



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

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October 26, 2012

John Moynihan, Facilities Director  
Wayland Wastewater District Commission  
41 Cochituate Road  
Wayland, MA 01778

**RE: Approval of Hydrogeological Evaluation Report  
Wayland Town Office Playing Fields  
41 Cochituate Road, Wayland, Massachusetts  
Transmittal Number: X250635**

Dear Mr. Moynihan:

The Massachusetts Department of Environmental Protection (MassDEP) has completed its review of the hydrogeological evaluation report dated March, 2012 that was submitted on your behalf by Tighe & Bond, Inc. (T&B). An addendum to the report dated October 1, 2012 was submitted by T&B in response to a MassDEP request for additional information. The report and addendum summarize the results of the hydrogeologic evaluation conducted by T&B to support a proposed groundwater discharge of treated sanitary effluent at the Town Office Playing Fields in Wayland, Massachusetts. The evaluation was conducted in accordance with the scope-of-work submitted by T&B on November 16, 2011 and approved by MassDEP on January 23, 2012. Notice of the availability of the scope-of-work was published in the Environmental Monitor on December 21, 2011.

The Town of Wayland is seeking to add 17,000 gallons per day (gpd) of capacity to its Wastewater Management District by permitting a groundwater discharge under the playing fields adjacent to the Town Office Building. The proposed effluent disposal area will accommodate flows that exceed the existing wastewater treatment facility's NPDES permitted flow rate of 52,000 gpd. A new wastewater treatment facility is currently under construction and will utilize membrane bioreactor technology.

The proposed groundwater discharge will be within the playing fields located southeast of the Wayland Town Office Building. The specific site evaluated by T&B lies northeast of the baseball field and includes the existing leachfield of the Town Office Building Title 5 septic system. This location does not lie within any MassDEP designated nitrogen sensitive areas. The primary source for potable water within the Town is the Wayland Water Department. The



nearest public water supply well is located approximately 1.1 miles northwest of the proposed location, and the nearest private drinking water well is approximately 5000 feet to the northeast.

Soil tests and borings performed within the foot print of the proposed soil absorption system (SAS) encountered up to 33 inches of fill underlain by 5 to 7 feet of loamy, fine sand that coarsens downward to a medium-to-coarse sand. These deposits in turn overlie a horizon of gray silt interpreted locally to be the bottom of the unconfined aquifer. Percolation testing of the loamy, fine sand yielded a percolation rate of less than 2 minutes per inch.

The proposed subsurface disposal system was evaluated at a design flow of 17,000 gpd. Soil evaluation and percolation testing of the proposed site support a long term application rate (LTAR) of 2.5 gallons/day/square foot (gpd/ft<sup>2</sup>). T&B has, however, proposed a design for the SAS using an LTAR of 1.47 gpd/ft<sup>2</sup>. This design will spread the hydraulic load across a greater area and thereby minimize groundwater mounding and site grading impacts. The minimum leaching area required for the proposed discharge is 11,560 square feet. T&B's SAS design consists of twenty nine, 100-foot long trenches having a leaching area of 11,600 square feet. Trenches will be spaced 6 feet apart to accommodate MassDEP's required reserve area. T&B has designated an area of 22,600 square feet (100 feet by 226 feet) for primary and reserve purposes. A site plan of the proposed SAS entitled "Figure 4-3R: Groundwater Contour Plan" and dated September 10, 2012 is included with the submitted report addendum. Construction details of the proposed SAS are found on "Figure 5-1R2: Effluent Disposal Layout" and "Figure 5-2R2: Disposal Bed Profile." Both are also dated October, 2012.

Estimated seasonal high groundwater beneath the proposed SAS is at elevation 124.5 feet above mean sea level (msl). T&B has calculated that groundwater mounding beneath the proposed SAS will be approximately 2.4 feet; resulting in a mounded seasonal high groundwater elevation of 126.9 feet above msl. T&B has therefore proposed a minimum bottom of bed elevation for the SAS of 130.9 feet above msl to ensure that the required four feet of unsaturated separation is maintained between the top of the mounded seasonal high water table and the base of the proposed SAS.

T&B's analysis of groundwater mounding impacts suggests that a groundwater high will develop beneath the SAS and that groundwater will flow from the SAS toward the wetlands located southeast of the site. A monitoring well network has been proposed for the long-term monitoring of groundwater quality in the vicinity of the proposed SAS. The proposed network consists of three wells; one well (UG-1) upgradient of the proposed SAS and two wells (DG-2 and DG-3) downgradient of the SAS. The locations of these proposed wells are shown on Figure 4-3R which is entitled "Groundwater Contour Plan" and dated September 10, 2012.

MassDEP concurs with T&B's determination that the site has sufficient hydraulic capacity to accept a design flow of 17,000 gpd of treated wastewater at a loading rate of 1.47 gpd/ft<sup>2</sup>.

Pursuant to 314 CMR 5.09 (1) (f), MassDEP hereby **approves** the hydrogeologic report submitted by T&B and authorizes the applicant to apply for an **Individual Groundwater**



**Discharge Permit (BRPWP 79). Submission of an individual Groundwater Discharge Permit application for this project is subject to the following conditions:**

1. The design flow of the permitted groundwater discharge shall not exceed 17,000 gallons per day.
2. The long term application rate to the SAS shall not be greater than **1.47 gpd/ft<sup>2</sup>**.
3. The proposed SAS shall not be constructed until a Groundwater Discharge Permit has been obtained from MassDEP. The proposed SAS shall be constructed within the footprint indicated on Figure 4-3R of the Wayland Town Office Playing Fields Hydrogeologic Report. Figure 4-3R is entitled "Groundwater Contour Plan" and dated September 10, 2012.
4. The proposed SAS shall not be constructed until the existing Title 5 flow from the Town Office Building has been directed to the Wayland Wastewater Treatment Facility and the components of the existing SAS removed from the site.
5. MassDEP approves the proposed monitoring well locations shown on the aforementioned Figure 4-3R. The approved monitoring plan will be referenced in the Groundwater Discharge Permit when issued. MassDEP recognizes that proposed locations are somewhat dependent upon final site development and may require modification; any changes, however, must be submitted to this office for approval prior to well installation. Final monitoring wells must be installed and sampled for all groundwater quality parameters listed in the issued permit no later than 90 days prior to startup of the wastewater treatment plant and discharge to the SAS.
6. An Initial Groundwater Monitoring Well and Groundwater Quality Report must be submitted to this office prior to any discharge of wastewater. This report must include;
  - a. a final surveyed site plan depicting the as-built locations of the SAS, the reserve area, all monitoring wells and all appropriate elevation data,
  - b. boring logs and well construction details for all monitoring wells, and
  - c. the analytical results of the groundwater samples collected from the final groundwater monitoring wells. These results will be used to establish the baseline groundwater quality for the site.

Please be advised that this approval is **not** a Groundwater Discharge Permit. It does, however, authorize the project proponent to apply for an Individual Groundwater Discharge Permit. MassDEP requires that the application (BRPWP 79) be accompanied by a MassDEP Transmittal Form and include all required supporting documentation. Included in the supporting documentation shall be a certification from a Massachusetts Registered Professional Engineer that the approved Hydrogeological Report has been reviewed and accurately reflects site

conditions as of the date of the permit application. Information on any changes noted during the review shall be included in the Engineering Report that accompanies the application.

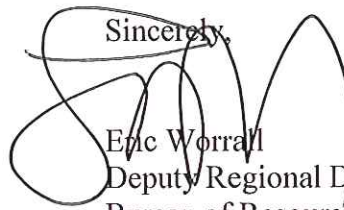
While the Town may file an application for a Groundwater Discharge Permit, supported by the technical information noted above, it is important to note that MassDEP **will not** issue a Groundwater Discharge Permit until such time as an Administrative Consent Order (ACO) has been executed with the Town, establishing a schedule and timeline for actions needed to address wastewater management needs. This requirement for an ACO has been discussed in detail in prior meetings with the Town, and articulated in MassDEP's letter to the Town dated December 5, 2011. Elements of the ACO shall include, at a minimum:

- Requirement that the Town applies for and receives a MassDEP Groundwater Discharge Permit pursuant to the requirements of 314 CMR 5.00;
- Requirement for the Town to closely monitor and report wastewater flows to the Town's wastewater treatment plant;
- Requirement that the Town proceed to construction with all infrastructure needed to commence a groundwater discharge, in compliance with the terms and conditions of the groundwater discharge permit, when average daily flows to the wastewater treatment plant meet or exceed 80 percent of the NPDES permitted flow limit (41,600 gallons per day) for a consecutive 90-day period of record.
- Requirement that the Town provides a schedule for completion of construction of groundwater discharge facilities, and provides an acceptable operations protocol to ensure that the discharge limits of both the NPDES and groundwater permits will be met.

MassDEP advises the Town to engage in discussions with MassDEP expeditiously so that negotiations can move forward, and actions on a Groundwater Discharge Permit application can proceed on a timely basis.

If you have questions regarding the comments and conditions of this approval, please contact Kevin Brander of my staff at 978-694-3236.

Sincerely,



Eric Worral  
Deputy Regional Director  
Bureau of Resource Protection

EW/HS/hs

cc: Fred Turkington/Town of Wayland  
Julia Junghanns/Wayland Board of Health  
Ian Catlow/Tighe & Bond  
Karla King/Tighe & Bond

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