



MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

**MA ENDANGERED SPECIES ACT (G.L. c.131A)
CONSERVATION AND MANAGEMENT PERMIT**

DATE:	May 6, 2025
DURATION OF PERMIT:	10 years
CONSERVATION PERMIT No.:	CMP-93795
NHESP FILE No.:	24-18817 (legacy 99-5547)
PERMIT HOLDER:	City of Haverhill & Holcim - Northeast Region, Inc. 40 South Porter Street 35 Village Road Haverhill, MA 01835 Middleton, MA 01949
PROJECT:	Closure of Northern Mound of Haverhill Landfill and Lot 26 Ash Area; Construction of Recreational Features

A. Permit Authority

Pursuant to the authority granted in the Massachusetts Endangered Species Act (“MESA”) (G.L. c. 131A) and its implementing regulations (321 CMR 10.23), the Director of the Massachusetts Division of Fisheries & Wildlife (the “Division”) hereby issues a Conservation and Management Permit (the “Permit”) to the City of Haverhill and Holcim-Northeast Region, Inc., formerly Aggregate Industries (the “Permit Holders”). This Permit authorizes the Take of the Wood Turtle (*Glyptemys insculpta*), which is State-listed as “Special Concern,” pursuant to the MESA, arising out of the closure of the Northern Mound of the Haverhill Landfill and Lot 26 Ash Area followed by construction of recreational amenities (the “Project”) on a ±71 acre site located south of the Merrimack River, west of Johnson Creek and north of Groveland Road in the Towns of Haverhill and Groveland, Massachusetts (the “Property”; Attachment 1). Work within the ±71-acre site is limited to the parcels listed in Table 1.

B. Description of Project and Take

The Project site abuts the Merrimack River to the north and Johnson Creek to the east. The ±71 ac Haverhill Landfill includes two parts, the Northern and Southern Mounds, which are divided by National Grid property that runs generally east to west between the two mounds. The Southern Mound was already capped and therefore not part of this Permit. The focus of this Permit is the Northern Mound, Lot 26 Ash Area, and the existing paved roadway on Lot 32-20 in Groveland.

The Northern Mound is largely located on Parcel 766-788-27 (13.7 acres) of the ±71 ac Property. The Northern Mound is bounded to the north by the Merrimack River and to the east by Johnson Creek. Wooded areas growing over waste occur along the western, northern, and eastern edges of the Northern Mound. The

MASSWILDLIFE

Northern Mound also includes remnant drainage and stormwater management facilities related to historic landfill disposal operations and National Grid activities.

The Lot 26 Ash Area is an approximately 2.1-acre portion of parcels 776-788-26 (5.3 acres) and 32-20 (19.49 acres) and defined by the MassDEP-approved delineated limits of buried ash located on a parcel east of the Southern Mound and southeast of the Northern Mound. The Lot 26 Ash Area also includes an existing stormwater retention basin utilized for the closure of the Southern Mound and the southern portion of the Northern Mound. A Quonset hut building that was formerly utilized as part of asphalt batch plant operations on Lot 26 will be demolished and removed. A roadway utilized by National Grid to access their substation located to the west of the Northern Mound also crosses the Lot 26 Ash Area. This roadway contains the utility poles for the photovoltaic system installed on the Southern Mound plateau and the associated battery storage facility located on Lot 26.

TABLE 1. *Property and parcel information for the Northern Mound and Lot 26 Ash Area Closure. The entire landfill property is 71 acres. Listed below are parcels where work associated with the current Project is proposed.*

Municipality	Address	Assessors Map / Parcel ID	Owner & Mailing Address	Registry of Deeds Information	Acreage	Area Reference
Haverhill	Groveland Road	776-788-27	Trimount Bituminous Prod Co 6211 Ann Arbor Rd. Dundee, MI 48131	Bk 223 / Pg 48969	13.7	Northern Mound
Haverhill	Groveland Road	776-788-26	Trimount Bituminous Prod Co 6211 Ann Arbor Rd. Dundee, MI 48131	Bk 223 / Pg 48969	5.3	Lot 26 Ash Area
Groveland	5 Yemma Road	32-20	Aggregate Industries-NE Reg (AINER) C/O Tax Department 6211 Ann Arbor Rd. Dundee, MI 48131	Bk 6594 / Pg. 0736	19.49	Yemma Road Resurfacing & Nesting Habitat

The Project will cap the Northern Mound (parcel 776-788-27; Table 1) and the Lot 26 Ash Area (parcels 776-788-26 and 32-20; Table 1) in accordance with the MassDEP’s Solid Waste Management Regulations (310 CMR 19) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) as administered by EPA (permits identified in Section E). The purpose of a final cap is to minimize stormwater infiltration to reduce leachate generation, prevent erosion of the landfill surface, provide controls for stormwater runoff, control the migration of landfill gases, and isolate waste from the environment thereby eliminating direct contact of waste with human and ecological receptors.

Capping the landfill will involve excavation and work on approximately 20 acres of the Property (Project Plans, Sheet C-3), resulting in loss of 6.2 acres of existing tree cover. Capping the Lot 26 Ash Area will require excavation and work on 2.1 acres (Project Plans, Sheet C-3, C-3A, and C-4G). After the capping work is completed and meets all necessary MassDEP and EPA requirements, recreational fields will be constructed on the Northern Mound property. A new stormwater structure and parking lot will be constructed on a portion of the Lot 26 Ash Area.

On March 31, 2025, the Division determined that the Project will result in a loss of foraging, migratory, and nesting habitat for *Wood Turtle* located within the Project Area. The inclusion of recreational fields and parking will increase exposure of *Wood Turtles* to risk of mortality, predation, and interference with feeding, nesting, and migratory behaviors (Division determination issued March 31, 2025). The Project is conditioned to avoid a Take of *Bald Eagle*, and such conditions are included in this Permit. The Project is not anticipated to result in

a Take of *Shortnose Sturgeon* (*Acipenser brevirostrum*, Endangered) or *Atlantic Sturgeon* (*Acipenser oxyrinchus*, Endangered; collectively both species are hereinafter “Sturgeon”) as all work will occur above the Mean High Water of the Merrimack River.

C. Permit Performance Standards

Under the authority granted by and in accordance with MGL c131A§3 and 321 CMR 10.23, the Director may permit the Take of a State-listed species for conservation and management purposes provided that there is a long-term Net Benefit to the conservation of the impacted species. If the Director determines that the applicant for a permit has avoided, minimized and mitigated impacts to the State-listed species consistent with the following performance standards, then the Director may issue a conservation and management permit, provided:

- (a) the applicant has adequately assessed alternatives to both temporary and permanent impacts to State-listed species;
- (b) an insignificant portion of the local population would be impacted by the Project or Activity, and;
- (c) the applicant agrees to carry out a conservation and management plan that provides a long-term Net Benefit to the conservation of the State-listed species that has been approved by the Director, as provided in 321 CMR 10.23(5), and shall be carried out by the applicant.

The Director has determined that the applicant for this Permit has met the above-mentioned performance standards and that the conservation and management plan described herein provides a long-term Net Benefit to the conservation of the Wood Turtle.

D. Conservation and Management Plan

Wood Turtle - In order to provide a long-term Net Benefit to the conservation of Wood Turtle, the Permit Holder has proposed, by way of the Permit Application, to create and maintain a turtle nesting area on parcel 32-20 in Groveland and install a permanent turtle barrier along the new recreational access road. Avoidance and minimization measures include (a) installing and maintaining temporary turtle barriers throughout construction; (b) having a qualified biologist conduct visual sweeps in work areas; and (c) educating construction staff about the likely presence of State-listed species on the Property and appropriate responses to any sightings.

Therefore, the Project can be permitted pursuant to the MESA. This Permit is issued to condition the Project and to provide a long-term Net Benefit to the Wood Turtle.

Bald Eagle and Sturgeon - Should trash and waste extend beyond the known limits, work to remediate and cap the waste may result in impacts to these species. The Permit Holder has the right to request to amend this Permit for additional work if trash is found beyond the limit of work on the Plan.

E. Related Project Authorizations

- MA Environmental Policy Act (EEA 12626) Certificate on Final Environmental Impact Report:
Issued 11/15/21; Certificate on Notice of Project Change issued 10/11/2024
- MA Wetlands Protection Act: Haverhill DEP# 033-1540; Groveland DEP# 030-0494

- MA Department of Environmental Protection, Corrective Design and Post Closure Use: SWSRF #16799
- United States Environmental Protection Agency, Superfund Site. www.epa.gov/superfund/haverhill

F. Documents and Plans of Records

In accordance with the documents and plans of record submitted to the Division entitled:

- Conservation and Management Permit Application Closure of Northern Mound of Haverhill Landfill and Lot 26 Ash Area (dated 9/3/2024, revised 4/6/25; prepared by Epsilon Associates, Inc.), the “Permit Application”; included by reference herein;
 - Figure 1, USGS Locus Map, [Attachment 1](#);
 - Figure 2 Aerial Locus Map, [Attachment 2](#);
- HAVERHILL LANDFILL-NORTHERN MOUND AND LOT 26 ASH AREA CORRECTIVE ACTION DESIGN AND POST CLOSURE USE CWSRF #16799 (dated October 2024, prepared by Langdon Environmental, LLC, 32 sheets total; 22 sheets herein); the “Plans” or “Plans of Record”; [Attachment 3](#);

and any other plans and documents referenced herein, this Permit is issued with the following General and Special Conditions:

G. General Conditions

GC 1.	The Permit Holder shall comply with all General and Special Conditions of this Permit and complete the Project consistent with all Division-approved plans and supporting documents referenced herein, except as otherwise approved by the Division in writing.
GC 2.	A violation of any General or Special Condition of this Permit may result in an unauthorized Take and may be subject to civil and or criminal penalties pursuant to M.G.L. c. 131A. The Division reserves the right to require an immediate cessation of Work (as defined in Special Condition #1), in whole or in part and at its sole discretion, should the Permit Holder violate any General or Special Condition of this Permit.
GC 3.	The Permit Holder shall submit in writing any documents, plans, reports, or other items required for submission in accordance with this Permit, for review and written approval by the Division, except as otherwise approved by the Division in writing.
GC 4.	Division representatives shall have the right to enter and inspect the Property subject to this Permit at reasonable hours to evaluate Permit compliance, and to require the submittal of additional, reasonable information not otherwise required by this Permit if deemed necessary by the Division to complete its evaluation.
GC 5.	Any land protected to achieve a long-term Net Benefit associated with this Permit shall remain undeveloped and protected as habitat for State-listed species in perpetuity.

GC 6.	This Permit shall not preclude the review of future projects on the Property that are subject to the Wetlands Protection Act Regulations (310 CMR 10.37, 10.58(4)(b), 10.59), as applicable, by the Division.
GC 7.	This Permit does not relieve the Permit Holder of the necessity of complying with all applicable federal, state or local statutes, ordinances, bylaws or regulations, including but not limited to those administered by the City of Haverhill Conservation Commission, Town of Groveland Conservation Commission, and the Massachusetts Department of Environmental Protection.
GC 8.	All Work shall be in conformance with the Plans of Record. Any changes, updates, or revisions to the Project, or any additional work beyond that shown on the Plans of Record, shall require additional review and approval by the Division prior to implementation, pursuant to General Condition #9. This Permit prohibits any work not specifically authorized by this Permit, unless otherwise approved by the Division in writing prior to performing the additional work.
GC 9.	Any proposed change to any plan identified in this Permit, or to the State-listed species conservation and management plan required by way of this Permit, shall require the Permit Holder to inquire of the Division, in writing, whether the change is significant enough to require the filing of a new Conservation and Management Permit Application, and or require additional long-term Net Benefit for the affected State-listed species. The Division retains the right to require the submittal of additional, reasonable information to evaluate the proposed plan change.
GC 10.	This Permit shall apply to, and inure to the benefit of, the Permit Holder and any successor-in-interest of the Permit Holder, or to a subsequent successor-in-control of the Property or portion thereof subject to this Permit should the Permit Holder convey its record ownership of the Property to said successor-in-control, as well as to any contractor or other person performing Work conditioned by this Permit. Within three (3) days of the transfer of an interest in the Property or a portion thereof, any successor-in-interest or subsequent successor-in-control [i.e., subsequent owners or operators] of the Property or a portion thereof shall provide the Division with a letter indicating (1) that the successor is the successor-in-interest of the Permit Holder or the successor-in-control [i.e., current owner or operator] of the Property or a portion thereof, and (2) that said successor will perform the obligations of the Permit Holder as set forth in this Permit.
GC 11.	Prior to the initiation of Work , the Permit Holder shall notify the Division in writing of the name, address, email, business and or cell phone numbers of the project supervisor(s) and/or contractor(s) responsible for compliance with this Permit. The Permit Holder shall provide updated information in writing to the Division should new or additional project supervisors and/or contractors be hired after Work has commenced. Prior to the initiation of Work , said project supervisor(s) and/or contractor(s) shall be provided a copy of the Permit and acknowledge in writing their receipt and understanding of the Permit. Said project supervisor(s) and/or contractor(s) may be held responsible for violations of this Permit performed by said project supervisor(s) and/or contractor(s).
GC 12.	Prior to the initiation of Work , the text of this Permit shall be recorded by the Permit Holder in the Registry of Deeds or the Land Court for the district in which the Property is located so as to become a record part of the chain of title of the Property. In the case of recorded land, the Permit shall be noted in the Registry's Grantor Index under the name of the owner of the Property upon which the proposed Work is to be done. In the case of registered land, the Permit shall be noted on the Land Court Certificate of Title of the owner of the Property upon which the proposed Work

	is done. The Permit Holder shall submit to the Division a date-stamped and signed copy of said recorded Permit showing the date and book and page of recording within five (5) business days after recording and/or filing, as applicable. No Work shall be initiated on the Property until the Permit is recorded and said recorded copy is submitted to the Division, except as otherwise approved by the Division in writing.
GC 13.	Prior to the initiation of Work , the Permit Holder shall send a summary report to the Division which: (a) demonstrates compliance with all pre-Work General and Special Conditions of the Permit; and (b) requests permission to initiate the Work authorized by the Permit. Unless otherwise authorized by the Division in writing, no Work may be initiated on the Property until the Permit Holder has received written confirmation from the Division confirming compliance with all pre-Work General and Special Conditions and authorizing the initiation of Work. Within three (3) days of the initiation of Work , the Permit Holder shall send a letter to the Division confirming the date upon which Work commenced.
GC 14.	Within (3) months of the completion of Work the Permit Holder shall submit to the Division a written request for a Certificate of Permit Compliance (the "Certificate"), including as-built plans and other supporting materials demonstrating the completion of Work and compliance with all General and Special Conditions of the Permit. The text of the Division-issued Certificate shall be recorded by the Permit Holder in the Registry of Deeds or the Land Court for the district in which the Property is located so as to become a record part of the chain of title of the Property. Unless an extension is granted in writing by the Division pursuant to General Condition #15, the Permit Holder shall record the Division-issued Certificate prior to expiration of the Permit . The Permit Holder shall submit to the Division a date-stamped and signed copy of said recorded Certificate showing the date and book and page of recording within five (5) business days after recording and or filing , as applicable.
GC 15.	The Project authorized by this Permit shall be completed within ten (10) years from the date of issuance. If needed, the Permit Holder shall submit a written request to the Division for an extension of time to complete said Project, and the Division will review the Project pursuant to MESA for any continuing impacts as described herein and for any new impacts to any State-listed species found subsequent to the issuance date of this Permit. Said request shall be submitted to the Division at least sixty (60) days prior to expiration of this Permit and shall include a summary report demonstrating compliance with all General and Special Conditions of this Permit.

H. Special Conditions:

SC 1.	<u>Work Authorized by the Permit</u> : This Permit authorizes the capping of the Northern Mound of the Haverhill Landfill and Lot 26 Ash Area, construction of recreational fields, an access road and a parking area pursuant to the Plans of Record and as shown on the Plans (the "Work"). The Work also includes any other on-site activity required by the Division as a condition of this Permit. All Work shall be confined to the area of the Property within the limits of Work shown on the Plans (<u>Attachment 3</u>).
SC 2.	<u>Temporary Demarcation of Limits of Work</u> : Prior to the initiation of each area of Work , the limits of Work shown on the Plans (<u>Attachment 3</u>) relevant to the area under construction shall be monumented and marked with temporary flagging, silt fencing, other similar visual marker

MASSWILDLIFE

	sufficient to clearly delineate the limits of Work. All marking must be visible from the ground and from the cab of the machinery used on the site.
SC 3.	<u>Shortnose and Atlantic Sturgeon</u>: As presently proposed, the Project does not require protective measures for sturgeon. However, if trash is found beyond the known limits of work and work must extend below Mean Annual High Water, the project shall consult with the Division prior to initiation of any such work. After consultation with the Division this Permit may be amended to allow impacts to sturgeon. We would expect that the project would be required to adhere to a time-of-year restriction, implement protective measures, monitor in-water sound levels/pressure, and provide for a Long-term Net Benefit as required by 321 CMR 10.23. Atlantic and Shortnose Sturgeons are federally listed and protected pursuant to the U.S. Endangered Species Act (ESA, 50 CFR 17.11) implemented by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). Any proposal to conduct work must comply with all requirements to comply with the United States Endangered Species Act.
SC 4.	<u>Potential Additional Waste Recovery</u>: According to the Plans, waste relocation may need to occur on Massachusetts Electric Company property (dba National Grid, 124 Groveland Road, Assessors 776-788-1AA). In such circumstances and prior to the start of work, the Permit Holder shall submit written authorization to conduct Work on Massachusetts Electric Company property.
	WOOD TURTLE (321 CMR 10.18 & 10.23)
SC 5.	<u>Nesting Habitat Creation</u>: In order to provide a long-term Net Benefit to the conservation of the Wood Turtle, the Permit Holder has proposed to create at least ±10,000 square feet of high-quality turtle nesting habitat on parcel 776-788-26 (Lot 26 Ash Area) in the area identified on Sheet C-4G (Note 2/D-8) in perpetuity. The nesting area will be created as soon as allowed by the ongoing capping work, but no later than 2 years from the initiation of work on the Project. Prior to initiation of work on the Project, the Permit Holder, in consultation with a qualified biologist, shall submit a turtle nesting habitat creation plan for Division review and approval. The plan shall be consistent with the "ADVISORY GUIDELINES FOR CREATING TURTLE NESTING HABITAT" (https://www.mass.gov/files/2017-08/creating-turtle-nesting-sites.pdf).
SC 6.	<u>Nesting Habitat Maintenance Plan</u>: Prior to the initiation of work on the Project, the Permit Holder shall submit a long-term habitat management and maintenance plan for the turtle nesting area. It is anticipated that maintenance of high-quality nesting habitat will require, at minimum, regular mowing, roto-tilling, or scraping of accumulated topsoil to maintain nesting habitats, as well as control of invasive species. All work is subject to the Turtle Protection Plan (Special Condition #12). On an as-needed basis, minor vegetation cutting (e.g., shrubs, saplings, suckers) may occur along the edges of the nesting area to provide escape and cover for hatchlings. Further, qualified biologists may also use onsite materials to create cover within and near the nesting habitat. During the first, second, third-, and fifth-year following completion of initial nesting habitat creation, and at five (5) year intervals thereafter until 30 years post-creation, a qualified, Division-approved wildlife biologist shall prepare and deliver a site evaluation report to the Division and the

MASS WILDLIFE

	Permit Holder within thirty (30) days of completing the site evaluation. Said report shall describe: (i) current habitat conditions (including photographs and detailed descriptions of habitat conditions); (ii) management activities conducted during the previous management period and an assessment of the success or failure of said management activities in achieving the desired habitat conditions; (iii) habitat management recommendations for the next management period; and (iv) recommended modifications to the Habitat Management Plan, if necessary. The Permit Holder shall take all reasonable measures necessary to implement the recommendations of the biologist to maintain and enhance high quality habitats for the Wood Turtle on the Property, provided that said recommendations are approved in writing by the Division. The Permit Holder shall work with the Division, as necessary, to adaptively refine the type and frequency of management activities pursuant to the Habitat Management Plan and long-term habitat monitoring outlined above.
SC 7.	<u>Vegetation Management Plan, Habitat Management Area:</u> In order to provide a long-term Net Benefit to the conservation of the Wood Turtle, a portion of the Lot 26 Ash Area located east of Yemma Road and its extension, but excluding the existing stormwater basin, parking lot, and proposed stormwater basin (sheet C-4), is hereinafter called the “Habitat Management Area”. Prior to initiation of work, the Permit Holder shall submit a vegetation mowing and management plan for the Habitat Management Area to maintain the area as old field habitat. - The area immediately around the Nesting Habitat shall be allowed to retain as much native shrubs as feasible to provide a visual screen and escape cover. The remainder of the Habitat Management Area shall be rotationally mowed in 1/3 of the area per management cycle, to ensure a variety of vegetation classes. - The Plan shall eliminate mowing and other mechanical management between 15 May and 15 September. - Proposed mowing and vegetation management shall be consistent with the “MOWING ADVISORY GUIDELINES IN RARE TURTLE HABITAT: PASTURES, SUCCESSIONAL FIELDS, AND HAYFIELDS” (https://www.mass.gov/doc/mowing-guidelines-in-rare-turtle-habitat/download). - One or more signs shall be installed at the entrances to the Habitat Management Area stating the form and timing of management.
SC 8.	<u>Permanent Demarcation of Nesting Areas:</u> The boundaries of the created nesting habitat and a surrounding vegetation management buffer shall be permanently monumented and marked with signage. - The form and wording of the signage shall be submitted to the Division for review and approval. - Said permanent bounds and signage shall be maintained in good condition by the Permit Holder and repaired or replaced as necessary.
SC 9.	<u>Permanent Turtle Barrier and Fence:</u> The boundaries of the Habitat Management Area shall be fenced off from the recreational use and amenities of the site.

	a. Prior to start of work, the Permit Holder shall submit a plan showing the location and form of the barrier and fence. b. The Project shall install the permanent turtle barrier to prevent intrusion of Wood Turtles onto the access road and parking lot, as shown on Sheet C-4G ("PERMANENT TURTLE EXCLUSION BARRIER. TURTLE EXCLUSIONS BARRIER SHALL BE A 4-FOOT TALL, SMALL MESH (1 1/4"-INCH MESH) CHAIN-LINK FENCE"; the "Turtle Barrier"). c. A fence shall be added to the southern end of the Turtle Barrier and extend to Assessor's parcel 32-022-0 (4 Yemma Road). This fence, for example a split-rail fence, shall be designed to limit intrusion by people and vehicles into the area. d. The Turtle Barrier and fence should be installed after the construction-period barrier is removed and after Yemma Road is repaved, but no later than 2 years from the initiation of work, which deadline may be extended by the Division.
SC 10.	<u>Funding for Long-Term Management & Monitoring</u>: In order to ensure adequate funding for implementation of long-term management and monitoring activities on the Property, the Permit Holder shall provide an initial deposit of \$30,000 into a Division-approved escrow account, or through another mechanism approved in advance by the Division (the "Habitat Management Funds"). Thereafter, the account shall maintain a balance of no less than \$16,000. Therefore, prior to the initiation of Work, the Permit Holder shall: 1. Submit to the Division, for review and approval, the details of the proposed funding mechanism, such as an escrow agreement, mitigation funding agreement, or similar. 2. The final funding mechanism and associated documentation must be approved by the Division in writing. 3. Proof of execution of the Division-approved mechanism must be submitted to the Division. 4. Proof of depositing the Habitat Management Funds into the mechanism, including a receipt of deposit or similar. The Permit Holder, subject to prior Division approval, may draw earnings from the escrow account or other Division-approved mechanism to pay for future management and monitoring of the portion of the Lot 26 Ash area that will be maintained as habitat for state-listed species (<u>Special Condition #7</u>)
SC 11.	<u>Land Protection Plan, Habitat Management Area</u>: In order to provide a long-term Net Benefit to the conservation of the Wood Turtle, the project will provide permanent protection to the Habitat Management Area, inclusive of the created nesting area consistent with Sections 31-33 of Chapter 184 of the General Laws of Massachusetts, for example recording of a Conservation Restriction or deeding the land to the Conservation Commission(s). The Permit Holder shall consult with the Division well in advance of the start of work to discuss options for land protection that are consistent with the MassDEP and EPA's requirements for the site.

	Prior to start of work , a Division-approved land protection plan must be executed for the Habitat Management Area.
SC 12.	<u>Wood Turtle Protection Plan</u>: The Permit Holder shall implement protective measures to avoid impacts to Wood Turtles during construction along Johnson Creek and the Lot 26 Ash area. Protective measures or adherence to a time-of-year restriction may be required during some aspects of the project's activities. Prior to the start of Work on the Project, the Permit Holder shall submit a written Turtle protection Plan by a qualified biologist. All Work shall occur pursuant to the protective measures outlined within said Plan, which shall be implemented as written unless otherwise approved by the Division in writing. Any proposed changes to said Plan shall be submitted to the Division for review and written approval prior to the implementation of any changes. Said Plan must be implemented by a qualified, Division-approved wildlife biologist in possession of a valid Scientific Collection Permit obtained from the Division. The wildlife biologist shall prepare and deliver an annual report documenting implementation of and compliance with said Plan by December 31 of each year in which Work associated with the Project occurs.
	BALD EAGLE (321 CMR 10.18(a))
SC 13.	<u>Tree Inspection Prior to Cutting</u>: - All trees that may provide protentional nesting habitat shall be visually inspected by a qualified biologist and if no evidence of nesting activity is observed, the tree shall be cut within 1 week of the observation. - Trees shall be inspected and thereafter cut between September 1 and April 15. - If nesting activity is observed, the tree and all work within 300 feet shall stop immediately. The Permit Holder must consult with the Division prior to continuation. The Division reserves the right to require additional protective measures, mitigation, and that the project results in a Long-term Net Benefit for Bald Eagle as required by 321 CMR 10.23. - All proposed work shall be in compliance with (a) the Eagle Management Program (USFWS, www.fws.gov/program/eagle-management) and (b) National Bald Eagle Management Guidelines (2007, https://www.fws.gov/media/national-bald-eagle-management-guidelines).
SC 14.	<u>Nesting Stand/Platform</u>: The Project will construct a single nesting stand/platform after the completion of capping of the Northern Mound. The nesting mast will be located between the structure on the National Grid property and the Northern Mound and along the Merrimack River (Plans, Sheet C-4). The final location and configuration of the nesting mast shall be installed after consultation with the Division. The estimated timing for installation of the Nesting Stand/Platform will be provided to the Division after the construction schedule is prepared by the select contractor.

MASS WILDLIFE

	ONSITE CONSTRUCTION BMPs & EDUCATION; WELL-SITE VEGETATION MANAGEMENT 321 CMR 10.18 & 10.23
SC 15.	<u>Soil Disturbance & Construction BMP</u>: All work shall include the following BMPs, invasive plant species. a. Prior to implementing activities, search for and locate invasive plant species infestations consistent with the scale and intensity of operations. b. Based on the degree of invasiveness and risk to nearby natural and created habitat, pre-treatment of invasive plants may be warranted. The use of herbicides, smothering and other measures may be necessary. c. If soils including invasive plants are disturbed, remove the affected soil from the site and ensure it is disposed of or composted fully prior to re-use. d. Use only native plants in disturbed areas not thereafter maintained as lawn. e. Visually inspect all equipment entering and leaving the site for invasive plant parts, seeds or soil. Remove any invasive plant materials or plant parts. f. Establish staging areas and temporary facilities in locations that are free of invasive species. g. Use soil and aggregate material from sources that are free of invasive species.
SC 16.	<u>Construction Staff Education</u>: All construction, landscaping, and other sub-contractors associated with the Project shall be informed in writing of the likely presence of State-listed species on the Property and what measures should be implemented to minimize direct harm to State-listed species. Further, no wildlife shall be removed from the Property without approval of a qualified, Division-approved wildlife biologist or the Division except as necessary to receive veterinary treatment in the case of harm during construction.
SC 17.	<u>Observations of State-listed Species</u>: The Division shall be notified, in the form of an NHESP Rare Animal or Plant Observation Form, within ten (10) days of the observation of any State-listed species within or outside the limits of Work. Visit https://www.mass.gov/how-to/report-rare-species-vernal-pool-observations for access to observation reporting forms.

I. Notice of Appeal of Rights

This Permit is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.23. Any person aggrieved by this decision shall have the right to an adjudicatory hearing at the Division pursuant to M.G.L. c. 30A, s.11 in accordance with the procedures for informal hearings set forth in 801 CMR 1.02 and 1.03.

Any notice of claim for an adjudicatory hearing shall be made in writing and be accompanied by a filing fee in the amount of \$500.00. The notice of claim shall be sent to the Division by certified mail, hand delivered or postmarked within twenty-one (21) days of the date of issuance of this Permit to:

MASSWILDLIFE

Mark S. Tisa, Director
Massachusetts Division of Fisheries and Wildlife
Field Headquarters
One Rabbit Hill Road
Westborough, MA 01581

Any notice of claim for an adjudicatory hearing shall include the following information:

1. The file number for the project;
2. The complete name, address and telephone number of the person filing the request, and the name, address and telephone number of any authorized representative;
3. The specific facts that demonstrate that a party filing a notice of claim satisfies the requirements of an "aggrieved person," including but not limited to (a) how they have a definite interest in the matters in contention within the scope of interests or area of concern of M.G.L. c. 131A or the regulations at 321 CMR 10.00 and (b) have suffered an actual injury which is special and different from that of the public and which has resulted from violation of a duty owed to them by the Division;
4. A clear statement that an adjudicatory hearing is being requested;
5. A clear and concise statement of facts which are grounds for the proceeding, the specific objections to the actions of the Division and the basis for those objections; and the relief sought through the adjudicatory hearing; and a statement that a copy of the request has been sent by certified mail or hand delivered to the applicant and the record owner, if different from the applicant.



Jesse Leddick

Assistant Director

On this 6th day of MAY, 2025, before me, the undersigned notary public, personally appeared Jesse Leddick, Deputy Director, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.



Melany Cheeseman, Notary Public
My Commission Expires: January 22, 2032

Conservation and Management Permit CMP-93795

Issued: May 6, 2025

Expires: May 6, 2035

MASSWILDLIFE

Acknowledgement and Acceptance of all Terms of this Permit

The undersigned below agrees that commencement of any work authorized by and described in this Permit constitutes acknowledgement and acceptance of all terms of this Permit.

Signatory 1 Organization City of Haverhill

COMMONWEALTH OF MASSACHUSETTS

On this ____ day of ____, 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification which was _____ to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her/their knowledge and belief.

Notary Public:

SEAL

My Commission Expires:

Acknowledgement and Acceptance of all Terms of this Permit

The undersigned below agrees that commencement of any work authorized by and described in this Permit constitutes acknowledgement and acceptance of all terms of this Permit.

	Signatory 1 Organization: Holcim- Northeast Region Inc.
--	--

COMMONWEALTH OF MASSACHUSETTS

On this ____ day of ____, 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification which was _____ to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her/their knowledge and belief.

Notary Public:

SEAL

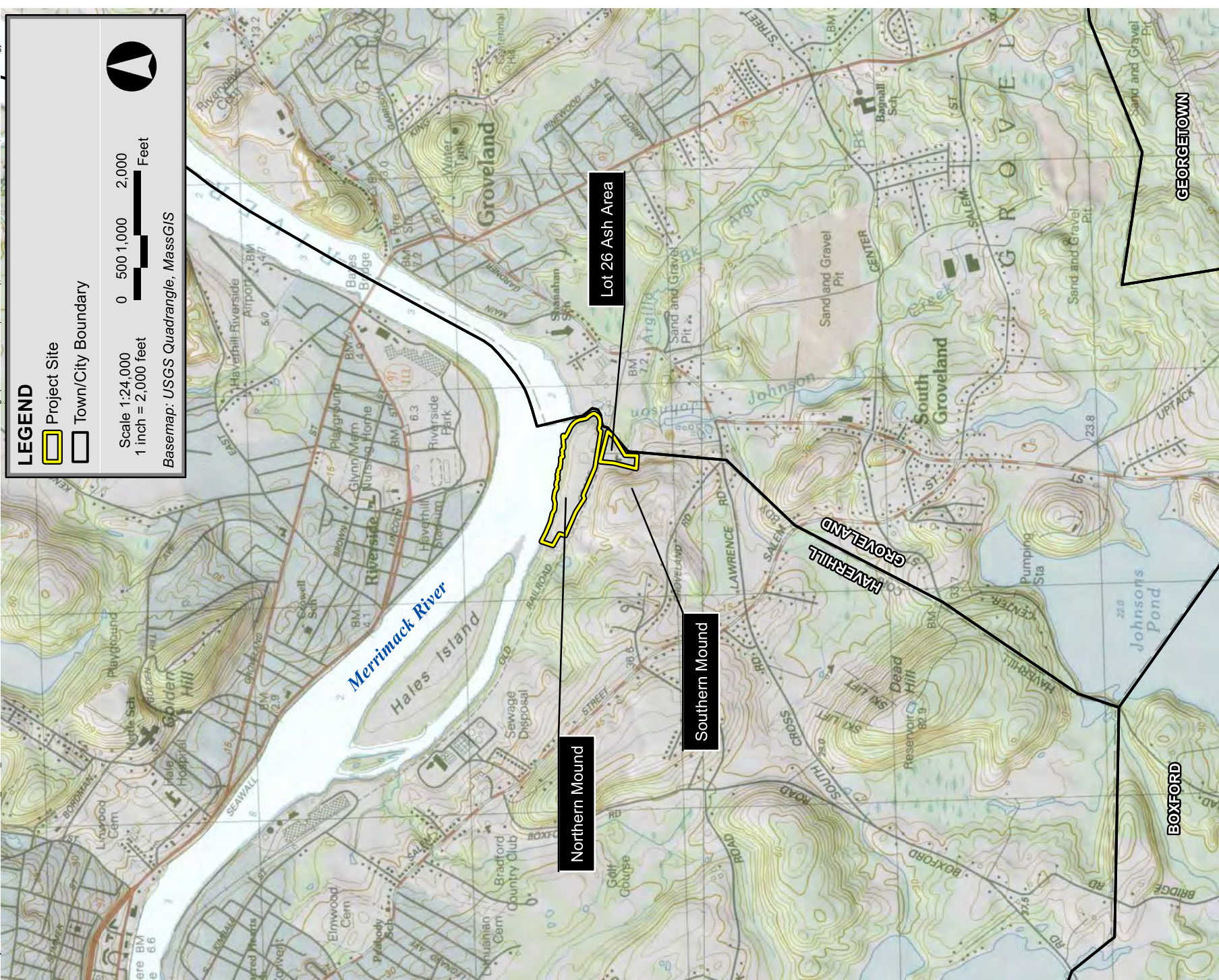
My Commission Expires:

Distribution List

Groveland Board of Selectmen
Groveland Conservation Commission
Groveland Planning Board
Haverhill Board of Selectmen
Haverhill Conservation Commission
Haverhill Planning Board
MA DEP Northern Regional Office, Wetlands Program
MA DFW Northeast District Office
Alexander Strycky, MA Environmental Policy Act Office
Dwight Dunk, Epsilon Associates

Attachment 1

Figure 1 USGS Locus Map



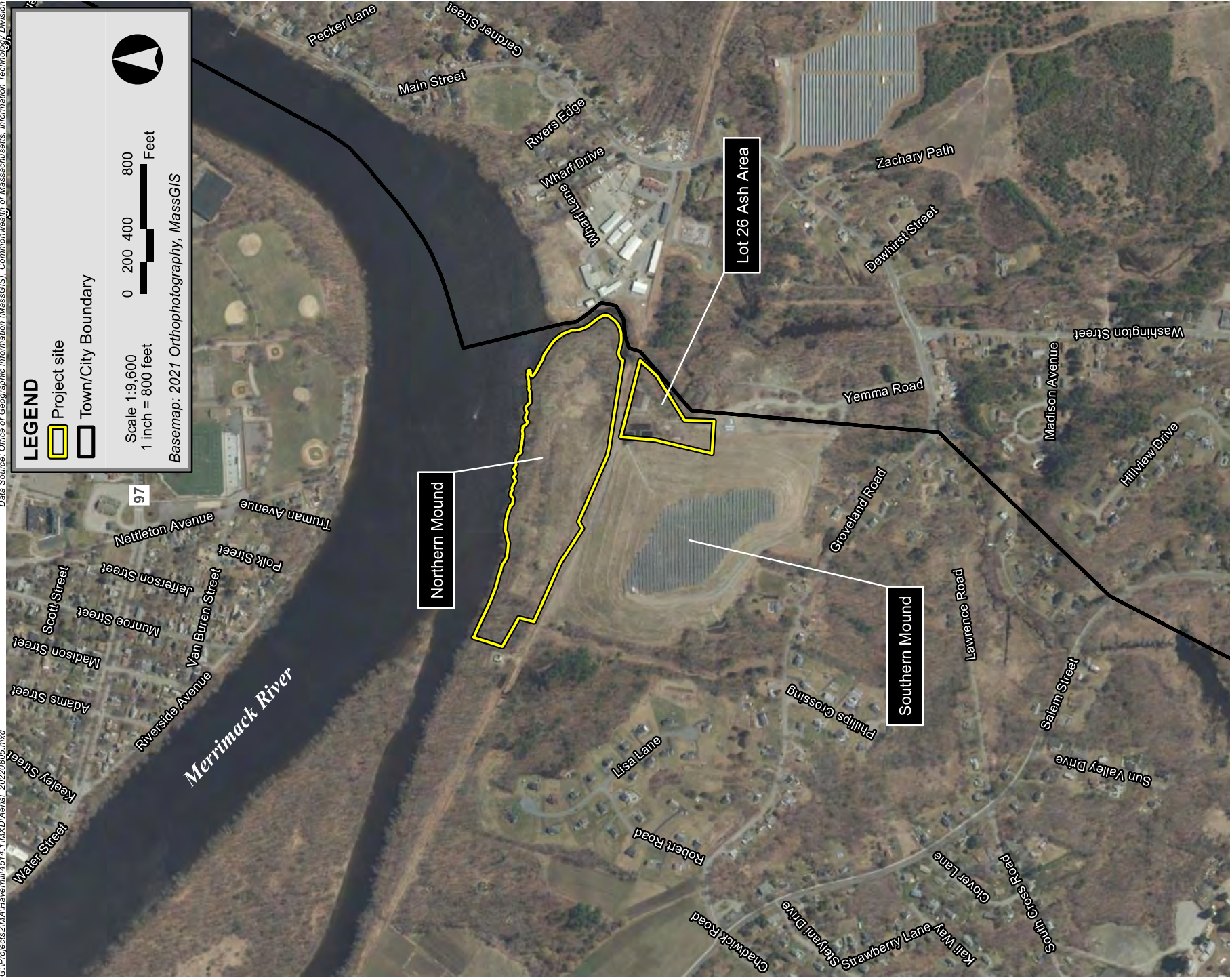
Haverhill Municipal Landfill CMP Application Haverhill, Massachusetts



Figure 1
USGS Locus Map

Attachment 2

Figure 2 Aerial Locus Map



Attachment 3

HAVERHILL LANDFILL-NORTHERN MOUND AND LOT 26 ASH AREA CORRECTIVE ACTION DESIGN AND POST CLOSURE USE CWSRF #16799 (dated October 2024, prepared by Langdon Environmental, LLC, 32 sheets); the "Plans" or "Plans of Record"

HAVERHILL LANDFILL-NORTHERN MOUND AND LOT 26 ASH AREA CORRECTIVE ACTION DESIGN AND POST CLOSURE USE CWSRF # 16799

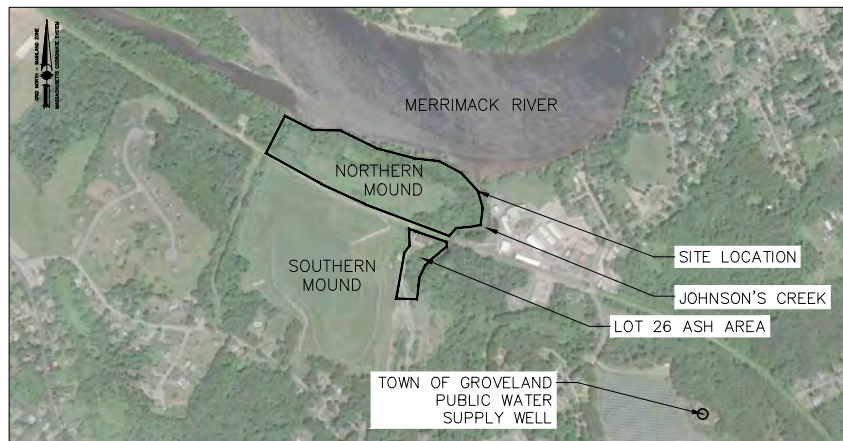
OLD GROVELAND ROAD HAVERHILL, MA

PREPARED FOR:

CITY OF HAVERHILL MASSACHUSETTS

MAYOR: MELINDA E. BARRETT
DIRECTOR OF PUBLIC WORKS: ROBERT E. WARD

HOLCIM-NEER, INC.
REGIONAL MANAGER, LAND AND ENVIRONMENT:
JARRETT TEMPLE



LIST OF DRAWINGS

G-1	GENERAL NOTES
C-1	EXISTING CONDITIONS PLAN-NORTHERN MOUND
C-1A	EXISTING CONDITIONS PLAN-LOT 26 ASH AREA
C-1B	EXISTING CONDITIONS PLAN-YEMMA ROAD
C-2	SITE PREPARATION AND EROSION CONTROLS PLAN-NORTHERN MOUND
C-2A	SITE PREPARATION AND EROSION CONTROLS PLAN-LOT 26 ASH AREA
C-3	WASTE RELOCATION/ CAP SUBGRADE PLAN-NORTHERN MOUND
C-3A	WASTE RELOCATION/ CAP SUBGRADE PLAN-LOT 26 ASH AREA
C-4	FINISH GRADING PLAN-NORTHERN MOUND
C-4A	FINISH GRADE ENLARGEMENT I-NORTHERN MOUND
C-4B	FINISH GRADE ENLARGEMENT II-NORTHERN MOUND
C-4C	FINISH GRADE ENLARGEMENT III-NORTHERN MOUND
C-4D	FINISH GRADE ENLARGEMENT IV-NORTHERN MOUND
C-4E	FINAL GRADING AND CAPPING PLAN-LOT 26 ASH AREA
C-4F	WETLAND RESOURCE AREA RESTORATION PLANS-NORTHERN MOUND
C-4G	FINISH GRADING PLAN-YEMMA ROAD
C-5	MATERIALS PLAN-NORTHERN MOUND
C-5A	MATERIALS PLAN-LOT 26 ASH AREA
C-6	LANDFILL GAS COLLECTION AND VENTING SYSTEM-NORTHERN MOUND
C-7	CROSS SECTIONS I-NORTHERN MOUND
C-8	CROSS SECTIONS II-NORTHERN MOUND
C-9	CROSS SECTIONS III-NORTHERN MOUND
L-1	LANDSCAPE PLAN-NORTHERN MOUND
L-2	LANDSCAPE LAYOUT PLAN AND SCHEDULE-NORTHERN MOUND
D-1	SITE DETAILS I
D-2	SITE DETAILS II
D-3	SITE DETAILS III
D-4	SITE DETAILS IV
D-5	SITE DETAILS V
D-6	SITE DETAILS VI
D-7	SITE DETAILS VII
D-8	SITE DETAILS VIII

OCTOBER 2024



404 THE HILL, P.O. BOX 511
PORTSMOUTH, NH 03802
(617) 875-3693

1. THE TOPOGRAPHIC INFORMATION FOR NORTHERN MOUND AND LOT 26 ASH AREA SHOWN HEREIN IS FROM A FIELD SURVEY COMPLETED BY T.F. BERNIER, INC. OF CONCORD, NEW HAMPSHIRE IN AUGUST 2017. BOUNDARY INFORMATION IS FROM PLAIN REFERENCE NUMBER 1. NO VERIFICATION OR UPDATING OF THE BOUNDARY INFORMATION WAS DONE IN THE PREPARATION OF THIS PLAN.
2. EXISTING CONDITIONS OF YEMMA ROAD WERE COMPILED FROM PUBLICLY AVAILABLE GIS, LIDAR, ETC. CONTRACTOR TO CONFIRM LOCATIONS OF ALL BOUNDARIES, STRUCTURES, AND UTILITIES PRIOR TO CONSTRUCTION ACTIVITIES.
3. THE VERTICAL DATA IS BASED ON MULTIPLE STATIC GPS OBSERVATIONS COMPLETED BY T.F. BERNIER, INC.
4. EASEMENT BOUNDARIES SHOWN HEREIN HAVE BEEN DIGITIZED FROM PLAIN REFERENCE NUMBER 1 AND ARE FOR INFORMATION PURPOSES ONLY. FOR DESCRIPTION AND COMPLETE INFORMATION SEE PLAIN REFERENCE NUMBER 1.
5. WETLAND DELINEATION WAS CONDUCTED BY EPSILON ASSOCIATES ON JULY 7 AND 12, 2017. DELINEATION WAS APPROVED BY HAVERTHILL CONSERVATION COMMISSION IN ORDER OF RESOLUTION AREA DELINEATION (ORD) DATED JANUARY 19, 2018 AND GROVELAND CONSERVATION COMMISSION ORD DATED JANUARY 22, 2018. ORDER OF CONDITIONS FROM HAVERTHILL CONSERVATION COMMISSION IS IN PROJECT MANUAL.
6. ELEVATIONS BASED ON DATA FROM NOAA STATION 8404089, RIVERSIDE, MERRIMACK RIVER. MEAN = +4.42' NAVD83.
MEAN LOW WATER (MLW) = -1.26' NAVD83.
CHAPTER 9 LICENSE NO. 12877
7. FEMA FLOOD ELEVATION / BORDERING LAND SUBJECT TO FLOODING (BLSF) = EL. 21 NAVD88, FEMA 10-YEAR FLOODPLAIN = EL. 14 NAVD88.
8. ACCESS TO MASS ELECTRIC PROPERTY TO BE MAINTAINED CONTINUOUSLY DURING CONSTRUCTION ACTIVITIES. ACCESS TO SOLAR PHOTOVOLTAIC INSTALLATION ON SOUTHERN MOUND AND BATTERY STORAGE AREA ON LOT 26 TO BE MAINTAINED CONTINUOUSLY DURING CONSTRUCTION ACTIVITIES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF EXISTING UTILITIES. START OF CONSTRUCTION ACTIVITIES. CONTRACTOR TO MAINTAIN LOCATIONS THROUGHOUT CONSTRUCTION AND REESTABLISH MARKINGS AS NECESSARY. PROPERTY LINES AND EASEMENT LOCATION TO BE PROVIDED BY A REGISTERED LAND SURVEYOR LICENSED IN MASSACHUSETTS.
10. ALL CONSTRUCTION ACCESS TO BE FROM YEMMA ROAD. SEE SPECIFICATIONS FOR DESIGNATED TRUCK ROUTES.

1. PLAN REFERENCE OF LAND LOCATED IN HAVERHILL AND GROVELAND MASSACHUSETTS PREPARED FOR CDM, CITY OF HAVERHILL AND AGGREGATE INDUSTRIES, SCALE: 1"=120', DATED FEBRUARY 3, 2006 PREPARED BY SCOTT L. GILES P.L.S. #13972.

1. NOTIFY "DISPOSAL" AT 1-888-344-7233 TO ARRANGE FOR MARKING OUT EXISTING UNDERGROUND UTILITIES AT LEAST 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS) PRIOR TO BEGINNING EXCAVATION AT ANY GIVEN LOCATION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE ALLOWED TO START ANY KIND OF EXCAVATION WORK PRIOR TO THE 72 HOUR NOTIFICATION PERIOD.

2. THE EXISTENCE OF UTILITIES AND APPURTENANCES AS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY, AND THE EXACT SIZE, TYPE, LOCATION AND ELEVATION SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION.

3. ACCOMPLISH ALL EXCAVATION SO THAT UNDERGROUND UTILITIES OR STRUCTURES ARE NOT DAMAGED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED DURING EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STRUCTURES NOT TO BE EXCAVATED.

4. CONTRACTOR SHALL BE AWARE OF ANY OVERHEAD UTILITIES AND MAKE THE NECESSARY ARRANGEMENTS TO PERFORM ANY WORK NEAR THE OVERHEAD UTILITIES. PRIOR TO THE START OF CONSTRUCTION ACTIVITIES IN THESE AREAS.

5. CONTRACTOR SHALL COMPLY WITH ALL OSHA STANDARDS, PROVIDE ALL REQUIREMENTS OF OSHA EXCAVATION STANDARDS INCLUDING BUT NOT LIMITED TO THE PROVISIONS FOR A COMPETENT PERSON ON SITE AND REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A REGISTERED PROFESSIONAL ENGINEER.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STRUCTURES NOT TO BE EXCAVATED DURING CONSTRUCTION.

7. ADJUST ALL MANHOLES, CATCH BASINS, WATER SHUT-OFFS AND VALVES, AND ANY OTHER STRUCTURE TO BE FLUSH WITH PROPOSED FINISHED GRADE.

8. DATE OF EXCAVATION: PROJECT SCHEDULE BASED ON THE SUBMITTAL OF THE CONSTRUCTION SCHEDULE, ALONGON, DATED JULY 7, 2015, REVISED 28 MARCH 2017.

9. LOCATIONS OF UTILITIES SHOULD STILL BE CONSIDERED APPROXIMATE. ALL UTILITIES MAY NOT BE SHOWN.

10. EXISTING MONITORING WELLS, LANDFILL GAS MONITORING WELLS, AND FLOODPLAIN LINE AND FROM FIELD SURVEY COMPLETED BY J.F. BERNIER, INC. OF CONCORD, NEW HAMPSHIRE.

1. THE EDGE OF LANDFILLED WASTE FOR THE NORTHERN MOUND SHOWN ON THE PLANS IS APPROXIMATE AND BASED ON SUBSURFACE INVESTIGATIONS PERFORMED BY LANGDON ENVIRONMENTAL LLC AND OTHERS. DURING CONSTRUCTION, SUPPLEMENTAL TEST PITS AND INVESTIGATIONS SHALL BE PERFORMED BY THE CONTRACTOR TO CONFIRM THE EDGE OF THE LANDFILLED WASTE. IF THE CONTRACTOR DETERMINES THAT THE LOCATION OF THE PROPOSED CAP SHALL BE EXCAVATED AND RELOCATED WITHIN THE LIMITS OF THE LANDFILL, TO BE CAPPED, ENGINEER MAY MODIFY LIMIT OF CAP AS SHOWN IF LANDFILLED WASTE LEFT IN PLACE.
2. THE EDGE OF WASTE ON LOT 26 ACH AREA IS AS APPROVED BY MASDESS. NO ADDITIONAL TEST PITS TO DELINEATE THE EDGE OF WASTE ARE REQUIRED. ENGINEER MAY DIRECT THE CONTRACTOR TO EXCAVATE AND RELOCATE THE EDGE OF WASTE TO THE LOCATION OF THE PROPOSED CAP.
3. WASTE TO BE RELOCATED MAY INCLUDE MUNICIPAL SOLID WASTE, CONSTRUCTION AND DEMOLITION WASTE, MUNICIPAL WASTEWATER TREATMENT RESIDUALS FROM PAPERBOARD RECYCLING, AND OTHERS. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE MASSDESS OF ANY WASTE TO BE RELOCATED TO THE PROPOSED CAP.
4. CONTRACTOR SHALL CONFINED EXPOSED LANDFILLED WASTE AT THE END OF EACH OPERATING DAY IN ACCORDANCE WITH THE REQUIREMENTS OF MASDESS'S SOLID WASTE MANAGEMENT REGULATIONS (310 CMR 19-000) AND THE SPECIFICATIONS.
5. RELOCATED SOLID WASTE WILL BE PLACED IN COMPACTED LAYS NOT TO EXCEED THREE FEET IN THICKNESS AND COVERED WITH A MINIMUM OF SIX-INCHES OF SOIL DAILY COVER IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOLID WASTE MANAGEMENT REGULATIONS (310 CMR 19-000) PROMULGATED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MASDESS).
6. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE DISTURBANCE OF THE EXISTING SITE. DISTURBANCES TO INSTALL CONTROL MEASURES SHALL BE LIMITED TO THE MINIMUM REQUIRED.
7. EROSION AND SEDIMENT CONTROL MEASURES SHOWN MAY BE INSTALLED IN PHASES IF AREAS OF THE SITE ARE TO BE DISTURBED IN PHASES. EROSION CONTROLS AS SHOWN MAY BE INSTALLED IN PHASES IF THE REQUIRED EROSION CONTROL MEASURES ARE TO BE AS FAR OUTSIDE OF LIMIT OF DISTURBED AS POSSIBLE WITHOUT BEING PLACED IN FLAGGED BORDERING VEGETATED WETLAND (BWV) AREAS.
8. TEMPORARY EROSION AND STORMWATER CONTROLS SHALL BE INSTALLED TO MINIMIZE EROSION AND DAMAGE TO DELINEATED WETLAND RESOURCE AREAS. STORMWATER CONTROLS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO BE PREPARED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

[illegible]

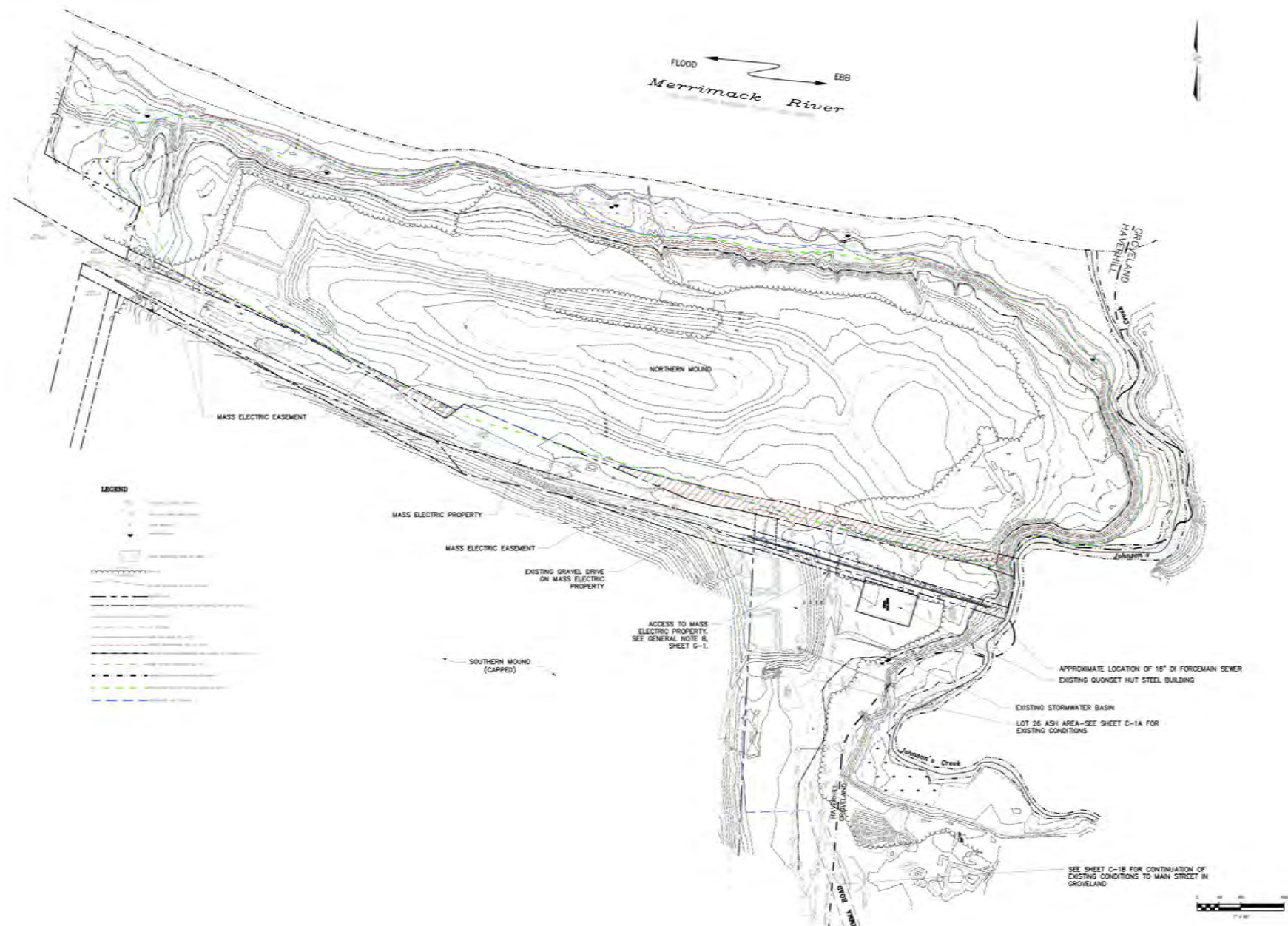
(617) 878-3693

Proj. Mgr: BWH
Designed: JEC
Drawn: JEC
Checked: BWH
Scale: AS NOTED
Date: OCT. 2024

Haverhill Landfill-Northern Mound
& Lot 26 Ash Area
Haverhill Massachusetts

Proj No

Dwg. No.



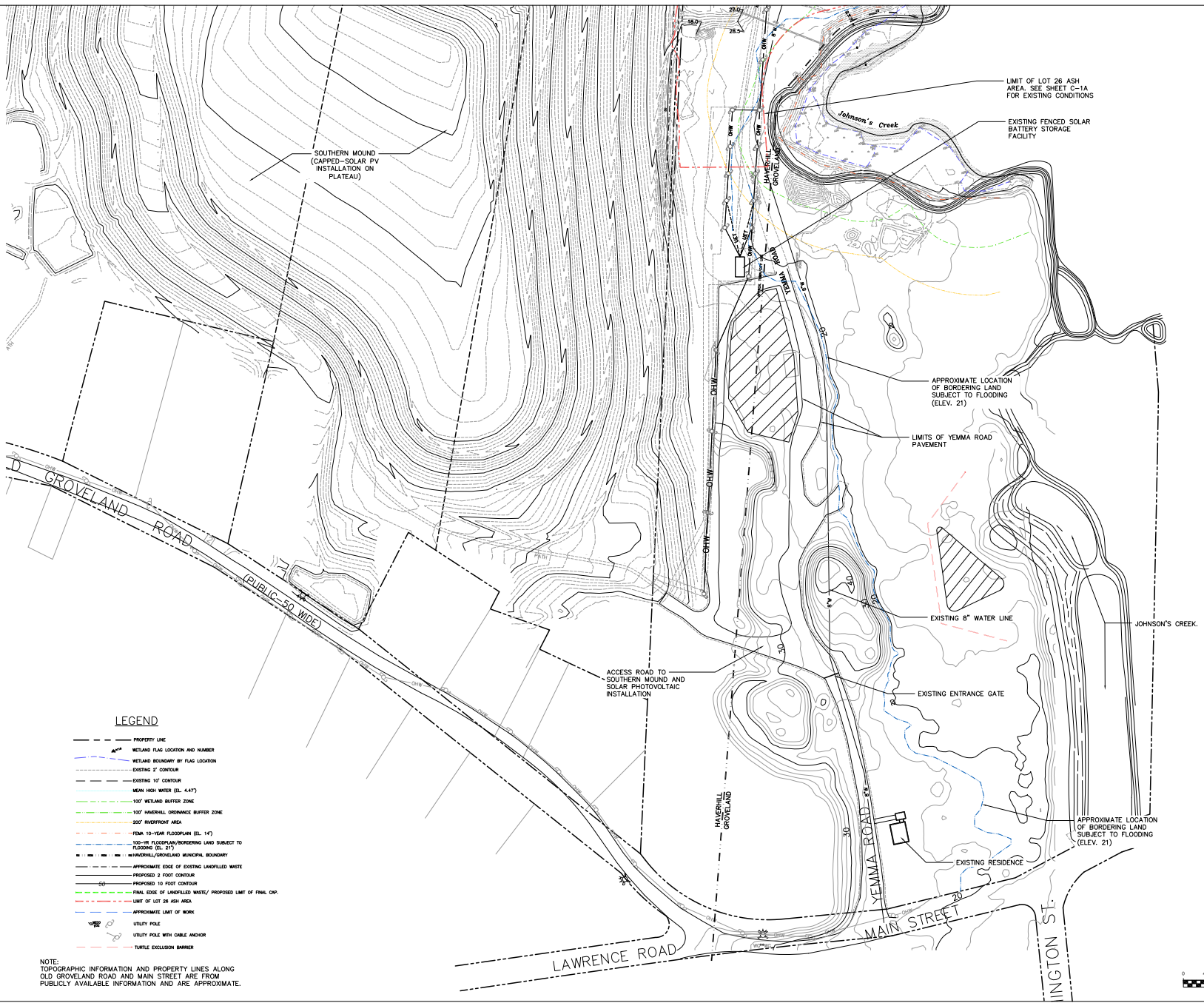
Langdon Environmental LLC
 100 Main Street, Suite 201
 Haverhill, MA 01830
 Tel: 603.895.1234
 Fax: 603.895.1235
 www.langdonenv.com

Proj. Mgr: BWH
 Design: JEC
 Drawn: JEC
 Checked: JEC
 Scale: AS NOTED
 Date: OCT 2024

EXISTING CONDITIONS
 PLAN-NORTHERN MOUND
 HAVERHILL LANDFILL-NORTHERN MOUND
 & LOT 26 ASH AREA
 HAVERHILL, MASSACHUSETTS

Proj. No.
 Des. No.

C-1



LEGEND

- PROPERTY LINE
- WETLAND FLAG LOCATION AND NUMBER
- WETLAND BOUNDARY BY FLAG LOCATION
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- MEAN HIGH WATER (EL. 4.47)
- 100' WETLAND BUFFER ZONE
- 100' WETLAND ORDNANCE BUFFER ZONE
- 200' WETLAND BUFFER ZONE
- FEMA 10-15% FLOODPLAIN (EL. 14')
- 100-15% FLOODPLAIN/BORDERING LAND SUBJECT TO FLOODING (EL. 21')
- HAVERHILL/GROVELAND MUNICIPAL BOUNDARY
- APPROXIMATE EDGE OF EXISTING LANDFILLED WASTE
- PROPOSED 2 FOOT CONTOUR
- PROPOSED 10 FOOT CONTOUR
- FINAL EDGE OF LANDFILLED WASTE/ PROPOSED LIMIT OF FINAL CAP
- LIMIT OF LOT 26 ASH AREA
- APPROXIMATE LIMIT OF WORK
- UTILITY POLE
- UTILITY POLE WITH CABLE ANCHOR
- TURTLE EXCLUSION BARRIER

NOTE:
TOPOGRAPHIC INFORMATION AND PROPERTY LINES ALONG
OLD GROVELAND ROAD AND MAIN STREET ARE FROM
PUBLICLY AVAILABLE INFORMATION AND ARE APPROXIMATE.

LIMIT OF LOT 26 ASH
AREA. SEE SHEET C-1A
FOR EXISTING CONDITIONS

EXISTING FENCED SOLAR
BATTERY STORAGE
FACILITY

APPROXIMATE LOCATION
OF BORDERING LAND
SUBJECT TO FLOODING
(ELEV. 21)

LIMITS OF YEMMA ROAD
PAVEMENT

EXISTING 8" WATER LINE

EXISTING ENTRANCE GATE

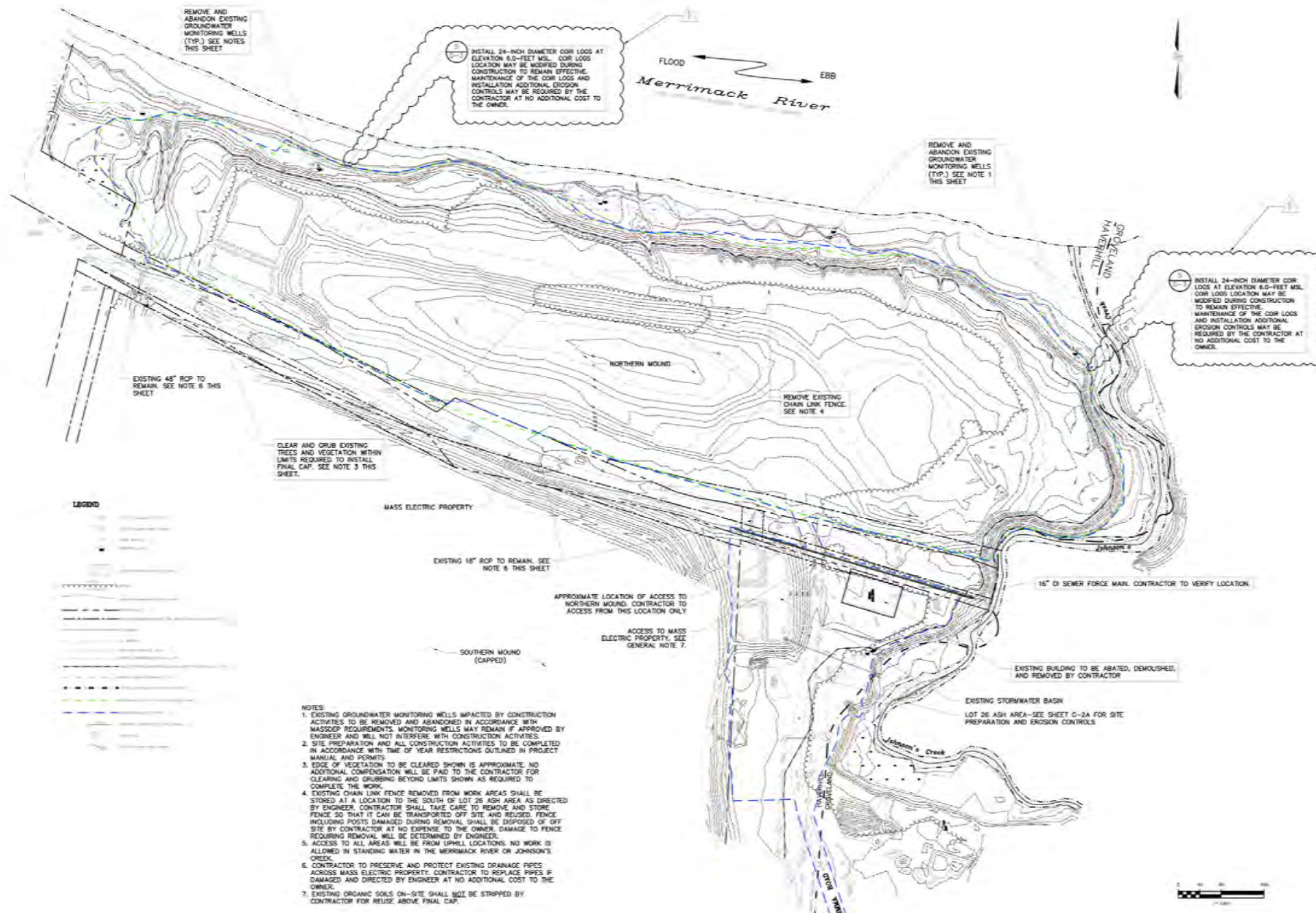
APPROXIMATE LOCATION
OF BORDERING LAND
SUBJECT TO FLOODING
(ELEV. 21)

EXISTING RESIDENCE

ACCESS ROAD TO
SOUTHERN MOUND AND
SOLAR PHOTOVOLTAIC
INSTALLATION

SOUTHERN MOUND
(CAPPED-SOLAR PV
INSTALLATION ON
PLATEAU)

Langdon Environmental LLC	
400 Hill St., 10th Fl., Boston, MA 02111 (617) 891-3883	
Proj. Mgr.: BWB Designed: JEC Drawn: JEC Checked: JEC Scale: AS NOTED Date: OCT. 2024	
EXISTING CONDITIONS PLAN-YEMMA ROAD HAVERHILL LANDFILL-NORTHERN MOUND & LOT 26 ASH AREA HAVERHILL, MASSACHUSETTS	
Proj. No.	C-1B
Drawn No.	
REVISIONS	



DATE	10/1/2024
BY	JEC
REVISION	
DATE	10/1/2024
BY	JEC
REVISION	
DATE	10/1/2024
BY	JEC
REVISION	

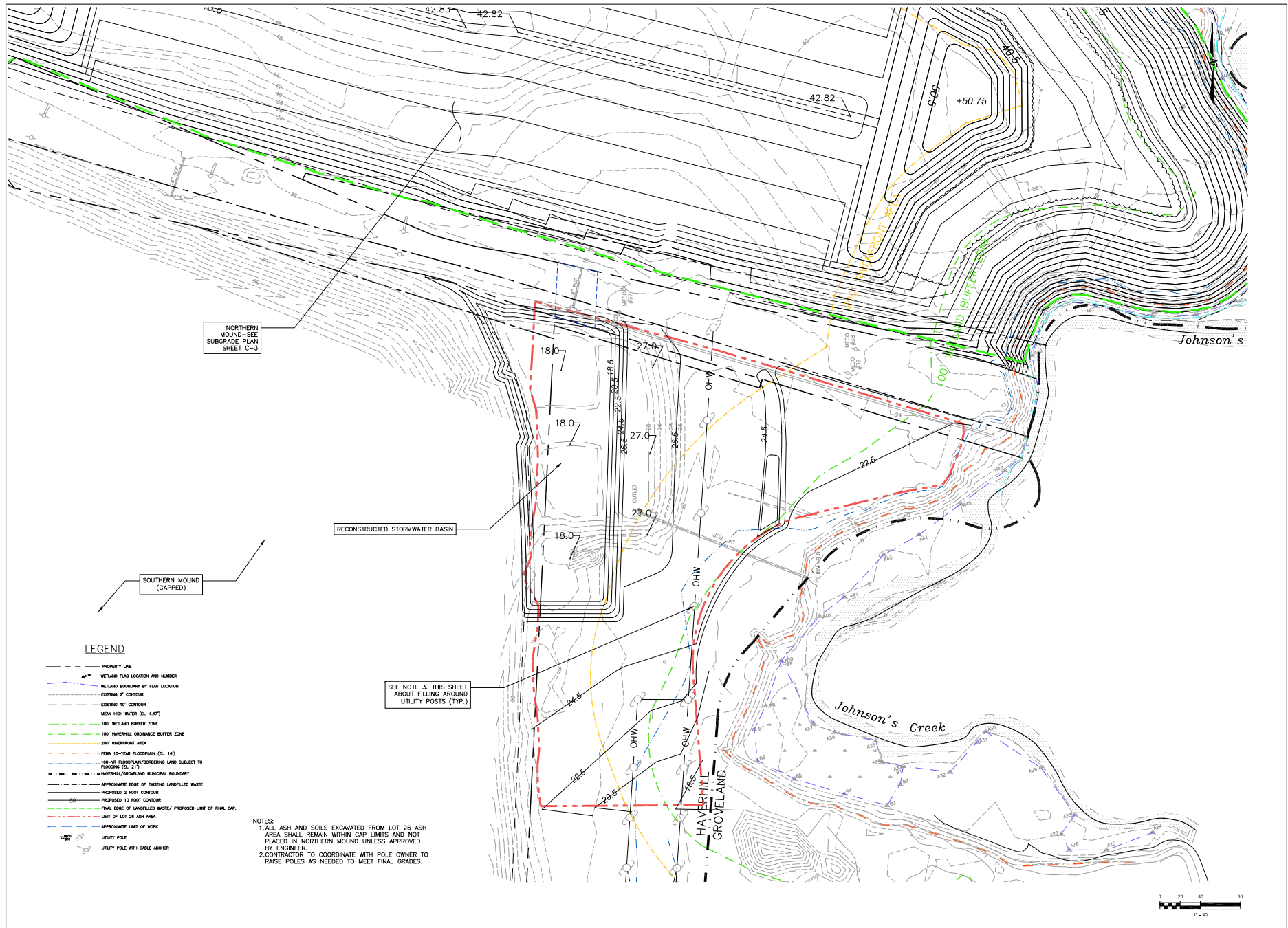


Langdon
Environmental LLC

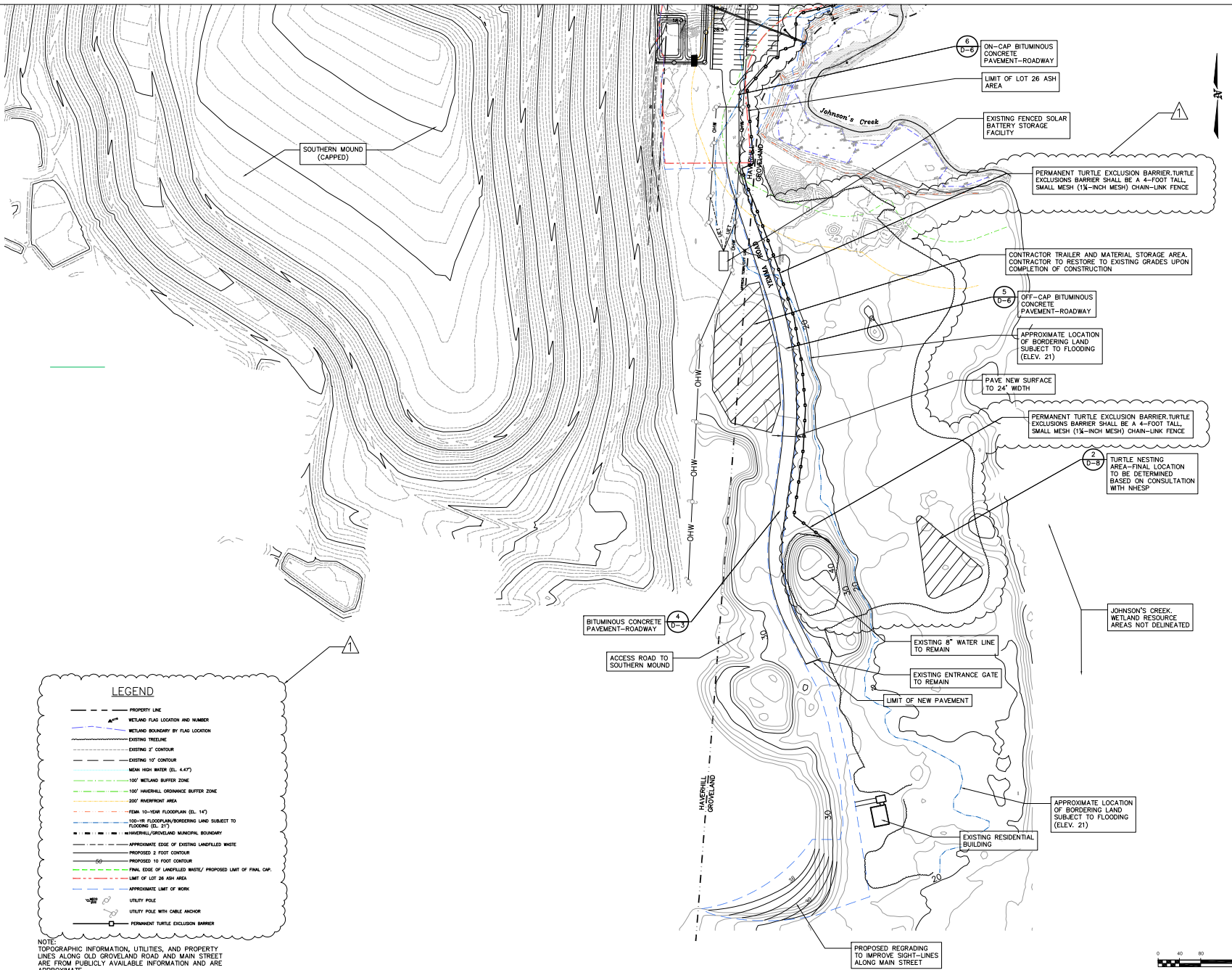
Proj. Mgr: BWB
Designed: JEC
Drawn: JEC
Checked: JEC
Scale: AS NOTED
Date: OCT 2024

SITE PREPARATION AND EROSION
CONTROLS PLAN- NORTHERN MOUND
HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Des. No.



WASTE RELOCATION/CAP SUBGRADE PLAN-LOT 26 ASH AREA HAVERHILL LANDFILL-NORTHERN MOUND & LOT 26 ASH AREA HAVERHILL MASSACHUSETTS		Proj. Mgr: BMH Designed: JEC Drawn: JEC Checked: BMH Scale: AS NOTED Date: OCT. 2024  Langdon Environmental LLC 400 THE HILL, PO BOX 511 HAVERHILL, MA 01832 (978) 895-5885	 James J. Conboy Professional Engineer State of Massachusetts No. 10622 REVISIONS <table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																																																												
Proj. No. Desig. No. C-3A																																																															



LEGEND

- PROPERTY LINE
- WETLAND FLAG LOCATION AND NUMBER
- WETLAND BOUNDARY BY FLAG LOCATION
- EXISTING TREELINE
- EXISTING 1' CONTOUR
- EXISTING 10' CONTOUR
- MEAN HIGH WATER (SL 4.47)
- 100' WETLAND BUFFER ZONE
- 100' HAVERHILL ORDINANCE BUFFER ZONE
- 200' ROADFRONT AREA
- FEMA 10-YEAR FLOODPLAIN (SL 14')
- 100-YR FLOODPLAIN/BORDERING LAND SUBJECT TO FLOODING (SL 21')
- HAVERHILL/GROVELAND MUNICIPAL BOUNDARY
- APPROXIMATE EDGE OF EXISTING UNFILLED WASTE
- PROPOSED 3 FOOT CONTOUR
- PROPOSED 10 FOOT CONTOUR
- FINAL EDGE OF UNFILLED WASTE/ PROPOSED LIMIT OF FINAL CAP
- LIMIT OF LOT 26 ASH AREA
- APPROXIMATE LIMIT OF WORK
- UTILITY POLE
- UTILITY POLE WITH CABLE ANCHOR
- PERMANENT TURTLE EXCLUSION BARRIER

NOTE:
TOPOGRAPHIC INFORMATION, UTILITIES, AND PROPERTY
LINES ALONG OLD GROVELAND ROAD AND MAIN STREET
ARE FROM PUBLICLY AVAILABLE INFORMATION AND ARE
APPROXIMATE.

Langdon Environmental LLC

400 Hill St., 10th Fl.,
Boston, MA 02111
(617) 891-3883

Proj. Mgr.: BWB
Designed: JEC
Drawn: JEC
Checked: JEC
Scale: AS NOTED
Date: OCT. 2024

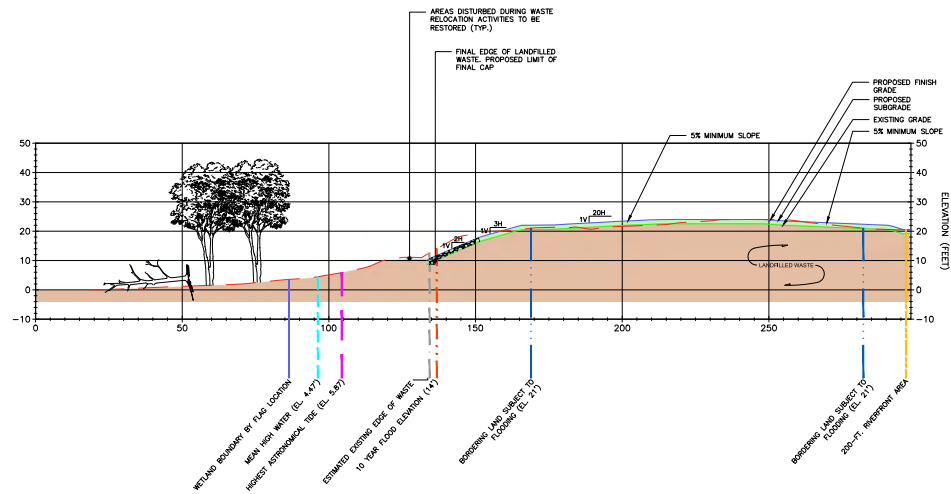
FINISH GRADE PLAN - YEMAH ROAD
HAVERHILL LANDFILL - NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Dwg. No.

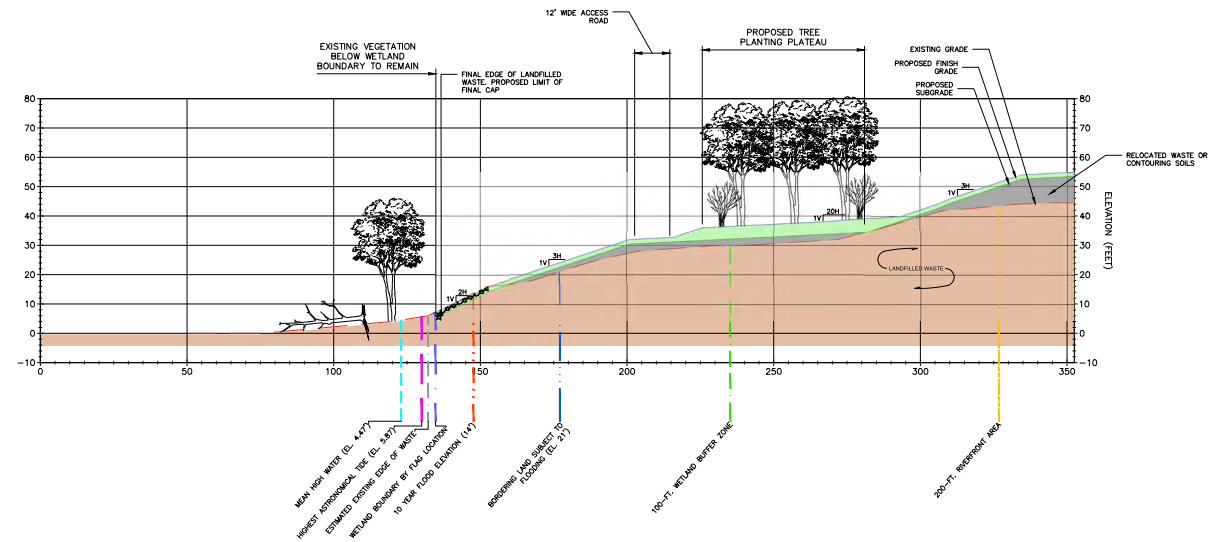
C-4G

NO.	DATE	BY	CHECKED	DESCRIPTION	RESPONSE TO REGULATORY COMMENTS
1	5/14/25	JEC	BW		

REVISIONS



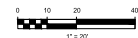
SECTION A-A'



SECTION B-B'

- NOTES:
1. SEE SHEET C-4A FOR LEGEND INFORMATION
 2. TEMPORARILY ALTERED BVM AND VWM WILL BE RESTORED IN-PLACE BY:
 - A. ESTABLISHING SUB-GRADES WITH COMMON FILL
 - B. ESTABLISHING FINISH GRADES WITH 12-INCHES OF ORGANIC RICH TOPSOIL
 - C. ESTABLISHING FINISH GRADES TO MATCH PRE-CONSTRUCTION GRADES OR SLIGHTLY LOWER
 - D. SEEDING THE DISTURBED BVM OR VWM WITH A WETLAND SEED MIX (NEW ENGLAND WETLAND PLANTS, INC. - NEW ENGLAND WETMIX, OR APPROVED EQUAL).

NOTE:
SEE SHEET C-4 FOR
SECTION LOCATIONS



REVISIONS



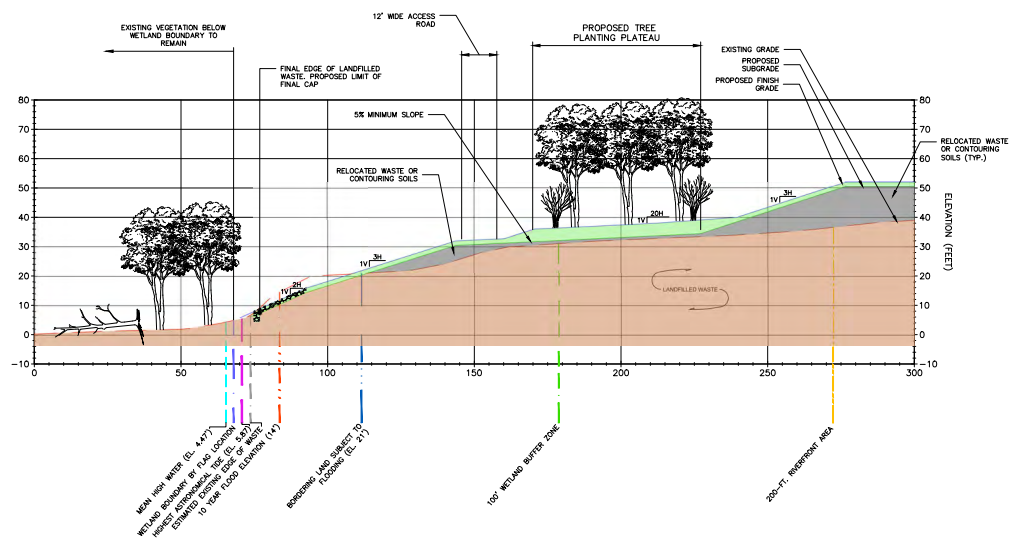
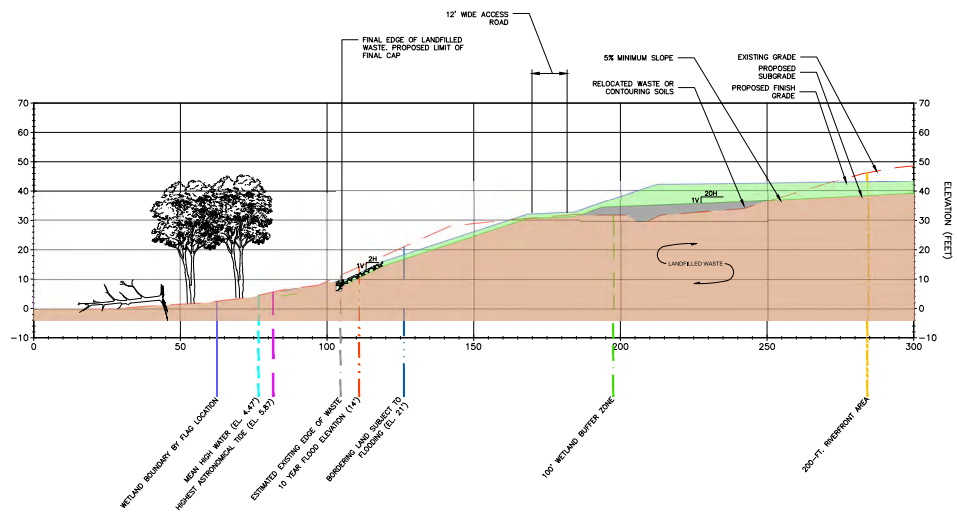
Langdon
Environmental LLC
400 THE HILL, PO BOX 511
HAVERHILL, MA 01830
(978) 271-2000

Proj. Mgr.: BMH
Designed: JEC
Drawn: JEC
Checked: BMH
Scale: AS SHOWN
Date: OCT. 2004

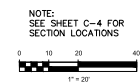
CROSS SECTIONS I-NORTHERN MOUND
HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Dwg. No.

C-7



- NOTES:
1. SEE SHEET C-4A FOR LEGEND INFORMATION
 2. TEMPORARILY ALTERED BVW AND IWV WILL BE RESTORED IN-PLACE
 3. ESTABLISHING SUB-GRADES WITH COMMON FILL.
 4. ESTABLISHING FINISH GRADES WITH 12-INCHES OF ORGANIC RICH TOPSOIL.
 5. ESTABLISHING FINISH GRADES TO MATCH PRE-CONSTRUCTION GRADES OR SLIGHTLY LOWER
 6. SEEDING THE DISTURBED BVW OR IWV WITH A WETLAND SEED MIX (NEW ENGLAND WETLAND PLANTS, INC. - NEW ENGLAND WETMIX, OR APPROVED EQUAL).

[illegible]

Langdon
Environmental LLC

PORTSMOUTH, NH 03802
(617) 875-3023

-3023-

Proj. Mgr.: BWH
Designed : JEC
Drawn : JEC
Checked : BWH
Scale : AS NOTED
Date : OCT. 2024

Designed: _____
 Drawn: JES
 Checked: E
 Date: 12/11/2011

Desk
Draw
Check
B...

--	--

D	D
---	---

11

CROSS SECTIONS II-NORTHERN MOUND

HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL MASSACHUSETTS

HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL MASSACHUSETTS

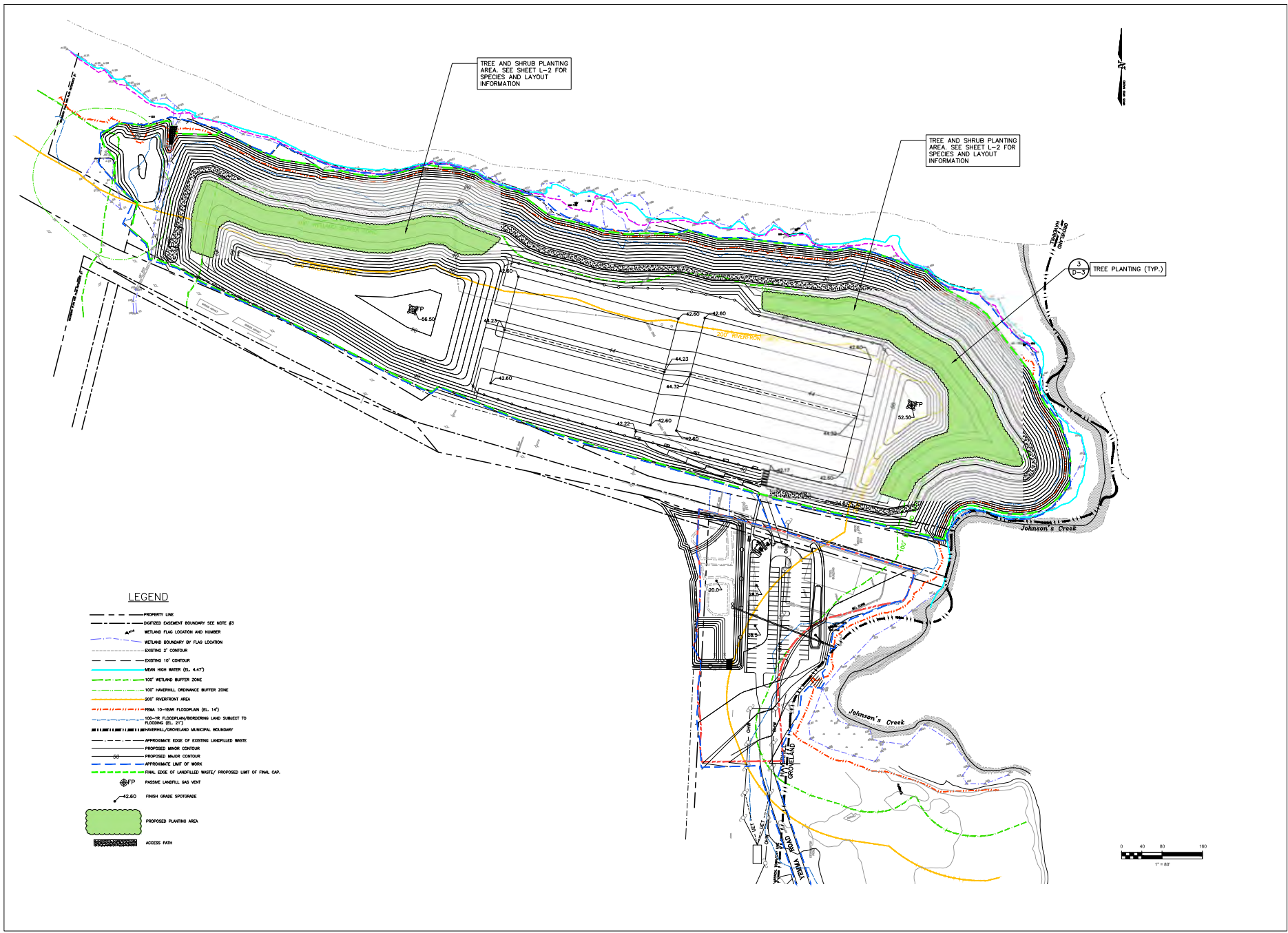
CHILL LANDFILL-NORTHERN
& LOT 26 ASH AREA
HAVERHILL MASSACHUSETTS

CHILL LANDFILL-NORTHERN
& LOT 26 ASH AREA
HAVERHILL MASSACHUSETTS

Proj. No.	
Dwg. No.	

Dwg. No.

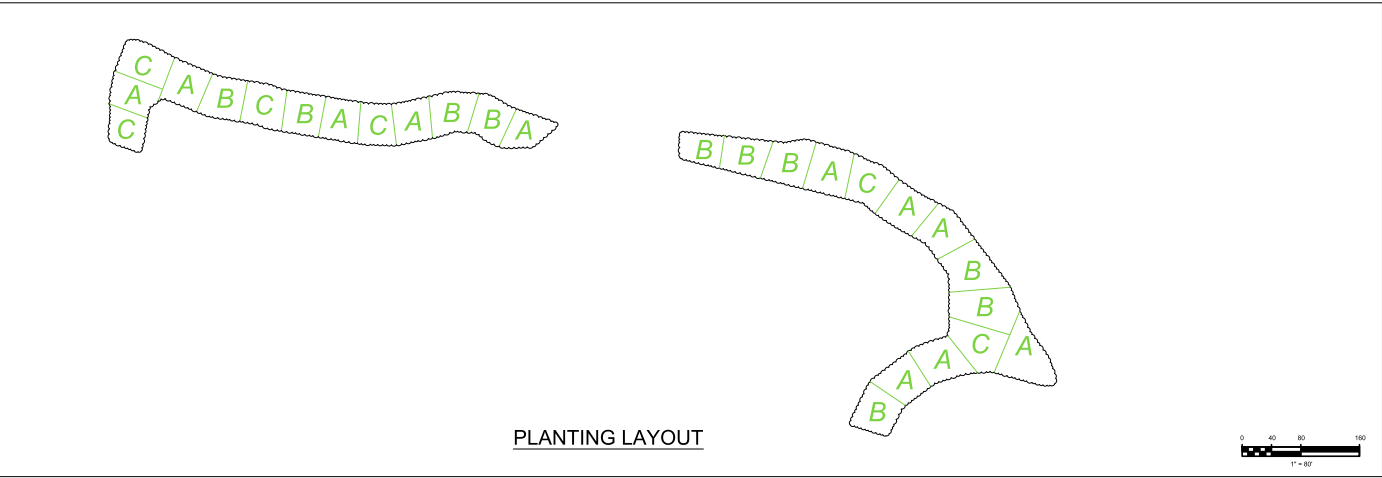
C-8



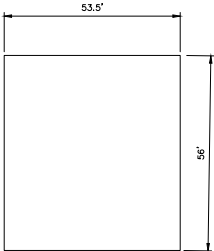
LEGEND

- PROPERTY LINE
- DIGITIZED EXISTENT BOUNDARY SEE NOTE #3
- WETLAND FLAG LOCATION AND NUMBER
- WETLAND BOUNDARY BY FLAG LOCATION
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- MEAN HIGH WATER (EL. 4.47)
- 100' WETLAND BUFFER ZONE
- 100' HAVERHILL ORDINANCE BUFFER ZONE
- 200' RIVERFRONT AREA
- FEMA 10-YEAR FLOODPLAIN (EL. 14')
- 100-YR FLOODPLAIN/RETAINING LAND SUBJECT TO FLOODING (EL. 21')
- HAVERHILL/CONCORD MUNICIPAL BOUNDARY
- APPROXIMATE EDGE OF EXISTING LANDFILLED WASTE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- APPROXIMATE LIMIT OF WORK
- FINAL EDGE OF LANDFILLED WASTE/ PROPOSED LIMIT OF FINAL CAP
- PASSIVE LANDFILL GAS VENT
- FINISH GRADE SPOTGRADE
- PROPOSED PLANTING AREA
- ACCESS PATH

Langdon Environmental LLC	
495 HIG. RD., PO BOX 911 HAVERHILL, MA 01830	
Proj. Mgr.: BMH Designed: JEC Drawn: JEC Checked: BMH Scale: AS SHOWN Date: OCT. 2024	
LANDSCAPE PLAN—NORTHERN MOUND HAVERHILL LANDFILL—NORTHERN MOUND & LOT 26 ASH AREA HAVERHILL, MASSACHUSETTS	
Proj. No.	
Dwg. No.	L-1



PLANTING LOT = +/- 3,000SF



PLANTING LOT A

SPECIES	QUANTITY
RED MAPLE	8
RIVER BIRCH	7
HEMLOCK	5
WINTERBERRY	4

PLANTING LOT B

SPECIES	QUANTITY
RED OAK	8
WHITE OAK	7
BASSWOOD	5
MOUNTAIN LAUREL	4

PLANTING LOT C

SPECIES	QUANTITY
ELDERBERRY	5
VIBURNUM	15
BLUEBERRY	16

NOTE:
SEE SHEET L-1 FOR PLANTING LOCATIONS

Plant Schedule					
Symbol	Quantity	Botanical Name	Common Name	Size	Root
Trees					
AR	88	ACER RUBRUM	RED MAPLE	2-2.5" CAL.	BB
QR	80	QUERCUS RUBRA	RED OAK	2-2.5" CAL.	BB
QA	70	QUERCUS ALBA	WHITE OAK	2-2.5" CAL.	BB
TC	55	TSUGA CANADENSIS	CANADIAN HEMLOCK	5'-6" H	BB
BN	77	BETULA NIGRA	RIVER BIRCH	1.5-2" CAL.	BB
TA	50	TILIA AMERICANA	BASSWOOD	2-2.5" CAL.	BB
Shrubs					
IV	44	ILEX VERTICILLATA	COMMON WINTERBERRY	#7 POT	20% MALE
KL	40	KALMIA LATIFOLIA	MOUNTAIN LAUREL	3-4' H	COLLECTED
VC	96	VACCINIUM CORYMBOSUM	HIGH BUSH BLUEBERRY	3-4' H	
VD	90	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	#7 POT	
SC	30	SAMBUCUS CANADENSIS	AMERICAN ELDER	#7 POT	

NOTES:
1. FINAL PLANTING LOCATIONS SHALL BE AS DIRECTED BY ENGINEER.
2. PLANTINGS MAY BE MODIFIED BASED ON DEPTH OF SOILS ABOVE FINAL CAP AS INSTALLED.

REVISIONS

Langdon Environmental LLC

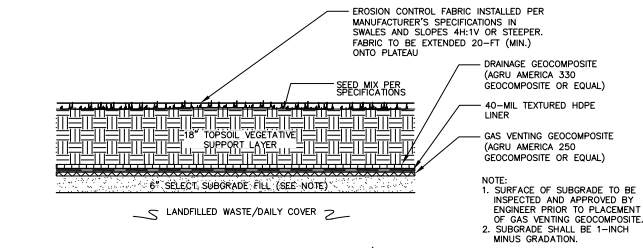
495 N.E. Hill, P.O. Box 911
Haverhill, MA 01830
(978) 89-3883

Proj. Mgr.: BMH
Designed: JEC
Drawn: JEC
Checked: BMH
Scale: AS SHOWN
Date: OCT. 2024

LANDSCAPE LAYOUT PLAN AND
SCHEDULE—NORTHERN MOUND
HAVERHILL LANDFILL—NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

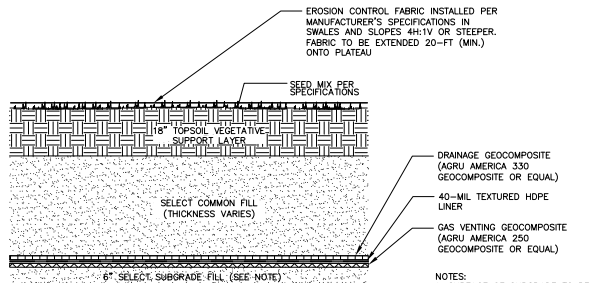
Proj. No.
Dwg. No.

L-2



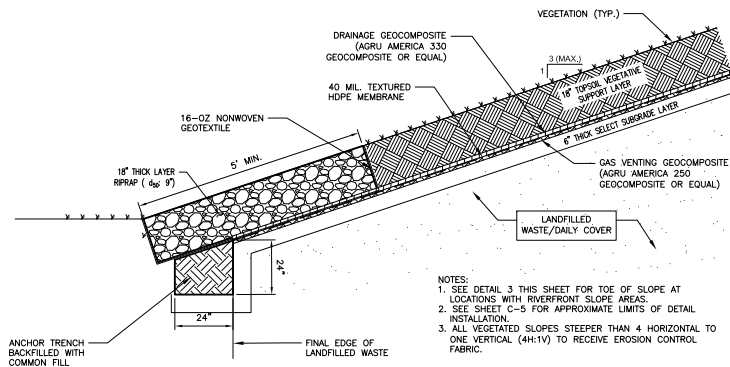
TYPICAL VEGETATED CAP CROSS SECTION-NORTHERN MOUND / LOT 26 ASH AREA

DETAIL 1
N.T.S. D-1



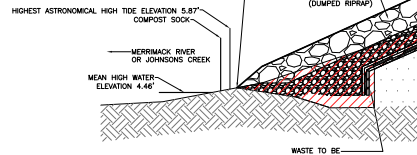
TYPICAL VEGETATED CAP CROSS SECTION-PLANTING AND FIELD AREAS-NORTHERN MOUND

DETAIL 2
N.T.S. D-1



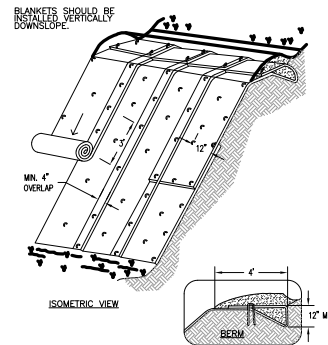
TYPICAL FINAL CAP SYSTEM TOE OF SLOPE ANCHORING-NON RIVERFRONT AREAS- NORTHERN MOUND

DETAIL 4
SCALE: NTS D-1



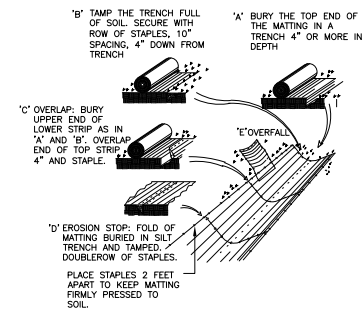
PROPOSED EDGE OF LANDFILL CAP ALONG RIVERFRONT AREAS-NORTHERN MOUND

DETAIL 3
N.T.S. D-1



SLOPE CONDITION

- NOTES:
1. ALL SLOPES STEEPER THAN 4H:1V SHALL BE COVERED BY EROSION CONTROL BLANKET.
 2. STAPLE DIMENSIONS AND SIZE PER MANUFACTURER'S SPECIFICATIONS. STAPLES SHALL NOT BE LONGER THAN 12\"



SWALE CONDITION

EROSION CONTROL BLANKET-ALL AREAS

DETAIL 5
N.T.S. D-1

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	08/20/2024
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	

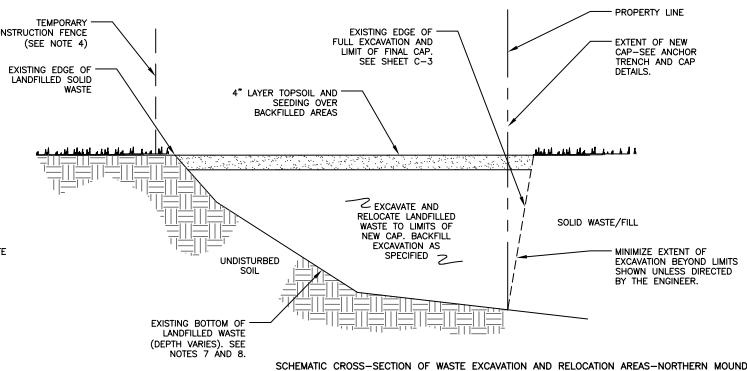


Proj. Mgr.: BMH
Designed: JEC
Drawn: JEC
Checked: JEC
Scale: AS NOTED
Date: OCT. 2024

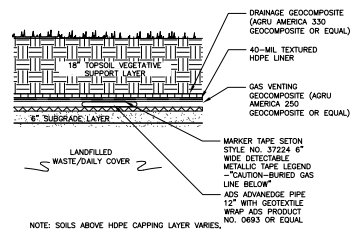
DETAILS 1
HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Desg. No.

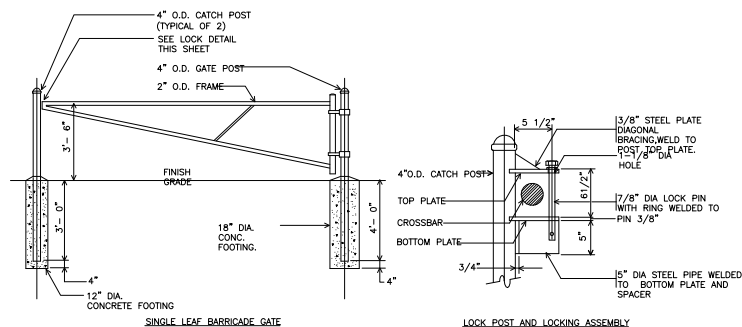
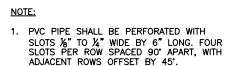
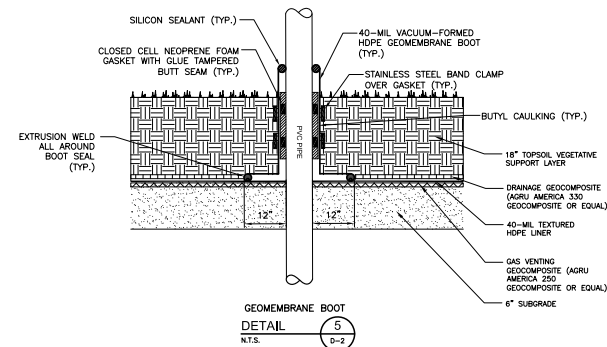
D-1



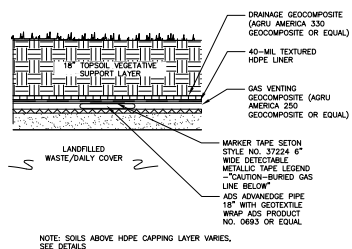
- NOTES:
1. GAS VENT BOREHOLE TO BE ADVANCED MINIMUM DEPTH OF TEN FEET BELOW FINAL GRADE.
 2. PLACE 12" THICK BENTONITE SEAL AT THE BOTTOM OF BOREHOLE PRIOR TO THE PLACEMENT OF VENT.
 3. VENT WELD COUPLING TO FULL CONTACT AREA OF BOTH PIPES.
 4. INSTALL SOLAR VENT FLARE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 5. CONTRACTOR TO PROVIDE RECOMMENDED APPROACH TO CONNECT HORIZONTAL HEATER COLLECTION PIPES TO GAS VENT TO ENGINEER FOR REVIEW AND APPROVAL.



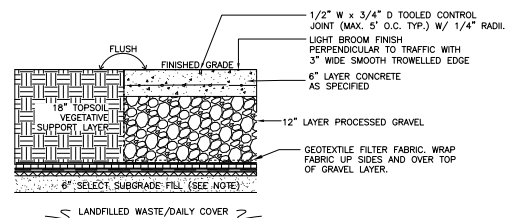
TYPICAL LANDFILL GAS HEADER COLLECTION LATERAL PIPE—NORTHERN MOUND



BARRICADE GATE
DETAIL 6
NOT TO SCALE D-2



TYPICAL LANDFILL GAS HEADER COLLECTION PIPE—NORTHERN MOUND

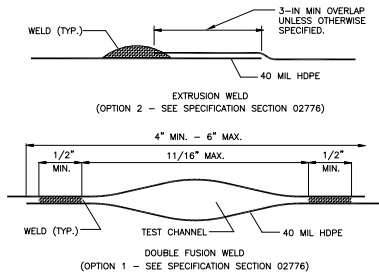


CONCRETE PAD ON CAP
DETAIL

N.T.S.

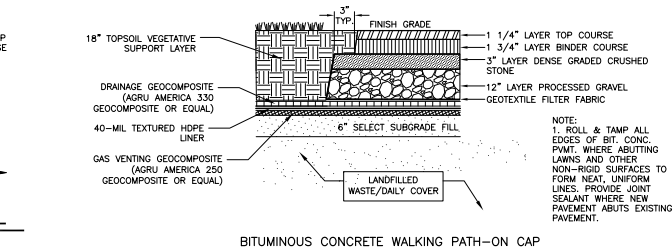
8
D-2

- NOTES:
1. DURING WASTE EXCAVATION, A 6-INCH CLEAN SOIL COVER LAYER TO BE PLACED OVER EXPOSED WASTE AT THE END OF EACH DAY. EXCAVATION TO BE ALTERNATELY PROBABLY WEIGHTED AS FINE, MEDIUM SOIL COVER WITH APPROVAL BY ENGINEER.
 2. EXCAVATION SHALL NOT BE ALLOWED TO RUN INTO OPEN EXCAVATION AREAS.
 3. CONTRACTOR TO MINIMIZE EXPOSURE OF OPEN EXCAVATION TO THE PUBLIC.
 4. FOR WASTE EXCAVATION ADJACENT TO AND ALONG HIGHWAY, CONTRACTOR SHALL MAINTAIN TEMPORARY FENCING AND TAKE ALL NECESSARY ADDITIONAL MEASURES TO PREVENT ACCESS TO EXCAVATION AND ACTIVE CONSTRUCTION AREAS.
 5. EXPOSED AREAS SHALL BE CAP TO BE BACKFILLED WITH SOIL TYPES AS SPECIFIED. FINISH BACKFILL GRADIENTS TO BE EXISTING.
 6. REPAIR OF ANY UNDESIRABLE SLOPE ON SHEET C-4 IS DIFFERENT.
 7. REMOVAL OF UNDESIRABLE SLOPE TO BE DETERMINED BY ENGINEER BASED ON EVIDENCE OF ALL SOIL BASED AND VISUALLY INSPECTED SOILS.
 8. CONTRACTOR TO PROVIDE SURVEYED ELEVATION AND LIMITS OF BOTTOM OF WASTE EXCAVATION AREAS.



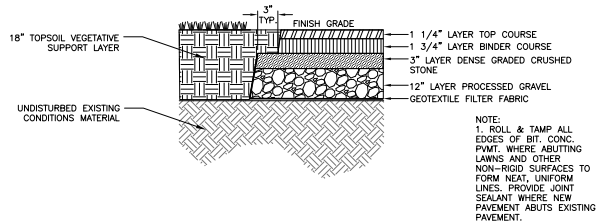
HDPE WELD DETAIL

DETAIL 1
SCALE: N.T.S. D-3



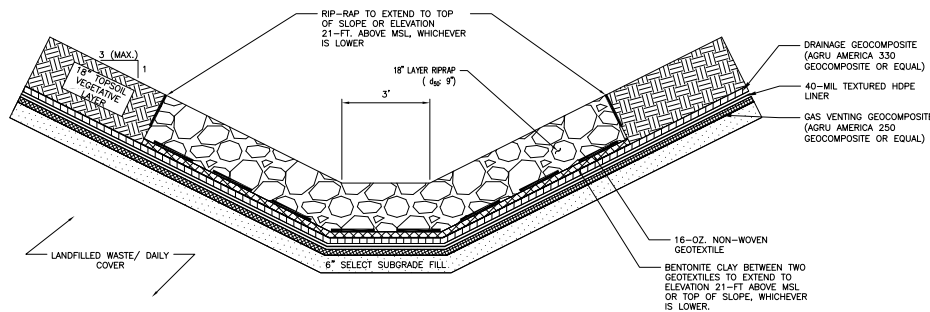
BITUMINOUS CONCRETE WALKING PATH-ON CAP

DETAIL 2
N.T.S. D-3



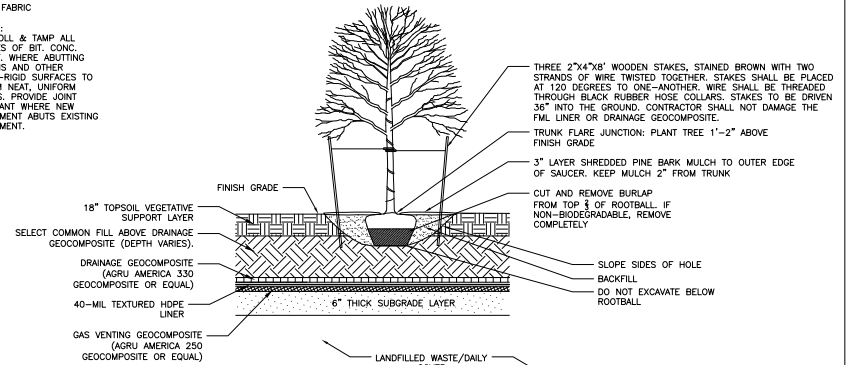
BITUMINOUS CONCRETE WALKING PATH-OFF CAP

DETAIL 4
N.T.S. D-3



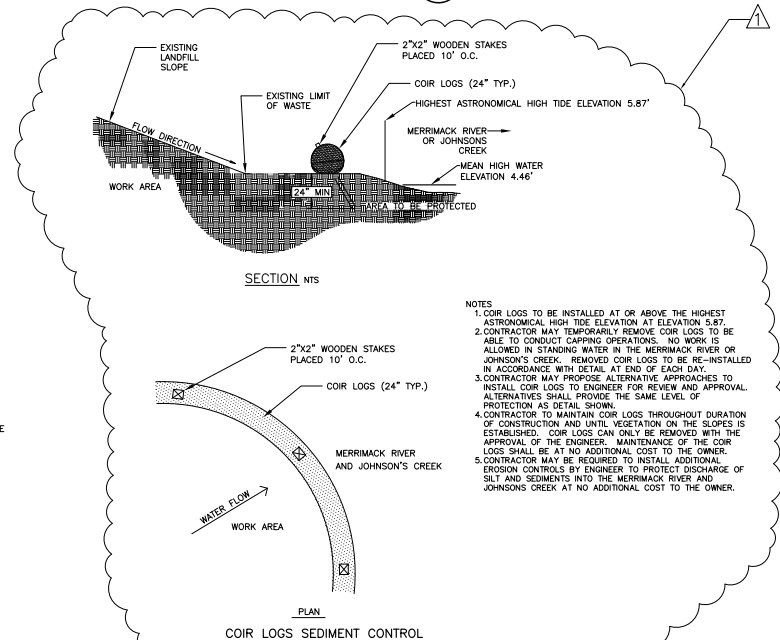
INTERMITTENT STREAM CHANNEL

DETAIL 6
N.T.S. D-3



TREE PLANTING

DETAIL 3
NOT TO SCALE D-3



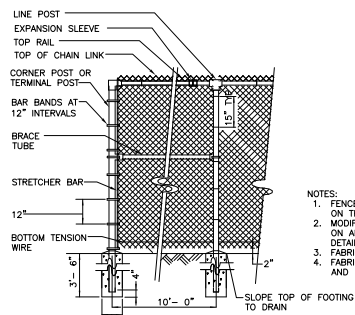
COIR LOGS SEDIMENT CONTROL

DETAIL 5
N.T.S. D-3

NO.	DATE	CHECKED BY	DESCRIPTION	RESPONSE TO REGULATORY COMMENTS	REVISIONS
1	5/14/25	JC			

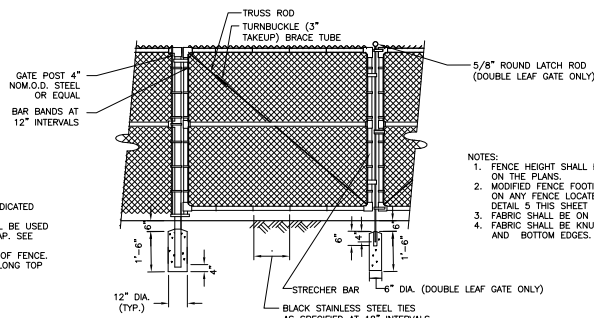
Langdon Environmental LLC 600 THE HILLS, 2ND FLOOR, SUITE 201 HAVERTHILL, MA 01930 (978) 261-0000	Proj. Mgr.: BWH Designed: JEC Drawn: JEC Checked: BWH Scale: AS NOTED Date: OCT. 2024	DETAILS III HAVERHILL LANDFILL-NORTHERN MOUND & LOT 26 ASH AREA HAVERHILL, MASSACHUSETTS
---	--	--

Proj. No. Dwg. No.	D-3
-----------------------	-----



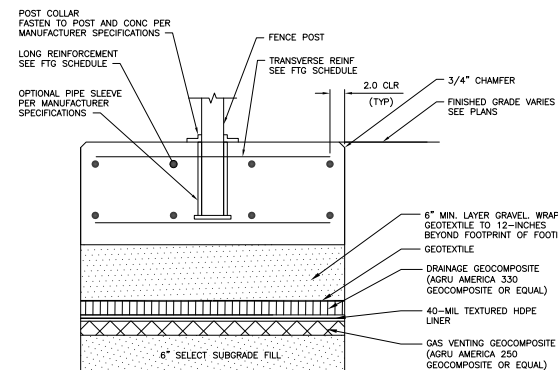
CHAIN LINK FENCE
DETAIL 1
NOT TO SCALE
D-4

- NOTES:
1. FENCE HEIGHT SHALL BE AS INDICATED ON THE PLANS.
 2. MODIFIED FENCE FOOTING SHALL BE USED ON ANY FENCE LOCATED ON CAP. SEE DETAIL 5 THIS SHEET.
 3. FABRIC SHALL BE ON OUTSIDE OF FENCE.
 4. FABRIC SHALL BE KNUCKLED ALONG TOP AND BOTTOM EDGES.



CHAIN LINK FENCE-LEAF SWING GATE
DETAIL 2
NOT TO SCALE
D-4

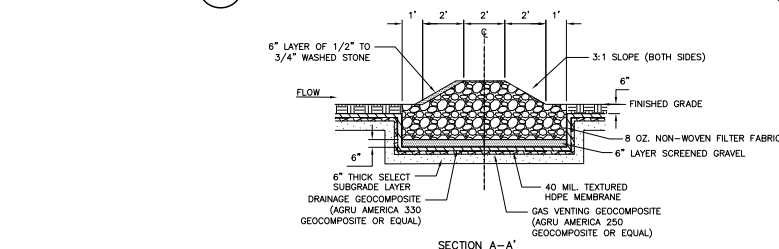
- NOTES:
1. FENCE HEIGHT SHALL BE AS INDICATED ON THE PLANS.
 2. MODIFIED FENCE FOOTING SHALL BE USED ON ANY FENCE LOCATED ON CAP. SEE DETAIL 5 THIS SHEET.
 3. FABRIC SHALL BE ON OUTSIDE OF FENCE.
 4. FABRIC SHALL BE KNUCKLED ALONG TOP AND BOTTOM EDGES.



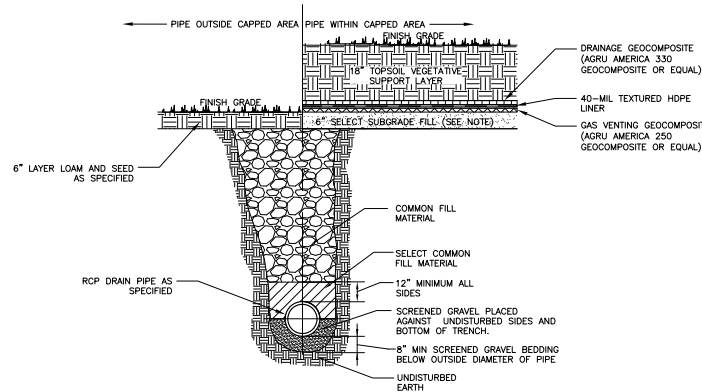
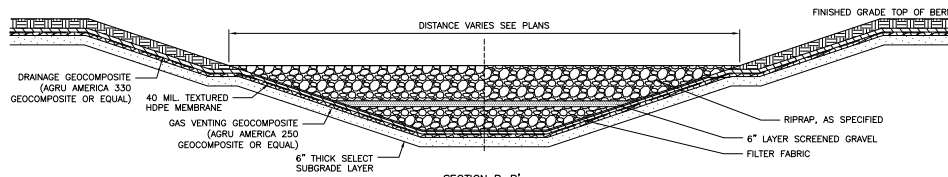
MODIFIED FENCE FOOTING SCHEDULE				
	FOOTING HEIGHT	FOOTING WIDTH	LONGITUDINAL REINFORCEMENT	TRANSVERSE REINFORCEMENT
4'-0" FENCE	1'-2"	2'-0"	2-#4 T&B	#4@12
6'-0" FENCE				
8'-0" FENCE	1'-2"	3'-6"	4-#4 T&B	#4@12

- NOTE:
1. MODIFIED FOOTINGS SHALL BE USED IN LOCATIONS WHERE FENCE IS TO BE INSTALLED ABOVE CAPPED AREAS WITH LESS THAN 4'-FT. COVER OVER DRAINAGE GEOCOMPOSITE. LOCATIONS TO BE CONFIRMED BY CONTRACTOR.

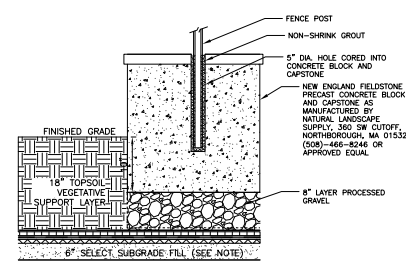
MODIFIED FENCE FOOTING ON TOP OF FML CAP
SECTION 4
NOT TO SCALE
D-4



FOREBAY
SECTION A-A
DETAIL 3
SCALE: NTS
D-4



PIPE TRENCH DETAIL
DETAIL 5
NOT TO SCALE
D-4



LANDFILL WASTE/DAILY COVER
FENCE ON PRECAST CONCRETE BLOCK
DETAIL 6
NTS
D-4

Langdon Environmental LLC

400 Hill Rd, Ste 101
Haverhill, MA 01830
(978) 875-2000

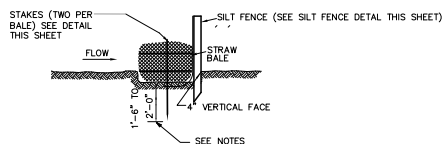
Proj. Mgr.: BWH
Designed: JEC
Drawn: JEC
Checked: JEC
Scale: AS NOTED
Date: OCT. 2024

DETAILS IV

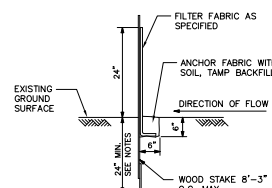
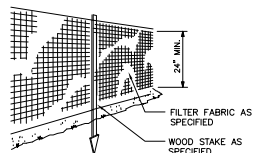
HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Dwg. No.

D-4

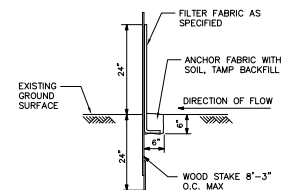
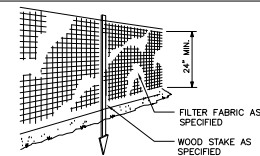


EROSION CONTROLS—LOT 26 ASH AREA



SILT FENCE DETAIL
N.T.S.

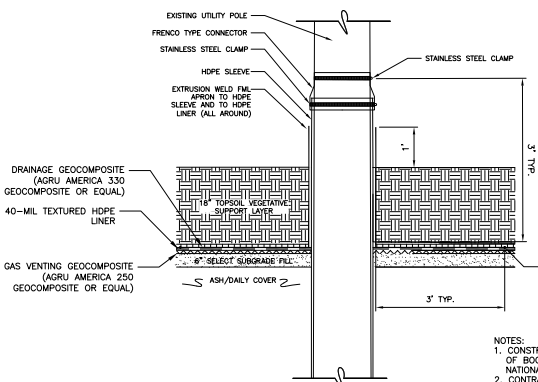
NOTE:
1. EROSION CONTROLS TO BE MAINTAINED BY CONTRACTOR FOR THE DURATION OF CONSTRUCTION. EROSION CONTROLS TO BE REPAIRED OR REPLACED AS REQUIRED OR AS DIRECTED BY THE ENGINEER.



NOTES:

1. CONTRACTOR TO MAINTAIN TURTLE EXCLUSION FENCE FOR THE DURATION OF CONSTRUCTION, EXCEPT AS NEEDED TO CONSTRUCT FINAL CAP AND PARKING AREA.
2. SEE PROJECT MANUAL FOR TIME OF YEAR RESTRICTIONS TO REMOVE EXCLUSION FENCE IF NEEDED FOR CONSTRUCTION.

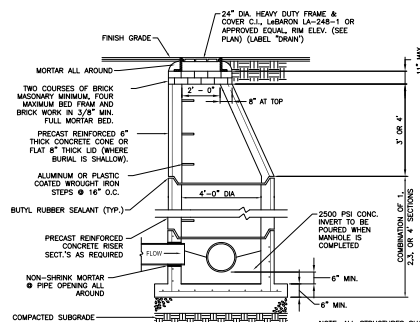
CONSTRUCTION TURTLE EXCLUSION FENCE



POLE PENETRATION BOOT DETAIL

NOTES:

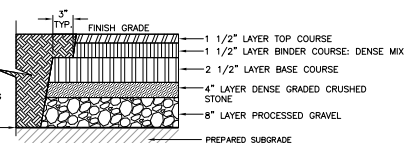
1. CONSTRUCTION TO COORDINATE INSTALLATION OF BOOT WITH SOLAR OPERATOR AND NATIONAL GRID AS REQUIRED
2. CONTRACTOR TO HOLD POLE IN-PLACE AS REQUIRED TO INSTALL BOOT.
3. EXISTING POLES MAY HAVE TO BE RAISED OR LOWERED PRIOR TO INSTALLATION OF BOOT. SEE FINAL GRADES ON SHEET C-4E.



DRAINAGE MANHOLE
DETAIL 4
SCALE: NTS D-6

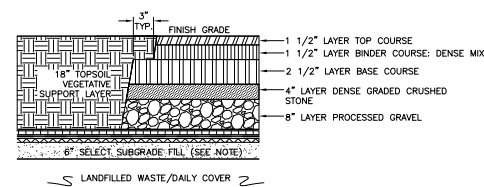
NOTE: ALL STRUCTURES SHALL
BE SUITABLE FOR H-20
LOADING AND SHALL MEET THE
REQUIREMENTS OF ASTM C478

NOTES



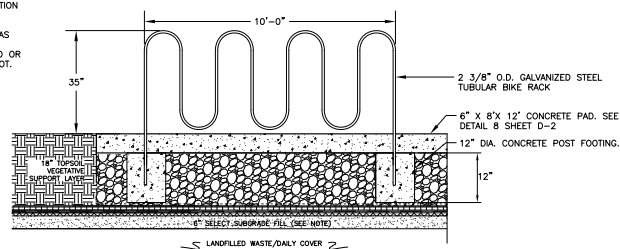
OFF-CAP BITUMINOUS CONCRETE PAVEMENT: ROADWAY

DETAIL 5
SCALE: NTS D-6



ON-CAP BITUMINOUS CONCRETE PAVEMENT: ROADWAY

DETAIL 6
SCALE: NTS D-6



BICYCLE RACK

DETAIL 7
NOT TO SCALE D-6



104 THE HILL, PO BOX 511
PORTSMOUTH, NH 03802

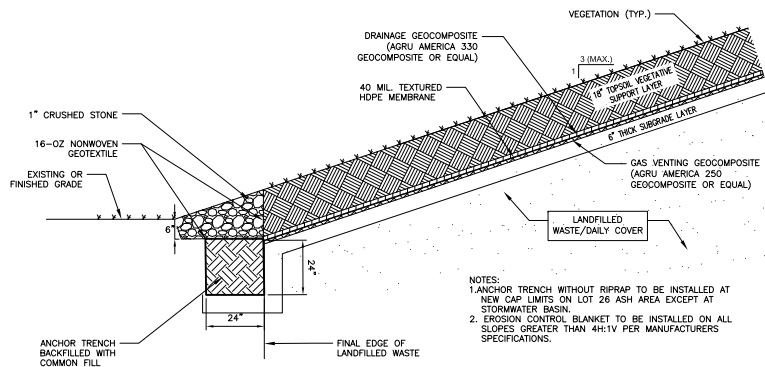
Proj. Mgr: BWH
Designed: JEC
Drawn: JEC
Checked: BWH
Scale: AS NOTED
Date: OCT. 2024

DETAILS VI

Haverhill Landfill-Northern Mound
& Lot 26 Ash Area
Haverhill Massachusetts

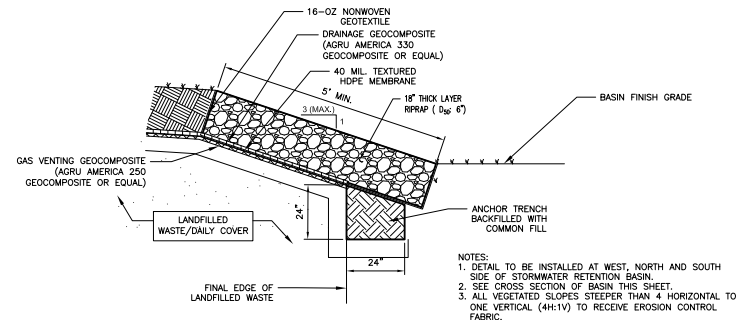
Proj. No.
Dwg. No.

D-6



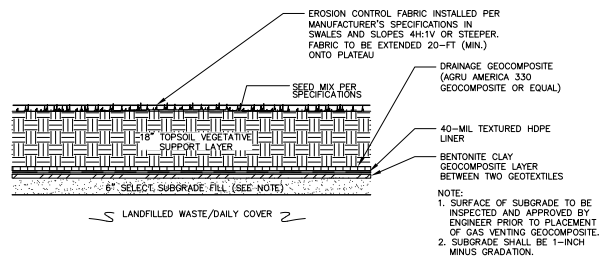
TYPICAL FINAL CAP SYSTEM TOE OF SLOPE ANCHORING-NON BASIN AREAS- LOT 26 ASH AREA

DETAIL 1
SCALE: N.T.S.



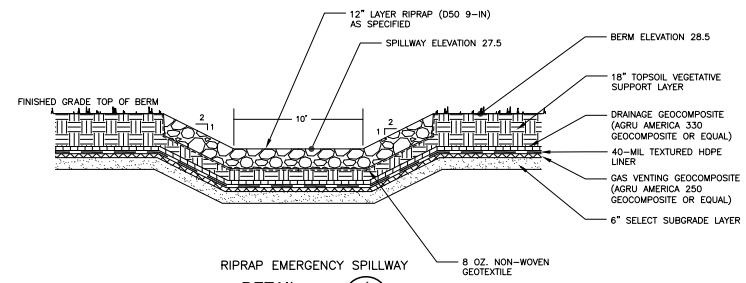
RIPRAP TOE OF SLOPE & ANCHOR TRENCH AT BASIN-LOT 26 ASH AREA

DETAIL 2
N.T.S.



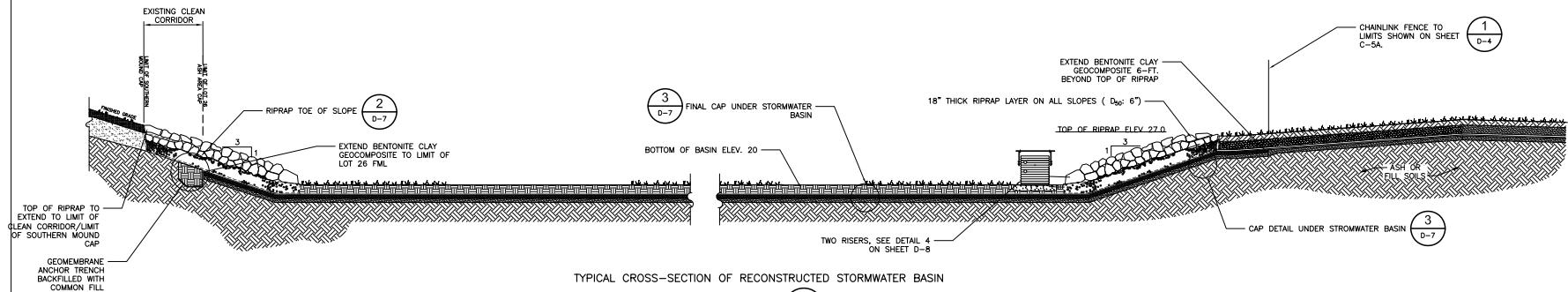
TYPICAL CAP CROSS SECTION UNDER BASIN AND BIORETENTION SWALE-LOT 26 ASH AREA

DETAIL 3
N.T.S.



RIPRAP EMERGENCY SPILLWAY

DETAIL 4
N.T.S.



TYPICAL CROSS-SECTION OF RECONSTRUCTED STORMWATER BASIN

DETAIL 5
N.T.S.

REVISIONS



Langdon
Environmental LLC
400 NEW HAVEN RD. SUITE 411
HARTFORD, CT 06115
(860) 234-1000

Proj. Mgr: BWH
Designed: JEC
Drawn: JEC
Checked: BWH
Scale: AS NOTED
Date: OCT. 2024

DETAILS VII
HAVERHILL LANDFILL-NORTHERN MOUND
& LOT 26 ASH AREA
HAVERHILL, MASSACHUSETTS

Proj. No.
Dwg. No.

D-7

