, the estimated closure cost for the Phase 9 Landfill Expansion area, prepared by SITEC Environmental, Inc., is \$7,043,600.37. As allowed in 310 CMR 19.051 (12) (b) 2, the Town has been funding closure liabilities over a pay-in period of four years. This pay-in period is based on the authorized operating life of five years, minus one. An initial payment of \$1,760,900.09 will be made in March 2023 as part of an annual review and update of the closure and post-closure accounts by ISWM using the formula shown in the attached letter from the Finance Director and updated cost estimates by SITEC Environmental, Inc. ISWM will then document all closure and post-closure account balances in a mandatory biennial report that is due by June 2023. Subsequent payments for Phase 9 will be made annually in March in 2024, 2025 and 2026 based on the most recent closure cost estimates available at that time.

The conceptual closure plan for the entire Phase 9 Landfill Expansion is shown on the drawing titled Final Grading Site Plan included in Appendix A - Figures.

### **1.3.2 As-Built Plans**

The current As-Built Plan of the Phase 9 Landfill Expansion area is included in Appendix A - Figures of this Application. The plan is based on an updated, annual aerial survey that was conducted on December 19, 2022.

### **1.3.3 Construction Completeness**

The following information addresses specific items listed in the ATO Application:

#### ***Conformance With 310 CMR 19.030(3)***

ISWM submitted an Application for Authorization to Construct (ATC) the Phase 9 Landfill Expansion, in accordance with the requirements of 310 CMR 19.030(3). The Department's approval of the Authorization To Construct Application will be coincident with the approval of this ATO, and also compliant with the requirements of 310 CMR 19.030(3). As previously stated the Phase 9 Expansion is underlined by the existing double composite liner systems along with the existing leachate collection, stormwater management and associated facilities that have been constructed and operated in accordance with previous approvals.

#### ***Ditches, Drains, Roads, Fences, Water Lines, Collection Systems & Appurtenances***

The Phase 9 Landfill Expansion operations will be conducted over the plateau area of the existing lined landfill phases. Phase 9 will be supported by the existing liner, leachate collection, gas collection and stormwater management systems. Phase 9 is to be developed in seven stages. The purpose of the multiple stages is to limit the area of open landfill area, at any one time, for the purpose of minimizing leachate generation volumes. Portions of the proposed Phase 9 footprint are areas that are actively being landfilled, that are covered with intermediate cover and areas that have final capping in-place. As stages are to be developed preparation may include supplementing the existing leachate collection systems, removing and stockpiling intermediate and final cover materials to open up the cell and making modifications to the existing gas collection systems. The

existing stormwater management system for the landfill will be maintained during the operation of Phase 9.

The proposed Phase 9 landfilling operations will prevent stormwater run-off from areas outside the Phase 9 Landfill from draining into the Phase 9 Landfill area. The operations will also contain runoff that contacts waste (leachate) within the landfill by establishing perimeter berms that will retain that runoff so as to infiltrate to the leachate collection system. Run-off will be diverted to other locations using existing and expanded stormwater controls. This existing stormwater management plan includes the diversion of runoff from the eastern portion of the Landfill, to the south to an existing sedimentation pond (Stormwater Basin No. 2) located on the 25 acre parcel that is to the south of the Landfill parcel. This diversion has been accomplished by the construction of an interceptor drain line that is to the east of the toe of the existing and proposed landfill areas. Control of stormwater runoff along the western side of the landfill area will continue to be managed by existing facilities that discharge to Stormwater Basin No. 1, located in the northwest corner of the property. Run off from the south sides of Phase 6 and Phase 9 areas will be diverted to the east or west by temporary berms, that will progress up the slopes, as filling occurs. Runoff from intermediate cover along the southern side slope of Phase 6 will discharge to a small retention basin along the toe of the southern side slope. Any precipitation that is in contact with waste or daily cover will be retained within Phase 9 and treated as leachate.

#### ***Equipment***

All Equipment used for the current operation of the Landfill will be used for the operation of the Phase 9 Landfill Expansion.

#### ***Six-Month Site Preparation***

Each of the Phase 9 stages will provide approximately six months of operations capacity. The existing cover materials that are to be iteratively removed during the development of the Phase 9 stages, along with the in-place, natural on-site soil materials will provide greater than six months of operating life.

#### ***Staffing***

Phase 9 Expansion is a continuation of existing operations currently occurring in the Phase 6 Landfill Expansions. All staff and personnel needed to operate the Phase 9 Expansion are available at the Landfill.

#### ***Recycling/Composting Implementation Schedule***

Existing processing/recycling and composting that takes place at the Landfill will continue as part of the on-going site operations, during the active life of the Phase 9 Expansion.

#### ***Proof of Other State, Local, Federal Permits***

An Authorization To Construct (ATC) and the Authorization To Operate (ATO) permit (the subject of this Application) will be issued concurrently by the Department in order to expand operations into the Phase 9 Landfill Expansion area. There were no other state, local or federal permits required for the site preparation or operation of the Phase 9 Landfill Expansion.

***Compliance With Other Applicable Portions of 310 CMR 19.000***

The Landfill will operate in compliance with the applicable regulations, as described in the current Operation and Maintenance Plan.

***14 Days of Daily Cover***

Existing available soil stockpiles at the site will provide more than a 14-day supply of daily cover.

***Compliance With Permit Approval***

As previously stated, the ATC and ATO approvals for the Phase 9 Expansion are to be issued in the same document. As such there are no established conditions for the operation of Phase 9. ISWM has consistently, for decades, complied with all past permit conditions for the operation of the Bourne Landfill. ISWM will continue to comply with all permit conditions and directives of MassDEP.

***Deed Notice***

A Notice of Permit for the Authorization to Construct the Phase 9 Landfill Expansion will be recorded in the Barnstable County Registry of Deeds, upon its issuance. A copy of the Notice of Permit will be sent to MassDEP.

**2.0 SITE PREPARATION AND OPERATION**

**2.1 General**

Phase 9 will increase the maximum height of the Landfill from elevation 185' mean sea level (MSL) to elevation 225' MSL over previously lined and filled areas of the Landfill including Phases 2, 2A/3A, 3, 4, 5 and 6. By increasing the height of the Landfill over already constructed phases, in currently site-assigned areas and filling this area in conjunction with the active Phase 6, the Town can utilize the time that this capacity will provide to develop a detailed plan for how and when to relocate structures that will be replaced by the Phase 7 and Phase 8 landfill expansions, thereby maximizing the useful lifespan of the existing large handling facility assets which represent significant capital investments by the Town.

The Phase 9 vertical expansion will provide approximately 1,255,000 cubic yards of additional airspace which could extend the life of the landfill at least four and a half years. As noted earlier, by permitting and operating Phase 9 as the next area of landfill development after Phase 6, the Town will have additional time to create a schedule for the required permitting, financing and relocation of existing operations and site preparation for Phases 7 and 8. The combination of Phase 7, Phase 8 and Phase 9 will ensure that ISWM can continue to provide vitally needed landfill capacity to the region into the late 2030s or early 2040s.

There will be no new liner construction required for the Phase 9 Landfill Expansion. Phase 9 will be constructed completely above the existing liner components from the underlying landfills which meet and exceed the requirements of 310 CMR 19.110 and 19.111. The existing double composite

liner systems were constructed over areas that had not at the time been previously landfilled or lined and are contiguous within the area of the Phase 9 Landfill Expansion.

Site preparation work for Phase 9 will include modifications to components of the existing landfill gas collection system that are within the Phase 9 overfill footprint. Additionally, Phase 9 will be constructed above portions of the Landfill's plateau area that have an approved, long-term intermediate cover system and portions that have a constructed "permanent" cover system. As stages of Phase 9 progress, the existing cover systems will have to be removed in order to provide a hydraulic connection for leachate generated in Phase 9 to flow through the existing landfills to their liner and leachate collection systems, or as supplemented by additional leachate collectors. With the completion of the Phase 4, Stage 2 and Phase 5 Closure Construction project, the east, north and west sideslopes have been permanently closed and capped. With an exception of an area on the southeast side of the Landfill, the sideslopes will not have to be disturbed. The south sideslope has approved intermediate cover and will subsequently be incorporated into the future Phase 7 Landfill Expansion project.

The current Landfill facilities include an existing, extensive gas collection and treatment system. These will be extended and modified as needed to expand the capacity for the collection of landfill gas. The system for the management of gas generated within the Landfill includes vertical extraction wells and horizontal gas collectors. There is an extensive network of piping to collect generated landfill gases and convey them to a flare station for treatment. The existing flare station is located to the northeast of the Phase 2 Landfill area and prevents the occurrence of odors and the off-site migration of landfill gas. The landfill gas collection system will be expanded by modifying the existing header system, by relocating portions of it to the perimeter sideslopes to prevent them from otherwise being buried by the Phase 9 vertical expansion. Existing gas extraction wells located within the proposed footprint of Phase 9 will be modified by converting the wells to having remote wellheads located along the perimeter sideslopes. The Phase 9 expansion will also have new extraction wells installed and operated in the same manner as the existing extraction wells, particularly in areas that do not currently have extraction wells. The existing flare treatment system was replaced and upgraded a few years ago and is adequately sized for future conditions.

Potential impacts from the Landfill to the environment have been monitored for several decades by a groundwater and soil gas monitoring program. The monitoring program has consisted of quarterly sampling that began in the 1990s. This program has contributed to the development and approval of a Comprehensive Site Assessment for the site. The scope of the current monitoring program was established in MassDEP's approval of the CSA in 2017. ISWM anticipates that there will not be a need to modify the existing environmental monitoring system, as a result of the Phase 9 Landfill Expansion since there is no increase in the Landfill's area.

Phase 9 will be a vertical expansion of landfilling over existing double composite lined landfill phases. Some of the phase areas have constructed final caps that will require the removal of those cap components, including geomembrane barriers. Other areas upon which Phase 9 will be developed (Phase 4, Stage 2 and Phase 5) are currently capped with intermediate cover, because they have recently stopped operating, having reached their current approved final subgrades. The other portions of the Phase 9 overfill area will be constructed over the future plateau area of the active Phase 6 Landfill, when those approved grades are achieved. A slope stability analysis has been

conducted, that determined the effects that Phase 9 will have on settlement of the underlying, existing landfill areas. Refer to the *Bourne Landfill, Phase 9, Geotechnical Evaluation Report* (Geocomp Corp.) included in Appendix C-3 of Part C - Design Plan of the ATC Application.

ISWM plans to develop Phase 9 in stages. The first stage will be to fill the area that is over the Phase 5 Landfill. This will allow the final closure of the northwest corner of the Landfill. The second stage would be to fill over the completed Phase 6 plateau and then over the currently uncapped Phase 4, Stage 2 plateau.

This sequence will allow the postponement of removal of the existing final cap over the remainder of the Phase 9 footprint and will allow for the progressive modification to the existing gas collection system that will underlay the Phase 9 Landfill. The completion of the Phase 9 overfill will require sequentially removing stages of the existing final caps of the Phase 2, Phase 2A/3A, Phase 3 and Phase 4, Stage 1 landfills. The sequential cap removal work will be done in a manner that will minimize the area of open landfill surface that exists at any one time. See the drawing titled *Existing Site Conditions and Proposed Phase 9 Staging Plan* in Appendix A - Figures for a plan that shows the anticipated sequential development of the Phase 9 Landfill.

There are areas, as described above, that will not have a final cover for several years before the Phase 9 filling occurs on them, as approved by MassDEP. In order to mitigate any potential impacts from occurring because of this, in accordance with the approved Phase 4, Stage 2 and Phase 5 BWP SW 25 CAD there has been an intermediate cover layer installed over these areas upon achieving the currently approved subgrades. The intermediate cover is an application of soil materials meeting the requirements of 310 CMR 19.130(15)(d) Intermediate Cover. Because of the possible long-term exposure of the intermediate cover material until Phase 9 is constructed, the cover soils material will be applied across the subgrade surface, so as to form an intermediate cover that is at least twelve inches (12") thick, when combined with existing daily cover will provide a total of eighteen inches (18") of cover. Should the intermediate cover materials fail, whereby odors are produced or excessive leachate is generated and cover repairs do not prove to be adequate, a temporary, sacrificial, geosynthetic cap may be installed.

## **2.2 Phase 9 Stage Sequencing**

The construction of the Phase 9 Landfill Expansion Project consists of seven Stages of development, operation and closure. Drawings 4 through 11 in Part G of the ATC Application presented the sequencing of the seven stages, as described below.

### **Drawing No. 4 - Phase 6 Interim and Phase 9, Stage 1 Grading Site Plan**

This drawing shows interim subgrades for the currently active Phase 6 Landfill. These interim grades provide better support for the vertical expansion of this area and shows a supplemental leachate collection line that will be connected to a leachate cleanout that is connected to the Phase 6 primary leachate sump. During this period, three existing gas extraction wells (EW-49, EW-50 and EW-51) along with two of their remote well heads may have to be abandoned. During the Phase 6 operating period, these wells have been vertically extended and will continued to be extended for as long as practical or a horizontal collection system may have to be installed as an interim measure.



This drawing also shows the Phase 9, Stage 1 final subgrades over the existing Phase 5 Landfill.

**Drawing No. 5 - Phase 9, Stage 2 Preparation Grading Site Plan**

This drawing shows interim Stage 2 site preparation grades. This includes the construction of a berm around the Stage 2 area that will contain leachate to the area over the supplemental leachate collection line.

**Drawing No. 6 - Phase 9, Stage 2 Filling and Stage 3 Preparation Grading Site Plan**

This drawing shows final Stage 2 grades, with the expansion of the gas collection system in this area, including ten and eight inch gas header extensions and the installation of eight gas extraction wells. Gas system extensions are also shown over the Stage 1 area for future connections. Site preparations for Stage 3 include the removal of the existing cap and the berm construction for containment of this area. A supplemental leachate collection pipe will be extended into Stage 3 from a leachate interceptor line on the west side of the Landfill. The leachate line will be valved to allow the bleeding of leachate collected in the Stage 3 area following storms, into the leachate system. There will be a significant amount of modifications done to the existing gas collection system within this area. Generally these modifications will be to convert the existing direct mounted wellhead systems to remote wellheads. A typical modification is shown on the Landfill Gas System Details Plan in Part G - Drawings of the ATC Application. Drawing No. 6 also shows the limits of final cap and the stormwater management facilities that are to be constructed on the Stage 1 and Stage 2 areas.

**Drawing No. 7 - Phase 9, Stage 3 Filling and Stage 4 Preparation Grading Site Plan**

This drawing shows final Stage 3 subgrades and the site preparation work for Stage 4. The Stage 4 preparation work includes removing the existing cap and grading to berm the area, as well as adding a leachate collection line connected to the leachate line that was extended into Stage 3 and the modification of existing gas wells in this area to being remote wellheads.

**Drawing No. 8 - Phase 9, Stage 4 Filling and Stage 5 Preparation Grading Site Plan**

This drawing shows final Stage 4 grades, along with the expansion of the gas collection system to add a ten inch gas header extension and two horizontal gas collection systems. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the Stage 3 and Stage 4 areas. Stage 5 preparation work includes berming the area for containment, gas well modifications to remote wellheads and the extension of a leachate line from the Phase 3, Stage 3 primary leachate sump.

**Drawing No. 9 - Phase 9, Stage 5 Filling and Stage 6 Preparation Grading Site Plan**

This drawing shows final Stage 5 subgrades and the site preparation work for Stage 6. The Stage 6 preparation work includes removing the existing cap and grading to berm the area, as well as adding a leachate collection line connected to the line that was extended into Stage 5 and the modification of existing gas wells to being remote wellheads.

**Drawing No. 10 - Phase 9, Stage 6 Filling and Stage 7 Preparation Grading Site Plan**

This drawing shows final Stage 6 grades, along with the expansion of the gas collection system to add a ten inch gas header extension and one horizontal gas collection system. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the

Stage 5 and Stage 6 areas. Stage 7 preparation work includes berming, gas well modifications to remote wellheads and adding a leachate collection line connected to the line that was extended into Stage 5.

### **Drawing No. 11 - Phase 9, Stage 7 Filling and Final Grading Site Plan**

This drawing shows final Stage 7 grades, with the expansion of the gas collection system in this area, including ten and eight inch gas header extensions and the installation of ten gas extraction wells. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the Stage 7 area, which completes the Phase 9 Vertical Expansion.

## **3.0 STORMWATER MANAGEMENT SYSTEM**

### **3.1 General**

The Phase 9 Landfill Expansion is proposed for construction over the existing landfilled area. Consequently, the construction of Phase 9 will not significantly alter existing drainage patterns, surface conditions or runoff characteristics than what has previously been evaluated in the site's permitting process, most recently in the Phase 9 ATC. In that analysis site conditions were assumed to extend the build out of Phase 6 to the limit of the 74-acre parcel and not extend into Phases 7 and 8 onto the 25-acre parcel. With the 25-acre parcel now being site assigned for landfilling, it is more likely that Phase 7 and Phase 8 will occur. During the interim period, when Phase 9 is operational, the footprint of the Landfill will be limited to the existing Landfill's area. Under these temporary conditions the area to the south of Phase 6, below existing perimeter grades, will continue to drain to the excavated low area and will not discharge to either of the stormwater retention basins. Consequently, this area to the south of the Phase 6 footprint has been rerouted in the stormwater calculations to be an isolated area

The following sections describe the existing and proposed stormwater management controls including the two stormwater retention basins implemented in the stormwater management plan. The Drainage Areas sketch in Appendix C-2 of the ATC presented the drainage areas that will contribute to each of the retention basins, as well as the excluded area to the south of the Landfill's footprint. The design stormwater flow rates were analyzed for the stormwater retention basins utilizing HydroCAD Stormwater Modeling program. The program utilizes the TR-20 method for run-off calculations. Storm rainfall, run-off curve numbers and other site characteristics are input into the program. Results of calculations are output into tables and graphs for each drainage area and control structure. The complete calculations were presented in a Stormwater Performance Standards Report that is included as Appendix C-2 of the ATC Application.

### **3.2 Stormwater Basin No. 1**

Stormwater Basin No. 1 is an existing retention/infiltration pond located in the northwest corner of the property. This basin currently receives stormwater runoff from the westerly sideslopes and the plateau areas of the Phase 1ABC, Phase 2A/3A, Phase 4, Phase 5 and Phase 6 Landfills and the northerly sideslopes of the Phase 2 and Phase 2A/3A Landfills. Stormwater run-off from the site's access road areas also drain into Stormwater Basin No. 1. A Drainage Areas sketch showing the

contributing area that discharges to this retention pond is attached to this report and can be found in Appendix C-2 of the ATC Application. The final construction of the Phase 9 Landfill will not increase the contributory area and consequently the volume of stormwater discharging into Stormwater Basin No. 1 will not change significantly from existing conditions. Stormwater Basin No. 1 was enlarged as part of the Phase 4 Landfill construction project, taking into account the flows that will be diverted by the final grading of Phase 9. A perimeter drainage channel, or swale, was constructed along the western toe of the Phase 4 sideslope and most of the Phase 6 area, as part of the Phase 4 and Phase 6 site construction work. The drainage channel conveys, along with a series of diversion berms and let-down channels, stormwater run-off from the tributary areas to Stormwater Basin No. 1.

Stormwater Basin No. 1 has been designed to accommodate the run-off from the 25 year-24 hour rainfall event. Stormwater run-off discharging to this basin will infiltrate to groundwater. Existing soils throughout this site area are comprised of highly permeable sands and gravels. The design capacity of the stormwater basins is based on an infiltration rate of 8.27 inches per hour which is an average rate for Hydrologic Group A soils, which are the soil types that occur throughout the Landfill area, according to the Massachusetts Stormwater Handbook (Volume 3, Table 2.3.3). Basin No. 1 provides approximately 585,400 cubic feet of storage capacity, between elevations 70 and 94. This available storage volume exceeds the storage volume required for the 25 year-24 hour storm, which is approximately 182,300 cubic feet, with the build out of the Phase 9 Landfill. This basin will also accommodate the run-off from greater magnitude storms (a 100-year storm will require approximately 307,700 cubic feet of storage) or from back-to-back rainfall events.

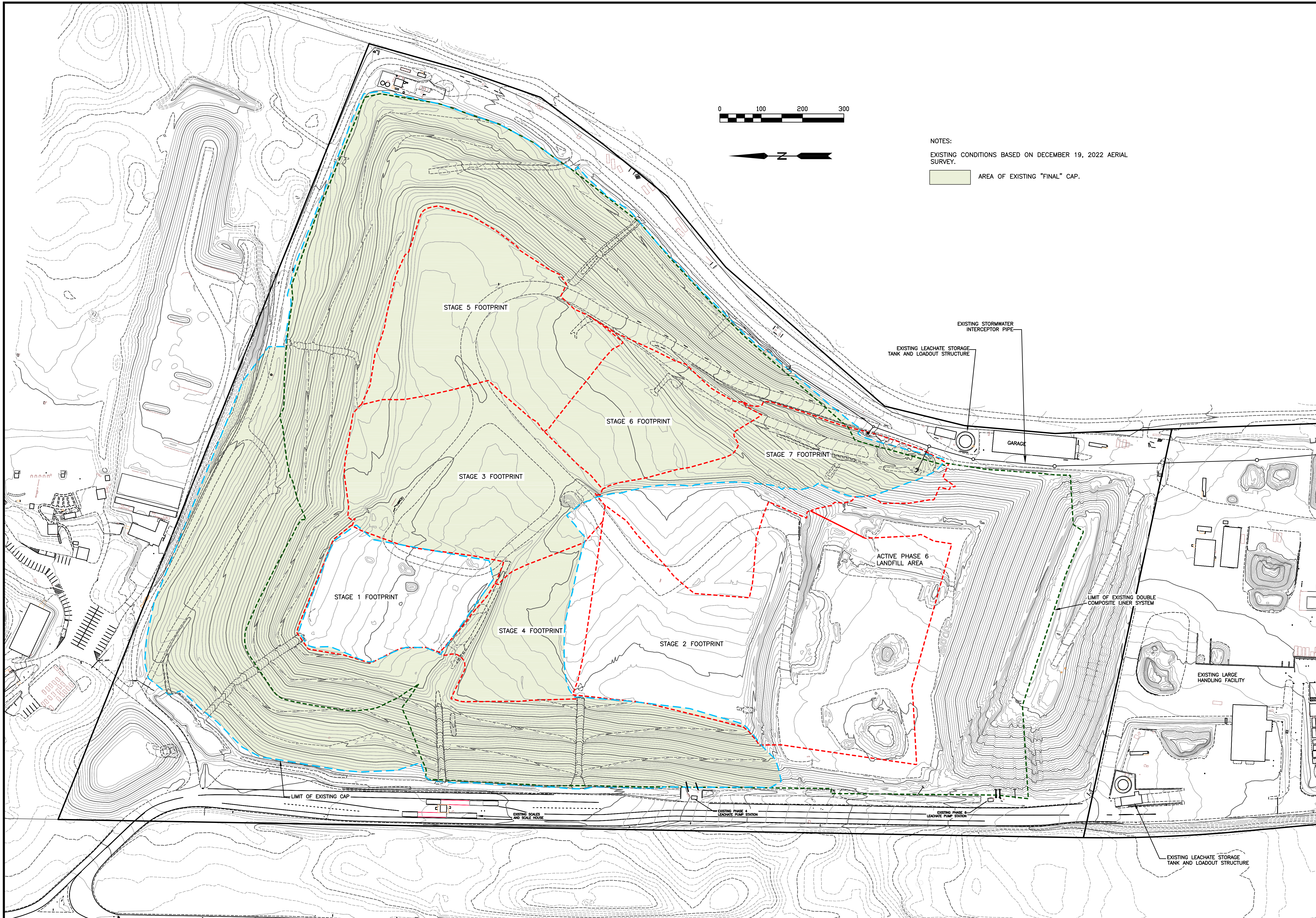
### **3.3 Stormwater Basin No. 2**

Stormwater Basin No. 2 is an existing retention basin located at the southwestern corner of the site assigned 25-acre parcel. Currently, drainage from that 25 acre area, including the C&D Transfer Station, the Residential Recycling Center, the Single Stream Recycling facility and the surrounding materials storage and staging areas, flow into Stormwater Basin No. 2. Runoff from the eastern sides and plateau areas of Phase 2, Phase 3, Phase 2A/3A and Phase 6 is diverted to Stormwater Basin No. 2 by the drainage interceptor line that runs along the eastern toe of the landfill area.

As it is currently configured, Stormwater Basin No. 2 has adequate volume and surface area to accommodate design condition storm events based on an infiltration rate of 8.27 inches per hour which is an average rate for Hydrologic Group A soils, which are the soil types that occur throughout the Landfill area, according to the Massachusetts Stormwater Handbook (Volume 3, Table 2.3.3). The design will provide about 777,400 cubic feet of storage capacity from the bottom of the basin at elevation 80 to the top of the basin, which is at elevation 100. The available capacity within the basin greatly exceeds the storage volume required to accommodate the run-off from a 25 year-24 hour storm event, which has been calculated to be approximately 349,500 cubic feet. This excess capacity will be sufficient for managing the stormwater run-off from a greater magnitude event (a 100-year storm will require approximately 503,500 cubic feet of storage) or from back-to-back rainfall events and for the containment of run-off during winter weather and frost conditions.

## **APPENDIX A**

### **FIGURES**



NOTES:  
 EXISTING CONDITIONS BASED ON DECEMBER 19, 2022 AERIAL SURVEY.  
 [Green shaded area] AREA OF EXISTING "FINAL" CAP.

		Appr. By:	
		Chkd. By:	
Revision Description		No.	Date
		AS SHOWN	FEB. 6, 2023
		scale:	TBD
		date:	ARQ
		drawn:	ARQ
		checked:	ARQ
		approved:	ARQ
		drawing number:	1
<b>BOURNE LANDFILL EXPANSION</b> <b>PHASE 9 LANDFILL EXPANSION</b> <b>TOWN OF BOURNE</b> <b>DEPARTMENT OF INTEGRATED SOLID WASTE MANAGEMENT</b>		<b>EXISTING SITE CONDITIONS AND PROPOSED PHASE 9 STAGING PLAN</b>	
SITEC Environmental, Inc. 2000 Merrimack, MA 02550 PHONE (781) 319-0100 FAX (781) 854-4783		project: client: drawing title:	
<b>SITEC ENVIRONMENTAL</b> Civil and Environmental Engineering Land Use Planning and Surveying Hazardous and Solid Waste Consultants		Accd No. PHASE 9 ATO PLANS.dwg SE01-456-13	

**APPENDIX B**

**FINANCIAL ASSURANCE MECHANISM**



**TOWN OF BOURNE**  
**FINANCE DEPARTMENT**  
24 Perry Avenue  
Buzzards Bay, MA 02532-3441



Erica M. Flemming, Finance Director

Office: (508) 759-0600 Ext.1320  
Fax: (508) 759-8023

January 26, 2023

Mr. Mark Dakers, Solid Waste Section Chief  
Massachusetts Department of Environmental Protection  
Southeast Regional Office  
20 Riverside Drive  
Lakeville, MA 02347

RE: Phase 9, Financial Assurance Mechanism.

Dear Mr. Dakers,

For the purpose of complying with 310 CMR 19.051, the Town of Bourne, Department of Integrated Solid Waste Management (ISWM) will set aside an initial payment of \$1,760,900.09 in a dedicated, restricted account, within the Integrated Solid Waste Management Enterprise Fund, for the sole purpose of allocating funds for the closure of Phase 9 at the Bourne Landfill.

Payments to this fund are calculated in accordance with 310 CMR 19.051 (12) (b) (2) that allows annual payments based on a formula in the regulation. The calculation for the first payment this year is as follows:

$$\frac{\text{current estimated closure cost } (\$7,043,600.37) - \text{the current value of the dedicated account } (\$0)}{\text{remaining years of the four year pay-in period } (4)}$$

Utilizing this formula, a payment of \$1,760,900.09 will be made in March 2023 when ISWM does its annual review of and makes adjustments to the closure and post-closure accounts. A report detailing the balances of these accounts will be provided in a biennial report which is due by June.

Going forward, three more payments of approximately the same value will be made during the next three years in March based on annual updated closure estimates provided by our Engineer of Record, SITEC Environmental, Inc., as applied to the formula shown above. These estimates will reflect that latest market rates for construction, material costs and inflation.

Please feel free to contact me if you have any questions or need more information.

Sincerely,

Erica Flemming, CPA, CMMT, CMMC  
Finance Director

Attachment: Phase 9 Conceptual Closure Costs provided by SITEC Environmental, Inc.

BOURNE LANDFILL - PHASE 9 CONCEPTUAL CLOSURE COSTS

Approximate Area = 1,220,000 Square Feet

August 10, 2022

Item No.	Description	Unit	Qty.	Unit Price	Total
1	Contractor Mob/Demob & General Site Preparation	Contract	3	\$ 125,000.00	\$ 375,000.00
2	Gas Extraction Wells	Vertical Feet	2,400	\$ 360.00	\$ 864,000.00
3	Extraction Wellhead Assembly	Units	24	\$ 2,000.00	\$ 48,000.00
4a	4" HDPE Gas Piping & Appurtenances	Linear Feet	200	\$ 45.00	\$ 9,000.00
4b	6" HDPE Gas Piping & Appurtenances (Laterals)	Linear Feet	1,850	\$ 70.00	\$ 129,500.00
4c	6" HDPE Gas Piping & Appurtenances (Horizontal Collectors)	Linear Feet	1,500	\$ 60.00	\$ 90,000.00
4d	6" Corrigated HDPE Horz. Collector Gas Piping & Appurtenances	Linear Feet	3,000	\$ 50.00	\$ 150,000.00
4e	8" HDPE Gas Piping & Appurtenances	Linear Feet	600	\$ 70.00	\$ 42,000.00
4f	10" HDPE Gas Piping & Appurtenances	Linear Feet	2,400	\$ 80.00	\$ 192,000.00
5	HDPE Gas Cond. Traps & Appurtenances	Units	2	\$ 10,000.00	\$ 20,000.00
6	6" Sand Gas Venting Layer	Cubic Yard	22,593	\$ 25.00	\$ 564,814.81
7	40 Mil HDPE Geomembrane Liner	Square Foot	1,220,000	\$ 0.80	\$ 976,000.00
8	12" Sand Drainage Layer	Cubic Yard	45,185	\$ 25.00	\$ 1,129,629.63
9	Rip Rap Protected Let-Down Channels	Square Yard	700	\$ 65.00	\$ 45,500.00
10a	Grassed Diversion Berms With Subdrains	Linear Foot	3,000	\$ 40.00	\$ 120,000.00
10b	Subdrains and Toedrains	Linear Foot	4,500	\$ 20.00	\$ 90,000.00
11	9" Vegetative Support Layer	Cubic Yard	33,889	\$ 20.00	\$ 677,777.78
12	Hydroseeding	Square Yard	135,556	\$ 0.80	\$ 108,444.44
13	Landfill Cap Spring Maintenance	Lump Sum	3	\$ 15,000.00	\$ 45,000.00
14	Overexcavation & Backfill	Cubic Yard	1,000	\$ 30.00	\$ 30,000.00
<b>SUBTOTAL ESTIMATE</b>					<b>\$ 5,706,666.67</b>

COST/ACRE

\$203,756.07

CONSTRUCTION SUBTOTAL ESTIMATE BASED ON COMPUTED UNIT PRICING FROM CLOSURE CONTRACT BID IN MAY 2021.  
INFLATION ADJUSTMENT FROM ESTIMATE BASED ON MAY 2021 USING ENR CONSTRUCTION COST INDEX (CCI)  
AND THE CONSUMER PRICE INDEX (CPI)

ENR CONSTRUCTION COST INDEX - MAY 2021

11,989.91

ENR CONSTRUCTION COST INDEX - JULY 2022

13,167.00

INFLATION FACTOR AND ADJUSTED COST

1.0982

\$6,266,909.43

CONTINGENCY - 10%

\$626,690.94

ENGINEERING

\$150,000.00

TOTAL ESTIMATE

\$ 7,043,600.37

\$251,491.17

COST ESTIMATES PREPARED BY SITEC ENVIRONMENTAL



**PART III**

**OPERATION AND MAINTENANCE PLAN**

**OPERATION AND MAINTENANCE PLAN  
AUTHORIZATION TO OPERATE**

**PHASE 9 LANDFILL EXPANSION  
BOURNE INTEGRATED SOLID WASTE MANAGEMENT FACILITY  
BOURNE, MASSACHUSETTS**

*Prepared for:*

**Town of Bourne  
Department of Integrated Solid Waste Management  
Bourne, Massachusetts 02532**

*Prepared by:*

**SITEC Environmental, Inc.  
769 Plain Street, Unit C  
Marshfield, Massachusetts 02050**



**February 8, 2022**

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BOURNE INTEGRATED SOLID WASTE MANAGEMENT FACILITY  
BOURNE, MASSACHUSETTS**

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**OPERATION AND MAINTENANCE PLAN  
APPLICATION FOR AUTHORIZATION  
TO OPERATE A LANDFILL  
PHASE 9 LANDFILL EXPANSION**

**1.0 INTRODUCTION**

**1.1 General**

This Operation and Maintenance Plan (Plan) has been developed for the Phase 9 Landfill Expansion at the Bourne Integrated Solid Waste Management Facility (the Facility) located in Bourne, Massachusetts in accordance with the requirements set forth in 310 CMR 19.000 of the Massachusetts Solid Waste Management Regulations. This Plan is intended to describe steps necessary to operate and maintain Phase 9 in accordance with the operating permits, the Massachusetts Department of Environmental Protection’s (the Department, MassDEP) Solid Waste Management Regulations and the Landfill Technical Guidance Manual

**1.2 Format of this Document**

This Plan has been organized to address MassDEP regulatory requirements for the operation of landfills, in accordance with the following outline.

<b>OPERATIONS PLAN OUTLINE</b>		
<b>Section in this Plan</b>	<b>Operational Procedures</b>	<b>Regulations</b>
Section 1.0	Introduction	---
Section 2.0	Project Description	310 CMR 19.104 (5)(a)
Section 3.0	Requirements of Operations	310 CMR 19.130
Section 4.0	Recycling and Composting	310 CMR 19.130 (27)
Section 5.0	Landfill Operational Sequence	310 CMR 19.104 (5)(a)
Section 6.0	Storm Water Management	310 CMR 19.115
Section 7.0	Leachate Management	310 CMR 19.104 (5)(c)
Section 8.0	Landfill Gas Management	310 CMR 19.121
Section 9.0	Staffing	310 CMR 19.104 (5)(d)
Section 10.0	Inspections and Maintenance	310 CMR 19.104 (5)(e)
Section 11.0	Safety	310 CMR 19.104 (5)(f)
Section 12.0	Environmental Monitoring	310 CMR 19.104 (5)(g)
Section 13.0	Nuisance Control Plans	310 CMR 19.130 (16)

## **2.0 PROJECT DESCRIPTION**

### **2.1 General**

The Bourne Integrated Solid Waste Management Facility (the Facility) is owned and operated by the Town of Bourne. The Facility, consisting of three parcels totaling approximately 111 acres and located at 201 MacArthur Boulevard (Route 28) in Bourne, Massachusetts, approximately one mile south of the Bourne Bridge. The first parcel consists of a site-assigned area of 74.05 acres on which the landfill is constructed and operated. The parcel was originally described as 78 acres, based upon a “taking plan” prepared in the 1960s and the site assignment also describes the parcel as 78 acres. Subsequent recorded survey plans have determined that the parcel is more correctly 74.05 acres. The second parcel is a 25-acre parcel of land, also owned by the Town of Bourne, which abuts the site-assigned landfill parcel along its southerly boundary. This parcel is site assigned to conduct solid waste handling and landfilling operations. The Town has constructed and operates a construction and demolition (C&D) material transfer station and a residential recycling center on this parcel. The Town also operates a single stream recyclable material transfer station and conducts leaf and yard waste composting activities along with soil stockpiling on this parcel. A third parcel consisting of approximately 12 acres abuts the 25-acre parcel to the south. This parcel is currently undeveloped, however the Town is pursuing plans to utilize this acreage to support expansion of the current integrated solid waste management operations once it has obtained the necessary permits, including approvals from the Natural Heritage and Endangered Species Program. The 12-acre parcel has not been site assigned for solid waste handling operations. This parcel is an important part of the long-term site development master plan as the Landfill is expanded southward onto the 25-acre parcel. Vacant woodlands border this parcel to the south and Route 28 borders the Facility to the west. Facility is bordered to the north by property owned by Monument Beach Sportsmen’s Club. The easterly bordering property consists of primarily undeveloped land on the Joint Base Cape Cod.

This Application for Authorization to Operate (ATO) addresses the construction, operations, monitoring and closure for the proposed Phase 9 Landfill Expansion at the Bourne Landfill located in Bourne, Massachusetts. The proposed expansion is located within the central portion of the original Landfill property. The total footprint of the area to be filled will encompass approximately 28-acres, which completely overlays previously lined and landfilled areas. Phase 9 will be a vertical expansion over portions of the Phase 2, Phase 3, Phase 2A/3A, Phase 4, Phase 5 and Phase 6, or in other words all lined landfill phases. Consequently there will be no liner construction conducted as part of the Phase 9 Landfill Expansion. The gross available volume for Phase 9 will be approximately 1,255,000 cubic yards.

The design of the expansion incorporates the existing liner systems of the underlying landfills as its double composite liner system. The liner system includes primary and secondary leachate collection systems, designed in accordance with the requirements of 310 CMR 19.000 and current MassDEP policy. The secondary leachate collection systems provide leak detection capabilities for the primary liner system. Leachate will be collected from the primary and the secondary liner systems

and will flow to the respective leachate collection sumps. This leachate will be pumped to either the 207,000 gallon or to the 125,000 gallon above ground storage tanks. Leachate will be removed from the storage tanks on a regular basis and transported to approved treatment facilities.

The Phase 9 Expansion will have a maximum disposal capacity of approximately 1,192,000 tons. Currently, the Facility is accepting ash for disposal and daily cover, at a rate of approximately 230,000 tons per year. At that rate the life expectancy of the Phase 9 Landfill will be about five years, two months.

## **2.2 Landfill Description**

The Landfill site is currently developed in seven phases: Phase 1, Phase 2, Phase 3, Phase 2A/3A, Phase 4, Phase 5, and Phase 6. Phase 9, the subject of this plan, while not number sequentially will be the eighth phase. Phase 1 consists of four cells. Three of which, Phases 1A, 1B and 1C (Phase 1ABC) comprise a 21-acre unlined landfill located in the northwesterly corner of the Facility. Phase 1ABC received a final cover system in the summer of 2000. Phase 1D was a separate 6-acre unlined area located southwest of the former residential recycling center. This landfill has been completely reclaimed and its area has been incorporated into the Phase 4 Landfill. The Town of Bourne received approval from the Department for the reclamation of Phase 1D. Site preparation work for the Phase 1D Reclamation project commenced in November 2002 and reclamation activities commenced in January 2003. This work temporarily halted for the construction of the Phase 3, Stage 3 Landfill during the summer and fall seasons of 2003. Reclamation activities began again during the winter months of 2004 and halted again for the construction of Stage 1 of the Phase 2A/3A landfill cell. The Phase 1D Reclamation activities again began in March of 2011 in preparation for the Phase 4 development and were completed in December 2011, in order to allow for the construction of Phase 4. In order to complete the Phase 4 work the former residential recycling center had to be relocated from the western limits of the Phase 4 area to the southern portion of the site. A detailed report of the Phase 1D reclamation project was part of a Notice of Project Change (NPC) submitted to the Massachusetts Environmental Policy Act (MEPA) office in December 2015 along with an update on Phase 5.

Phase 2 is an 8-acre lined cell divided into two stages and is located in the northeasterly corner of the Facility. A final cover system was completed in accordance with a DEP-approved Corrective Action Design (CAD) plan in the fall of 2002.

Phase 3 was developed in three stages. Stages 1 and 2 are fully constructed comprising approximately 8 acres of landfill cell using a double composite liner system with leak detection. A final cover system was installed over the eastern sideslope of these areas in the fall of 2004 and was constructed in accordance with a DEP-approved Corrective Action Design (CAD). The western sideslope of the Phase 3 landfill has been overlain with waste material as part of Phase 2A/3A, Stage 1 operations. Phase 3, Stage 3 has been constructed along the southerly extent of Phase 3 and includes approximately 4.25 acres of double composite landfill liner with leachate collection and leak detection capabilities. A final cover system was installed over the eastern sideslope of the



Phase 3, Stage 3 area in the fall of 2006 and was constructed in accordance with a DEP-approved Corrective Action Design (CAD). The remaining sideslopes of the Phase 3, Stage 3 area were either overlain by the Phase 2A/3A, Stage 1 or Phase 4 operations or are currently being overlain by the active Phase 6 Landfill operations.

Phase 2A/3A, Stage 1 consisted of a north and south cell, constructed in the valley created between Phase 1 and the Phase 2 and Phase 3 cells. Together, the cells consist of 15.7 acres of liner, including a constructed 6.2-acre double composite liner system with leachate collection and leak detection located on the western portion of the Stage 1 area. The design on the eastern portion of the Stage 1 area incorporated components of the Phase 2 and Phase 3 liner and final cover systems. Approximately 5.3 acres of Phase 2 had previously been capped with a standard 40 mil. HDPE final cover system. The western 2.3 acres of the Phase 2 final cover system have been overlain with waste material during the Phase 2A/3A, Stage 1 landfilling operations.

Phase 2A/3A, Stage 2 consists of a single cell, built on the eastern sideslope of the Phase 1ABC landfill. The cell consists of 4.55 acres of double composite liner system with leachate collection and leak detection. The design of the Stage 2 area did not incorporate any components of the Phase 1ABC final cover system into the liner. The top soil of the Phase 1ABC cap was removed, leaving the sand drainage layer and 40 mil HDPE cap generally undisturbed. The double composite liner system was then built up above the remaining cap components and is tied into the Phase 2A/3A, Stage 1 liner and leachate collection systems.

Phase 4 is located in the western central portion of the Landfill parcel. It was constructed in two Stages, with Phase 1 being constructed in 2011 and 2012 and the second stage in 2013. The Phase 4, Stage 1 area was closed and capped in 2015, with the Stage 2 sideslopes being capped in 2021.

The Phase 5 Landfill area consists of a 3.5 acre, double composite landfill liner constructed across the top plateau of the Phase 1ABC Landfill and overlays the western sideslope of the Phase 2A/3A Landfill and northern sideslope of the Phase 4, Stage 1 Landfill. The construction of this landfill expansion provided approximately 200,000 cubic yards (125 acre-feet) of gross air space capacity to the Facility. Phase 5 has been used for the disposal of ash from the Covanta SEMASS Facility. The Phase 5 sideslopes were capped in 2021.

The Phase 6 landfill is the final portion of the horizontal development of the Landfill on the original 74-acre site assigned parcel. The Phase 6 Landfill area consists of landfill liner construction within previously unlandfilled area. Operations overlay the southern sideslopes of the Phase 3, Stage 3 and the Phase 4, Stage 2 Landfills. The maximum potential build out of the Phase 6 Landfill Expansion would include the construction of about 9.8 acres of new landfill liner. The construction of this maximum build out of the Phase 6 Landfill Expansion would add up to approximately 1,670,000 cubic yards (1,035 acre-feet) of gross air space capacity (including cover materials) to the Facility. However, the Phase 6 liner construction and capacity as approved by issuance of an Authorization to Construct (ATC) by MassDEP on July 16, 2018 is a smaller liner area (6.9 acres) which provides approximately 920,000 cubic yards (570 acre-feet) of gross air space capacity. This approved

configuration will allow for future landfill expansion southward into Phase 7, which is to be located adjacent and to the south of Phase 6 and will extend onto the 25-acre parcel. Phase 9 will extend to the limit of the existing Landfill including Phase 6. The Phase 6 Landfill is currently being used for the disposal of MSW from Bourne and the Town of Falmouth and ash from Covanta SEMASS.

This Draft Operation and Maintenance (O&M) Plan is for the Phase 9 Landfill Expansion. The Phase 9 area is a vertical expansion over lined and previously landfilled areas. Prior to landfilling operations site preparation work will include the removal of portions of the existing cap, modifications to the existing gas collection system and extensions to the existing leachate collection system, as shown on the Plans. The total area of the Phase 9 Landfill Expansion covers about 28-acres of the existing landfilled area. The construction of the maximum build out of the Phase 9 Landfill Expansion will add up to approximately 1,255,000 cubic yards (260 acre-feet) of gross air space capacity (including cover materials) to the Facility. The Phase 9 Landfill will be used for the disposal of MSW and ash from the Covanta SEMASS Facility.

### **2.3 Waste Acceptance**

The Town may operate the Landfill seven days per week, 52 weeks per year, Monday through Saturday 7:00 AM to 4:00 PM and Sunday from 7:00 AM to 12:00 PM. The Town may landfill an average of 600 tons per day of MSW, residual C&D waste and other non-MSW wastes with a maximum of 700 tons per day. The Landfill shall not accept more than 4,900 tons per week or more than 219,000 tons of waste for disposal per year. The definition of non-MSW for the purpose of this permit includes bulky waste, difficult-to-manage waste, soils under the Department's reuse policy, municipal waste combustor ash and special wastes that have received prior written approval from the Department and only in accordance with Department policy.

### **2.4 Non-MSW Waste Management**

In September 2004, the Town submitted a Minor Modification Application for Phase 3, Stage 3 (transmittal # W050698) that addressed future management of non-MSW at the Facility. On February 8, 2005, the Department issued a Permit Approval, Landfill – Minor Modification of Facility Operations that approved portions of the Town's Application, with conditions. In its approval DEP approved the first three issues and advised the Town to take certain actions on the last three issues of the Application. The MassDEP's resolution of the six Application issues are discussed below. The approved solid waste management operations, as described in the first three issues discussed below, are proposed for implementation in this Operation & Maintenance Plan for the Phase 6 Landfill.

C&D transfer- As of July 1, 2004, ISWM ceased processing C&D within the lined landfill. Since then and with subsequent schedule extensions ISWM was allowed to transfer non-MSW from the landfill face to regional processing facilities, providing that adequate protection of the liner system is maintained. Subsequently, ISWM constructed a new transfer station on the southern 25-acre

parcel. The Authorization to Operate Permit was issued by MassDEP on March 31, 2009 and C&D transfer operations began in the new facility on April 7, 2009.

Non-MSW volume reduction- The Town proposed to process difficult-to-manage (DTM) and bulky waste, other than C&D, in the lined landfill cell using either its tub grinder or other heavy equipment it deems appropriate. By doing this, ISWM extended the life of the Landfill and increased operational efficiency, as well as provided regional options for this type of waste in the absence of recycling opportunities and at times of extenuating circumstances such as storm events. MassDEP approved the proposed operations but reserved the right to require recycling of these materials if new and suitable technologies for these operations are developed.

In the past the facility would grind non-recyclable wood such as pressure treated wood, utility poles and railroad ties. Subsequently, MassDEP directed the facility to cease these operations, which it has. In the future the facility may provide notice and request approval from MassDEP to grind these materials, in accordance with 310 CMR 19.017 *Waste Bans (6) Exceptions*.

Waste Ban Compliance Plan (WBCP) Update- The Town submitted an amended WBCP to address its change to accepting MSW in its disposal waste stream. Subsequently the Town submitted amended WBCPs to address the change of operations to a predominantly ash landfill and to update the Plan as regulations were changed. MassDEP approved the most recently revised WBCP on November 7, 2022, which is an update to comply with the most recent regulatory requirements. This is the WBCP that will be used for Phase 9 operations. See Appendix A for a copy of the currently approved Waste Ban Compliance Plan.

Animal carcasses- Bourne is located on Cape Cod, which has been the site of numerous strandings of marine mammals and sea turtles on its shores, including large whales. The Town had applied to manage these carcasses, and other large animal carcasses, as it does small carcasses such as road kill. The Town submitted a Special Waste Permit Application BWP SW 14 (Major), in order to receive approval to conduct these operations. MassDEP issued an approval of this application on September 12, 2006. When at all possible, operators will be provided with a day's notice prior to delivery of the carcasses. Handling procedures will ensure that carcasses are treated to prevent odor, during both shipment and disposal at the Landfill. On the day of the scheduled delivery a suitable hole will be prepared to immediately receive the carcass. Upon placement of the carcass into the hole, it will be immediately backfilled. This method eliminates that possibility that entrails or fluids might be spread around the working face, or contact Landfill workers or equipment, as well as controlling odors and access to vectors. The burial locations are to be marked and recorded so as to eliminate possible future exposure by drilling or excavation. No carcasses shall be disposed that are subject to Massachusetts Regulation 105 CMR 480, which regulates contaminated carcasses, body parts, and bedding used by research animals exposed to pathogens.

Town generated C&D- ISWM operates a residential recycling center where residents deposit C&D into roll-off containers. Loads are received in vehicles with a capacity less than 5 cubic yards. The Town will maintain its prerogative to directly landfill C&D from the residential recycling center.

However, materials generated by the Town at various municipal projects (schools, renovations, etc.) that are in containers larger than 5 cubic yards will be managed at the C&D transfer station with other C&D.

Catch Basin Cleanings- In accordance with DEP's fact sheet entitled "Management of Catch Basin Cleanings", ISWM sought approval to use catch basin cleanings as daily cover, as well as grading and shaping material for the Landfill. MassDEP advised the Town to submit applications for either a Beneficial Use Determination or a Landfill Operations Minor Modification.

Additionally, Pursuant to DEP **Policy # BWP-96-012: Concerning Non-Friable Asbestos-Containing Material**, if the on-site inspector determines that the only suspect ACM within a waste load is vinyl asbestos tile and/or asphalt based asbestos-containing siding products and asphalt based asbestos-containing roofing materials, then the entire load may be disposed at the Landfill using best management practices to prevent emissions, and the load is exempt from the remainder of this protocol, and does not require testing or notification to DEP. The load should not be culled, compacted or otherwise handled in a manner that causes breakage of the suspect ACM material.

### **3.0 REQUIREMENTS FOR OPERATIONS**

#### **3.1 General - 310 CMR 19.130 (1)**

The Bourne Integrated Solid Waste Management Facility (the Facility) must be operated in conformance with requirements at 310 CMR 19.130. Operations at the Facility must follow accepted and approved practices to assure that conditions of approvals and permits are met, that no threats exist to the public health and to the environment and no nuisance conditions are allowed to develop. A copy of this Operation and Maintenance Plan and all associated regulatory permits and approvals are maintained at the Facility. These documents are available for inspection by regulating agencies and are used by operations personnel.

#### **3.2 Operator Supervision - 310 CMR 19.130 (2)**

The overall care, maintenance and responsibility for the Facility are under the direction of a qualified operator who has the necessary expertise and is given the appropriate authority to direct Facility operations. The Town has sent its managers to training provided by the Solid Waste Association of North America (SWANA) which has a multi-day course with an exam for landfill operations titled Manager of Landfill Operations, or MOLO. The General Manager, Operations Manager and Manager of Facility Compliance and Technology Development each has taken and passed this course.

### **3.3 Special Wastes - 310 CMR 19.130 (3)**

No wastes classified as a special waste pursuant to 310 CMR 19.061(2) may be accepted unless expressly authorized in writing by the DEP, the Board of Health and the General Manager. Special wastes include asbestos waste, infectious waste, sludges and any waste that requires special management to ensure protection of public health, safety and the environment. Large animal carcasses have been defined to be Special Waste by the Department and are approved for management per the previous approval.

### **3.4 Banned or Restricted Solid Wastes - 310 CMR 19.130 (4) & 310 CMR 76**

The following wastes are banned from disposal at the Facility:

- Asphalt Pavement, Brick and Concrete (ABC)
- Cathode Ray Tubes (CRTs)
- Clean gypsum wallboard
- Commercial Organic Material
- Glass Containers
- Lead Batteries
- Leaves
- Mattresses
- Metal
- Metal Containers
- Recyclable Paper
- Single Polymer Plastics
- Textiles
- Tires
- White Goods
- Wood
- Yard Waste
- Mercury containing materials (this is banned under 310 CMR 76.

All waste categorized as hazardous, whether in solid, liquid or gaseous form, along with "banned waste" are explicitly prohibited from disposal at the Facility. Facility personnel have been trained to recognize and properly manage unacceptable waste. Signage listing banned items has been posted at the scale and at the entrance to the landfill.

### **3.5 Hazardous Waste - 310 CMR 19.130 (5)**

The Facility does not accept for disposal any substance subject to the Commonwealth of Massachusetts Hazardous Waste Regulations, 310 CMR 30.000, EPA 40 CFR 261 RCRA or EPA 40 CFR 761. A hazardous waste detection and exclusion program has been implemented at the Facility.

The program includes the following components:

1. Inspections of incoming loads of waste.
2. Record-keeping related to implementation of the detection and exclusion program.
3. Training of facility personnel.
4. Notification of the Massachusetts Department of Environmental Protection, Southeast Regional Office, Solid Waste Management Section.

### **Waste Inspections**

With the exception of local residents accessing the residential recycling center, all waste-hauling vehicles entering the Facility stop at the scale house to be weighed. Once at this location, a radiation screen has taken place and the weight has been recorded. Another video camera is situated at the scale that can be used to make a visual inspection of the vehicle. The weigh master prepares an inbound weight ticket, provides the ticket to the driver and directs the driver to the landfill.

The vast majority of waste material coming into the Landfill is currently either MSW ash from the SEMASS facility or curbside collection packers from the Towns of Bourne and Falmouth. After each vehicle leaves the scale, the driver follows signage to the queuing area where the equipment operators direct the vehicles to the proper dumping locations.

Other vehicles that are allowed to use the Landfill on a case by case basis are subject to a more directed process for discharging their waste material. After each vehicle leaves the scale, the driver follows signage to the queuing area where personnel review the scale weight slip, which indicates the contents of the load and its origination. The queuing area personnel communicate with the equipment operators in the landfill who will indicate when and where the vehicle will be accepted for unloading. The queuing personnel then direct the vehicle to the proper location.

Once the truck is admitted to the landfill and is shown where to deposit its load, it is observed off-loading its cargo and the waste is spread and inspected. The equipment operators at the active face constantly monitor the off-loading trucks and waste for any material which may be classified as restricted waste, special waste or is otherwise unacceptable to dispose of in the landfill. In addition, the landfill personnel conduct random inspections of loads of wastes delivered to the landfill. In accordance with the approved Waste Ban Plan, the inspections are documented and a copy of the written report is retained in the ISWM files. These inspections are performed in a secure area and an appropriate standard of care is exercised to ensure that the health and safety of the inspection personnel is not compromised.

All inspections must be performed in strict conformance with applicable OSHA requirements. If any part of a load is suspected of being unacceptable to deposit in the landfill, it must be isolated and the truck that brought the material identified. If the identification is made prior to the truck departing the active face, the offending vehicle operator must be notified about the infraction. If the identification is made after the truck leaves the working face, but prior to its exiting the facility, the information shall be relayed to the scale house and the truck will be intercepted.

If the identification is made after the truck is no longer on the premises, the material will be separated from the operating face of the landfill and properly secured by ISWM personnel. The owner of the truck shall be informed of the problem and presented with options for management.

If appropriate, the owner can arrange to take back the load or hire a third party to safely remove it. ISWM may also have its contractor remove the material and charge the customer. If the driver and/or the owner of the truck refuse to cooperate in the proper disposal of the material, the General Manager or other designated individual may ban that company from the facility. In any event, the material will be properly managed.

### **Record-Keeping**

All reports and inspection logs related to the Facility's hazardous waste exclusion program are to be maintained in the Facility operating record.

### **Notification**

All incidents involving the discovery of regulated hazardous waste or PCB waste at the Facility will be immediately reported to:

Massachusetts Department of Environmental Protection  
Solid Waste Management Section  
Southeast Regional Office  
20 Riverside Drive  
Lakeville, Massachusetts 02347  
(508) 946-2700

### **3.6 Bulky Wastes – 310 CMR 19.130 (6)**

Bulky waste delivered to the site will be weighed at the scalehouse and directed via signs to the active cell. A spotter will be at the active face to direct off-loading of waste.

Great care must be taken when landfilling bulky wastes near a newly constructed groundwater protection system (GWPS, Section 5.4). These wastes may damage the GWPS if placed directly on the leachate collection layer. Bulky waste, as with all other wastes, may be landfilled only over the five-foot select waste layer situated over the drainage/protection layer. To the extent possible, bulky wastes will be reduced in size by a tub grinder in the landfill per previous approval by DEP.

### **3.7 Liquid Wastes– 310 CMR 19.130 (7)**

The Facility will not accept liquid wastes for disposal, except for those approved by MassDEP via a demonstration project variance granted for injection of effluent from the on-site landfill gas scrubbers and condensate from the landfill gas collection system.

### **3.8 Solid Waste Handling – 310 CMR 19.130 (8)**

The Facility currently utilizes the lined landfill to dispose of up to an average of 600 tons per day of primarily waste combustion ash, with the remainder being MSW, residual C&D and other non-MSW waste streams. Non-MSW for the purpose of this report includes bulky waste, difficult to manage waste and other special waste that has received a prior written approval from the

Department and the Board of Health. C&D material transfer operations are being conducted in the C&D transfer station located in the southern section of the site assigned facility.

Waste handling at the Facility shall conform to the following requirements:

1. No waste shall be deposited in or allowed to enter surface water or groundwater.
2. No waste shall be unloaded at the landfill unless it is performed under the direct supervision of the designated staff.
3. Waste deposition shall be confined to the smallest area feasible to limit the area requiring daily cover at the end of the day.
4. The operator will use signs, or other suitable means, to direct vehicles to appropriate areas.

### **3.9 Bird Hazards– 310 CMR 19.130 (9)**

Scavenging birds can produce nuisance conditions or pose a hazard to aircraft; therefore, birds will be controlled by implementing a number of bird control techniques. The following bird controls are routinely employed:

#### **Timely cover placement**

Although daily cover must be applied at the end of each operating day, there may be occasions when more frequent placement of daily cover is necessary to limit the number of scavenging birds at the landfill. Processed Bottom Ash (PBA) is used for daily cover material and not soil.

#### **Eliminate standing water**

Areas of standing water are minimized. After rain events, storm water accumulates in storm water management basins. These basins are maintained to promote infiltration of water into the sandy natural soils, in order to eliminate ponding and standing water, which can be an attraction to birds.

#### **Sonic devices**

Pyrotechnics are used to frighten scavenging birds. The timing of the shots is varied to prevent predictability.

#### **Flight pattern interruption structures**

It is well known that seagulls need a large area in which to glide to a landing. Techniques that interrupt this glide path are effective in discouraging birds. These include the use of monofilament fishing line strung across strategic areas, tethered balloons and cables. Permanent steel wire has been installed on the single stream recycling facility and has worked successfully.

#### **Depredation**

In addition to the above methods, and as a last measure, the Facility has a Federal bird "depredation permit", which it may use successfully in controlling scavenging birds on an as-needed basis.



### 3.10 Equipment and Equipment Shelter – 310 CMR 19.130 (10)

The Facility must have adequate numbers and the appropriate types and sizes of equipment to ensure adequate compaction of waste and proper operations. A list of the equipment used at the Facility is presented below:

EQUIPMENT LIST	
DESCRIPTION	MAKE & MODEL
(3) Front-End Loaders	(2) CAT 966 Nexgen/CAT 908
(4) Bulldozers	(2) CAT D6 LGP Nexgen/(2) Military D7
(2) Compactors	CAT 826H
(2) Excavators	CAT 323F/CAT 323 Nexgen
(2) End Dump	John Deere 350D/CAT 735
(2) Fifth-wheel Tractors	Military 2 ½ -ton and 5-ton
Tub Grinder	Diamond Z 1463B
(3) Screeners	McCloskey R155
(2) Skid-steer loaders	CAT 272D, CAT299D3
(3) Roll-off Trucks	Volvo/Volvo Autocar/F550 Super Duty
(3) Pick-up Trucks	(2) Ford F250 and Ford F350
(2) Water Trucks	5 ton, 3,000 Gal. Military Truck/6,000 Gal. Osh-Kosh Tanker

The Facility is responsible for maintaining all equipment in good working order and making sure that the equipment is adequate to meet the demands of the landfill and recycling operations. In addition, the Facility provides adequate shelter and protection for equipment.

### 3.11 Staffing – 310 CMR 19.130 (11)

The Facility must have an adequate number of trained staff to ensure the Facility is operated and maintained as designed and in accordance with good solid waste management practices. Typically, staff at the Facility includes:

- One General Manager
- One Operations Manager
- One Manager of Facility Compliance and Technical Development
- One Landfill Crew Chief
- One Mechanics Crew Chief
- One Recycling Crew Chief
- One Wellfield Technician
- One Scale Attendant

- Three Residential Recycling Center Attendants
- Two Utility/laborers
- Seven Equipment Operators
- Two Mechanics
- Two Clerical Office Staff

This roster of employees enables the Facility to be operated and maintained in compliance with the Facility's approvals and applicable regulations. Part-time employees and temporary workers may be necessary to supplement the full-time staff during vacations, sick days or special projects. A complete description of staffing is provided in Section 9.0.

### **3.12 Employee Facilities – 310 CMR 19.130 (12)**

The Facility is equipped with sufficient lighting, heat, drinking water, sanitary hand washing, toilet facilities and telephone services. These facilities are currently available at the Integrated Solid Waste Management office, the scale house, the maintenance facility and the single stream transfer facility. Chemical toilets are currently provided at the residential recycling area and the transfer station. The transfer station operators can access phone and water at the residential recycling center adjacent to the transfer station.

### **3.13 Accident Prevention and Safety – 310 CMR 19.130 (13)**

All Facility employees undergo training in emergency medical procedures and in safety practices that must be followed at the Facility. The telephone numbers for emergency medical care and ambulances are conspicuously posted in the scalehouse and Facility offices by the telephones. Personnel communicate with radios in emergency situations to coordinate the proper response.

First aid kits are maintained at the Bourne Integrated Solid Waste Management office, scalehouse, the transfer station, single stream transfer facility, the maintenance facility and the residential recycling center and are clearly visible and easily accessible. Typically, Facility equipment carries small first aid kits, containing bandages and disinfectants. All employees must be instructed in the basics of first aid and accident prevention. The site also maintains an automated external defibrillator.

### **3.14 Spreading and Compacting of Solid Waste– 310 CMR 19.130 (14)**

As waste is deposited on the working face it is spread across the area in layers not more than two feet thick. Once spread, the waste is inspected for unacceptable materials and recyclables. The waste is densified by driving over it with compaction equipment. Three to five passes are required to compact each layer of waste.

### **3.15 Cover Material– 310 CMR 19.130 (15)**

#### **Daily Cover**

The objectives of daily cover are to:

- Prevent fires.
- Prevent vectors (rodents, etc.) from proliferating and/or burrowing into landfilled wastes.
- Minimize odors and related nuisance conditions.
- Control windblown litter.
- Provide a stable base for Landfill traffic.

Bottom ash is used as the primary material for daily cover. There is also an abundant supply of on-site sand and gravel that has historically been used for Daily Cover.

Alternative Daily Cover (ADC) materials approved by the Department are foundry sands, crushed glass (per the DEP Beneficial Use Determination), auto shredder residue (ASR), incinerator bottom ash and reclaimed landfill material (RLM). The Facility investigates the possibility of using other alternative daily cover materials as they become available. Among the sources of daily cover that are approved for the Bourne Landfill are contaminated soils under DEP Policy # COMM-97-001 and process bottom aggregate (PBA) from the SEMASS facility

Daily cover is placed over all exposed waste at the end of the operating day and compacted to a six-inch (minimum) thick layer. When circumstances such as adverse weather conditions or potential odor and vector problems warrant, more frequent applications of daily cover are made and/or thicker layers are applied. Sufficient stockpiles of daily cover material are maintained at the Facility to supply the needs of the Landfill for a 14-day period.

### **Intermediate Cover**

The purpose of intermediate cover is to provide a stable cover over landfilled areas that are temporarily inactive or have reached final grades prior to the construction of final cover. Intermediate cover also prevents storm water infiltration in these areas. To accomplish this objective, intermediate cover soils are less permeable than daily cover soils.

Intermediate cover is placed in a six-inch or twelve-inch layer, in addition to daily cover, over landfill areas that have not been or will not be active for a period of 30 days or more. When landfill operations will not be conducted in an area for a period of over 30 days, six inches of compacted intermediate cover is placed in addition to the daily cover. When operations will not be resumed in an area for six months, twelve inches of compacted intermediate cover is to be placed. In some instances ISWM has applied geomembrane as intermediate cover.

All intermediate cover material used at the landfill must fulfill certain Unified Soil Classification System (USCS) requirements. Specifically, the soils must contain sufficient quantities of clay materials and be sufficiently plastic to be classified as GC, SC, CL or OH by the USCS system (see 310 CMR 19.130). The Facility has in the past been using a blend of emulsion mix and clayey soils for intermediate cover materials. Currently mildly contaminated soils (COMM 97-001) are the materials that are primarily used for intermediate cover.

### **Final Cover**

The purpose of final cover is to divert precipitation from completed landfill areas, facilitate the proper control of landfill gases, to provide stability to erosion prone slopes and to isolate landfill

materials from the environment. Final cover must also be capable of accommodating landfill subsidence without sacrificing its integrity, and withstanding environmental stress, such as extremes of temperature and the forces of erosion resulting from rain and wind.

Final cover shall be installed within 90 days after one of the following events:

1. Whenever a new lift has not or will not be placed within a one year period.
2. Upon reaching final approved elevations.
3. Whenever a phase of the landfill has been completed.

Final cover must be maintained to prevent erosion and to ensure its integrity. A description of the final cover system is provided in Section 5.4.

### **3.16 Vector, Dust, and Odor Control – 310 CMR 19.130 (16)**

The Facility shall be operated to prevent vectors, dust, odors and other nuisance conditions.

#### **Vector Control**

Vector control at the landfill may be accomplished by employing the following control methods:

- **Periodic application of cover material.** If vectors are a problem, cover material should be placed more often.
- **Immediate application of cover material.** Waste loads that attract vectors should be covered immediately to discourage the proliferation of vectors.
- **Mixing waste with soil.** Some waste loads may be mixed with soil materials to discourage vector contact.

By far the best method for minimizing vectors is the timely application of cover materials and placing cover materials in sufficiently thick layers to prevent vector contact with the waste.

Since the Facility accepts some MSW at the present time, there is an attraction for vectors to be present at the site of the operation. In order to reduce the presence of vectors the operators of the Facility maintain a contract with a licensed exterminator to conduct vector control actions, such as setting bait stations on a regular schedule and as needed.

#### **Rodents**

Proper compaction techniques, most of the waste material being ash, and the application of six-inches of daily cover soil at the end of daily operations will reduce the presence of rodents. Additionally, the size of the daily operating area at the Landfill's face will be kept to a minimum. This promotes good compaction and helps to control litter and odors that might attract rodents to the operating face. The contracted licensed exterminator also conducts rodent control actions concurrent with vector controls.

## **Dust Control**

Due to the nature of landfilling operations, dust will be generated during dry periods of the year. The following control measures are employed at the Facility:

- Soil wetting. Facility access roads, on and off the landfill, are wetted using a water truck. This task is regularly performed several times during an operating day in the summer months.
- Application of calcium chloride. Calcium chloride, a soil wetting agent, may be used to control dust. However, using calcium chloride in large quantities is costly and may affect groundwater quality.
- Vegetative cover. Inactive landfill areas may be seeded to encourage the growth of vegetation and reduce barren soils.
- Secure Material Delivery. All Trucks delivering MSW, stone, soil or any other material to the site must have their loads covered.
- Pavement sweeping. The Facility operates a sweeper that it regularly uses to remove accumulated dirt from paved areas of the site. Removal of this dirt reduces dust generation caused by vehicle kick up of the material.

## **Odor Control**

A potential source of odor is at the operating face of the landfill. Proper compaction and covering methods (daily and intermediate cover) help to minimize odors generated at the operating face. The operators are instructed to immediately deal with odors at the operating face should they arise. Measures such as the placement of daily cover and/or dry lime, as needed, to the surface of the area(s) that may be generating excessive odors are effective mitigation measures that are used at the Facility. ISWM has placed a ban on its acceptance of C&D residuals and fines materials, in order to reduce the generation of hydrogen sulfide. (See Section 13.4 for a more extensive discussion of odor control actions that are taken by the facility.)

## **Noise**

Certain levels of noise are associated with the operation of trucks and heavy equipment at the Facility. The operation of equipment, the dropping of tailgates and the sound of back up signals are some of the more common and unavoidable sounds at the Facility. Back up signals are a requirement meant to provide a safer environment for the workers and visitors to the Facility.

Active operation and concurrent construction activities have occurred regularly at the Facility, without any indication that receptors have been adversely impacted by noise. The site is well buffered by distance, traffic noise along Route 28 and vegetation, mitigating potential impacts. The construction and operation of Phase 9 will not result in any significant change of conditions from present and past noise impacts. For additional information, refer to Section 13.0 – Nuisance Control Plans.

### **3.17 Litter Control– 310 CMR 19.130 (17)**

Facility operations must be conducted to minimize blowing litter. The level of effort needed to control windblown litter is dictated by waste materials accepted, weather conditions and wind directions. Methods available to control windblown litter include the following:

- Portable litter fence. The most suitable location for litter control fence should be determined on a daily, or even more frequent, basis, based on the wind's direction. The fence should be placed as close to the active face as practical without disturbing the landfilling operations. The fencing should be constructed to allow the wind to pass through it. Permanent litter fencing has been installed along the northern, eastern and western property lines. The existing fencing should be adequate for the Phase 9 Landfill operations.
- Application of cover material. Cover material should be applied frequently on the active face on windy days, if required, to minimize the blowing of lightweight waste materials.
- Active face on interior slopes. On windy days, the active face should be maintained on sheltered interior slopes, if possible. Waste disposal on outer slopes should be avoided when it is windy.
- Litter patrols. Litter collection crews are deployed regularly and as needed to gather windblown litter. In addition, these crews must routinely police areas along MacArthur Boulevard and properties abutting the Facility.
- Temporary fence installed at strategic locations within the operating landfill to create additional interception and collection points for wind-blown litter.

For additional information, refer to Section 13.0 - Nuisance Control Plans.

### **3.18 Top Slope and Side Slopes– 310 CMR 19.130 (18)**

Exterior, permanent landfill side slopes shall be no greater than a slope of 3:1 (three horizontal to one vertical). All slopes shall be constructed in a manner that ensures there will not be excessive erosion. Hay bales and/or siltation fence may be installed perpendicular to the slope in areas that experience repeated erosion problems. If these materials do not adequately slow run-off, erosion mats or other erosion control devices may be needed. Intermediate cover soils placed on exterior slopes must be maintained to prevent storm water runoff from coming in contact with the daily cover and waste materials below.

The top slope of the active landfill must be graded to ensure that storm water that comes in contact with either solid waste or daily cover material does not drain from the lined landfill cell. This runoff must be fully contained within the cell and managed as leachate. This will be accomplished during the operations of the Phase 9 landfill by grading the active landfill surface inward.

### **3.19 Storm Water Drainage - 310 CMR 19.130 (19)**

Sufficient storm water drainage controls must be provided to prevent ponding on the Landfill or uncontrolled ponding next to the filled area. The controls have been designed and constructed and shall be maintained to prevent erosion on the Landfill.

The proper and efficient management of storm water is an important aspect of landfill operations. Prior to landfilling in new areas at the Landfill, the Facility must implement all provisions necessary to control run-off, including prevention of mingling of contact and non-contact runoff, and to prevent run-on.

The storm water management plan for the Facility includes designs for operational and post-closure storm water handling. Included is separate handling of contact and non-contact run-off, collection of final side slope run-off by swales (on areas furnished with final cover), conveyance of top slope and side slope run-off to perimeter swales via side slope channels and the treatment of run-off in retention/sedimentation basins. A complete description of the storm water management plan for the Facility is provided in Section 6.0.

The storm water collection system should be inspected weekly and after major storm events to ensure that the system functions to prevent erosion and discharge of pollutants and to protect the physical integrity of the landfill. Storm water basins, perimeter swales and drainage structures on the landfill must be inspected and cleaned periodically to ensure that a buildup of silts and sediments does not occur.

### **3.20 Erosion Control – 310 CMR 19.130 (20)**

Erosion controls must be implemented, as needed, to ensure the retention and integrity of the cover systems on the Landfill. Proper grooming of landfill slopes, with particular attention to planting and maintaining a vegetative cover, is the most important aspect of erosion control on the Landfill. Efforts to control erosion on intermediate slopes should include establishing vegetation and placing of siltation barriers (hay bales and/or siltation fencing). Surface slopes on the Landfill should be graded so that channeling of water is minimized, unless provisions are made to prevent surface scouring, such as stone lined channels. Intermediate cover is also used on slopes to effectively prevent erosion and seal in waste.

Vegetation on landfill surfaces should be native grasses or other low-lying vegetation with relatively shallow root penetration. During non-growing seasons, cover soils may be stabilized using straw, mulch or erosion mats.

The storm water management system consists of perimeter swales, diversion berms, let-down channels, bench swales and storm water basins. These structures are designed to remove surface run-off from the side slopes and filter out sediments. All erosion and sediment control structures must be cleaned and maintained so that they can carry out their function unimpeded.

### **3.21 Boundary and Elevation Markers – 310 CMR 19.130 (21)**

Benchmarks on permanent and stable structures are established and shall be maintained in areas near the Landfill, where they may be conveniently utilized in operations and site preparation activities. Temporary benchmarks for short-term use may be established elsewhere on-site as the need arises. No permanent benchmarks should be placed on landfilled materials.

### **3.22 Access Roads – 310 CMR 19.130 (22)**

Access to the Facility is from MacArthur Boulevard at the site entrance in the northwest corner of the site utilizing a deceleration lane. The road is paved from the entrance through the former recycling area, which has been reconstructed with new truck scales and traffic paths. The access road continues past a side street leading to the Integrated Solid Waste Management office building and on further to the Residential Recycling Center. Roads on the surface of the Landfill are constructed of granular soil materials or processed ABC materials. Some roads are temporary and will be re-located to accommodate traffic as operations move. All roads should be crowned and sloped to allow safe traffic movements. The access road surfaces must be continually maintained and regraded as needed to assure that they are passable during all weather conditions.

Landfill access roads must be established and maintained to assure that traffic flow will continue uninterrupted during bad weather. Traffic routing must enable vehicles traveling to or from the active area to proceed without delay. This may be achieved with one-way routing or by maintaining roads at sufficient widths to allow two trucks to pass. The Phase 9 Landfill will be accessed by multiple roads that will vary as the Landfill is developed.

### **3.23 Security – 310 CMR 19.130 (23)**

Access to the Facility is by a single access point off MacArthur Boulevard. Gates at the entrance and at Phase 1ABC are secured and locked when the Facility is closed. There are also several video cameras that record activity at the Landfill, the scale and other locations.

### **3.24 Posting of the Landfill – 310 CMR 19.130 (24)**

The Facility shall maintain adequate signage posted at its entrance, stating the name of the Facility, the owner, an emergency telephone number for the Facility, a list of banned wastes and the days and times of operation. Signs are also posted throughout the Facility, to direct traffic to the various services provided at the Facility.

### **3.25 Open Burning – 310 CMR 19.130 (25)**

Open burning will not be conducted at the Facility.

### **3.26 Fire Protection and Control – 310 CMR 19.130 (26)**

Procedures for handling fires must be posted at an appropriate location on-site and must include names and telephone numbers of authorities to be called during an emergency. The Solid Waste Management Section of the Southeast Regional Office of the DEP and the Bourne Fire Department must be notified whenever any fire, smoldering or smoking waste is discovered at the Facility. Disposal activities shall be suspended in the vicinity of smoldering, smoking or burning areas. Any disruption of the finished grade or covered surface as a result of fire-fighting activities must be repaired or replaced immediately upon termination of fire-fighting activities.



Heavy equipment utilized in the Facility operation are equipped with fire extinguishers as an added measure of safety to handle small flare-ups that might occur on these vehicles or at other locations around the site. Additionally, the site maintains a supply of organic firefighting foam and has two water trucks on-site.

All necessary precautions are implemented at the Facility to prevent fire from breaking out in the Landfill. These precautions include timely and proper covering of all disposed refuse, and an enforced ban on smoking within the Landfill. Furthermore, all materials stored, stockpiled, held or accumulated anywhere on site must be kept in such a manner as to prevent fire hazards.

A designated hot load area will be located in an excavated area on the 25-acre parcel. This area is used for the dumping of any incoming material that may be smoldering, smoking or burning. In case fire breaks out within the landfill, or signs of a fire are observed, local fire-fighting authorities and the Department must be alerted. No refuse may subsequently be deposited in the burning area.

The nearest continually manned fire station is located in Monument Beach, approximately three miles from the Facility. Operating municipal fire hydrants exist on the southwesterly portion of the property along the paved access road and along the southerly boundary of the site assigned property in the vicinity of the ISWM offices. There are additional hydrants in the area of the transfer station on the southern parcel. In addition, the facility has two water trucks available on site to help any fire suppression efforts.

### **3.27 Convenience and Recycling Drop-off Areas – 310 CMR 19.130 (27)**

Convenience and recycling drop-off areas are operated in an orderly, safe and environmentally sound manner, and maintained to prevent nuisance conditions. Containers provided for the collection and storage of recyclables for transport off-site must be emptied when full or every 60 days, whichever is less. MSW is contained within an enclosed compaction unit. This operation is located on the 25-acre parcel.

### **3.28 Waste Oil Collection – 310 CMR 19.130 (28)**

Waste oil is collected at the residential recycling center and within the vehicle maintenance facility in accordance with the Department regulations.

### **3.29 Household Hazardous Waste Collection – 310 CMR 19.130 (29)**

Household hazardous waste shall not be collected at the Facility without prior authorization of the Department. Bourne participates in multiple, regional household hazardous waste collection days each year, usually during the months of April through October, in conjunction with the towns of Falmouth, Mashpee and Sandwich. Additionally, residents are able to attend approximately 20 other collection events across Barnstable County by pre-registering and paying a small fee. Instructions are on ISWM's webpage.

### **3.30 Leachate Collection, Treatment and Disposal – 310 CMR 19.130 (30)**

The Phase 9 Landfill is tributary to the existing double composite liner Groundwater Protection Systems (GWPS, refer to Section 5.0 for more details). The GWPS will be operated so that the storage of leachate does not exceed one foot of hydraulic head on the primary geomembrane liner, except during storm events. Leachate from the primary leachate collection systems (PLCS) will drain in a downgradient direction until it is intercepted by a perforated leachate collection pipe. The leachate collected in the pipe will flow by gravity into the leachate collection system sumps. The leachate collection system sumps are constructed along the easterly and westerly sides of the Landfill. From the sumps, the leachate is pumped into the existing four inch (4") force mains and to either the existing 207,000 gallon glass fused steel, above ground leachate storage tank located along the easterly property line opposite the Phase 3, Stage 3 Landfill area or to the newer 125,000 gallon tank located along the westerly side of the site, south of Phase 6.

The lined landfills were constructed with Secondary Leachate Collection Systems (SLCS). The SLCS is an independent system designed to collect leachate, should leakage occur within the PLCS. The SLCSs are comprised of a geocomposite drainage material, which is hydraulically connected and discharges to a perforated piping system that is installed between the primary and secondary composite liner systems, which conveys collected secondary leachate (leakage) to the secondary sumps. The SLCS sumps are equipped with an independent pumping system that conveys the leachate to either of the aboveground storage tanks.

The primary and secondary pump systems are designed to operate manually and automatically. When set in the automatic mode, the pump will start and stop automatically when a specified liquid level is reached in the sump area. The pumps are equipped with level sensors that signal the control panel to start and stop the pumps at specified levels. The quantity of pumped leachate is continuously recorded. The data generated by these reports are kept in the facility records.

A chemical addition system has been added to the Phase 6 leachate collection system. Experience has shown that being an ash landfill has resulted in solids accumulation occurring in the leachate collection and force main piping systems. Experience has also shown that a chemical named REDUX-300, which has active ingredients of a proprietary organic acid and potassium hydroxide, keeps the ash leachate from solidifying. The chemical feed system consists of a manually operated chemical feed pump, a header pipe, a series of valved lateral pipes that extend to the leachate sump and a series of perforated pipes off of each of the lateral pipes which are installed along the primary leachate collection pipes and around the sump. The system will be manually operated to feed REDUX-300 to each of the lateral systems, to mix with the ash leachate in the leachate collection pipes, in order to keep the liquid from solidifying. In addition there is a four inch (4") HDPE pipe connected to the back of the 24" primary leachate sump collection pipe that will allow television inspection and power jet cleaning of the 24" collection pipe.

The leachate collection system is inspected regularly to ensure that the system is working properly. Visual inspection of the piping system is made through manholes and clean-outs to ensure that there is no blockage or leakage.

Leachate is removed from the site by a licensed liquid waste hauler that has multiple facilities to utilize for proper disposal of the leachate.

### **3.31 Phase Completion – 310 CMR 19.130 (31)**

Landfill operations are to be conducted in stages to reduce the amount of exposed active area. Final cover is placed on completed stages as they achieve final subgrade elevations. The construction of the Phase 9 Landfill Expansion Project consists of seven stages of development, operation and closure. Drawings 4 through 11 in Part G of the Authorization to Construct Application present the sequencing of the seven stages, as described below.

#### **Drawing No. 4 - Phase 6 Interim and Phase 9, Stage 1 Grading Site Plan**

This drawing shows interim subgrades for the currently active Phase 6 Landfill. These interim grades provide better support for the vertical expansion of this area and shows a supplemental leachate collection line that will be connected to a leachate cleanout that is connected to the Phase 6 primary leachate sump. During this period, three existing gas extraction wells (EW-49, EW-50 and EW-51) along with two of their remote well heads may have to be abandoned. During the Phase 6 operating period, these wells have been vertically extended and will continued to be extended for as long as practical or a horizontal collection system may have to be installed as an interim measure. This drawing also shows the Phase 9, Stage 1 final subgrades over the existing Phase 5 Landfill.

#### **Drawing No. 5 - Phase 9, Stage 2 Preparation Grading Site Plan**

This drawing shows interim Stage 2 site preparation grades. This includes the construction of a berm around the Stage 2 area that will contain leachate to the area over the supplemental leachate collection line.

#### **Drawing No. 6 - Phase 9, Stage 2 Filling and Stage 3 Preparation Grading Site Plan**

This drawing shows final Stage 2 grades, with the expansion of the gas collection system in this area, including ten and eight inch gas header extensions and the installation of eight gas extraction wells. Gas system extensions are also shown over the Stage 1 area for future connections. Site preparations for Stage 3 include the removal of the existing cap and the berm construction for containment of this area. A supplemental leachate collection pipe will be extended into Stage 3 from a leachate interceptor line on the west side of the Landfill. The leachate line will be valved to allow the bleeding of leachate collected in the Stage 3 area following storms, into the leachate system. There will be a significant amount of modifications done to the existing gas collection system within this area. Generally, these modifications will be to convert the existing direct mounted wellhead systems to remote wellheads. A typical modification is shown on the Landfill Gas System Details Plan in Part G - Drawings of the ATC Application. Drawing No. 6 also shows the limits of final cap and the stormwater management facilities that are to be constructed on the Stage 1 and Stage 2 areas.

#### **Drawing No. 7 - Phase 9, Stage 3 Filling and Stage 4 Preparation Grading Site Plan**

This drawing shows final Stage 3 subgrades and the site preparation work for Stage 4. The Stage 4 preparation work includes removing the existing cap and grading to berm the area, as well as

adding a leachate collection line connected to the leachate line that was extended into Stage 3 and the modification of existing gas wells in this area to being remote wellheads.

**Drawing No. 8 - Phase 9, Stage 4 Filling and Stage 5 Preparation Grading Site Plan**

This drawing shows final Stage 4 grades, along with the expansion of the gas collection system to add a ten-inch gas header extension and two horizontal gas collection systems. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the Stage 3 and Stage 4 areas. Stage 5 preparation work includes berming the area for containment, gas well modifications to remote wellheads and the extension of a leachate line from the Phase 3, Stage 3 primary leachate sump.

**Drawing No. 9 - Phase 9, Stage 5 Filling and Stage 6 Preparation Grading Site Plan**

This drawing shows final Stage 5 subgrades and the site preparation work for Stage 6. The Stage 6 preparation work includes removing the existing cap and grading to berm the area, as well as adding a leachate collection line connected to the line that was extended into Stage 5 and the modification of existing gas wells to being remote wellheads.

**Drawing No. 10 - Phase 9, Stage 6 Filling and Stage 7 Preparation Grading Site Plan**

This drawing shows final Stage 6 grades, along with the expansion of the gas collection system to add a ten-inch gas header extension and one horizontal gas collection system. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the Stage 5 and Stage 6 areas. Stage 7 preparation work includes berming, gas well modifications to remote wellheads and adding a leachate collection line connected to the line that was extended into Stage 5.

**Drawing No. 11 - Phase 9, Stage 7 Filling and Final Grading Site Plan**

This drawing shows final Stage 7 grades, with the expansion of the gas collection system in this area, including ten- and eight-inch gas header extensions and the installation of ten gas extraction wells. This drawing also shows the limits of final cap and stormwater management facilities that are to be constructed on the Stage 7 area, which completes the Phase 9 Vertical Expansion.

**3.32 Disruption of Landfill Areas – 310 CMR 19.130 (32)**

As described in the section above, portions of the existing cap will be removed as the stage areas are prepared for development. Operations preparing the stages for development will be conducted in such a manner as to mitigate potential odors or erosion and sedimentation.

**3.33 Construction of Buildings – 310 CMR 19.130 (33)**

No buildings shall be constructed on previously landfilled areas without the written approval of the Department.

### **3.34 Records for Operation and Plan Execution – 310 CMR 19.130 (34)**

The Facility maintains a daily log of the landfill operation, including the type, weight and source of solid waste entering the Facility. Records must also be kept covering the status of all environmental monitoring systems. The Facility must submit an annual report to the Department summarizing the operations of the previous calendar year using a form designed by the Department. This report must be submitted no later than February 15th and includes such information as total tonnage that was landfilled and used as cover material.

### **3.35 Inspections – 310 CMR 19.130 (35)**

The Facility must operate in full compliance with all applicable federal, state and local regulations. Compliance inspections are, and will continue to be performed bi-monthly under the direction of a Massachusetts Registered Professional Engineer experienced in solid waste management and approved by MassDEP, in accordance with *310 CMR 19.018 Third-Party Inspections*. Operations and Maintenance and Waste Ban inspection reports will be submitted in accordance with that regulation.

### **3.36 Recirculation of Leachate – 310 CMR 19.130 (36)**

The Facility does not recirculate leachate into the Landfill. The Facility does have an approval for a Major Demonstration Project (Transmittal No. X262760) for the injection of effluent from the now inactive hydrogen sulfide scrubbers and landfill gas condensate. The Demonstration Project was approved on the basis of an application that provided adequate information on the goals and expectations of the project; detailed engineering considerations on the landfill stability; impacts to the leachate collection system and landfill gas issues; identified potential adverse impacts and provided contingency plans to address them; provided methods to monitor the performance of the injection project; provided amounts and rates of leachate to be injected and design of the distribution system; and addressed the financial assurance to provide corrective actions, if required. MassDEP's approval provided construction, operations, monitoring and reporting requirements that are intended to assure that adverse impacts do not occur as a result of the Major Demonstration Project. ISWM no longer operates the injection system but intends to renew the Demonstration Project approval and maintain the equipment, should reactivation of the system seem beneficial.

### **3.37 End-of-life Mercury-added Products – 310 CMR 19.130 (37)**

The residential recycling center provides collection of End-of-life Mercury-added Products to Bourne residents. The collected products are transported to a recycler/reuser for proper disposal.

### **3.38 Additional Operation and Maintenance Requirements for Landfills that Accept Ash – 310 CMR 19.131**

The vast majority (+/- 86%) of the waste materials placed in the Landfill is municipal incineration ash from the SEMASS facility. When the ash is loaded onto trucks at SEMASS it is wetted throughout its volume, so as to create no dust but not to have free draining water. The ash is to be

cool and fully extinguished when it arrives at the Landfill. When the trucks arrive at the Landfill they are weighed in, and out, and are directed to the specific location where they are to dump the ash. The ash is not to generate dust during its delivery, dumping, handling/spreading and compaction. If dust is generated from these actions, SEMASS is to be notified and directed to make adjustments to its wetting operation to mitigate the dust condition.

A wheel wash station is not proposed for the ISWM facility. After approximately four and one half years of receiving a significant volume of ash on a daily basis, there has been no indication of the ash trucks, or other vehicles, tracking ash off of the site. Should such conditions arise a vehicle wash down station may be established on the Landfill. The station will consist of a water tank truck with a pump and hose. Each exiting ash truck will stop at the station to be inspected for accumulated ash on the body and wheels of the vehicle. Any observed accumulation of ash will be removed from the vehicle by spraying water from the tank truck. The operation will be conducted on the Landfill so that all water will be collected as leachate and not run off to surface water collection points.

#### **4.0 RECYCLING AND COMPOSTING OPERATIONS**

##### **4.1 Infrastructure Description**

The residential recycling center is located near the southern extent of the Facility. These operations are separate and complimentary to the Landfill. The area is paved for the convenience of residential vehicles and to minimize dust generation.

Traffic is directed southerly along the westerly property line toward the residential recycling center guard shack at the entrance where residential stickers are checked and directions are given to residents as to where to unload certain items. The daily use of the center is restricted to the Town of Bourne residents/property owners that have received a sticker for their vehicle. Residential customers from neighboring towns and local businesses or haulers with recyclables may utilize the facility but first must go over the scale and pay prevailing rates. This operation is located on the southern 25-acre parcel of the Facility. The facility includes access roads and a Swap Shop. A retaining wall separates the residential operations from the single stream transfer station and container storage operations at a lower elevation. The area includes a 250,000 gallon, subsurface water storage tank that is part of a fire suppression system.

##### **4.2 Recycling Operations**

The residential recycling center provides Bourne residents with a comprehensive and convenient facility to bring materials. Containers and designated areas are marked for a variety of materials. ISWM normally has two attendants on duty to direct traffic, sell stickers and answer questions.

Residents may bring household recyclables (glass, mixed paper, magazines, cardboard, chipboard, newspaper, mixed plastic containers, aluminum and steel cans, and redeemable bottles and cans), waste oil, used oil filters, tires, used antifreeze, fluorescent bulbs, mercury containing materials, auto/marine and household batteries, used paint, scrap metal, white goods, construction &

demolition material, municipal solid waste, difficult-to-manage waste, CRTs and other e-wastes, textiles, leaves and grass, brush and stumps, propane tanks and items for a Swap Shop.

The residential recycling center is paved. All rainwater flow at the facility is directed away from storage and parking areas, into drainage structures, so that there is no ponding of water in areas where residents walk, containers exist or where materials are stockpiled.

#### **4.2.1 Handling Procedures**

Recyclables are stored on-site normally for a period of less than 60 days in the recycling center containers (as is the case for glass, aluminum, cans, mixed paper, newspapers); or in the single stream transfer building. Single stream material accumulation operations occur within an enclosed building in the south, central area of the site. Material outlets for recyclables vary as prices vary.

#### **4.3 Leaf and Yard Waste Composting Operations**

The yard waste is either delivered by residents or transported for processing by Facility personnel and equipment to the composting area currently situated east of the residential recycling area. Stumps, branches and brush are also collected in this area and are periodically chipped via the Facility's tub grinder, prior to being used for mulch or sent for boiler fuel. The temperatures of the piles are monitored and they are occasionally turned via a front-end loader. Materials in various stages of decomposition exist throughout the area, and the chief end-product use is as vegetative support layer material for the final cover system at the Landfill.

#### **4.4 ABC Processing**

The processing or crushing of asphalt paving, brick and concrete materials (ABC) also occurs periodically via an outside contractor. This work is conducted whenever on-site stockpiles reach a volume sufficient to make the operation economically feasible. Metals are removed during the crushing operation so that only a reusable aggregate of mixed ABC remains. The end product can be used as a road base for on-site internal roadways.

#### **4.5 Waste Oil and Hazardous Materials**

Waste oil is accepted in the residential recycling center area to provide the community with a safe outlet for a material that might otherwise be improperly disposed. The waste oil receiving and holding system was provided to the Town through a MassDEP grant and includes the required containment structure.

Household hazardous wastes, such as oil based paints and solvents are removed from the waste stream when discovered in the active landfill or within the residential recycling center. A ventilated metal storage shed, with a sump, has been provided for the storage of these types of wastes. The Town has retained a licensed hazardous waste company to periodically remove them in accordance with hazardous waste material regulations. Bourne also participates in several, regional household hazardous waste collection days each year in conjunction with the towns of Falmouth, Mashpee and

Sandwich. Bourne residents are also able to participate in other collections throughout Barnstable County after filling out a registration form and paying a fee.

#### **4.6 Equipment and Staff**

Personnel are dedicated full-time to the recycling operations including a guard to monitor incoming traffic and to continually ensure the area is clean and materials have been placed in their proper receptacles. All laborers report to a Recycling Crew Chief who is in charge of the residential recycling area.

The Facility also has a single stream recyclables transfer operation where collected single stream recyclables are shipped to processors. The transfer operation is conducted in a steel-framed building constructed on the Town's southern 25-acre parcel in 2005. The Town Department of Public Works provides weekly curbside collection of recyclables and MSW. Compost management operations, such as turning piles or moving material is conducted by Facility personnel and machinery.

### **5.0 LANDFILL OPERATIONAL SEQUENCE**

#### **5.1 General**

Landfill construction and development in the Phase 9 area of the Facility will consist of the following procedures, in sequence:

- Subgrade and base grade preparations, including removal of existing cap structures.
- Modifications to existing gas collection facilities.
- Filling with waste material.
- Covering of waste material.
- Installation of gas management devices.
- Capping and closure of the landfill.

Subgrade and base grade preparations for this phase involves the excavation and removal of existing final and intermediate cover systems and grading to allow for gas system modifications to remote wellhead systems. The subgrades will be constructed so as to enhance the vertical flow of leachate generated in Phase 9, downward into the existing landfill phase for collection by the leachate collection system. The design and site preparation requirements for the operation of Phase 9 are presented in Part C – Design Plan, Part E – Construction Quality Assurance Plan, Part F – Technical Specifications and Part G - Drawings sections of the Application for Authorization to Construct (ATC).

#### **5.2 Waste Placement**

Waste placement in all stages of Phase 9 must be carried out with great care to ensure that:

1. Leachate collection piping is not damaged or moved from the design alignment during the placement of waste.



2. The placement and compaction of waste does not create instability and result in displacement of the existing sideslope capping systems that are to remain in place.
3. The placement and compaction of waste does not create instability and result in displacement of the landfill mass.

Recommended filling procedures for waste being placed in Phase 9 are described below.

### **5.2.1 Waste Placement**

The following is a general description for the sequencing of operations and is intended to be used as a guideline. Modifications to this plan may be required as landfilling operations progress and changes to the staging plan may be required. Since Phase 9 is operated and developed for the management of solid waste, which will primarily be ash, operations sequencing is important to ensure the integrity of the underlying liners, leachate collection systems, and to maintain the stability of the landfilled waste.

#### **Initial Filling**

As described above in *Section 3.31 Phase Completion*, Phase 9 will be filled in seven stages. Typically each stage will be prepared for filling by initially removing existing interim or final cap material; construction gas collection system modifications including subgrade preparation; some stages will include the extension of the leachate collection system piping and construction of perimeter containment berms with ash or reused soils. Following the site preparation work for each stage, as shown on the Drawings that were included in the ATC Application, filling will commence. Initial filling operation will be critical and must be done in a manner that will not risk the integrity of the gas extraction and leachate collection systems. Excavations into the existing waste fill may be conducted in areas where cover material are deep, in order to promote the downward flow of leachate and hamper the horizontal flow which might result in sideslope breakouts. Some excavations may be backfilled with recycled glass to optimize the vertical flow of leachate.

#### **Ensuing Lifts**

In addition to exercising caution during the first lift, continued caution must be taken during the placement of ensuing lifts. Waste should be spread and compacted in lifts, approximately 10 feet thick, in a controlled manner until final elevations are attained. Each lift should be substantially completed before beginning a new lift. Waste should be compacted with a landfill compactor and/or a vibratory roller in layers no greater than two (2) feet thick. As subsequent lifts are developed, the initial filling will be to construct a perimeter berm, which will define the exterior sideslope subgrade. The berm will define the limit of filling and will establish a stabilized exterior slope for erosion control and leachate containment purpose.

#### **General Filling**

Waste placement in general should be performed as follows:

1. Incoming waste should be directed to the active face using signs or spotters.
2. The active area should be kept as small as feasible to minimize the amount of exposed waste - usually an active face width of 50 to 75 feet is adequate to meet the disposal needs for a

- landfill operation like that of Phase 9.
3. Once the waste is placed on the active face it should be spread in a layer no thicker than two (2) feet to assure maximum compaction - usually three to five passes with the compactor will provide the most efficient level of compaction, additional passes do not typically add substantially to the degree of compaction.
  4. Daily cover must be placed on all waste received during a given operating day. The cover shall be applied in a layer not less than six inches (6") thick. The incoming bottom ash waste is suitable for daily cover.

Additional waste handling and covering requirements are provided in Section 3.0.

### **Waste Compaction**

Maximum waste compaction at the landfill is desirable for the following reasons:

1. It reduces the rate of air-space consumption and allows a greater amount of waste to be placed in the landfill.
2. It reduces future settlement of the waste, which reduces long-term care of landfill surfaces.
3. It reduces the amount of soil material needed to cover the waste, if soil is needed.

Generally speaking, it is best to spread waste from the toe upward onto the active face. Good compaction is best achieved on an active face that is sloped at less than 20 percent (1 foot vertical to 5 feet horizontal).

### **5.3 Gas Management System**

The Phase 9 gas management system will eventually be connected to the existing gas extraction and flare system. Modifications to the existing gas collection systems will occur as stages are developed. Basically those modifications will be to convert existing gas wells with in-place wellheads to remote wellhead types, in order to allow for the continued use of those wells where up to forty feet of fill will be placed over the current surface elevations. Part of the conversion work will be to provide a continuous upward slope for the lateral pipe from the well locations to the perimeter final grades, where the remote wellheads will be located and connected to existing or new gas collection system manifolds. In those areas where remote wellheads are developed, horizontal gas collection systems will be installed to provide collection of gasses generated in the +/- forty feet of Phase 9 filling. Additionally, areas that do not currently have gas extraction wells will have new vertical wells installed and connected to extended gas manifolds, upon reaching final subgrade locations.

### **5.4 Final Cover**

The placement of the cover system will be the final component of the landfill's operational sequence. A description of the final cover is provided below.

- A subgrade layer for surface preparation purposes, which may consist of 12 inches of graded daily or intermediate cover.

- A gas-venting layer, consisting of a minimum of 6 inches of granular material having a minimum hydraulic conductivity of  $1 \times 10^{-3}$  centimeters per second.
- A textured geomembrane high-density polyethylene (HDPE) or low-density polyethylene (LDPE), 40 mils thick.
- A drainage/protection layer, consisting of a minimum of 12 inches of granular material having a minimum hydraulic conductivity of  $1 \times 10^{-2}$  centimeters per second.
- A vegetative support layer, consisting of a minimum of 9 inches of soil capable of sustaining a healthy vegetative growth on the final cover.

Once the landfill final cover installation has been certified and all other aspects of landfill closure are complete, the post-closure care and monitoring period for the landfill will commence. Additional information regarding the closure and post-closure process for the landfill was provided in the Design Plan included as PART C of the Application for Authorization to Construct.

## **6.0 STORM WATER MANAGEMENT**

### **6.1 Active Area Controls**

Storm water management in active landfill areas requires that intermediate operations ensure that run-off, which has contacted solid waste (contact run-off), does not mix with non-contact run-off. The following are the storm water management measures that are to be taken in landfill areas that have not been furnished with final cover.

#### **Non-Contact Run-off**

Non-contact run-off is the storm water run-off from the active portion of the Landfill, which has had no contact with landfilled waste or daily cover materials. This run-off should be directed away from the active landfill face by grading the surfaces of the Landfill to direct runoff away from uncovered waste. Active areas in the central portion of the Landfill should be provided with temporary surface swales to allow non-contact run-off to move to the perimeter of the Landfill. Runoff will then be directed to the stormwater retention basins via drainage swales around the Landfill perimeter.

#### **Side Slope Drainage**

Landfill side slopes will have intermediate cover placed as they reach their subgrade elevations. Storm water runoff from side slopes will flow to drainage swales (constructed along the side slopes), that direct the run-off to let-down channels. The let-down channels empty into swales at the base of the side slopes, which carry the water to retention basins. As landfill operations get progressively higher in elevation, side slopes will be provided with a quick-growing vegetative cover to slow run-off and minimize erosion. Areas experiencing repeated erosion problems will be covered with mulch and/or provided with hay bales and/or siltation fences installed perpendicular to the slope to further slow run-off and reduce erosion.

#### **Top Slope Drainage**

Top slope areas in the active portion of the Landfill will be graded to drain away from the active landfill face. Normally, intermediate grades of two to five percent are adequate to ensure that ponding and excess infiltration of storm water into the Landfill is avoided. Top slopes that have

reached final elevations will be graded at a minimum of five percent. Intermediate and final top slopes will be shaped and groomed to prevent the concentrated flow of run-off to one location, unless a means is available to prevent erosion.

### **Contact Run-off**

Contact run-off is the fraction of run-off that has had direct contact with waste or daily cover materials. This run-off will be collected in the Landfill leachate collection and removal system. The active face is graded to direct run-off to a central location, near the active face, where the run-off can infiltrate to the leachate collection system

## **6.2 Completed Area Controls**

Once landfilled areas have reached final grades, the final cover system will be constructed to serve as an infiltration barrier to minimize further leachate production from the Landfill. The final cover system for the Landfill includes the following storm water control components:

- Permanent vegetative cover will be established on all surfaces of the final cover. A seed mixture of grasses suitable for the application should be used.
- Permanent earthen diversion berms, lined with erosion mats, will be installed on the final cover to divert slope run-off to let-down channels. The berms will be used to reduce unmanaged sheet flow and, thereby, minimize slope erosion. Sub-drains will be constructed beneath the berm within the drainage layer to intercept flow in that layer and discharge it into the let-down channels.
- Permanent stone-lined, side slope let-down channels will be constructed to capture run-off from several diversion berms and sub-drains and direct the run-off to the existing swales and sedimentation basins along the perimeter of the landfill.

All final cover run-off will be diverted, via drainage swales and interceptor drainage piping, into the two main storm water sedimentation basins.

## **7.0 LEACHATE MANAGEMENT**

The performance requirements for the leachate collection and removal system is the ability to remove leachate from the Groundwater Protection System. These systems must be designed to drain leachate quickly and efficiently from the Landfill in order to normally maintain a hydraulic head of leachate above the geomembrane liners of no greater than 12 inches, except during and soon after storm events.

### **Generation**

Phase 9 is designed to promote vertical flow of leachate into the existing landfill collection systems and with extensions of the existing leachate collection systems that will reduce that volume by providing a direct path for leachate to the leachate sumps. This design is intended to provide sufficient leachate drainage capacity to normally maintain a hydraulic head less than 12 inches on the geomembrane liners except during and soon after storm events. The Hydrologic Evaluation of Landfill Performance (HELP) Version 4.0 model program was used to estimate the head conditions

when the Landfill is fully built out with the completion of Phase 9. Leachate generation calculations were provided in the Design Plans included as PART C of the Application for Authorization to Construct.

### **Leachate Sump**

Leachate produced in Phase 9 will either drain vertically through the existing landfill phases or to and through the leachate system extensions constructed as part of the Phase 9 preparations to the existing leachate collection system sumps. From any of the existing sumps, the leachate will be pumped through force mains into either the existing 207,000 gallon glass fused steel, above ground leachate storage tank located along the easterly property line opposite the Phase 3, Stage 3 Landfill area, or the 125,000 gallon tank, of similar construction, located to the south of the southwest corner of the Phase 6 Landfill.

Submersible pumps from the secondary and primary leachate collection systems lift leachate from the sumps and convey the leachate to one of the above-ground leachate storage tanks, which have secondary containment system volumes of the primary containment plus ten percent. The secondary and primary submersible pumps include switches to control the operation of the pumps. The pumps are located within a section of perforated HDPE piping resting on the floor of the sumps and are connected to solid risers placed up the sideslopes of the Landfills. A control panel controls the pumps, meters the amount of leachate pumped and provides both local and remote audio and visual alarms. The panel also displays the depth of leachate in the sumps (hydraulic head) by digital read-out. In the event that the submersible pumps fail, the Facility has back-up pumps available on site.

### **Leachate Loading**

The following procedure is conducted for loading leachate from the leachate storage tank to the tanker trucks:

- Upon arrival at the site, the empty tanker truck will stop at the scale and register its tare weight. The truck will then proceed to the storage tank.
- The tanker truck will park within the leachate load out structure that has been constructed adjacent to the tank to contain spillage should it occur during pump out operations.
- Open the air vent on top of the tanker.
- Connect the hose from the outlet of the loading station's pump to the tanker.
- Open the drain valve on the storage tank.
- Open the tanker valve.
- Close the drain valve on the pump. Start the pump.
- Monitor the level of leachate in the tanker to prevent overfilling. Report any spills immediately to the General Manager or Operations Manager. Shut off the pump when tanker is full.
- Close the tanker valve.
- Close the tanker vent.
- Close the drain valve to the storage tank.
- Prior to departing the site, stop at the scale and register the weight. Also, report the tank levels to the scale house attendant. The truck will then depart from the site.

## **Disposal**

Leachate collected at the landfill is transported and disposed by a contractor, as needed. The quantity of leachate generated is recorded and the leachate quality monitored in accordance with the leachate disposal permits and the Solid Waste Management Regulations.

## **Action Notification Flow Rate (ANFR)**

Monitoring the flow of leachate in the secondary leachate collection system (SLCS) is part of the general landfill operations. The Facility regularly reports SLCS flow measurements to the Department with the Facility's bimonthly inspection reports.

If it is determined that either a single day or the average monthly SLCS flow rate exceeds the approved Notification Flow Rate (NFR), the following shall be performed:

1. Verify that the primary leachate collection system (PLCS) is operational. If the PLCS flow appears to be low, evaluate the need to clean the PLCS pipe.
2. Notify the Department by the end of the next business day (Monday through Friday, except holidays).

If it is determined that the SLCS flow rate at the sump area exceeds a specified volume higher than the Action Flow Rate or AFR, the following shall be performed:

1. Verify that the primary leachate collection system (PLCS) is operational.
2. Notify the Department by the end of the next business day (Monday through Friday, except holidays) and schedule a meeting to review the situation.
3. Conduct an engineering evaluation to identify possible sources of flow, to identify measures available to reduce SLCS flow, and other investigations that may be needed to assess the situation.
4. Submit the engineering evaluation to the Department within 30 days, unless an alternative schedule is approved by the DEP.

The most recent action leakage rate (AFR) were calculated for the Phase 6 Landfill area. (See Appendix B for the Phase 6 AFR calculations.) The calculations are based on the laboratory measured transmissivity ( $7.49 \times 10^{-4} \text{ m}^2/\text{sec}$ ) for the bi-planar material that was installed in the Phase 6 cell and the minimum slope of the liner of approximately 2.0% (0.02 ft/ft). Based upon these calculations, the calculated AFR is 2,804 gallons per day per acre (gpd/acre). This is less than the actual capacity of the four-inch (4") diameter secondary leachate pipe, which is 17,000 gpd/acre, thus the AFR of 2,804 gpd/acre is the controlling factor.

The 2,804 gpd/acre is in itself a fairly high value for an AFR and is greater than ISWM would accept for performance of its system, without taking action to reduce the secondary collection system's flow rate. Because of this, ISWM proposes to maintain the AFR of 200 gallons per day per acre for a single day flow rate and 100 gallons per day per acre for a rolling thirty day flow rate. The TFRs, or notification rates, are half of the AFRs, or 100 gallons per day per acre for a single day flow rate and 50 gallons per day per acre for a rolling thirty day flow rate. Leakage above the TFR, but below the AFR, will trigger a step up in the SLCS monitoring program and actions to try to identify the

source of the leakage. The intention is to use the TFR to initiate action and take preventive measures before the AFR is triggered.

## **8.0 LANDFILL GAS MANAGEMENT**

A conceptual gas extraction and control system has been designed to collect gases generated within Phase 9 as waste decomposes and combust the gas at the existing flare station located adjacent to the Phase 2 landfill area. With Phase 9 being used primarily as an ash disposal landfill, it is not expected to generate a significant amount of gas. The conceptual layout of this gas system along with installation details are included in the Drawings that were submitted with the Application for Authorization to Construct. Positive pressure is generated in the landfill by anaerobic decomposition of the refuse, which produces primarily methane and carbon dioxide, along with odor nuisance causing gases, such as hydrogen sulfide. If not relieved, pressure within the landfill can force these gases into the atmosphere, potentially causing hazardous or nuisance conditions to develop. A gas extraction and collection system will relieve the positive pressure by applying a vacuum throughout Phase 9 and the rest of the Landfill. The gas will be conveyed to the skid-mounted open flare, located in the northeast corner of the site, adjacent to the closed Phase 2 Landfill. Design of modifications to the existing gas collection systems that allow for the forty foot vertical expansion of Phase 9 are included in the Drawings of the ATC. Draft designs of the extensions of the existing gas collection system to collect gases within Phase 9 were also included in the Phase 9 ATC. Final designs will be prepared for construction as staged closure of the system is conducted. The designs will be based on the existing conditions, at that time, and will be presented to the Department for approval.

## **9.0 STAFFING**

### **9.1 General**

The personnel recommended for successful operation of the Facility are as follows:

- One General Manager
- One Operations Manager
- One Manager of Facility Compliance and Technical Development
- One Landfill Crew Chief
- One Mechanics Crew Chief
- One Recycling Crew Chief
- One Wellfield Technician
- One Scale Attendant
- Three Residential Recycling Center Attendants
- Two Utility/laborers
- Seven Equipment Operators
- Two Mechanics
- Two Clerical Office Staff

This roster of employees will enable Phase 9 to be operated and maintained in compliance with the

Facility's approvals and applicable regulations. Part-time employees may be necessary to supplement the full-time staff during vacations, sick days or special projects.

Staff responsibilities shall be as follows:

### **General Manager**

The General Manager is responsible for ensuring that the operational staff has the resources to perform all the Facility operations. In this role, the General Manager serves as the liaison between the operational staff, the Town Administrator, the Board of Selectmen and the Board of Health. The General Manager is responsible for facility administration, regulatory oversight, accounting and purchasing, among other duties.

### **Operations Manager**

The Operations Manager is responsible for all aspects of the Facility operations. In this role, the Operations Manager functions as the foreman by identifying work tasks and projects, which must be completed, and by ensuring that daily operating needs are met.

### **Manager of Facility Compliance and Technology Development**

The Manager of Facility Compliance and Technology Development is responsible for maintaining environmental compliance at the Facility, permitting, training and personnel health and safety compliance, as well as strategic planning and site development activities in coordination with the General Manager.

### **Scale Attendants**

The Scale Attendants are responsible for documenting the weight and origination of incoming loads, directing the loads to the appropriate destination (active face, transfer station or recycling areas), preliminary screening of incoming waste loads for inappropriate materials, waste ban items and other inappropriate wastes. Attendants also track loads that fail waste ban inspections and provide the documentation to the Manager of Facility Compliance and Technology Development for recording in the waste ban log.

### **Recycling Attendants**

Two Recycling Attendants are responsible for directing the residents where to properly deposit the recyclables and other items at the residential recycling center.

### **Utility Personnel/Laborers**

The Utility Personnel/Laborers maintain environmental control structures (i.e. storm water basins, leachate collection systems and roadways). These personnel also maintain the Facility's grounds in an orderly condition, collect windblown litter and assist with truck spotting and work inspection. This staff may be supplemented periodically during certain landfill construction projects and to assist with other Facility needs that may arise.

### **Equipment Operators**

Equipment Operators compact and cover waste and inspect waste loads as they are unloaded. During normal operations, the eight Equipment Operators are active throughout the day. One



Equipment Operator is normally assigned as a relief person and will help with the spotting of incoming vehicles at the working face. Work breaks are staggered to assure that the active face is attended during all working hours.

## **9.2 Staff Training and Emergency Situations**

All landfill employees undergo training in emergency medical procedures and safety practices that must be followed in the vicinity of heavy equipment. First aid kits are maintained at the office trailer, scalehouse and on landfill vehicles. All vehicles and buildings are equipped with two-way radios to expedite communications between all areas of the landfill and to effect response to emergency situations.

## **10.0 INSPECTIONS AND MAINTENANCE**

### **10.1 Compliance Inspections**

The Bourne Integrated Solid Waste Management Facility must be operated in full compliance with all applicable Federal, State and Local regulations. In particular inspections and reporting will be conducted in accordance with *310 CMR 19.018 Third-Party Inspection* requirements. Compliance inspections will be performed at the frequency required by the Facility's permit by an engineer experienced in solid waste management and licensed to do so under the regulation. Each inspection will include a complete facility tour, with observations of the operation of the active face, inspection of storm water control systems, landfill cover, cover stockpiles, operating equipment and an overall inspection of the landfill site. Each inspection will include an interview with the Operations Manager and a discussion of any immediate operational improvements, which should be implemented. The Operations Manager, as well as the General Manager, will be informed of any observed deficiencies at the time of the inspection. Required Operation and Maintenance and Waste Ban reporting will be made.

### **10.2 Maintenance**

#### Environmental Monitoring Station Maintenance

Maintenance of environmental monitoring stations must be conducted in full compliance with the requirements outlined in 310 CMR 19.133. The Department of Environmental Protection will be notified in writing of damaged or destroyed groundwater or surface water monitoring devices and the extent of the damage. Notification will be made within fourteen days of discovery. The notification will detail a schedule for repair or replacement of the damaged components, and the repair or replacement will be completed prior to the next scheduled sampling round.

#### Leachate Collection and Storage Facility Maintenance

The leachate collection system will be inspected regularly to ensure that the system is working properly. Visual inspection of the piping system will be made to ensure that the system is operating normally and that there is no indication of blockages or leakage in the system. Leachate collection pipes can be accessed and serviced via clean-out pipes. If there are indications that the system is not operating normally, the system can be visually inspected by closed circuit television cameras

that are specifically designed and are routinely used to inspect piping systems.

#### Storm Water Collection System Maintenance

The storm water collection system will be inspected routinely to ensure that the system functions to prevent erosion and discharge of pollutants and to protect the physical integrity of the Landfill. Storm water basins, perimeter swales and drainage structures on the Landfill will be inspected and cleaned periodically to ensure that a buildup of silts and sediments does not occur.

#### Slope Maintenance

Proper grooming of landfill slopes, with particular attention to planting and maintenance of vegetation, is the most important aspect of erosion control on the Landfill itself. Also important for the prevention of siltation is the upkeep of perimeter swales and, where indicated, the placement and replenishment of siltation fencing. The detrimental effects of erosion can be prevented by maintaining all erosion control structures so that they can carry out their function unimpeded. Landfill areas that are inactive should be seeded to encourage the growth of vegetation.

### **10.3 Reporting Requirements**

The Facility must maintain a daily log of the operation of the Landfill, including the type, weight and source of solid waste and cover material entering the Landfill. Records must also be kept on the status of all environmental monitoring systems.

The Facility must operate in full compliance with all applicable federal, state and local regulations. Compliance inspections are, and will continue to be performed bi-monthly under the direction of a Massachusetts Registered Professional Engineer experienced in solid waste management and approved by MassDEP, in accordance with *310 CMR 19.018 Third-Party Inspections*. Operations and Maintenance and Waste Ban inspection reports will be submitted in accordance with that regulation.

Each inspection will include:

- A complete facility tour, with observations of the operations of the active face.
- Inspection of storm water control systems, landfill cover, cover stockpiles, operating equipment and an overall inspection of the site.
- Interview with the Operations Manager and discussion of any observed deficiencies and operational improvements that should be implemented.
- Waste Ban Compliance Inspections will be conducted on the required number of incoming loads of refuse (excluding ash) and e-filing the required data.

Reports (O&M and Waste Ban Compliance) will be prepared and submitted to the Department within fourteen (14) days after each inspection.

The Facility must submit an annual report to the Department summarizing the operations of the previous calendar year using a form designed by the Department. This report must be submitted no later than February 15th and includes such information as total tonnage landfilled, volumes of generated leachate and cover material tonnages.

## **11.0 SAFETY**

### **11.1 General**

All landfill employees undergo training in emergency medical procedures and in safety practices that must be followed in the vicinity of heavy equipment. A first aid supply kit is maintained in the office and in operating equipment at the active face. The telephone numbers for emergency medical care and ambulances are posted by every telephone in the office.

Pursuant to 40 CFR Part 258.25, the Bourne Integrated Solid Waste Management Facility controls public access to prevent illegal dumping of wastes, public exposure to hazards and unauthorized vehicular traffic. Access to the Landfill is by a single access point off MacArthur Boulevard. The gate at the entrance is secured and locked when the facility is closed. A sign is posted stating the hours of operations as well as the types of waste that are accepted by the Facility.

### **11.2 Fire Control**

All necessary precautions will continue to be implemented at the Landfill, in order to prevent fire from breaking out. These precautions include timely and proper covering of all disposed refuse, and an enforced ban on smoking near the Landfill. Furthermore, all materials stored, stockpiled, held or accumulated anywhere on site will be kept in a manner that prevents fire hazards.

A hot load area will be reserved near a reliable source of water for the dumping of any incoming material that may be smoldering, smoking or burning. In case fire breaks out within the Landfill, or signs of a fire are observed, local fire-fighting authorities and the Department of Environmental Protection will be alerted and no refuse may subsequently be deposited in the burning area. The nearest continually manned fire station is located in Buzzards Bay in Bourne, approximately three miles from the Facility. Designated hot load areas will be located in the excavated areas on the 25 acre parcel to the south of Phase 6. In addition, ISWM maintains two water trucks with pumps for a fire hose and stockpiles of organic foam.

### **11.3 Hazardous Waste**

The Bourne Integrated Solid Waste Management Facility shall not accept for disposal any substance subject to the Massachusetts Hazardous Waste Regulations, 310 CMR 30.00, or any waste that is considered hazardous under EPA's Solid Waste Disposal Facility Criteria, 40 CFR Part 258. A program for monitoring incoming waste for the presence of hazardous waste is provided in Section 3.0.

## **12.0 ENVIRONMENTAL MONITORING PROGRAM**

### **12.1 Monitoring Plan**

Groundwater, leachate and landfill gas monitoring will continue to be conducted in accordance with the Massachusetts Solid Waste Management Regulations located at 310 CMR 19.132, the Department's Landfill Technical Guidance Manual and Standard Reference for Monitoring Wells. The purpose of the monitoring is to track groundwater quality downgradient from the Phase 1

unlined landfill, which is expected to improve over time and to provide verification of base liner integrity in Phases 2, 3, 2A/3A, 4, 5 and 6. The monitoring program also tracks the remnant nitrate contamination from the former septage lagoon area, which is expected to decrease to less than the relevant MMCL concentrations.

Groundwater and leachate will be analyzed for similar parameters so that the results can be easily reviewed and interpreted. The minimum analytical parameter list for groundwater and leachate includes:

- Field analytes including pH, temperature, specific conductance and dissolved oxygen.
- Inorganic analytes including alkalinity, nitrate, total dissolved solids, chloride, sulfate and chemical oxygen demand.
- Metals including iron, manganese, arsenic, barium, cadmium, chromium, copper, cyanide, lead, mercury, selenium, silver and zinc.
- Volatile organic compounds included in EPA Method 8260 and methyl ethyl ketone, methyl isbutyl ketone, acetone, 1,4 dioxane and any unknown peaks greater than five times the background intensity.

Groundwater monitoring locations have been established at the Bourne Integrated Solid Waste Management Facility. In accordance with MassDEP's June 5, 2017 approval of the Bourne Landfill's Comprehensive Site Assessment (CSA), the on-site groundwater-monitoring network consists of twenty (20) wells. Fourteen (14) of the wells will be sampled quarterly and six of the wells will be sampled semiannually. Surface water is monitored in the storm water retention basin located in the northwest corner of the site, when there is an adequate volume of water in the basin to sample. A grab sample of leachate is taken from the leachate storage tank. ISWM intends to reevaluate the scope of the groundwater monitoring plan, taking into account the monitoring results that have been developed since 2017. It is anticipated that ISWM will seek approval to reduce the scope of the program. In addition to sampling the groundwater, surface water and leachate, nine gas monitoring wells are field screened as part of the Environmental Sampling Program. The Town may seek to modify the sampling regime as a Minor Modification based on historical trends as discussed in section 12.2.1.

Maintenance of environmental monitoring locations is conducted in full compliance with the requirements outlined in 310 CMR 19.133. The Department of Environmental Protection will be notified in writing of damaged or destroyed monitoring devices and the extent of the damage. Notification will be made within fourteen days of discovery. The notification will detail a schedule for repair or replacement of the damaged components, and the repair or replacement will be completed prior to the next scheduled sampling round.

## **12.2 Monitoring Well Network**

### **12.2.1 Groundwater Monitoring Wells**

Groundwater monitoring is conducted utilizing the existing network of wells in accordance with the Solid Waste Management Regulations. Before sampling, the condition of each well will be inspected and a groundwater elevation will be determined. Sampling will be conducted in

accordance with DEP guidance and its approval of the Bourne Landfill CSA. The current Environmental Monitoring Program includes sampling of groundwater at twenty (20) existing monitoring wells, one surface water sample (when available), one leachate sample and ten gas well screenings. The analytical parameters consists of those listed at 310 CMR 19.132(1)(h). The following locations will continue to be monitored, until the program is modified.

- Quarterly at upgradient groundwater monitoring well MW-1S.
- Quarterly at downgradient groundwater monitoring wells MW-5S, MW-5D, MW-8S, MW-8D, MW-11SR, MW-11DR, MW-14S, MW-14D, MW-14DD, MW-18SR, MW-18D, MW-19S, and MW-19D.
- Semiannually at downgradient groundwater monitoring wells MW-5DD, MW-8DD MW-10SR, MW-10D, MW-12S, and MW-12D.

### **12.2.2 Gas Monitoring Wells**

A system of landfill gas monitoring wells have been installed at the Facility. Ten of those wells are used to monitor soil gas concentrations in the immediate vicinity of the Landfill. G-1 is adjacent to the Monument Beach Sportsman's Club located north of the Facility. Two additional gas monitoring wells, G-2 and G-3, are located along the northern property boundary. G-4 is located along the eastern property boundary adjacent to MW-1S and MW-1D. G-5 and G-6 were installed between the Phase 3, Stage 3 landfill and the Facility and DPW buildings. These two wells have been abandoned because of construction and have recently been replaced by wells G-10, G-11 and G-12, which were installed along the southeasterly portion of the landfill parcel and in the vicinity of the office and garage buildings. G-7, G-8 and G-9 are installed along the Route 28 right-of-way on the west sideline of the site. The gas monitoring wells utilize well screens installed from two to three feet below the low groundwater table elevation to within approximately six feet of the surface to monitor the unsaturated zone. Based upon surrounding land use, the gas monitoring well configuration will adequately monitor the unsaturated zone near the property boundary. In addition to monitoring potential landfill gas migration, monitoring wells G-1, and G-2 may also be used to measure the elevation of groundwater during the regular groundwater monitoring events.

### **Landfill Gas Monitoring**

Landfill gas monitoring must be conducted quarterly at the ten gas monitoring wells, the scale house, the Facility and DPW buildings and buildings north of the Facility. The wells are fitted with caps and sample ports designed to prevent atmospheric air from entering. The concentration of methane will be determined. If the concentration is less than five-percent methane, the percent of the lower explosive limit (LEL) for methane will be determined. At the time of monitoring, the barometric pressure, temperature and general weather conditions will be logged. Appropriate action will be undertaken in accordance with 310 CMR 19.132(4) should landfill gas concentrations exceed the action levels established by the Department.

Landfill gas monitoring should also be conducted weekly in the scale house area. The concentration of methane will be determined. If the concentrations are less than five-percent methane, the percent of the lower explosive limit (LEL) for methane will be determined. At the time of monitoring, the barometric pressure, temperature and general weather conditions will be logged. Appropriate action

will be undertaken in accordance with 310 CMR 19.132(4) should landfill gas concentrations exceed the action levels established by the Department. Underground conduit and utilities exist proximate to the scale house and in the vicinity of the unlined Phase 1-ABC Landfill.

### **13.0 NUISANCE CONTROL PLANS**

The following is a Nuisance Control Plan for the Facility, which includes contingencies for dust, noise, odor, litter and vector control, including a detailed Gull Control Plan.

#### **13.1 Gull Control Plan**

##### **13.1.1 Introduction**

The Town of Bourne began operating a municipal solid waste (MSW) landfill at the present location in 1967. The Town ceased accepting municipal solid waste for disposal at the site about January 1996 and began transferring its MSW to the SEMASS waste-to-energy facility located in Rochester, Massachusetts for a 10-year period. The Facility currently accepts MSW and non-MSW items. The majority of material that is accepted for landfilling is ash generated at the SEMASS facility.

Historically, it had not been necessary to implement gull control at the site. While gulls were present in varying numbers, the isolated location of the Landfill presented a natural buffer to the surrounding community.

The Town of Bourne is located on Cape Cod and the Landfill is located within a few miles of the ocean, which is prime gull habitat. The Town recognized that as it planned to move forward with a proposed expansion of operations to a regional operation and commensurate increase in tonnage, it needed to make efforts to reduce impacts from gulls. To meet this challenge the Town has taken several measures to deter and control gulls. These are listed below.

1. Eliminated ponding, which was prevalent in the lower portions of the site.
2. Consistently use adequate daily cover utilizing soils and/or BUD materials.
3. Reduced the size of the active working face to a small, tightly controlled area.
4. Initiated growth of vegetation on the slopes of intermediately and permanently closed areas of the landfill.
5. Provided information to local businesses about how to prevent gulls from loafing on the roofs utilizing fishing line, and installed line on the roofs of local businesses and abutters.
6. Installed an automatic propane cannon to scare gulls.
7. Installed a gull distress call broadcaster.
8. Several personnel are assigned scare-away guns that launch bird bangers and screamers.
9. Purchased a fogger and methyl anthranilate to irritate the birds.
10. Implementation, as needed, of the Facility's approved Gull Depredation program, as permitted by Federal and State agencies.

The Town has periodically evaluated the effectiveness of these measures and has made modifications as necessary.

### **13.1.2 Goals and Objectives**

It is the policy of the Facility to control, and to the extent possible, deter any and all gulls from roosting and/or feeding at the Landfill. This is accomplished utilizing a management plan based upon guidelines outlined by the Metropolitan District Commission, Department of Environmental Protection and the Massachusetts Division of Fisheries & Wildlife, which recommend a gull control hierarchy beginning with the least intrusive or destructive control measures followed by more aggressive methods.

The effectiveness of the gull control program will be measured by several factors:

- the sheer number of gulls present at the site.
- the reason for their presence.
- the type of activity by the gulls, such as swarming high above the landfill or loafing on the side slopes.
- the degree of and types of impacts to abutters, surrounding residents and businesses.

The thresholds for evaluating the need for new and additional measures will be:

1. The degree to which gulls have generated a visual or other impact to the community because of their activity at the site.
2. The receipts of complaints from abutters, public officials or residents and businesses.
3. Evidence that gulls are being provided with a regular and substantial source of food at the site.
4. Notification from the Massachusetts Department of Environmental Protection.

### **13.1.3 Notification**

Upon receiving a complaint by an abutter or public official on any three (3) consecutive days, or any five (5) days within a one month period, the General Manager or Operations Manager will notify, by telephone, the Department of Environmental Protection, Southeast Regional Office, Solid Waste Management Section. Information pertaining to the nature of the complaints will be provided, as well as an outline of actions to be taken in response.

Complaints will be forwarded to the Facility and recorded in a daily log. Following receipt of a complaint, an investigation will be conducted to verify the impacts noted, including a visit if necessary, followed by an evaluation of current control methods and implementation. Depending on the nature of the complaint, a follow up with the individual may be necessary as well as a response at the site of the impact.

Additionally, it is the responsibility of the Facility to ensure proper notification and education of abutters or nearby individuals and commercial establishments that might be potentially affected by a selected control measure. This may be done by telephone, in person, or in writing. The impacts to abutters by a control method should be carefully weighed before it is selected as a remedy.

### **13.1.4 Alternatives Analysis**

Past methods used at the Facility focused on the landfill operational controls and habitat controls

outlined in the Department's policy, and more aggressive measures had not been needed. As MSW landfilling began, more aggressive techniques were implemented. Techniques for habitat control, such as using fishing line in patterns along areas where the birds might loaf, are being implemented. Harassment methods, such as utilizing tethered balloons with moving tails that simulate predators or spraying a mist of water at the birds with a hydroseeder, might also be employed. Personnel have been assigned to bird control in addition to other regular tasks to constantly harass and dissuade the birds from roosting and gaining access to the working face, thereby modifying their behavior.

### **13.1.5 Selected Control Methods**

The selected control methods are listed below. These methods can be accomplished with the existing personnel and equipment currently in use at the Facility.

- Tight control of a small working face.
- Elimination of ponding at the site.
- Rapid vegetation of inactive areas.
- Monitoring off site impacts and potential roosting areas both on site and at nearby businesses.
- Employee education to recognize causes of vectors, how to employ good management practices and how to use a daily log.
- Consistent and adequate use of daily cover.
- Use of harassment techniques including propane cannon, distress calls and methyl anthranilate fog.
- Implementation of the Federal depredation permit

### **13.1.6 References**

The selected control methods were chosen primarily to match the number of gulls that may be present at the site from time to time. The chief resource used for formulating this plan was a document entitled Manual for Gull Control at Massachusetts Landfills. The main criteria in choosing these methods were:

- Rapidity and ease of implementation.
- Effectiveness in controlling the current population at the site.
- Cost.
- Disruption to operations and impacts to abutters.
- Safety for site personnel and visitors.
- Safety for the gulls.

### **13.1.7 Contingency Measures**

Should the gull population at the Facility rise beyond the control of the currently selected methods of management, the Facility implements, as appropriate, progressively more aggressive measures. Included in these contingencies is for the Facility to implement its DEP approval to conduct a "Gull Depredation" program. Also, the Facility may employ the use of outside consultants with expertise in gull control to advise the Facility and/or seek guidance from the Department as soon as it is



apparent that chosen control methods are not adequately effective.

#### **13.1.8 Resources**

As stated earlier, it is the policy of the Facility to deter any and all gulls from roosting and/or feeding at the site. It is the responsibility of the General Manager, along with the Operations Manager, to evaluate the effectiveness of selected control measures, to assign personnel for implementing these measures and to rapidly modify the control plan as needed. Additionally, a specific budget should be maintained, if needed, to implement extraordinary measures.

#### **13.1.9 Personnel**

The primary contact for the gull program will be the General Manager or Operations Manager. Both Managers have the responsibility of ensuring that the Facility has a current gull control plan that is effective and up-to-date. This includes allocating the proper equipment, assigning subordinate personnel, keeping track of records and allocating financial resources as needed. Additionally, the General Manager and Operations Manager report to the Bourne Town Administrator, who may be reached at 508-759-0600.

#### **13.1.10 Implementation**

Implementation of the selected control measures began with the commencement of Phase 3, Stage 3 operations. The current selected control measures do not require any additional special permits and the site personnel have already been trained to implement them.

### **13.2 Vector Control**

Vectors, including rodents and breeding insects, can be controlled through many of the same basic methods used to deter the gulls, which are: the periodic or more frequent application of a sufficiently thick layer of cover material; the immediate application of cover, when waste loads contain any type of putrescible waste and the mixture of waste loads with soil.

Although the refuse itself is generally the greatest attraction for vectors, piles of tires and other salvaged materials, stagnant ponding water, unmanaged brush and stump piles will also attract vectors. It is important to maintain the tire and salvageable metal piles and brush/stump areas, for instance, in an orderly manner and process or remove them periodically to eliminate conditions conducive to the harboring of rodents and the breeding of other vectors.

The proper management of the operating face of the Landfill is instrumental in deterring rodents and gulls via the confinement of the active cell and the placement of at least six inches of daily cover. The Facility has retained a rodent and/or vector control specialist who inspects the facility on a regular basis and restocks bait traps. This specialist is a licensed exterminator, knowledgeable in detecting the presence of vectors and in application of extermination techniques to eliminate or at least mitigate the presence of these vectors.

### **13.3 Dust Control**

Due to the nature of landfilling operations, dust will be generated during dry periods throughout the year. The following control measures may be employed at the Facility:

#### **Roadway sweeping and wetting**

Access roads, including all internal service roads and the site's entrance road, will be swept and/or wetted using sweeper and tanker truck equipment, which are currently available and are regularly used on-site. Of utmost importance is the minimization of dust that could impact residents using the recycling center. Although most of the major Facility roadway is paved, it must be occasionally swept and/or wetted due to the constant use of site construction and waste processing activities. The dirt roads circumventing the closed and active phases require additional wetting when they are used for hauling construction materials.

The tanker truck can draw water as needed from any of the on-site hydrants. The existing water line extends to service the southern portion of the site, including the Facility offices, the single stream recyclables transfer building, the Residential Recycling Center and the C&D Transfer Station.

#### **Calcium chloride application**

Calcium chloride is a soil wetting agent, which may be used on unpaved internal roadway surfaces to control dust from traffic. It must be applied in relatively small amounts, since over-use may affect water quality. It is also costly, and only lasts a short period of time, thus requiring re-application frequently. Generally, often-used roads should be paved to the extent feasible and properly maintained.

#### **Vegetation**

Inactive landfill areas and non-landfill surfaces may be loamed and seeded to encourage the growth of vegetation on barren soils that could generate windblown dust.

#### **Haul truck covering**

All haul vehicles, whether carrying soils, BUD materials or waste, should be covered adequately with a tarp or similar cover to prevent dust from blowing toward residents in the recycling area or facility personnel or visitors to the Facility. This means that the load should be covered until it reaches the active landfill or drop-off area, and not uncovered any sooner.

#### **Vehicle wheel wash and equipment wash pad.**

Vehicles can be washed on the Landfill or at the leachate loading pad where rinseate is collected for off-site disposal with leachate.

### **13.4 Odor Control**

A Landfill Odor Response Plan has been prepared for the Bourne Landfill in order to assist ISWM in addressing potential odor problems resulting from the Facility's operations. The Landfill Odor Response Plan is included, by reference, in this Operations and Maintenance Plan. A 24-hour odor response hotline is available as well.

### **13.5 Noise Control**

Certain noise levels are associated with the operation of trucks and heavy equipment at the Facility. Spreading, compacting and covering operations; vehicle unloading techniques, such as the dropping of tailgates; and back-up beeper signals from haul trucks and landfill equipment are all common and unavoidable sounds generated at the facility. Construction activities, such as liner and closure construction, increase the level of activity, which will generate more noise.

Fortunately, this Facility is located in a remote location with few sensitive receptors. The closest receptor, to the west, is shielded from the noise, as well as visually, by the physical location of the landfilling operations and the screening provided by vegetation and Route 28. During future phase operations, consideration will be given to the potential impact from noise to abutters, based on those future operating conditions.

### **13.6 Litter Control**

Litter control activities have been aggressively implemented to maintain litter free conditions. Proper compaction and covering techniques should be utilized, and more frequent covering or an application of soil on the waste may be needed on excessively windy days if conditions warrant. In addition, portable litter fence should be used in the vicinity of the active face. The portable fencing should be located in the immediate area downwind of the active operations. The portable fencing should be relocated upon any change in the wind direction or velocity.

The Facility currently has a 30-foot high permanent litter fence along the eastern, northern and western boundaries of landfill areas to prevent off-site migration of litter. As part of the completion of the Phase 4 Landfill Expansion project, the litter fence was established to the west and adjacent to the Phase 4 landfill. That litter fence was extended further south, as part of the Phase 6 construction. The permanent fence must be regularly inspected and repaired.

The Landfill's operation should be situated in a manner where the terrain can assist in minimizing the generation of windblown litter. The active face should be maintained as much as possible on the interior slopes of the Landfill, which are more sheltered from the wind.

Litter pick-up crews are employed on a regular and on an as needed basis to pick up litter on and off site, including the routine policing of the entrance road, Canalview Road on the JBCC and MacArthur Boulevard.

**APPENDIX A**

**WASTE BAN COMPLIANCE PLAN**



**Attachment B  
WASTE BAN COMPREHENSIVE LOAD INSPECTION  
REPORTING SHEET**

Date & time of inspection \_\_\_\_\_ Hauling Co. \_\_\_\_\_ Truck # \_\_\_\_\_  
 Size of Truck \_\_\_\_\_ Type of Truck \_\_\_\_\_ Quantity of Waste \_\_\_\_\_  
 Waste Generator Name \_\_\_\_\_ Waste Generator Location \_\_\_\_\_

Banned Material Documentation Thresholds	Amounts Found During Inspection <i>(fill in quantities)</i>	
Material	QTY.	QTY.
Recyclable Paper (includes corrugated cardboard)	10% or more of load by volume	%
Single Polymer Plastic, Metal & Glass Containers	10% or more of load by volume	%
Textiles	10% or more of load by volume	%
Mattresses	Any	
White Goods	Any	
Lead Acid Batteries	Any	
Whole Tires (landfills only)	Any	
CRTs	Any	
Leaves and Yard Waste	10% or more of load by volume OR 10 bags	% #
Commercial Organic Material	10% or more of load by volume	%
Asphalt Pavement, Brick, Concrete, Metal, Wood and/or Clean Gypsum Wallboard	20% or more of load by volume	%
Combined Materials (Recyclable Paper; Glass, Metal, and Plastic containers; Leaves and Yard Waste; Asphalt Pavement, Brick, Concrete, Metal, Wood and/or Clean Gypsum Wallboard; and Commercial Organic Material)	30% or more of load by volume	%

Communication re: Failed Load:     Notified driver that load failed inspection  
      Requested generator information from hauler

Disposition of Failed Load: *(check one)*

<input type="checkbox"/>	Accept, separate, and recycle the banned material.
<input type="checkbox"/>	Reject or reload when substantial amounts of recoverable materials in the load and reasonable outlets for the material.
<input type="checkbox"/>	Dispose, or transfer for disposal, when the waste cannot be recycled, rejected or reloaded <i>(not an option for white goods, lead acid batteries, whole tires, CRTs, and C&amp;D materials).</i>
☆	Use space below to explain reason for disposing, or transferring for disposal banned materials.

\_\_\_\_\_  
*signature of inspector*

\_\_\_\_\_  
*print inspector's name*

\_\_\_\_\_  
*title*

## ATTACHMENT C

### Sample Letter from Facility to Hauler Regarding Failed Waste Load

Dear [Name of Hauling Company]:

A recent inspection of a waste load delivered by your company revealed materials restricted from disposal at transfer stations and disposal facilities. Massachusetts solid waste regulations (310 CMR 19.017) ban the disposal or transfer for disposal of certain recyclable and hazardous materials. A summary of the Department of Environmental Protection's (MassDEP's) waste ban regulations is included for your reference.

Specifically, truck number \_\_\_\_\_ on (date) delivered (material) to this facility. Please inform your customer(s) serviced by that truck about the state waste ban regulations and the banned materials observed. You may wish to forward this letter and the enclosed MassDEP summary to your customers as a reminder.

***Add sentence if commercial organic material:*** [If this material came from a customer that disposes of more than one-half ton of that material per week, then you and your customer are subject to the waste ban and future loads from that customer may be subject to waste ban enforcement by MassDEP.]

As a MassDEP-permitted facility, we are required to ensure that restricted materials are not accepted for disposal. If (name of hauling company) continues to deliver restricted material to this facility, your loads may be rejected, handling fees may be charged, and/or your drivers may experience delays due to the reloading of banned waste. Also, MassDEP will be monitoring our records of load inspections to follow up with repeat violators and may issue enforcement against (name of hauling company) and/or the waste generator.

We appreciate your cooperation in this matter.

Yours truly,

(facility operations manager)

**ATTACHMENT D**

**WASTE BAN FACT SHEET**

**(To be distributed to facility's customers as needed)**



## Summary of Waste Ban Regulations

This document summarizes the waste ban regulations pursuant to 310 CMR 19.017 of the General Requirements, Procedures and Permits for Solid Waste Management Facilities. These regulations are designed to conserve capacity at existing disposal facilities and stimulate recycling markets by diverting recyclable materials from the waste stream. They also prohibit certain toxic materials that may adversely affect the environment when landfilled or incinerated.

These regulations apply to solid waste landfills, municipal waste combustors and transfer stations. It is the responsibility of the facility operator to ensure that prohibited materials accepted at the facility are appropriately managed when evident. Facilities should monitor their waste streams and inspect all loads of waste for restricted materials. A facility may reject loads containing recoverable restricted materials.

### Definitions of Materials Restricted by 310 CMR 19.017:

**Asphalt Pavement, Brick and Concrete:**

asphalt pavement, brick and concrete from construction activities and demolition of buildings, roads and bridges and similar sources. This includes both coated (e.g. painted) or uncoated ABC.

**Cathode Ray Tubes:**

any intact, broken, or processed glass tube used to provide the visual display in televisions, computer monitors and certain scientific instruments such as oscilloscopes.

**Clean Gypsum Wallboard:**

gypsum wallboard that is not contaminated with paint, wallpaper, joint compound, adhesives, or other substances after manufacture. Gypsum wallboard means a panel (also known as drywall) with a gypsum core and faced with a heavy paper or other material on both sides.

**Clean Wood:**

discarded material consisting of trees, stumps and brush, including but not limited to sawdust, chips, shavings, bark, and new or used lumber. Clean wood does not include:

- (1) wood from commingled construction and demolition waste;
- (2) engineered wood products; and
- (3) wood containing or likely to contain:
  - (a) asbestos;
  - (b) chemical preservatives such as, but not limited to, chromated copper arsenate (CCA); creosote or pentachlorophenol; or
  - (c) paints, stains or other coatings, or adhesives.

**Commercial Organic Material:**

effective through October 31, 2022 means food material and vegetative material from any entity that generates more than one ton of those materials for solid waste disposal per week, but excludes material from a residence. Effective beginning November 1, 2022 means food material and vegetative material from any entity that generates more than one-half ton of those materials for solid waste disposal per week, but excludes material from a residence. <sup>1</sup>.

**Glass Containers:**

glass bottles and jars (soda-lime glass) but excluding light bulbs, glass cookware, plate glass, drinking glasses, windows, windshields and ceramics.

**Lead Batteries:**

lead-acid batteries used in motor vehicles or stationary applications.

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<sup>1</sup> **Food Material:** material produced from human or animal food production, preparation and consumption activities and which consists of, but is not limited to, fruits, vegetables, grains, and fish and animal products and byproducts.

**Vegetative Material:** plant material.

<b>Leaves:</b>	deciduous and coniferous leaf deposition.
<b>Mattresses:</b>	any resilient material or combination of materials that is enclosed by ticking, used alone or in combination with other products, and that is intended for sleeping upon, except for mattresses that are contaminated with mold, bodily fluids, insects, oil, or hazardous substances. Mattress includes any foundation or box-spring. "Mattress" does not include any mattress pad, mattress topper, sleeping bag, pillow, car bed, carriage, basket, dressing table, stroller, playpen, infant carrier, lounge pad, crib bumper, liquid or gaseous filled ticking, including any water bed and any air mattress that does not contain upholstery material between the ticking and the mattress core, and mattresses in futons and sofa beds.
<b>Metal:</b>	ferrous and non-ferrous metals derived from used appliances, building materials, industrial equipment, transportation vehicles, and manufacturing processes.
<b>Metal Containers:</b>	aluminum, steel or bi-metal beverage and food containers.
<b>Recyclable Paper:</b>	all paper, cardboard, and paperboard products excluding tissue paper, toweling, paper plates and cups, wax-coated cardboard, and other low-grade paper products.
<b>Single Polymer Plastics:</b>	plastic containers including bottles, jugs, jars, and tubs.
<b>Textiles:</b>	clothing, footwear, bedding, towels, curtains, fabric, and similar products except for textiles that are contaminated with mold, bodily fluids, insects, oil, or hazardous substances.
<b>Tires:</b>	a continuous solid or pneumatic rubber covering intended for use on a motor vehicle. <sup>1</sup>
<b>White Goods:</b>	appliances employing electricity, oil, natural gas or liquefied petroleum gas to supply heat or motor power to preserve or cook food, to wash or dry clothing, cooking or kitchen utensils or related items; or to cool or to heat air or water. These include, but are not limited to, refrigerators, freezers, air conditioners, water coolers, dishwashers, clothes washers, clothes dryers, gas or electric ovens and ranges, and hot water heaters. White goods do not include microwave ovens.
<b>Wood:</b>	treated and untreated wood, including clean wood.
<b>Yard Waste:</b>	deciduous and coniferous seasonal depositions (e.g. leaves), grass clippings, weeds, hedge clippings, garden materials, and brush 1" or less in diameter (excluding diseased plants).

**For more information regarding waste disposal restrictions, contact the appropriate MassDEP regional office**

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<sup>1</sup> Shredded tires, defined as tires that have been cut, sliced or ground into four or more pieces such that the circular form of the tire has been eliminated, can be landfilled.



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## f a c t s h e e t

# Your Business and the Waste Bans: What You Need to Know

### **What are waste bans?**

"Waste bans" are restrictions on the disposal, transfer for disposal and contracting for disposal of certain hazardous items and recyclable materials at solid waste facilities in Massachusetts.

The waste bans are designed to:

- Conserve capacity at existing disposal facilities.
- Minimize the need for new facility construction.
- Provide recycling markets with large volumes of material on a consistent basis.
- Keep certain toxic substances or materials from adversely affecting our environment when landfilled or combusted.
- Promote business and residential recycling efforts.

### **What do I need to do? Remove & Recycle!**

Business managers should remove and recycle any banned materials they generate or run the risk that waste loads will be rejected at a disposal site, charged an additional handling fee or face potential enforcement penalties. Recycling at businesses can be easier and more economical than recycling at home, because the materials are generated in larger quantities and are easier to keep separate from the rest of the trash. Recycling prevents unnecessary disposal of usable raw materials, saves energy and reduces air and water pollution. Recycling also reduces disposal costs and can save businesses money by diverting materials from the trash dumpster to the recycling bin.

Your waste hauler may be able to help you establish a recycling program. The RecyclingWorks in Massachusetts program has an extensive list of companies that collect or process recyclable materials available at [www.recyclingworksma.com](http://www.recyclingworksma.com).

### **What is banned?**

**Asphalt Pavement, Brick, and Concrete:** asphalt pavement, brick and concrete from construction and demolition of buildings, roads, bridges, and similar sources.

**Batteries:** Lead-acid batteries used in motor vehicles or stationary applications.

**Cathode Ray Tubes:** Any intact, broken or processed glass tube used to provide the visual display in televisions, computer monitors and certain scientific instruments.

**Clean Gypsum Wallboard:** A panel (known as drywall) with a gypsum core and faced with a heavy paper or other material on both sides that is not contaminated with paint, wallpaper, joint compound, adhesives, nails, or other substances after manufacture.

**Glass Containers:** Glass bottles and jars. The ban does not cover light bulbs, Pyrex cookware, plate glass, drinking glasses, windows, windshields and ceramics.

**Leaves & Yard Waste:** Leaves, grass clippings, weeds, garden materials, shrub trimmings, and brush one-inch or less in diameter (excluding diseased plants).

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**Mattresses (effective Nov. 1, 2022):** Any resilient material or combination of materials that is enclosed by ticking, used alone or in combination with other products, and that is intended for sleeping upon, except for mattresses that are contaminated with mold, bodily fluids, insects, oil, or hazardous substances. Mattress includes any foundation or box-spring. "Mattress" does not include any mattress pad, mattress topper, sleeping bag, pillow, car bed, carriage, basket, dressing table, stroller, playpen, infant carrier, lounge pad, crib bumper, liquid or gaseous filled ticking, including any waterbed and any air mattress that does not contain upholstery material between the ticking and the mattress core, and mattresses in futons and sofa beds.

**Metal:** Ferrous and non-ferrous metals derived from used appliances, building materials, industrial equipment, vehicles, and manufacturing processes.

**Metal Containers:** Aluminum, steel or bi-metal beverage and food containers.

**Recyclable Paper:** All paper, cardboard, and paperboard products (EXCEPT tissue paper, toweling, paper plates and cups, wax-coated cardboard and other low-grade paper products).

**Textiles (effective Nov. 1, 2022):** Clothing, footwear, bedding, towels, curtains, fabric, and similar products except for textiles that are contaminated with mold, bodily fluids, insects, oil, or hazardous substances.

**Single Resin Narrow-Necked Plastics:** Bottles, jars, jugs, and tubs.

**White Goods:** Appliances employing electricity, oil, natural gas or liquefied petroleum gas. These include refrigerators, freezers, dishwashers, clothes washers, clothes dryers, gas or electric ovens and ranges, and hot water heaters.

**Whole Tires:** Motor vehicle tires of all types (Combustion facilities can accept whole tires for disposal. Shredded tires are not restricted).

**Wood:** Treated and untreated wood, clean wood (trees, stumps, and brush, including but not limited to sawdust, chips, shavings and bark). (Combustion facilities can accept wood for disposal.)

**Commercial Organic Material:** Food and vegetative material from businesses and institutions that dispose of one ton or more organic material per week. (effective Nov. 1, 2022 this threshold will drop to ½ ton per week.)

#### **Did You Know?**

The waste bans apply to all solid waste destined for a Massachusetts landfill, combustion facility, or transfer station.

Waste generators are responsible for ensuring that they do not contract for the disposal of banned items.

Waste facility operators are responsible for ensuring that unallowable quantities of banned materials are not disposed or transferred for disposal from their facilities. Facilities must check incoming waste in two ways. First, all loads must be visually monitored for the presence of banned materials. Second, random inspections of waste load contents must be conducted.

MassDEP conducts inspections at solid waste facilities to identify haulers and generators (businesses, institutions, municipalities, etc.) that dispose of banned materials.

Businesses and municipalities that do not divert banned items from their waste run the risk of having solid waste facilities reject their waste and charge additional handling fees, and potential enforcement penalties from MassDEP.

**For more information:**

Visit the MassDEP Waste Bans home page:

<http://www.mass.gov/eea/agencies/massdep/recycle/solid/massachusetts-waste-disposal-bans.html>

For assistance with finding a recycling service provider, contact the RecyclingWorks in Massachusetts program at (888)254-5525, via email at [info@recyclingworksma.com](mailto:info@recyclingworksma.com), or visit the program website at [www.recyclingworksma.com](http://www.recyclingworksma.com).

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## fact sheet

### What are Massachusetts Waste Bans?

#### Why does Massachusetts have waste bans?

Waste bans help to increase recycling and support the recycling economy, which provides thousands of jobs and millions of dollars in economic activity in Massachusetts. By reducing the disposal of banned materials, we also capture valuable resources, reduce greenhouse gas emissions, save energy, and reduce our need for landfills and incinerators.



#### What materials are banned from disposal?

- Glass, metal, and plastic containers (bottles, cans, jars, jugs and tubs)
- Paper, paperboard, and cardboard
- Leaves, grass and brush (less than 1 inch in diameter)
- Large appliances such as refrigerators, freezers, stoves, washers, and dryers
- Tires
- Cathode ray tubes (older televisions and computer monitors)
- Vehicle batteries
- Construction materials including asphalt pavement, brick, concrete, metal, wood, and clean gypsum wallboard
- Mattresses (effective Nov. 1, 2022)
- Textiles (effective Nov. 1, 2022)
- Food material (only from businesses or institutions that dispose of one ton or more per week. (Will drop to ½ ton per week effective Nov. 1, 2022.)

#### What does this mean for residents?

Most waste ban materials are collected through regular municipal collection or drop-off programs. In some cases, particularly with larger items such as cathode ray tubes or appliances, materials are collected through separate collections or drop-off events. In other cases, materials such as vehicle batteries, tires, and cathode ray tubes may be collected by retailers.

For residents who receive private collection services (not through your city or town), ask your service provider for recycling options. You can also check for other recycling options here: <http://www.mass.gov/eea/agencies/massdep/recycle/reduce/>.

#### For more information on the waste bans see:

<http://www.mass.gov/eea/agencies/massdep/recycle/solid/massachusetts-waste-disposal-bans.html>



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## Summary

### Waste Ban Regulations 310 CMR 19.017

**Materials restricted from disposal:** Glass, metal and plastic containers; paper, including cardboard; leaf and yard waste; lead-acid batteries; mattresses (effective Nov. 1, 2022); textiles (effective Nov. 1, 2022); whole tires; white goods (large appliances); cathode ray tubes (TVs and computer monitors); asphalt pavement, brick, concrete, metal; wood; clean gypsum wallboard; and commercial organic material.

### Why waste bans?

- Capture more recyclables
- Conserve disposal capacity
- Keep hazards out of the environment

## Guidance Brief

### Haulers & Waste Ban Compliance

The Massachusetts waste bans (found at 310 CMR 19.017) are prohibitions on the disposal or transfer for disposal of certain recyclable and/or toxic materials. They are intended to spur the reuse and/or recycling of banned waste materials, conserve disposal capacity across the state, and minimize adverse environmental impacts.

People who generate solid waste and people who transport it to disposal facilities are subject to waste ban requirements. The Department of Environmental Protection (MassDEP) conducts ongoing inspections at solid waste facilities to identify waste haulers and generators who improperly dispose of banned materials.

Three key strategies can lower your company's risk of transporting prohibited wastes:

- **Train Your Employees.** Be sure they understand what the waste ban regulations require, and also that MassDEP may take enforcement action against your company when your waste loads are found to contain banned materials.
- **Educate Your Customers.** Let them know which materials are banned from disposal in Massachusetts and help them develop procedures for preventing those items from entering the waste stream.
- **Keep Good Records.** Track and document all procedures and transactions, as well as the steps you have taken to prevent shipping non-conforming waste loads.

These strategies are discussed in more detail below.

#### Employee Training & Protocols

All employees of your waste hauling business – not only drivers, but also sales and customer service personnel – should be well acquainted with the waste bans. The better they educate your customers about keeping prohibited materials out of the trash, the easier it will be for your company to meet its compliance obligations.

MassDEP recommends that your company require all new employees to be trained about the waste bans, and that you offer periodic refresher training for all employees. This training should include waste ban quality assurance/quality control procedures for all facets of your operation.

Your drivers can be a critical component of a successful compliance strategy:

#### At Pick-Up

- Check for banned materials when picking up waste loads and after tipping waste loads at the facility, and report violations or potential violations both to the customer and to the company's home office.
- Ask customers to remove banned items, inform them that service fees may be levied to separate and process banned materials, or refuse to pick up non-conforming loads, and notify customer service representatives responsible for managing the affected accounts.
- Provide literature, container stickers and other educational materials for on-site replacement or to provide to customers as needed.

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### *At the Receiving Facility*

- Be knowledgeable about the policies of each waste facility and the materials that each can and cannot accept. (For example, whole tires are banned at landfills but not at combustion facilities.)
- Get out of trucks whenever possible and inspect loads at waste transfer or disposal facilities. Document and take photographs of any failed loads, and notify customer service representatives as above.

### **Sales & Customer Service**

The initial point of sale provides a convenient opportunity to offer recycling services and an ideal starting point for an ongoing dialogue with customers about the waste bans, the specific materials prohibited from disposal, and the fact that as waste generators, they too are subject to MassDEP enforcement action for throwing away banned items. It is a good idea to:

- Provide each customer with "Your Business and the Waste Bans: What You Need to Know" (<http://www.mass.gov/eea/docs/dep/recycle/wstban01.pdf>) or a similar educational handout.
- Affix labels or stickers to all containers you distribute to let customers know what materials can and cannot be placed in each receptacle.
- Advise customers of appropriate procedures for handling banned materials.

You can use your business policies and procedures to help educate your customers:

- Incorporate waste ban compliance requirements into all contracts.
- Advise customers that you will not accept prohibited materials, that you may levy service fees or surcharges on non-conforming loads, and that you could discontinue service to them for repeat offenses.
- Show customers photographs of failed loads, facility turn-away letters and details of failed load surcharges, and offer them follow-up waste ban education and additional material management services.
- Notify MassDEP of chronic or serious waste ban violations and ask the agency to send warning letters to offending customers.

### **Good Records Are Valuable**

Keeping good records can help you monitor progress in complying with the waste bans and identify opportunities for improvement. It is important to keep on file:

- All applicable signed documents.
- Copies of emails and faxes, and records of phone calls.
- QA/QC procedures.
- Records of failed load observations, notifications issued by receiving facilities and follow-up actions.

### **For Additional Information:**

- Visit the MassDEP Waste Bans home page:  
<http://www.mass.gov/eea/agencies/massdep/recycle/solid/massachusetts-waste-disposal-bans.html>
- Contact the Recycling Works in Massachusetts program at (888)254-5525, via email at [info@recyclingworksma.com](mailto:info@recyclingworksma.com), or visit the program web site at [www.recyclingworksma.com](http://www.recyclingworksma.com).



## ATTACHMENT E

### Sample Letter from Facility to Generator Regarding Failed Waste Load

Dear Customer:

A recent inspection of a waste load generated or contracted from your facility or program revealed materials restricted from disposal at transfer stations and disposal facilities. Massachusetts solid waste regulations ban the disposal or transfer for disposal of certain recyclable and hazardous materials. A summary of the Department of Environmental Protection's (MassDEP) waste ban regulations is included for your reference.

Specifically, *(material)* were delivered to this facility on *(date)*. As a MassDEP-permitted facility, we are required to ensure that restricted materials are not accepted for disposal. If *(name of generator)* continues to deliver restricted material to this facility, your loads may be rejected, handling fees may be charged, your drivers may experience delays due to the reloading of banned waste, and/or the matter may be referred to MassDEP for enforcement action.

MassDEP will be monitoring our inspection records to follow up with those who continue to deliver banned waste. For more information on how to start a new recycling program or improve an existing program, please visit [www.recyclingworksma.com](http://www.recyclingworksma.com).

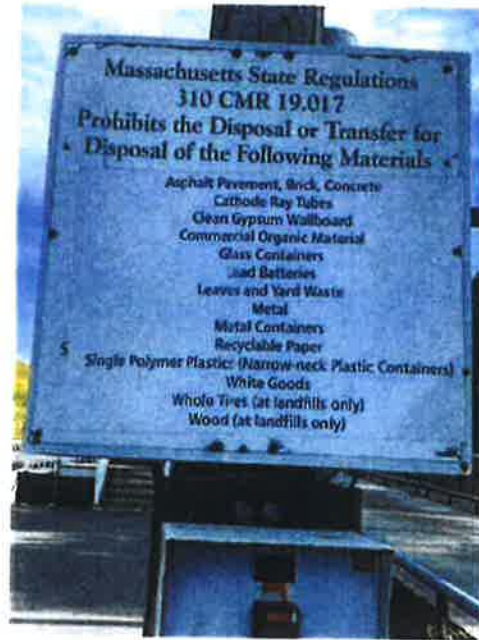
We appreciate your cooperation in this matter.

Yours truly,

*(facility operations manager)*

## ATTACHMENT F

Example of the signage to be posted by November 1, 2022 that will include additional language addressing mattresses and textiles as highlighted below.



Asphalt Pavement, Brick, Concrete  
Cathode Ray Tubes  
Clean Gypsum Wallboard  
Commercial Organic Material  
Glass Containers  
Lead Batteries  
Leaves and Yard Waste  
**Mattresses**  
Metal  
Metal Containers  
Recyclable Paper  
Single Polymer Plastics (bottles, jugs, jars, and tubs)  
**Textiles**  
White Goods  
Whole Tires (at landfills only)  
Wood (at landfills only)



# Waste Ban Compliance Plan

## Attachment G

**Important:**  
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



### Part A: General Information

#### 1. Facility Information

<i>MassDEP Facility #:</i> RO Acct# 172356	
<i>Facility Name:</i> Town of Bourne Landfill	<i>Street Address:</i> 201 MacArthur Boulevard
<i>City, State, ZIP:</i> Bourne, MA 02532	<i>Contact Name, Title:</i> Mr. Daniel T. Barrett, General Manager
<i>Telephone Number:</i> 508-759-0600, x. 4240	<i>Email:</i> dbarrett@townofbourne.com
<i>Facility Type (check one):</i> <input type="checkbox"/> Transfer/handling facility <input checked="" type="checkbox"/> Landfill <input type="checkbox"/> Solid Waste Combustor <input type="checkbox"/> Construction and Demolition Waste Facility Permitted for C&D Material Separation <input type="checkbox"/> Construction and Demolition Waste Facility Permitted for C&D Material Separation & Acceptance of MSW	

#### 2. Owner Information

<i>Owner Name:</i> Town of Bourne, MA	<i>Street Address:</i> 24 Perry Avenue
<i>City, State, ZIP:</i> Buzzards Bay 02532	<i>Contact Name, Title:</i> Ms. Marlene McCollem, Town Administrator
<i>Telephone Number:</i> 508-759-0600, x. 1308	<i>Email:</i> mmccollem@townofbourne.com

#### 3. Operator Information

<i>Operator Name:</i> Town of Bourne, ISWM Department	<i>Street Address:</i> 201 MacArthur Boulevard
<i>City, State, ZIP:</i> Bourne, MA 02532	<i>Contact Name, Title:</i> Mr. Daniel T. Barrett, General Manager
<i>Telephone Number:</i> 508-759-0600, x. 4240	<i>Email:</i> dbarrett@townofbourne.com



# Waste Ban Compliance Plan

## Part B: General Requirements

### 1. Application Requirements

Under 310 CMR 19.017, each solid waste facility must submit either a revised waste ban compliance plan or a waste ban plan certification form, as described below, to MassDEP by July 1, 2022

Landfills, municipal waste combustors and construction and demolition waste handling facilities need to submit a revised Waste Ban Compliance Plan with a BWP SW 45 permit application form, which provides for presumptive approval under 310 CMR 19.034. This form is available at: <http://www.mass.gov/eea/agencies/massdep/recycle/approvals>

The exceptions to this are if the facility proposes a significant physical modification as part of its waste ban compliance plan or if the plan deviates significantly from MassDEP's waste ban plan template.

Solid waste transfer stations that are not construction and demolition debris waste transfer stations need to prepare a revised Waste Ban Compliance Plan. However, under 310 CMR 19.035, they do not need to submit this plan to MassDEP as long as the plan is consistent with the guidance document. The plan must be kept on site and available for MassDEP review. Only a waste ban plan certification form is required to be submitted. This form is available at: <http://www.mass.gov/eea/agencies/massdep/recycle/solid/massachusetts-waste-disposal-bans.html#5>

#### Check which form is being submitted.

<input type="checkbox"/>	Certification	Solid Waste transfer station (not C&D waste transfer station) (does not require submittal of waste ban plan)
<input checked="" type="checkbox"/>	BWP SW 45	Alternative Review Process (presumptive approval process under 310 CMR 19.034)
<input type="checkbox"/>	BWP SW 22	Landfills – Minor Modifications
<input type="checkbox"/>	BWP SW 21	Modification of a Small Handling Facility <i>Incinerators not submitting BWP SW 45 also submit this form</i>

### 2. Training

How will requirements of waste ban compliance plan be communicated to relevant staff? Check all boxes that apply.

- Will conduct annual waste ban training to staff.
- Distribute compliance plan to staff.
- Discussion at regularly scheduled meetings.
- Other: Plans and other relevant handouts will be available at the ISWM office.

### 3. Signage

Please attach photographs, or 8.5" X 11" specification sheet, of signs posted or to be posted at facility entrance and waste receiving areas that inform users of the prohibition against disposal, or transfer for disposal, of asphalt pavement, brick, concrete, cathode ray tubes, commercial organic material, glass containers, lead batteries, leaves and yard waste, mattresses, metal, metal containers, recyclable paper, single polymer plastics (narrow-neck plastic containers), textiles, white goods, whole tires at landfills and wood at landfills. (See Attachment F of the Guidance Document for sample signage)

Signs were posted on: (Date: MM/DD/YYYY) | Signs will be posted on: By 11/1/2022 (Date: MM/DD/YYYY)



## Waste Ban Compliance Plan

### Part C: Ongoing Waste Stream Monitoring

#### 1. Detection

How will the facility screen all incoming loads for unacceptable quantities of restricted materials? See Guidance Document Section V – "Ongoing Waste Stream Monitoring/Inspection" for description.

**Please check all that apply:**

- Staff will inspect vehicles prior to dumping
- Staff will look for banned materials as waste is dumped by truck.
- Staff will look for banned materials by observing and communicating with residents disposing of waste in designated areas.
- Staff will look for banned materials as waste is handled by facility personnel operating heavy equipment (i.e., a bulldozer, front end loader).
- Staff will look for banned materials during separation process on tipping floor.
- Staff will look for banned materials during separation process on picking lines
- Other:

#### 2. Record Keeping

Pursuant to 310 CMR 19.017 (5), the facility operator will record and maintain the following information on all loads discovered through ongoing monitoring to contain banned material above Action Levels delivered in vehicles or containers with a capacity greater than 5 (five) cubic yards (See Attachment A of the Guidance Document for suggested format):

- Date of inspection;
- Origin of waste (if known); company, address, contact name, phone number, job site name and address
- Quantity of restricted materials discovered;
- Hauler and truck number;
- Scale ticket number (or other facility specific load record number)
- Disposition of restricted materials; and
- Documentation of communication follow-up with haulers and/or generators connected with failed loads, as described in the Guidance Document, Section VIII.

**Please check:**

- Attached is an example of facility's Ongoing Monitoring Recording Sheet
- Facility Operator will record this information on the attached Ongoing Monitoring Recording Sheet
- Facility does not accept loads in vehicles or containers with a capacity greater than 5 (five) cubic yards



## Waste Ban Compliance Plan

### Part D: Comprehensive Load Inspections

**Please note: If the facility serves customers with vehicles or loads with a capacity under 5 (five) cubic yards it is not required to conduct comprehensive load inspections. Please proceed to Part E: Failed Load Follow-Up.**

Facilities should conduct a minimum number of comprehensive load inspections per month as indicated on the following Inspection Frequency Chart :

**Please check the appropriate box on the chart below based on the facility's permitted size.**

Inspection Frequency Chart

	Facility Size in Permitted Tons per day	Minimum Number of Vehicles to Inspect per Month <i>(vehicles must have capacity of greater than 5 cubic yards)</i>
<input type="checkbox"/>	Municipal transfer station with no private haulers or commercial users with vehicle capacity over 5cy	0
<input type="checkbox"/>	1-99	4
<input checked="" type="checkbox"/>	100-299	8
<input type="checkbox"/>	300-499	12
<input type="checkbox"/>	500-999	16
<input type="checkbox"/>	1000 +	20

### 2. Load Selection

The proposed method of selecting vehicles for inspection should be random. Please refer to the Guidance Document, Section VI for description. **Please describe below how loads will be randomly selected for comprehensive inspections. Attach additional pages if necessary.**

This Waste Ban Compliance Plan addresses the Bourne Landfill. The Bourne Landfill will be required to inspect 8 loads per month based on the potential quantity of MSW disposed of at the landfill. The landfill currently accepts 189,000 tons per year of ash under contract with SEMASS which are not inspected for waste bans. The facility personnel will select loads randomly during the month on any given day, depending on weather conditions. Generally, rear-load and front-end load packers are the vehicles that will be identified for inspection.



## Waste Ban Compliance Plan

### Inspection Procedure

See Guidance Document, Section V for a description of inspection procedures. **Please describe below how the facility will conduct its comprehensive load inspections for all banned materials. Include information on which personnel are involved and what kinds of equipment will be used:**

Personnel: See attached.

Equipment: See attached.

Procedure: See attached.

### 4. Record Keeping

Pursuant to 310 CMR 19.017 (5) the facility operator will record and maintain the following information on comprehensive load inspection activities. *See Attachment B of the Guidance Document for suggested format.*

- Date and time of inspection
- Origin of waste for failed loads (if known) company, address, contact name, phone number, job site name and address
- Quantity of restricted materials discovered
- Tons or cubic yards of waste in each inspected load
- Hauler name and address and truck number
- Scale ticket number (or other facility specific load record number)
- Disposition of the load and, if accepted, the banned material
- Documentation of communication follow-up with haulers and/or generators connected with failed loads, as described in the Guidance Document.

**Please check:**

- Attached is an example of facility's comprehensive inspection recording sheet
- Facility operator will record this information on the attached sheet

### Part D 3. Inspection Procedure

**Personnel:** Generally, a manager at the facility will conduct this operation. However, depending on manpower needs and operations on any particular day, an equipment operator, or other designee will be substituted.

**Equipment:** A compactor, wheel loader, excavator or skid steer load will be available to spread out loads as necessary. Rakes or other hand held utensils may be employed as well.

**Procedure:** For comprehensive load inspections, the inspector will randomly select a vehicle. He or she will approach the driver and explain that we need to inspect his or her load for waste ban compliance per DEP regulations. Once the load has been discharged, an equipment operator will spread out the load as needed. Then, using MA DEP guidance procedures, the load will be inspected and recorded on the enclosed reporting sheet included in Attachment B. For ongoing monitoring, equipment operators and/or laborers at the working face will report failed loads to the scale via radio communications and coordinate management of the banned items. C&D loads (Category 1 and Category 3) from small facilities (accepting loads less than 5 cubic yards), including the Bourne's residential recycling center, that have approved waste ban plans from MA DEP will be landfilled in accordance with MA DEP's policy allowing this option and thus will not be considered failed loads. If a customer has identified a separated banned item to the scale operator, the load will not be failed and they will be directed where to take the item. If it is not declared and separated, it will fail as it was mixed into the load.

If a load fails, the driver will be notified and arrangements will be made to separate and recycle, compost or otherwise divert from disposal the recoverable materials, or reject and reload the materials depending on equipment and staff availability. If a load fails and has unrecoverable materials it will be landfilled and a note will be made on the reporting sheet. This is not an option for tires, white goods, CRTs or lead acid batteries. Clean recyclable mattresses will be segregated, however contaminated mattresses will be landfilled in accordance with DEP guidance. Loads with mattresses that were already contaminated from the source will not be considered failed loads, such as from mattress processors, illegal dumping cleanups or obvious reason like a fire or flood. Mattresses where there is doubt about the source and it appears they were contaminated from the load in transit, are assumed to have been recyclable and will be treated as a failed load.

Surcharges for banned items are employed as a deterrent and either inspectors, equipment operators or laborers will report surchargeable items to the scale for all loads. The list of surchargeable items may grow and the price may be increased over time. Each day, all violations of the waste bans are reported to the scale, including both ongoing monitoring violations and those found during comprehensive inspections. This includes violations found at the transfer station and the landfill. At the end of the day, the scale operator provides copies of tickets for loads that failed to office staff and also produces a daily report detailing the total number of loads received that day. This information is recorded in an ongoing monitoring log using Attachment A. This sheet is produced on a computer so that there is an electronic backup as well as a hard copy. Letters for all failed loads will be mailed close to the time of violation, including loads either ongoing monitoring or comprehensive load inspections. In the case of cash customers, ISWM will attempt to get a mailing address or will provide the driver a letter explaining that a violation has occurred, summary of the waste bans and a ticket with a notation about the failed item(s) at the time of the violation. This will ensure that all violators will receive timely communication. The scale operator, inspector or equipment operators will also attempt to determine the identity, mailing address for the generator.





## Waste Ban Compliance Plan

### Part E: Failed Load Follow-Up

#### 1. Communication

Please refer to the Guidance Document for a description of communication procedures.

• **WASTE SOURCE – COMMERCIAL/PRIVATE HAULER**

Please provide sample letters that will be sent to any hauler and generator (where it can be determined) that delivers a failed load to the facility, describing which material(s) caused the failure, and encouraging the hauler to work with its customers to separate their trash. Accompanying this letter should be a MassDEP Fact Sheet explaining the waste bans. Refer to the Guidance Document, Attachment C, for suggested language, and Attachment D for the fact sheet.

• **WASTE SOURCE – MUNICIPALLY-RUN OR CONTRACTED COLLECTION**

Please provide a sample letter that will be sent to any municipality from which unacceptable quantities of banned material was received, describing the materials and encouraging the community to contact MassDEP for technical assistance. Accompanying this letter should be a MassDEP Fact Sheet explaining the waste bans. See Attachment E for suggested language and Attachment D for the fact sheet.

• **WASTE SOURCE –WASTE DELIVERED IN VEHICLES WITH A CAPACITY OF 5 CUBIC YARDS OR LESS**

How will the facility inform individuals identified through ongoing monitoring that are not separating banned material from their solid waste? (check all that apply)

- Verbally inform the individual about the waste bans and that the facility is not allowed to mix restricted materials with solid waste
- Give the individual the MassDEP Waste Ban Fact Sheet or similar written material
- Direct the individual to the facility's recycling and/or composting area
- Give the individual a recycling brochure
- Other:
- N/A – The facility does not service individuals delivering waste in small vehicles

#### 2. Failed Load Disposition

When a failed load is identified, the facility will adhere to the procedures outlined below in the following hierarchy presented:

- Waste ban materials should be separated and recovered to the greatest extent possible.
- Reject or reload if there are substantial quantities of recoverable materials in the load and there are reasonable outlets for the material, or
- Accept, separate, and recycle material(s) that caused the load to fail.
- For asphalt pavement, brick, concrete, metal, wood and/or clean gypsum wallboard first separate the clean gypsum wallboard for recycle/re-use, then transfer ABC, metal and wood to a C&D processor that is compliant with MassDEP's Minimum Performance Standard Policy for C&D facilities.,
- As a last resort, dispose (or transfer for disposal), when the waste cannot be recycled, rejected or reloaded because reloading the waste would endanger workers or substantially disrupt facility operations. The facility operator's rationale for disposing a failed load must be recorded and retained in facility's operating logs.

Other (please describe): Bourne manages ABC and metals on-site.



## Waste Ban Compliance Plan

### 3. Materials Management

To the greatest extent possible, waste ban materials will be separated and recovered. On an average day, specify how will the facility manage each restricted material.

	Reject/Reload	Accept/Separate/ send to recycling/reuse facility	Transfer to another permitted facility for separation	Dispose/ transfer for disposal
Lead Batteries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
White Goods	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Whole Tires (at landfills)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CRTs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Commercial Organic Material	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Glass Containers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Metal Containers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Single-Resin Plastic Containers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Recyclable Paper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Leaves	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Yard waste	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Mattresses	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Textiles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Asphalt Pavement, Brick and/or Concrete	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Metal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Wood	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Clean gypsum wallboard	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

#### Comments

- (1) Identify (name and location) the proposed receiving facilities to be used for outgoing separated recyclable materials for each material type.
- (2) Identify (name and location) the proposed receiving facilities to be used when transferring waste materials for separation of recyclable material at the receiving facility. If located out-of-state, attach the receiving facility's state issued operating permit describing its operations.
- (3) Mattresses should only be transferred for disposal if a recycling facility will not accept them.
- (4) C&D materials should only be transferred to another facility that meets MassDEP's Minimum Performance Standard after first separating clean gypsum wallboard.

Part E 3. Materials Management (continued)

- (1) Identify (name and location) the proposed receiving facilities to be used for outgoing separated recyclable materials for each material type.

The Town of Bourne may update the vendor list depending on market conditions, availability and pricing.

Lead Batteries: Middleboro Recycling, Middleboro, MA

White goods: Managed at the Town of Bourne, ISWM Department and sold to scrap markets via Mid City Scrap in Westport, MA and Schnitzer in Everett, MA.

Whole tires: Bob's Tire's, New Bedford, MA

CRTs: Complete Recycling Solutions LLS, Fall River, MA

Commercial organics: Black Earth Compost, Gloucester, MA

General Recyclables (glass and metal containers, single-resin plastic containers and recyclable paper): EL Harvey, Westboro, MA

Leaves and Yard Waste: Town of Bourne, ISWM Department, Bourne, MA

Mattresses: Green Mattress, Milford, MA

Textiles: Red Cross, Planet Aid, Salvation Army containers picked up at Town of Bourne, ISWM Department, Bourne, MA

Asphalt, Brick and Concrete: Town of Bourne, ISWM Department, Bourne, MA

Metal: Managed at the Town of Bourne, ISWM Department and sold to scrap markets via Mid City Scrap in Westport, MA and Schnitzer in Everett, MA

Wood: Managed at the Town of Bourne, ISWM Department at the C&D transfer station to MPS compliant facilities including but not limited to: United Materials Management, Leominster, MA; Champion City Recovery, Brockton, MA; JR Vinagro, Johnston, RI; Northern Tree Service, Inc., 1290 Park Street, Palmer, MA (telephone poles or railroad ties)

Clean gypsum wallboard: New England Recycling, 569 Winthrop Street, Taunton, MA

- (2) Identify (name and location) the proposed receiving facilities to be used when transferring waste materials for separation of recyclable material at the receiving facility. If located out-of-state, attach the receiving facility's state issued operating permit describing its operations.

The Town of Bourne may update the vendor list depending on market conditions, availability and pricing.

General Recyclables (glass and metal containers, single-resin plastic containers and recyclable paper): EL Harvey, Westboro, MA

Wood: Managed at the Town of Bourne, ISWM Department at the C&D transfer station to MPS compliant facilities including but not limited to: United Materials Management, Leominster, MA; Champion City Recovery, Brockton, MA; JR Vinagro, Johnston, RI; Northern Tree Service, Inc., 1290 Park Street, Palmer, MA (telephone poles or railroad ties)

Clean gypsum wallboard: New England Recycling, 569 Winthrop Street, Taunton, MA

STATE OF RHODE ISLAND  
AND  
PROVIDENCE PLANTATIONS  
DEPARTMENT OF



ENVIRONMENTAL MANAGEMENT  
LICENSE

THIS LICENSE IS ISSUED TO:

J.R. Vinagro Corporation

TO OPERATE A CONSTRUCTION AND DEMOLITION DEBRIS  
PROCESSING FACILITY AND TRANSFER STATION SOLID WASTE  
MANAGEMENT FACILITY, KNOWN AS THE: J.R. VINAGRO  
CORPORATION CONSTRUCTION AND DEMOLITION DEBRIS  
PROCESSING FACILITY AND TRANSFER STATION LOCATED AT: 116  
SHUN PIKE IN: JOHNSTON, RHODE ISLAND, IN CONFORMITY WITH  
CHAPTER 23-18.9 OF THE GENERAL LAWS OF RHODE ISLAND, 1956, AS  
AMENDED, AND THE RULES AND REGULATIONS ADOPTED  
THEREUNDER *AND SUBJECT TO THE ATTACHED CONDITIONS.*

ISSUED: FEBRUARY 14, 2011 EXPIRES: FEBRUARY 14, 2014

NO. 69

A handwritten signature in black ink, appearing to read "Laurie Hill", is written over a horizontal line.

DIRECTOR,  
DEPT. OF ENVIRONMENTAL MANAGEMENT

Attachment A

License Conditions for J. R. Vinagro Corp.

116 Shun Pike Johnston, Rhode Island

Date: February 2011

Construction and Demolition Debris Processing Facility and Transfer Station

1. The facility shall be operated in accordance with the approved June 4, 2010 operating plan, including the July 29, 2010 revisions and in accordance with any subsequent RIDEM approved operating amendments.
2. The facility shall also be operated in accordance with the January 1997 "Rules and Regulations for Composting Facilities and Solid Waste Management Facilities", amended October 25, 2005, in particular, Solid Waste Regulation No. 3 for transfer stations and Solid Waste Regulation No. 7 for Construction and Demolition Debris Processing Facilities.
3. The construction and demolition processing facility shall not receive more than 2000 tons per day of construction and demolition debris ( C & D).
4. The transfer station facility shall not receive more than 500 tons per day of solid waste.
5. Prior to commencement of transfer station activities and acceptance of any non-C&D solid waste, J.R. Vinagro Corporation shall receive an approval to accept such waste from the Town of Johnston.
6. In accordance with R.I.G.L. 23-19-13.1(a) and the Office of the Attorney General Opinion No. 89-07-36, dated July 26, 1989, no waste generated from outside the State of Rhode Island shall be deposited in the Central Landfill.
7. In accordance with Section 1.5 of the Operating Plan, a final set of construction and engineering plans for the C & D processing facility and transfer station building, equipment, and site, shall be stamped by a registered P.E and provided to the Department for its review and approval, prior to the start of facility construction.
8. In accordance with Section 2.2 of the C & D processing facility operating plan, J.R. Vinagro Corporation ("the Corporation") shall provide details and specifications of the final types of C & D processing equipment to be used to RIDEM for its review and approval, prior to the start of facility construction. The equipment specifications in Attachment E of the application shall be modified accordingly.
9. J. R. Vinagro shall maintain financial assurance for the C&D activities in the amount of \$479,930.00 and for the transfer station activities in the amount of \$82,000.00 to satisfy financial assurance requirements per rules 1.5.10, 3.1.06, 7.1.06 and 7.2.08 of the Regulations.

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10. J.R. Vinagro shall not exceed the storage limit of C&D waste as outlined in Section 2.2.3.6 of the approved operating plan.

11. J.R. Vinagro Corporation shall separate out all used asphalt, brick, concrete, metal, wood and clean gypsum wallboard from the loads received and divert these materials from disposal to recycling and reuse markets.

12. J.R. Vinagro Corporation shall submit a Quality Assurance/Quality Control (QA/QC) Plan for water quality monitoring that meets the Department's latest standards. Said QA/QC Plan shall include but not be limited to: a) Field Sampling Standard Operating Procedures detailing and providing rationale for sampling locations, sampling design, equipment used, QA/QC field procedures implemented, chain-of-custody procedures followed, and field observations including recording of a measurable rainfall within the previous 5 days; b) Laboratory SOP's detailing sample handling, equipment and instruments used, standard methods followed, detection limits and quantitation levels for each parameter analyzed and how the detection limit and quantitation limit were determined; c) Annual affirmation of sampling plan; d) Metals sampling shall follow the procedures specified in EPA's *Standard Operating Procedure for the Collection of Low Level Metals Ambient Water Samples* (ECASOP-Metals, revision 2, May 21, 2007).

The Department may require the submission of data in an excel format supplied by the Department.

13. J.R. Vinagro Corporation shall maintain RIPDES permit coverage under the Multi-Sector Industrial Storm Water General Permit (MSGP) (permit No: RIR50N008) and shall comply with all of the conditions of the MSGP."

14. It shall be the responsibility of J.R. Vinagro Corporation to comply with all requirements and conditions set forth in its Fire Protection Plan, as approved by the Town of Johnston Fire Marshal, dated May 20, 2010. Any subsequent modifications to said plan shall be forwarded to the Department within twenty-one (21) days after approval by the Town of Johnston Fire Marshal.

15. J.R. Vinagro Corporation shall provide the Department, its authorized officers, employees, and representatives, and all other persons under Department oversight, an irrevocable right of access to the facility at all reasonable times for the purposes of performing inspections, investigations, testing, and examining records. The Department or other authorized designated personnel shall have the right to access the facility at all reasonable times for the above-stated purposes without prior notice. Refusal to permit reasonable inspections, tests and investigations shall constitute valid grounds for denial, revocation or suspension of a license; denial, revocation or suspension of a registration; and/or issuance of a Notice of Violation with Administrative Penalty.

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16. It shall be the responsibility of J. R. Vinagro to ensure compliance with all zoning requirements and other applicable laws of the Town of Johnston. The granting of this license shall in no way restrict the Town's right or ability to enforce all applicable local laws. In the event that local zoning limits the operation of the facility to more stringent conditions than provided in this license, the facility must submit a proposed amendment to this license within twenty-one (21) days of the effective date of those conditions to reflect consistency with the conditions imposed by the Town of Johnston.

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~~17. Issuance of this Solid Waste License does not relieve J.R. Vinagro Corporation from complying with all applicable local, state and federal laws and regulations.~~



## Waste Ban Compliance Plan

### Materials Management (continued)

Please describe how materials will be handled for recycling:

- Individuals place materials in designated areas
- Materials will be manually and/or mechanically separated by facility
- Other:

### 4. Construction & Demolition Handling Facilities

If the facility accepts construction and demolition waste, performs separation operations for recyclable materials, and sends the remaining materials to another solid waste facility for disposal or reuse, all of section 4 must be completed. In this section, facilities should identify how they will comply with MassDEP's [Minimum Performance Standard](#) (MPS) for C&D facilities.

Facilities which accept 50 tons per day or more of C&D waste and transfer all C&D waste to another permitted facility that meets the MPS for separation and do not transfer for disposal need only demonstrate how they will comply with the following:

- Clean gypsum wallboard must be separated for recycling upon arrival before further handling or transfer of loads. See Clean Gypsum Wallboard Guidance (<https://www.mass.gov/doc/gypsum-wallboard-waste-ban-guidance-cd-handling-facilities/download>.) In order for C&D Handling Facilities to maintain compliance with the requirement in approved Waste Ban Compliance Plans to separate clean gypsum wallboard to the maximum extent possible for recycling, the following measures are to be taken:
  - Loads that include clean gypsum wallboard must be sorted, to the extent it can be done safely, to remove clean gypsum wallboard to the greatest extent possible prior to any mechanical processing of the C&D waste load.
  - Facilities will not be allowed to transfer (including transfer to another C&D Handling Facility) mixed C&D waste loads that contain clean gypsum wallboard without first safely separating the clean gypsum wallboard for recycling.
  - In order to be eligible to receive mixed C&D waste loads, a C&D handling facility must implement operating procedures to safely and effectively separate clean gypsum wallboard prior to transferring or processing C&D loads.
- Zero-tolerance items (lead batteries, white goods, whole tires (except tires disposed of at a municipal waste combustion facility) mattresses, and CRTs) must be separated upon arrival before further handling or transfer.

The C&D waste handling facility will accept the following materials: (check all that apply)

- Category 1 C&D Waste     Category 2 C&D Residuals
- Category 3 Bulky Waste     MSW
- Leaf and yard waste     Other (identify):





## Waste Ban Compliance Plan

Attach the following information:

- In a narrative describe the methodology for handling, inspecting and removing waste ban materials for each waste type (e.g., dedicated processing equipment or manual sorting).
- In a narrative, describe the minimum staffing and equipment requirements based on daily tonnage handled. Justification for the minimum staffing requirements must be submitted based on historic operations at the actual facility or similarly equipped facility that demonstrate effective removal of recyclable materials.
- In a narrative, describe the sorting technologies (e.g., conveyors, picking lines, grapples) to be used at the facility and discuss the proposed maximum hourly throughput capacity based on the number of staff performing the separation operation.
- In a narrative, describe the maximum proposed daily tonnage limits for MSW (if applicable) and for Category 1 C&D Waste and the maximum daily tonnage limit for all incoming materials.
- Provide a plan depicting designated areas for incoming material inspection, tipping, processing, waste ban material storage, and outgoing waste material storage.

### Compliance Plan Checklist

Are the following items attached?

- Sample signage
- Comprehensive Inspection Reporting Sheet
- Ongoing Monitoring Reporting Sheet
- Sample letter to haulers
- Sample letter to generators
- Sample letter to contract municipality
- Permit modification application
- Is the certification below signed?

### Certification

I hereby certify that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments and, that based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the information is true, accurate and complete. I am fully authorized to make this attestation on behalf of this facility and am aware that there are significant penalties for submitting false information, including possible fines and imprisonment.

I also understand that adherence to this Waste Ban Compliance Plan constitutes compliance with the provisions of 310 CMR 19.017. I am aware that if the facility is found to be in non-compliance, MassDEP enforcement actions may be taken, including written notices of non-compliance, consent orders, unilateral orders or referral to the Attorney General's office. No modifications of this plan are permitted unless approved in writing by MassDEP

Signature: 

Date (MM/DD/YYYY): 08/01/22

Print Name: Daniel T. Barrett

Phone Number: 508-759-0600, x. 4240

Email:

dbarrett@townofbourne.com



## Waste Ban Compliance Plan

Title: General Manager

Organization Name: Town of Bourne, ISWM Department

### Definitions Applicable Only for Construction & Demolition Handling Facilities

For the purpose of Attachment G of the Waste Ban Compliance Plan Guidance, the terms herein shall have the following meaning:

**Action Level:** See Section IV Waste Ban Compliance Standard and Action Level Thresholds in Guidance for Solid Waste Handling and Disposal Facilities on Compliance with MassDEP's Waste Bans.

**Banned Material Picking Area:** Inside area designated by the Facility on the Facility Floor Plan for the storage, spreading, and inspection of tipped waste loads and the removal of Waste Ban Materials.

**Banned Material Storage Areas:** Inside and outside areas designated by the Facility on the Facility Floor Plan for the containerized storage of separated banned materials after separation from the incoming waste stream.

**Bulky Waste:** Waste items generated during commercial and residential building cleanouts including items not generally accepted during pickup of the typical daily waste stream generated by commercial and residential activities. Examples of bulky waste include but are not limited to, furniture such as tables, chairs, desks, carpets, and temporary partitions such as cubicle walls and toys.

#### Categories of Waste Material:

- Category 1 - Construction and Demolition Waste - consisting of C&D Waste and partially picked C&D waste. Partially picked C&D waste may include, but is not limited to, materials that may have been previously kikssorted off-site for the removal of metal, large pieces of wood, bulky waste, and Zero Tolerance Items
- Category 2 - Construction and Demolition Residuals
- Category 3 - Bulky Waste

**Construction & Demolition Fines (C&D Fines):** C&D waste processed through an initial size reduction and screening process in accordance with a MassDEP Beneficial Use Determination (BUD) and **prior to grinding** which is: (a) three inches or less (3" minus) in size; (b) consists primarily of soil and other inert materials, and (c) in no case shall exceed 35% organic content by volume.

**Construction & Demolition Residuals (C&D Residuals):** C&D material that remains after recyclable materials (asphalt pavement, brick, concrete, metals, wood, clean gypsum wallboard, etc.) have been removed from C&D waste to the greatest extent possible, which may include the C&D fines if not separated out from C&D waste. C&D residuals consist primarily of non-recyclable material.

**Construction and Demolition Waste (C&D) Processing Facility:** Means a handling facility where construction and demolition waste is brought, stored and processed (usually by sorting, crushing, shredding, screening, etc.) prior to reuse or transport to a solid waste disposal facility or to other types of facilities for recycling, recovery or reuse.

**Construction and Demolition Waste (C&D) Transfer Station:** Means a transfer station permitted by the Department to accept 50 tons per day or more of construction and demolition waste. A C&D waste transfer station may accept other types of solid waste in accordance with its permit.

**Construction & Demolition Waste (C&D Waste):**



## Waste Ban Compliance Plan

Building materials and rubble resulting from the construction, remodeling, repair or demolition of buildings, pavements, roads or other structures. Construction and Demolition waste includes, but is not limited to: metal, concrete, bricks, lumber, masonry, road paving materials, rebar, gypsum wallboard and plaster.

**Facility Floor Plan:** Plan submitted by the Facility within its Waste Ban Compliance Plan application.

**Failed Load:** A load which, when delivered to and inspected at a handling or disposal facility is determined to contain a quantity of materials banned from disposal above an Action Level defined herein.

**Inside Initial Inspection Area:** Inside area designated by the Facility on the Facility Floor Plan for the inspection of waste loads in delivery vehicles after entering the enclosed building and prior to tipping.

**Kick-sorting:** Partial separation of C&D waste material which may include, but is not limited to, the removal of metal, large pieces of wood, bulky waste, Zero Tolerance Items (i.e. cathode ray tubes, whole tires (except tires disposed of at a municipal waste combustion facility), mattresses, lead batteries, and white goods).

**Outside Initial Inspection Area:** Outside area designated by the Facility on the Facility Site Plan for the inspection of waste loads in delivery vehicles prior to entering the enclosed building and prior to tipping.

**Pre-Sorted Processed Waste Storage Area:** Inside area designated by the Facility on the Facility Floor Plan for the storage of C&D Residuals received from other C&D Handling Facilities.

**Process Separation Rate (PSR):** The ratio of the quantity (by weight) of materials recycled as feedstock, recycled as biomass fuel, or diverted as determined by MassDEP, compared to the quantity (by weight) of the total inbound material accepted as defined in the Minimum Performance Standard available at <https://www.mass.gov/guides/massdep-waste-disposal-bans>.

**Queue Area:** Outside area designated on the Facility Site Plan for the queuing of waste delivery vehicles prior to tipping.

**Rejected Load:** A load which has been determined by the waste handling or disposal facility operator to be a Failed Load, and which the operator elects to refuse acceptance for handling or disposal, and which the operator must reload in the haulers original delivery vehicle or container and return to the hauler.

**Waste Ban Materials:** Restricted materials listed in 310 CMR 19.017. For purposes of this approval, Waste Ban Materials are further divided into Zero Tolerance Items and Waste Ban Materials subject to Action Levels above zero. Waste Ban Materials subject to Action Level criteria include recyclable paper, combined asphalt pavement, brick, and concrete, metal, wood, clean gypsum wallboard, glass, metal containers, commercial organic material, textiles and leaves and yard waste.

**Waste Tipping Area:** Inside area designated by the Facility on the Facility Floor Plan for the tipping of waste loads.

**Waste Bulking Storage Area:** Inside area designated by the Facility on the Facility Floor Plan for the storage of C&D Residuals generated by the Facility prior to transfer for disposal.

**Zero Tolerance Items:** Items expressly prohibited from disposal listed in 310 CMR 19.017 where the Department has made an Action Level determination of zero. This includes cathode ray tubes(CRT), whole tires (except tires disposed of at a municipal waste combustion facility), lead batteries, mattresses and white goods.



## **APPENDIX B**

### **ACTION FLOW RATE CALCULATIONS**

BOURNE LANDFILL - PHASE 6 LANDFILL EXPANSION  
 ACTION FLOW RATE CALCULATION FOR LEAK DETECTION SYSTEM  
 AS-BUILT CONDITIONS

$$Q/W = Tltis * i$$

Q = Flow Rate (m3/sec or gpd) Per Unit Width (1.0 ft)	
W = Unit Width of Biplanar GDL (0.305 m or 1.0 ft)	0.305
Tltis = Long Term In Soil (Adjusted) Transmissivity (m2/sec)	
i = Hydraulic Gradient (Slope = 2.0% or 0.02 ft/ft)	0.02

$$Tltis = \frac{Tm}{SF * RFcc * RFbc * RFcr * RFin}$$

Tm = GDL Laboratory Measured Transmissivity At 10,000 psf (7.49 x 10-4 m2/sec)	0.000749
SF = Safety Factor (2)*	2
RFcc = Reduction Factor for Chemical Clogging (1.5)	1.5
RFbc = Reduction Factor for Biological Clogging (1.5)	1.5
RFcr = Reduction Factor for Creep (1.4)	1.4
RFin = Reduction Factor for intrusion (1.5)	1.5

\* Reduction and Safety Factors are subject to modification based on actual materials incorporated into work.

$$Tltis = 7.9E-05 \text{ m2/sec}$$

$$Q = Tltis * i * W$$

$$Q = 4.8E-07 \text{ m3/sec/ft}$$

$$11.0 \text{ gpd/ft}$$

In the Phase 6 Landfill, the Biplanar GDL drains to a perforated 4" diameter pipe, set at a minimum slope of 0.5% (0.005 ft/ft) set in 3/4" stone and drainage sand. The full Phase 6 secondary collection system drainage area (A) is about 6.9 acres, or 300,000 square feet, which discharges to a length (L) of 1,750 feet of the GDL to the secondary leachate collection system pipe.

Therefore the AFR per acre of the Phase 6 landfill area is:

$$\text{Action Flow Rate} = Q \times L/A = 2,804 \text{ gpd/acre}$$

The approximate capacity of the 4" diameter secondary collection system pipe is 115,000 gallons per day. The total area tributary to the pipe section considered above is about 6.9 acres, thus the AFR for the pipe is about 17,000 gpd/acre.