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August 7, 2009

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Birch Road Wellfield Re-development and Water
Treatment Plant
PROJECT MUNICIPALITIES : Framingham
PROJECT WATERSHED : Sudbury
EEA NUMBER : 14197
PROJECT PROPONENT : Town of Framingham
DATE NOTICED IN MONITOR : June 24, 2009

As Secretary of Energy and Environmental Affairs, I hereby determine that the Draft Environmental Impact Report (DEIR) submitted on this project adequately and properly complies with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00). However, I am denying the Proponent's request that I allow the DEIR to be reviewed as a Final Environmental Impact Report (FEIR) in accordance with 301 CMR 11.08(8)(b)(2). The proponent must prepare a FEIR and submit it for further review.

Project Overview

The project proposed by the Town of Framingham involves the redevelopment of an existing emergency water supply into a full-time water supply to reduce the Town's dependence upon water that is currently provided by the Massachusetts Water Resources Authority and the associated costs of supplying water to its residents. According to the Town, the project is currently ranked 4th on the State Intended Use Plan for State Revolving Fund (SRF), which provides low interest loans to cities, towns, and other local governmental units for drinking water and wastewater-related infrastructure projects. This fact is particularly significant this year, because the state's usual allotment of SRF funds will be augmented by federal funds provided under the American Recovery and Reinvestment Act (ARRA). The Town of Framingham has

indicated that it wishes to capitalize on the availability of these time-limited funds to decrease costs associated with the project, and thereby further reduce water supply costs to its residents.

In response to the Town's submission of the DIER, I have received comments from Congressman Edward J. Markey, State Senator Karen E. Spilka, Representative Pam Richardson and others supporting this important municipal project and stressing the importance of timely environmental review in order to allow the Town to avail itself of the SRF and ARRA funds. As detailed further below, there are several issues that remain to be addressed under MEPA before the project may obtain the necessary state permits for construction of the project. In particular, I have received comments from a number of interested stakeholders, including state and federal agencies, expressing concerns about the proposed project's potential impacts on surrounding resources, including the Sudbury River and Lake Cochituate. Additional modeling and analysis of mitigation measures for these potential impacts will need to be presented in the FEIR to ensure that these important nearby resources are adequately safeguarded. Likewise, a portion of the project will require review of impacts under the Interbasin Transfer Act, and the FEIR will need to address how the project will comply with the requirements applicable to interbasin transfers.

However, in recognizing the need for the Town to complete environmental review and permitting in an expeditious manner, I am directing that the agencies responsible for permitting and review of this project, including in particular the Department of Environmental Protection and the Department of Conservation and Recreation, to coordinate closely with the Town of Framingham in the development of the FEIR. Both the Town and the Agencies should make every effort to efficiently resolve the remaining issues outlined below. By working cooperatively to develop the information required for permitting in conjunction with preparation of the FEIR, the project should be able to proceed promptly while ensuring full protection of environmental resources.

Project Description and Background

As described in the DEIR, the Town of Framingham proposes to redevelop and reactivate the Birch Road Wellfield and construct a water treatment plant in order to withdraw and treat 4.3 million gallons a day of potable water. The project will allow the Town to replace a portion of its drinking water supply that is currently obtained from the Massachusetts Water Resources Authority (MWRA) with this local water supply.

Historically, the Town of Framingham has used three municipal wells located at the Birch Road Wellfield as sources of public water supply. From 1939 until 1966 the wells were in continuous use, and they continued to be used intermittently until 1979 to supplement the water supply that was then provided by the Metropolitan District Commission. These wells have been variously referred to as the Birch Road Wells, the Cochituate Wells, and the Saxonville Wells. The wells were shut down in 1979 due to elevated iron and manganese levels that could not be mitigated by treatment at that time. Since then, the Town has maintained the wells for emergency use. The wells were last used for a 15-day period in 1984. The wells have been continuously maintained and have never been formally closed or abandoned under the Department of Environmental Protection's (MassDEP) well abandonment process.

The Town has now concluded that, given the present cost of water from the MWRA, it is cost-effective to install a filtration treatment plant and restore the Birch Road wells as a source of public water supply. The Town is proposing four new wells to replace the existing wells, at locations referred to as TW-1 through TW-4. A 12-inch diameter gravel-developed test well has been installed at each location, at depths ranging from 60 to 74 feet below the ground surface. The Town seeks approval to utilize the wells to withdraw a total of 4.3 million gallons per day (MGD) of water. Framingham's average water demand in 2006 was 6.96 MGD, while its maximum day demand was 10.57 MGD. Therefore, the wells would not replace the Town's use of MWRA water entirely, but they would significantly reduce it.

Site Location

The proposed Birch Road Wellfield lies between Lake Cochituate (located approximately 1,700 feet to the south), and the Sudbury River (located approximately 1,500 feet to the north). The proposed wells are situated above an aquifer that fills a bedrock valley extending to the south beneath the lake. The stratified drift deposits become very thick just south (upgradient) of the wells, though not all of the material is coarse-grained. Between the Birch Road site and the northern end of Lake Cochituate, bedrock has been measured at depths of 203 and 163 feet beneath the land surface. The depth to bedrock reaches 265 feet, about one-half mile southeast of the Birch Road wells, according to the Hydrologic Data of the Lake Cochituate Drainage Basin, Framingham-Natick, Massachusetts, U.S. Geological Survey, Massachusetts Hydrologic-Data Report No. 23, 1981. The Town of Natick's Evergreen and Springvale wells also are located in this aquifer, about 1.7 and 2.4 miles south-southeast of the Birch Road wells.

Changes in Project

There have been minor changes in the proposed project since the filing of the Expanded Environmental Notification Form (EENF). The changes consist of: (1) a slightly reduced size in the proposed building footprint; and (2) a half-acre increase in the paved area for parking and accounting for a temporary alteration of a narrow corridor for a new water main alteration.

Jurisdiction

The project is undergoing review pursuant to Section 11.03(4)(a)(1)(b) of the MEPA regulations because the project requires State Agency Action and involves a new withdrawal or expansion in withdrawal of 1.5 MGD or more from a groundwater source. The project will require a Water Management Act (WMA) permit and a New Source Approval from the Department of Environmental Protection (MassDEP) and a MWRA Sewer Use Discharge Permit. It also appears that at least a portion of the project will be subject to approval by the Water Resources Commission (WRC) under the Interbasin Transfer Act. The project will also require a U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges.

Because the Proponent is seeking Financial Assistance from the Commonwealth through the State Revolving Fund (SRF), MEPA jurisdiction over this project is broad and extends to all aspects of the project that may cause Damage to the Environment as defined in the MEPA regulations.

REVIEW OF THE DEIR AND SCOPE FOR THE FEIR

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Certificate. The FEIR should outline any changes in the project since the filing of the DEIR.

Interbasin Transfer Act

The Town has been in consultation with the Water Resources Commission (WRC), the Department of Conservation and Recreation (DCR), the MWRA and MassDEP regarding the question of whether the project requires approval under the Interbasin Transfer Act (ITA). The ITA regulations, 313 CMR 4.00, require review by the Water Resources Commission for actions that increase present rates of interbasin transfer of the surface or groundwater of a river basin. The DEIR concludes that the withdrawal of 4.3 MGD from the Concord River Basin within the Town of Framingham would not constitute such an increase because the Town has grandfathered capacity to withdraw 6.16 MGD of water under the ITA and its regulations.

On May 12, 2009 the Town met with MassDEP and WRC staff. At this meeting, the original capacity of the Birch Road Wells was discussed. According to comments submitted by WRC, using historical reports and records, the Town of Framingham, MassDEP, and WRC staff agreed that the original capacity of the Birch Road Wells is 3.17 MGD. Withdrawal of water from the Birch Road Wells represents an interbasin transfer of water from the Concord River basin to the Massachusetts Coastal basin. However, in accordance with 313 CMR 4.02, replacement of existing wells to their original capacity is exempt from ITA review, as long as the original sources are then abandoned (or decommissioned) so that there is no "increase over the present rate of interbasin transfers of the surface or groundwater" (M.G.L. 21, Section 8C). As the owner of the wells, the Town of Framingham is able to formally abandon and decommission the original Birch Road Wells. Accordingly, all parties are in agreement that Framingham has 3.17 MGD of grandfathered capacity to withdraw water from the Birch Road Wells without further review or approval under the ITA. There is, however, a continuing dispute concerning the additional 1.13 MGD the Town seeks to withdraw from the Birch Road Wells based upon its claim of grandfathered capacity at another Town facility, the Winter Street Pump Station.

I understand that the WRC staff has carefully reviewed the information presented in the DEIR, and the information supplied by the MWRA concerning the history of the Sudbury/Framingham Reservoir system and the Winter Street Pump Station. After reviewing the information, the WRC staff has concluded that Framingham does not have grandfathered rights to withdraw from the Winter Street Pump Station. Comments from the WRC staff further indicate that the Town does not have additional sources within the Concord River basin that it could abandon or decommission to provide the offset for the 1.13 MGD over the exempt interbasin transfer capacity of the original Birch Road Wellfield. Therefore, in the view of the WRC staff, the Town's preferred alternative to redevelop the Birch Road Wellfield to a capacity of 4.3 MGD represents an increase over the present grandfathered rate of interbasin transfer by 1.13 MGD and withdrawal of this additional amount will require a full review under the ITA.

I note that the WRC uses the MEPA process as its ITA application process. The WRC has attached a scope to its comment letter for the information required to be included in an ITA application. The Town of Framingham should address this information in the FEIR if it chooses to develop the Birch Road wellfield over the grandfathered capacity of 3.17 MGD.

As a result of the finding by the WRC staff, the Town may also wish to consider limiting the withdrawals at the Birch Road Wellfield to 3.17 MGD as an initial phase of the project to allow that portion of the project to proceed in advance of the ITA review process. If the Town elects to pursue this option, I would accept a Notice of Project Change with an FEIR that is limited to the remaining issues outlined below, which address environmental impacts from withdrawals at the Birch Road Wellfield.

Water Management Act Permit

In February 2008, the Town submitted its Water Management Act permit application (MassDEP Permit Category BRPWM03) and the pumping test final report for the Birch Road wells, (MassDEP Permit Category BRPWS19). The Water Management Act review process evaluates the wells' potential impacts upon environmental receptors, such as wetlands and streamflow. The pumping test final report focuses on the wells as sources of public water supply, taking into consideration the quantity and quality of water produced by the wells and delineation of the Zone II wellhead protection area.

MassDEP guidelines allow overburden wells to be approved for a water withdrawal rate of up to twice the rate at which the pumping test stabilized, when the pumping test is conducted using smaller test wells than the finished production wells. This is done to accommodate the difference in well efficiency between a gravel-walled test well (8 to 12 inches in diameter) and a finished gravel-packed well. Accordingly, the maximum pumping rate that is approvable by MassDEP is the lower of 1) twice the pumping test stabilization rate, and 2) the calculated approvable yield (CAY), which is based on pumping rate, drawdown, and available water column.

The DEIR indicates that all impacts from pumping can be handled in permitting under the WMA and that impacts can be mitigated by increasing the use of MWRA water during dry periods. However, several commenters have raised concerns with the analysis provided in the DEIR and with impacts on surrounding resources such as Lake Cochituate and the Sudbury Reservoir. These issues must be addressed in the FEIR.

Water Budget Model

To evaluate potential pumping impacts upon Lake Cochituate, a numerical water budget model was developed and the results were described in the DEIR. The model used a U.S. Geological Survey (USGS) streamflow dataset (1977-1979) for Lake Cochituate and Cochituate Brook, from a 1985 study of water and nutrient inflows and outflows to Lake Cochituate, to create and calibrate a model that converts precipitation data into the resultant streamflow in the inflow streams to Lake Cochituate. After the model was calibrated, precipitation data from 2003 to 2007 was used, along with pumping data from Natick's Evergreen and Springvale wells, to evaluate the lake level in both wet and dry years, and to determine the additional impact that

pumping the Birch Road wells would have upon the lake level. In the pumping simulations presented in the DEIR, the maximum short-term drop in the Lake Cochituate level caused by pumping the Birch Road wells was 3.33 inches.

Birch Road wells and/or the pumping test data were not used in the modeling of the water budget. The FEIR should re-run the model with this data. A consequence of not using this data is that any extremely high or extremely low transmissivities of the aquifer at the Birch Road wells would not affect the model in any way. The model only has included an estimate for the portion of the Birch Road well water that is induced infiltration from Lake Cochituate. This is referred to in the DEIR as the “induced infiltration coefficient,” and its estimate is based on a 2001 USGS report, which used an isotope analysis to determine that 64 percent of the water pumped by Natick’s Springvale wells was induced infiltration from the lake. The model estimated that 30 percent of the water pumped by the Birch Road wells would be induced infiltration. The methodology also assumes that the aquifer characteristics of the Birch Road wells are the same as at the Springvale wells. Since the proposed pumping rate is 4.3 MGD, the effect of the Birch Road wells was projected to result in a 1.29 MGD daily outflow from the lake. However, the model is not based on any actual data from the Birch Road wells except the proposed pumping rate. The FEIR should therefore contain the results of the water budget model rerun with data from Birch Road wells and the pumping test data.

Groundwater Withdrawals and Model

Several commenters, including state agencies, have stated in comment letters that the use of a surface water model, standing alone, is insufficient to determine the maximum amount of drawdown and the impacts of lower water levels on the lake and the watershed because the surface model does not take into account the complex hydrogeology at the north end of the lake. Several commenters have therefore suggested that use of a ground water model is a more effective means of evaluating the impacts to Lake Cochituate and the Sudbury River. In addition, the DEIR did not address DCR’s comments submitted during the review of the Expanded Environmental Notification Form (EENF) requesting that the Town use a ground water model to determine the effect on Lake Cochituate of pumping the Birch Road Wells. During the Birch Road pumping test in May 2006, Framingham pumped the wells through a pipeline that discharged to Lake Cochituate, essentially re-circulating the water back “upstream” from the Birch Road wells. However, during proposed well use, all the water pumped from the Birch Road wells will leave the Sudbury River basin and be discharged to the MWRA wastewater system. Therefore, the FEIR should include revised ground water modeling, since the pumping test observations were affected by the recirculation.

The ground water model should also assess impacts on Lake Cochituate and the Sudbury River. In the EENF, the Town of Framingham utilized a ground water model to delineate the wellhead protection Zone II around the Birch Road well field. This model should be revised and used to analyze potential impacts to surface water resources. The model should also be used to evaluate the time delay of pumping alterations on water resource impacts. The FEIR should include an explanation of any changes made to the ground water model to reflect the Proponent’s alteration of ground water recharge rates.

The DEIR's analysis of impacts on the Sudbury River shows that interception of 4.3 MGD of ground water by well withdrawals would constitute up to 12 percent of median monthly mean flows at the oxbow near the Birch Road site. DCR states in its comments that during the summer and fall of 2007, the Sudbury River at Saxonville fell below the proposed Birch Road wells water withdrawal rate during three weeks between August and October. DCR is therefore concerned that the wells could have had the capacity to completely dry up the river during these periods. Similarly, the Sudbury River flows could have been reduced by at least 50% for most of the period between August 19, 2007 and October 18, 2007 if the Birch Road withdrawals were to deplete streamflow. The FEIR should discuss how these potential impacts will be monitored and mitigated. And in particular, the FEIR should assess the time delay of pumping alterations on streamflow in order to design an appropriate mitigation plan to avoid impacts during the months of July through October, which are typically the driest.

With respect to Lake Cochituate, maintenance of water levels is critical for boating passage between the three ponds in the Lake Cochituate complex; operation of the boat ramp at the state park; and to allow flow releases from the reservoir to Cochituate Brook, which feeds the Sudbury River. Drawdown of Lake Cochituate via groundwater withdrawals from the proposed project may affect all of these activities. The FEIR should therefore address these issues and discuss potential mitigation alternatives associated with each. DCR has concluded in its comment letter that withdrawals from the Birch Road wells may have to be limited to avoid exacerbating these problems during dry periods. The Town of Framingham has also acknowledged this possibility. The FEIR should present further discussion of this issue, and I encourage the Town to work closely with MassDEP, who will be establishing permitting conditions under the WMA, in developing this analysis.

Stormwater

The Source Final Report indicated that Framingham is exploring various best management practices (BMPs) to remediate storm water entering Lake Cochituate. The DEIR proposes replacing approximately 10 percent of catch basins with deep sump catch basins with hoods to improve water quality and sediment capture. In order to fully assess impacts on Lake Cochituate, the FEIR should contain details as to the numbers and locations of the targeted catch basins. DCR further recommends that this work be completed during the WMA process, that an Operation and Maintenance (O&M) plan be developed and implemented for all improvements, that the Proponent commit to ongoing O&M, and that a schedule for these recommended improvements be provided in the FEIR.

Water Treatment

The proposed water treatment plant will use membrane filtration and treatment processes that include aeration, pre-oxidation with potassium permanganate, and disinfection to remove the naturally occurring iron and manganese from the well water. Most of the backwash water is to be recycled, and the remaining wastewater and residuals will be discharged to the municipal sewer system. I note that the plans and specifications for construction of the permanent pumping facilities and for the water treatment facility must be submitted to MassDEP for review and approval prior to construction.

MassDEP cannot grant final approval for the Birch Road wells to be activated until the Town of Framingham has implemented zoning and non-zoning controls that meet the requirements of 310 CMR 22.21(2) to protect the Zone II wellhead protection area from incompatible land uses. Although the Town passed a Groundwater Protection District Bylaw in October 2004 that met most of these requirements, to be in full compliance with the requirements of 310 CMR 22.21(2), the Town also must do the following:

- Implement a prohibition on floor drains in existing facilities in the Zone II;
- Revise its Groundwater Protection District overlay map as necessary to include the entire final Zone II for the wells; and
- Demonstrate that it has used its best effort to get the Town of Wayland to apply zoning and non-zoning controls to the portion of the Zone II that lies in Wayland.

The DEIR states that the Town intends to propose a Floor Drain Bylaw at its Fall 2009 Town Meeting to prohibit floor drains town-wide. To ensure that the proposed controls will satisfy all regulatory requirements, a draft of the bylaw should be provided to MassDEP for review before Town Meeting.

I commend the Town for considering using energy efficiencies from passive solar and energy efficient lighting, green roofs, photovoltaics, and recycled materials in the building of the water treatment plant. I note that according to the American Water Works Association Research Foundation, pumps consume most of the power at water treatment facilities, using about 85 percent of the power for distribution and 9 percent to convey raw water to the plant. The Town should consider optimizing pump equipment and operations to achieve greater energy efficiency and also reduce greenhouse gas emissions.

The DEIR also states that the Town is considering using a water-source heat pump geothermal system for heating/cooling. The proponent should be aware that if geothermal wells are installed, they may not be discharged within the Zone I of the Birch Road wells. In addition, geothermal wells must be registered with MassDEP.

The water treatment plant, access road, and parking area are directly uphill from Well TW 1 and the groundwater pump control station. Much of the facility and roadway are within the Zone I of Well TW-1. The FEIR should indicate where runoff from the access road, parking area, and roof runoff from the facility will be directed. I note that infiltration basins for road runoff must not be sited within Zone I of the wells. In addition, sodium chloride should not be used for de icing purposes on the access road and parking area.

The FEIR should explain how the facility will be heated. If heating oil is used, secondary containment should be installed around the storage tanks. Cleanup materials such as absorbent pads and booms should be maintained at the facility in case a release occurs during delivery.

Wastewater

A Sewer Connection/Extension Permit will be required for the discharge of treatment plant wastewater and residuals to the sewer. Even if only one percent waste volume from the

treatment plant is discharged to the sewer, the projected wastewater flow generated would be 59,000 gallons per day (gpd), which exceeds the 50,000 gpd threshold for a Sewer Connection/Extension Permit. The DEIR estimates that following backwash recycling, one percent of the average daily flow treated by the facility will end up as a wastewater stream to be conveyed to the sewer. The Process Evaluation and Technology Review Report, in Appendix F indicated that the membrane filtration system would generate a waste volume that is only about one-half of one percent of the treated flow. MassDEP has indicated in its comments that these two estimates seem low, considering that a nearby town reported recently that its new membrane filtration plant is designed to limit wastewater losses to two percent. The wastewater generated by the project should be confirmed in the FEIR.

The DEIR reflects the Town of Framingham's intent to discharge its water treatment residuals to the MWRA system and indicates that the sludge discharged from the water treatment facility into the sanitary sewer system will not exceed the allowable 3% maximum total suspended solids concentration. The Town intends to submit a Sewer Use Discharge Permit Application for Publicly Owned Drinking Water Plants to MWRA at least 90 days prior to commencement of operations, pursuant to MWRA's Sewer User Regulations (360 CMR 10). Along with the application, the Town must also submit a complete and detailed hydraulic analysis of the sewer system that will receive the effluent from the water treatment plant. This analysis is required to ensure adequate capacities are available. Framingham must also have the capacity to hold its discharge from its water treatment facility for at least three days.

Mitigation / Draft Section 61 Findings

The FEIR should include a separate chapter updating and summarizing proposed mitigation measures. This chapter should also include separate permit-specific updated draft Section 61 Findings for each State agency that will issue permits for the project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

Comments/Circulation

The FEIR should contain a copy of this Certificate and a copy of each comment letter received. The FEIR should respond fully to each substantive comment received to the extent that it is within MEPA jurisdiction. The FEIR should present additional technical analyses and/or narrative as necessary to respond to the concerns raised.

The Town should circulate the FEIR to those parties who commented on the DEIR, to any state agencies from which the proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations.

August 7, 2009

Date



Ian A. Bowles

Comments Received:

07/17/2009 Congressman Edward Markey, 7th District, Massachusetts
07/24/2009 Representative Pam Richardson, 6th Middlesex District
07/31/2009 Senator Karen Spilka, 2nd Middlesex & Norfolk

07/22/2009 Town of Framingham
07/23/2009 Water Supply Citizen's Advisory Committee
07/23/2009 Tom Sciacca
07/23/2009 MA Division of Ecological Restoration
07/24/2009 U.S. Department of the Interior Fish and Wildlife Service
07/24/2009 Department of Environmental Protection
07/24/2009 Town of Wayland Department of Public Works Wellhead Protection Committee
07/24/2009 Town of Wayland Department of Public Works Water Division
07/30/2009 Town of Wayland Conservation Commission
07/30/2009 The Sudbury, Assabet and Concord Wild & Scenic River Stewardship Council
07/30/2009 Massachusetts Rivers Alliance
07/31/2009 Dick and Jill Miller
07/31/2009 Friends of Cochituate State Park, Inc.
07/31/2009 Massachusetts Water Resources Authority
07/31/2009 Charles River Watershed Association
07/31/2009 Kurt Tramosch
07/31/2009 Water Resources Commission
07/31/2009 Sudbury River Watershed
07/31/2009 Department of Conservation and Recreation
07/31/2009 Organization for the Assabet River

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