Commonwealth of Massachusetts

Executive Office of Environmental Affairs ■ MEPA Office

ENF

Environmental Notification Form

For Office Use Only *Executive Office of Environmental Affairs*
EOEA No.: 14231
MEPA Analyst: Bill Gage
Phone: 617-626 1025

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **MCI-Plymouth Facility- Wastewater Expansion**		
Street: **1 Bumps Pond Road, Myles Standish State Forest**		
Municipality: **Plymouth**	Watershed: **Buzzards Bay**	
Universal Tranverse Mercator Coordinates: **x- 362108.0494406293** **y- 4634310.067453383**	Latitude: **41.848687** Longitude: **70.661052**	
Estimated commencement date: **06/15/2008**	Estimated completion date: **11/30/2008**	
Approximate cost: **$3,900,000**	Status of project design: **30** %complete	
Proponent: **Division of Capital Asset Management (DCAM)**		
Street: **One Ashburton Place, 15th Floor**		
Municipality: **Boston**	State: **MA**	Zip Code: **02108**
Name of Contact Person From Whom Copies of this ENF May Be Obtained: **Joseph Longo, Associate Principal**		
Firm/Agency: **Horsley Witten Group, Inc.**	Street: **90 Route 6A**	
Municipality: **Sandwich**	State: **MA**	Zip Code: **02563**
Phone: **508-833-6600** Fax: **508-833-3150**	E-mail: **jlongo@horsleywitten.com**	

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?

☐Yes ☒**No**

Has this project been filed with MEPA before?

☐Yes (EOEA No._____) ☒**No**

Has any project on this site been filed with MEPA before?

☐Yes (EOEA No._____) ☒**No**

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting: **No**

a Single EIR? (see 301 CMR 11.06(8))	☐Yes	☒**No**
a Special Review Procedure? (see 301CMR 11.09)	☐Yes	☒**No**
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes	☒**No**
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes	☒**No**

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres): **The Division of Capital Asset Management (DCAM) is providing 100% of the project funding with Commonwealth appropriated funds.**

Are you requesting coordinated review with any other federal, state, regional, or local agency?
☐Yes(Specify) ☒**No**

List Local or Federal Permits and Approvals: **N/A (See State Permits & Approvals below)**

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

☐ **Land**	☐ Rare Species	☐ Wetlands, Waterways, & Tidelands
☐ Water	☒ **Wastewater**	☐ Transportation
☐ Energy	☐ Air	☐ Solid & Hazardous Waste
☐ ACEC	☐ Regulations	☐ Historical & Archaeological Resources

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	407 acres		
New acres of land altered		1.1 acres	
Acres of impervious area	3.6 acres	.104 acres (4,530 sq ft)	3.704 acres
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration		0	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	56,504 sq ft	3,528 sq ft	60,032 sq ft
Number of housing units	150 (beds)	150 (beds)	300 (beds)
Maximum height (in feet)	One story	0	One story
TRANSPORTATION			
Vehicle trips per day	N/A	N/A	N/A
Parking spaces	90	0	90
WATER/WASTEWATER			
Gallons/day (GPD) of water use	15,000 gpd	52,500 gpd	67,500 gpd
GPD water withdrawal	15,000 gpd	52,500 gpd	67,500 gpd
GPD wastewater generation/ treatment	15,000 gpd	16,000 gpd	31,000 gpd
Length of water/sewer mains (in feet)	5,999 ft (W/S)	480 ft	6,024 ft (W/S)

State Permits & Approvals

☐ Order of Conditions
☐ Superseding Order of Conditions
☐ Chapter 91 License
☐ 401 Water Quality Certification
☐ MHD or MDC Access Permit
☐ Water Management Act Permit
☒ **New Source Approval**
☐ DEP or MWRA Sewer Connection/ Extension Permit
☒ **Other Permits** (*including Legislative Approvals*) – Specify:

Groundwater Discharge Permit, DEP (314 CMR 5.00);

MESA Project Review, NHESP (321 CMR 10.00)

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☐Yes (Specify_____) ☒**No**

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐Yes (Specify_____) ☒**No**

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☒**Yes** (Specify: **PH 1232**) ☐No

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐Yes (Specify_____) ☒**No**

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☐Yes (Specify_____) ☒**No**

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

☐Yes (Specify_____) ☒**No**

PROJECT DESCRIPTION: The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary.*)

(See Project Narrative attached for an expanded Project Description)

The purpose of this project is to build a wastewater treatment facility (WWTF) with a capacity of 31,000 gallons per day (gpd) at the Massachusetts Correctional Institute (MCI), located within the Myles Standish State Forest in Plymouth, Massachusetts, to accommodate the current and potential future increase in their inmate population. The existing standard Title 5 system failed inspection on September 21, 2007 and needs to be replaced. The proposed project will accommodate additional capacity to support the Department of Correction (DOC)'s planned increase from 150 to 300 inmate beds, with the ability to further expand the population in the future. The project also includes the construction of a new water supply well. The existing well has a capacity of 15,000 gpd, the new well will have a design capacity of 52,500 gpd. The old well will be used as a backup.

a) PROJECT SITE DESCRIPTION

The 407-acre MCI-Plymouth Campus is wholly within the 12,500-acre Myles Standish State Forest in Plymouth, the largest publicly-owned recreational area in Massachusetts (MA). There are twenty four buildings at on the Campus, including dormitories, a cafeteria, general storage, a pump house, and other utility buildings. The project site is located in the Wareham pitted outwash plain, characterized by substantial stratified sand and gravel deposits resulting from the last glacial recession in MA. According to a USDA - Soil Conservation Service survey conducted on 10/06/1992, Carver, Windsor, Deerfield, and Haven soils make up the landscape, consisting of coarse sand underlain with fluvial deposits. Soil

makeup allows for excessive permeability, leaving the underlying Plymouth-Carver Sole Source Aquifer highly vulnerable to contamination. Topography for the area consists of numerous kettle holes and rolling hills, which is reflected in the Campus' kettle hole pond called Bumps Pond, located to the north of the facility. Vegetation consists of scrub Oak and Pitch Pine woodlands, similar to what one would find on Cape Cod. A wooded area immediately south of the existing treatment facility will provide the location for the effluent disposal facility. It is expected that approximately 1.1 acres of land will be altered to construct a WWTF.

The proposed project will require additional permitting through the following regulatory agencies:

- ***Massachusetts Endangered Species Act (MESA)*, Natural Heritage Endangered Species Program (NHESP)**
- ***Groundwater Discharge Permit* (314 CMR 5.00), Massachusetts Department of Environmental Protection (DEP)**
- ***New Source Approval* (BRP WS 15), DEP**

b) ALTERNATIVES ANALYSIS

The following are possible on-site and off-site alternatives to the proposed project:

- **No Build:** The current Title 5 wastewater disposal system is failed and, at a minimum, must be replaced to accommodate the existing inmate population, as well as the maximum use of existing buildings at the MCI-Plymouth Campus. Construction of an upgraded treatment system is required to meet DEP Water Quality Standards.
- **Off-site Alternative:** Construction of a new MCI facility on another parcel of land was considered. This alternative is not feasible from an environmental or financial standpoint, especially since the existing Campus provides ample site conditions to accommodate growth. Disposal of discharge to an existing off-site wastewater facility was also considered, but Plymouth's municipal wastewater facility is not within reasonable distance (outside the 12,000-acre state forest) for connection and is therefore not cost-effective.
- **On-site Alternative:** Due to the project's location in the woods, other potential on-site alternatives were investigated. It was determined that there is not adequate previously disturbed space to install the required system. Relocation of the field also allows for the exiting system to be used during construction and no interruption of service at the Campus. The proposed project site southwest of the existing facility is a more environmentally sensitive approach to the expansion because it is a maximum distance from Bumps Pond, and is therefore the preferred on-site alternative.

c) MITIGATION MEASURES

Environmental impacts from the increased wastewater disposal on the site will be mitigated through the installation of an enhanced membrane bioreactor wastewater treatment system, which removes the majority of nitrogen and potentially harmful pathogens from effluent before it is discharged into the subsurface. The new system will provide an upgrade in wastewater treatment from the existing Title 5 system, and treat to comply with the reuse standards for discharge within a Zone II.

The proposed project will constructed in a previously undisturbed location in order to: 1) avoid any interruption of service, 2) minimize potential impacts to Bumps Pond by siting construction a maximum distance from this resource, and 3) sufficiently accommodate the new WWTF on-site.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)

__Yes X No; if yes, specify each threshold:

PROJECT NARRATIVE

MCI-Plymouth Wastewater Facility Expansion
Plymouth, Massachusetts

1.0 PROJECT PURPOSE

The purpose of this project is to build a wastewater treatment facility with a capacity of 31,000 gallons per day (gpd) at the Massachusetts Correctional Institute (MCI), located within the Myles Standish State Forest in Plymouth, Massachusetts, to accommodate the current needs and future increase in their inmate population (Figure 1- USGS Locus Map). The existing standard Title 5 system consists of grease traps, a septic tank, and effluent leaching pits. The system failed inspection by the Massachusetts Department of Environmental Protection (DEP) on September 21, 2007, and needs to be replaced. The planned upgrade will accommodate additional capacity to support the Department of Correction (DOC)'s planned increase from 150 to 300 inmate beds.

A proposed drinking water supply well will be installed as part of the project to accommodate the potential 300 Campus residents. The new well will be designed with a maximum capacity of 52,500 gpd, to supplement the existing on-site well's capacity of 15,000 gpd. The existing well will be used as a backup emergency supply.

According to Massachusetts Natural Heritage and Endangered Species Program (NHESP), the proposed project area is wholly within Priority Habitat (PH 1232). This designation brings the property under the jurisdiction of the Massachusetts *Endangered Species Act* (M.G.L. Ch. 131A), or MESA. HW is submitting a Request for Project Review (under NHESP tracking number 07-23622) concurrent with this ENF.

The Horsley Witten Group, Inc. (HW) submits this ENF on behalf of the project proponent, Division of Capital Asset Management (DCAM), in accordance with the provisions of the *Massachusetts Environmental Policy Act* (M.G.L. c. 30, §§ 61 through 62H, or "MEPA") and the implementing MEPA Regulations (301 CMR 11.00). The applicant must file an ENF because the proposed project will increase discharge to groundwater from 15,000 gallons per day (gpd) to approximately 31,000 gpd of wastewater (301 CMR 11.03 (5)(b)(2)) within a DEP Wellhead Protection Area (Zone II) (301 CMR 11.03 (5)(b)(4)(c)(i)).

2.0 PROJECT SITE DESCRIPTION

The 407-acre MCI-Plymouth campus is wholly within the 12,500-acre Myles Standish State Forest in Plymouth, making it the largest publicly-owned recreational area in Massachusetts (MA). There are twenty four buildings and associated parking at the campus, including a library, maintenance building, three dorms, garage, control center, bunk house, property building, tool storage, pump house, program building, record storage, generator building, weight room, staff office space, kitchen /dining room, and a water treatment building. The total gross impervious area of these buildings is 56,604 square feet (Figure 2).

The project site is located in the Wareham pitted outwash plain, characterized by substantial stratified sand and gravel deposits resulting from the last glacial recession in Massachusetts. Carver, Windsor, Deerfield, and Haven soils make up the landscape, consisting of coarse sand underlain with fluvial deposits (USDA, 1992) (Figure 3). Topography for the area consists of numerous kettle holes and rolling hills, which is reflected in the site's kettle hole called Bumps Pond located to the north of the facility. Vegetation consists of scrub Oak and Pitch Pine woodlands, similar to what one would find on Cape Cod (Town of Plymouth, 2007). It is expected that approximately 1.1 acres of wooded area will be altered to complete the proposed project (Figure 4).

The site's environmental receptors were identified during HW's site assessment. Wetlands resources, surface water bodies, and subsurface soil conditions were assessed in the survey and soil evaluation. The wetlands resource boundary is defined by the edge of Bump's Pond.

3.0 NATURE OF ACTIVITY

The proposed project involves the construction of a new wastewater treatment facility, specifically, a membrane bioreactor (MBR) consisting of anoxic treatment, aeration, membrane filters, ultraviolet disinfection, and subsurface leaching beds. The project also includes the installation of a new public water supply well to accommodate the expansion (Figure 5). The proposed project will accommodate a maximum wastewater flow of 31,000 gallons per day (gpd) for the current and additional inmate population. The additional inmates will be housed in existing facilities at the site. Wastewater flow capacity for the treatment facility is based on a wastewater design flow of 100 gpd per inmate plus ancillary uses. This flow rate is based on recent data from this and other similar state correctional facilities. The Department of Correction has established certain water reducing measures at their facilities that warrant such a flow rate.

DEP regulations require that wastewater discharges in excess of 10,000 gpd be treated with advanced treatment prior to disposal. Because the project site is located within a Zone II Wellhead Protection Area, effluent quality requirements must meet DEP Interim Guidelines for on Reclaimed Water (Policy BRP/DWM/PeP-P00-3).

The existing wastewater treatment system footprint totals 32,527 sq ft (Figure 2). The proposed project will increase the existing footprint of the Campus by 47,916 sq ft (1.1 acres) to include construction of the MBR treatment system (approximately 0.1 acre) and associated leaching field (approximately 1.0 acre) southwest of the existing campus (Figure 4).

The proposed water supply well will be installed to allow for the expansion, since the existing well is limited to a capacity of 15,000 gpd. The new well will be located northwest of the existing well on the MCI property, but not within the 100 foot buffer to Bumps Pond (Figure 4). The new well will be designed to accommodate up to 52,500 gpd.

4.0 OTHER REGULATORY JURISDICTION

The proposed project will require additional permitting through other regulatory agencies prior to its implementation as outlined.

4.1 Massachusetts Endangered Species Act (MESA)

The proposed wastewater facility expansion project will also occur within *Priority Habitat of Rare Species* and *Estimated Habitat of Rare Wildlife* as designated by the NHESP. A MESA Data Release Form was requested from NHESP to determine which State-listed species have been identified within this area. According to the NHESP, the proposed project area is wholly within Priority Habitat (PH 1232) (Figure 6).

This project will require a MESA Project Review (M.G.L. Ch. 131A) to determine whether the project would have any adverse impacts to State-listed rare species habitat. The Request for Project Review is being submitted concurrent with this ENF. The project does not exceed a MESA related MEPA threshold.

4.2 Groundwater Discharge Permit

The proposed project requires that a *Groundwater Discharge Permit* (314 CMR 5.00) be secured from the DEP pursuant to M.G.L. c. 21, § 43. Through the permitting process, DEP can control the discharge of pollutants to the groundwater of the Commonwealth to assure that these waters are protected for their highest potential use. The discharge permits impose limitations on the amount and type of pollutants allowed to be discharged to assure that the receiving waters meet minimum water quality standards established by the Ground Water Quality Standards (314 CMR 6.00) and the Surface Water Quality Standards (314 CMR 4.00). HW is completing the Groundwater Discharge Permit application concurrent with this ENF.

4.3 New Source Approval

A *New Source Approval* permit (BRP WS 15) is required by DEP to construct a new drinking water supply well that pumps less than 100 gallons per minute (gpm), or 100,000 gpd, pursuant to the *Guidelines and Policies for Public Water Systems* (310 CMR 22.21). The following tasks must be completed before applying for a Source Approval permit: 1) install a test well; 2) submit a Request for Site Exam and a Pumping Test Proposal; 3) supervise the well installation and pumping test; and 4) prepare the Source Final Report. HW is completing these tasks concurrent with this ENF.

5.0 ALTERNATIVES ANALYSIS

The following is a list of on-site and off-site alternatives to meet the proposed project's needs.

5.1 No Build

The current Title 5 wastewater treatment system was deemed to have failed by an inspection conducted on September 21, 2007 and must be replaced to accommodate the existing inmate population of the Campus. Construction of an upgraded treatment system is required to meet DEP Groundwater Discharge Permit standards.

5.2 Off-site Alternatives

An off-site alternative for the proposed project would require construction of a new MCI facility on another parcel of land. Other locations may be undisturbed and closer to water, or may include wetland, rare species, historical, archaeological, and other resources that could be adversely affected by the proposed project. Another consideration for this option is the high cost of acquiring property with enough acreage to accommodate the expanded facility, and the cost of constructing a new facility. This alternative is not feasible from an environmental or financial standpoint, especially since the existing campus provides ample site conditions to accommodate growth. Disposal of discharge to an existing off-site wastewater facility was also considered, but Plymouth's municipal wastewater facility is not within reasonable distance for connection (nearest is outside the 12,000 acre State Forest).

5.3 On-site Alternatives

Since the project is proposed in the woods, other potential on-site alternatives were investigated, but there is not adequate previously disturbed space to install the required system. The project site is intentionally located in the woods southwest of the existing facility, at a maximum distance from Bumps Pond. Siting the project within the existing Title 5 system footprint was also considered, but that would cause a complete shutdown of the facility, which is unacceptable.

5.4 Wastewater Treatment Design Alternatives

In order to create the most site-appropriate and cost-effective design for the wastewater expansion, DCAM contracted CDW consultants to complete a feasibility study of three design alternatives that would meet the site and wastewater treatment requirements: Sequencing Batch Reactor (SBR), Stabilization Pond(s) with Supplemental Aeration, and Rotating Biological Contractor(s) with Supplemental Aeration. These alternatives were evaluated using several key criteria, including the ability of the system to achieve permitted effluent limits, perform in a reliable manner under varying hydraulic and organic loading, provide for relative simplicity and ease of operation, be compatible with correctional facility operations, be acceptable to the DEP as well as the DOC, and be cost-effective. Other site considerations include (but are not limited to) soil composition, limited property area, project location in a sole source aquifer, and proximate location of Bumps Pond.

Further analysis was conducted by HW to compare the SBR system with a membrane bioreactor (MBR) treatment system. Based on the treatment levels that will be provided with the MBR

system and the cost savings associated with this option, the MBR system was selected as the preferred alternative wastewater treatment design for the MCI- Plymouth campus.

5.5 Preferred Alternative- Membrane Bioreactor (MBR)

The basic production train for a MBR system consists of a biological reactor with anoxic treatment, aeration, membrane filtration, and ultra violet disinfection. MBR systems offer a significantly smaller footprint and simplified operation than comparable conventional activated sludge systems. The MCI membrane system will consist of a single-train tertiary treatment system capable of treating 31,000 gpd of wastewater.

6.0 MITIGATION MEASURES

Environmental impacts from the increased wastewater disposal on the site will be mitigated through the enhanced MBR wastewater treatment system, which removes nitrogen and potentially harmful pathogens from effluent before it is discharged into the subsurface.

The proposed project is being constructed in a previously undisturbed location in order to: 1) avoid any interruption of service; 2) minimize potential impacts to Bumps Pond by siting the leaching facility a maximum distance from this resource; and 3) adequately accommodate the new treatment facility on-site.

7.0 REFERENCES

CDW Consultants. "Study for Wastewater Package Treatment Plant, Massachusetts Correctional Institution, Plymouth, MA. Massachusetts State Project No. DOC0601-HS1". June 1, 2006.

Old Colony Planning Council. *Regional Land Use and Transportation Policy Plan.* 2000.

Swain, P.C. and Kearsley, J.B.. *Classification of the Natural Communities of Massachusetts.* Version 1.3. Natural Heritage & Endangered Species Program. 2001.

Town of Plymouth. *Open Space and Recreation Plan.* 2007.

USDA- Soil Conservation Service. *Pedon Narrative Description.* June 6, 1992.