



Vermont Department of Environmental Conservation
EC7 Facilities Engineering Division
103 South Main Street, Laundry Bldg
Waterbury, VT 05671-0511

Agency of Natural Resources

Josh Nemzer
USEPA New England
5 Post Office Square
Suite 100, OEP06-3
Boston, MA 02109-3912

December 9, 2011

Re: Village of Waterbury, Vermont
Wastewater Treatment Plant, Phosphorus Removal Upgrade Project

USEPA Special Grant No. EM 96143301-0 (federal FY 2010)

Dear Mr Nemzer:

Enclosed is our signed Environmental Assessment for the Waterbury, Vermont, project, on State of Vermont letterhead.

Please call me directly, at (802) 654-8998, if you have any further questions, comments or concerns.

Sincerely,

A handwritten signature in cursive script, reading "Tom Joslin".

Thomas G. Joslin, P.E.
Environmental Engineer
Design Section

TGJ/tgj

enclosure: Environmental Assessment (by VT-DEC)

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Environmental Assessment

Village of Waterbury, Vermont

Wastewater Treatment Plant
Phosphorus Removal Upgrade Project

EM 96143301-0 (federal FY 2010)

December 9, 2011

This Environmental Assessment document has been prepared by:

Thomas G. Joslin, P.E., VT #4208

Environmental Engineer

Vermont Department of Environmental Conservation
Facilities Engineering Division
Design Section

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**Village of Waterbury, Vermont (USEPA Grantee)
Wastewater Treatment Plant, Phosphorus Removal Upgrade Project
Environmental Assessment, December 9, 2011**

Project Identification :
Wastewater Treatment Plant
Phosphorus Removal Upgrade Project

Village of Waterbury, Vermont

USEPA Grantee Address:
Authorized Representative
Village of Waterbury
51 South Main Street
Waterbury, Vermont 05676

William Shepeluk, Municipal Manager

Project Location:
Wastewater Treatment Plant
187 US Route 2 (West)
Waterbury, Vermont 05676

Village of Waterbury

USEPA Special Grant No. :

EM 96143301-0 (federal FY 2010)

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Summary of Environmental Review

The Vermont Department of Environmental Conservation, Facilities Engineering Division, has reviewed the following planning documents for the Village of Waterbury wastewater treatment plant phosphorus removal upgrade project:

“Technical Memorandum 6, Response to Comments, Secondary Effects Growth Analysis, Wastewater Treatment Plant Phosphorus Removal Upgrade Project”, dated April 28, 2011, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

“Technical Memorandum 3.1, Secondary Effects Growth Analysis, Wastewater Treatment Plant Phosphorus Removal Upgrade Project”, dated December 13, 2010, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

Environmental information document (EID) titled *“Environmental Report, Village of Waterbury, VT; Wastewater Treatment Plant Phosphorus Removal Upgrade Project”*, and dated September 20, 2010, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

Spreadsheet, *“Updated Opinion of Probable Cost”*, dated December 9, 2009, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

“Phosphorus Removal Pilot Study, Village of Waterbury, Vermont”, dated October 1, 2009, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

Letter report, *“Final Report to Update Cost Projections for Phosphorus Removal”*, dated October 14, 2008, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

“Village of Waterbury, VT; Phosphorus Removal Upgrade, Analysis of Alternatives to Achieve Effluent Phosphorus Concentrations of 0.8 mg/l and 0.2 mg/P”, dated December 3, 2007, by the South Burlington, Vermont, office of Stantec Consulting Services, Inc.

“Results of Jar Test and Full Scale Test for Phosphorus Removal at the Village of Waterbury, Vermont, Wastewater Treatment Plant, 2006/2007, Final Report”, by Alec Tuscany, P.E., Public Works Director, Village of Waterbury, and wastewater treatment plant staff.

“Village of Waterbury, Preliminary Engineering and Facilities Planning Report for Phosphorus Removal”, dated October 2005, by the South Burlington, Vermont, office of Dufresne-Henry, Inc. (Note: Dufresne-Henry, Inc, headquartered in North Springfield, Vermont, was subsequently acquired by Stantec Consulting Services, Inc, headquartered in Edmonton, Alberta, Canada.)

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In accordance with Vermont and USEPA regulations, the findings of the environmental review are summarized below.

This environmental assessment document has been prepared by the Facilities Engineering Division of the Vermont Department of Environmental Conservation. This document will provide commentary on the above planning documents prepared by the project owner's consulting engineer, and by the owner, and will provide additional information.

Description of the Project

The existing Village of Waterbury wastewater treatment plant was constructed in the 1980's and provides secondary level treatment. It consists of headworks (preliminary treatment) facilities followed by three aerated lagoons in series, then disinfection by chlorine contact. The treated effluent is discharged to the Winooski River, in the Lake Champlain drainage basin.

The proposed project will add phosphorus removal capability, as required by Vermont law. The project will also renovate the plant and increase organic treatment capacity. The project will not increase the current 510,000 gallons per day permitted hydraulic flow capacity of the plant.

The proposed project will add a divider baffle in the first aerated lagoon; lagoon covers and diffused aeration at the second and third lagoons; a new treatment building including pre-lagoon fine screening facility and post-lagoon cloth disk filters, lagoon aeration blowers, chemical feed and storage, and chemical sludge concentration facilities; conversion from disinfection by chlorine contact to disinfection by ultraviolet bulbs; a new SCADA (Supervisory Control and Data Acquisition) system for the plant; chemical sludge freeze drying beds; and general renovation of the existing control building.

Finding of No Significant Impact (FNSI) Required

Although the proposed project will not increase the permitted hydraulic flow capacity of the Waterbury treatment plant, the project will substantially increase the design organic treatment capacity of the plant, in terms of pounds per day influent 5-day biochemical oxygen demand, BOD₅.

When the existing Waterbury treatment plant was designed, a relatively large amount of groundwater and surface water entered the Waterbury sewer system, meaning that the wastewater entering treatment was relatively dilute. The existing plant was designed for a relatively low average influent BOD₅ concentration of 170 mg/l.

Since the construction of the existing Waterbury treatment plant, the Village has made a considerable effort to "tight up" the sewer system, to exclude groundwater and surface water. Also, during that period, new food and beverage industries tied into the Waterbury sewer system. As a result of these changes, the organic

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strength of the wastewater entering the existing treatment plant has increased. The current treatment plant is now limited by its organic treatment capacity rather than its hydraulic capacity.

The proposed project is designed for an average influent BOD₅ strength of 250 mg/l, or a 47.1 percent increase above the current 170 mg/l design influent BOD₅ strength.

A March 29, 2010, memorandum by James Hanlon, director of the USEPA Office of Wastewater Management, Washington, DC, clarifies that projects receiving USEPA special wastewater grants appropriated in federal fiscal year 2010 (including the USEPA grant to Waterbury), are required to undergo environmental review in accordance with the National Environmental Policy Act (NEPA).

The Vermont Department of Environmental Conservation (VT-DEC), Facilities Engineering Division, has established "*Environmental Review Procedures for Projects Funded Through the Vermont/EPA Revolving Loan Program*", in accordance with NEPA, for projects receiving clean water revolving loan (CWSRF) funding. CWSRF loans are supported by USEPA capitalization grants. VT-DEC has not established separate environmental review procedures for USEPA special wastewater grants, so the CWSRF environmental review procedures will be applied to the Waterbury project.

Under the VT-DEC CWSRF environmental review procedures, a wastewater project is ineligible for Categorical Exclusion (CATEX) from detailed environmental review if the project will increase flow capacity by more than 20 percent, or if the project will increase equivalent population served by more than 30 percent. The Facilities Engineering Division of VT-DEC has adopted design average influent biochemical oxygen demand, BOD₅, as a proxy for equivalent population.

The Waterbury project will not change flow capacity, but it will increase the design influent BOD₅ loading by 47.1 percent, well above the 30 percent maximum for CATEX. Instead, a Finding of No Significant Impact (FNSI) will be required for the Waterbury project, meaning that at least one public meeting, to hear public comments on the environmental effects of the project, will be required.

Alternatives to the Project

Vermont law requires that the wastewater treatment plants for certain municipalities in the Lake Champlain (and Lake Memphremagog) drainage basins, including Waterbury, maintain a monthly average effluent total phosphorus concentration no higher than 0.8 mg/l. The existing Waterbury plant is not capable of meeting that phosphorus concentration limit.

In an October 2005 facilities plan, the Village's consulting engineer initially proposed a phosphorus upgrade project including lagoon improvements and post-lagoon cloth disk filtration. In 2006-2007, at the request of the VT-DEC Facilities Engineering Division, the Village did pilot testing to determine whether addition of a coagulant chemical to the final aerated lagoon, without alteration of the existing aeration method and without post-lagoon filtration, would be sufficient to meet the statutory phosphorus concentration limit. The report on that pilot testing indicates that the Village was not able to consistently meet the phosphorus limit under those conditions.

In June 2009, the Village conducted additional pilot testing that demonstrated that post-lagoon filtration

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with modular cloth disk filters would be sufficient to meet the statutory phosphorus concentration limit. VT-DEC subsequently endorsed the project scope as proposed by the Village's consulting engineer.

Direct Environmental Effects of the Project

The direct environmental effects of construction and operation of this project are adequately addressed by the September 20, 2010, environmental information document (EID) prepared by the Village's consulting engineer. Those direct environmental effects are expected to be minimal. All construction will occur within the boundaries of the existing wastewater treatment plant site, in close proximity to existing wastewater treatment facilities.

The environmental information document includes an archeological resource assessment report by GEOARCH, Inc, of Leicester, Vermont. In the Conclusion section of that archeological assessment, there are the following statements: *"On location field inspection confirmed low archeological sensitivity, previous disturbance, and modern fill over most of the project area. Pedestrian survey did not locate any Precontact Period Native American or historic Euro-American artifacts on the ground surface of areas seemingly free of fill ... The Waterbury wastewater treatment plant phosphorus removal upgrade project should not affect any historic properties. GEOARCH recommends work proceed as planned. Any changes to project plans may require further review."*

The project is expected to include some earth fill added at the edge of the 100 year flood plain (FEMA flood zone AE) of the Winooski River, but outside the floodway of the Winooski River, to enable construction of a post-lagoon filtration building. The existing treatment plant lagoons intrude into the 100 year flood plain, and there is no practical alternative to adding some fill at the edge of the 100 year flood plain.

Construction erosion and runoff control measures will be incorporated into the project.

Upon completion of the project, a phosphorus discharge limit will take effect for the Waterbury wastewater plant. The project will not increase the permitted flow capacity of the plant, in gallons per day, meaning that no alteration of Waterbury's waste management zone in the Winooski River will be required. Mass (pounds per day) discharge limits for pollutants other than phosphorus will also remain unchanged, but the improved treatment process is expected to improve the quality of the effluent discharged to the Winooski River. Also, there will be no change in the limit for *E coli* indicator bacteria.

Indirect Environmental Effects of the Project

As described above, in the section *"Finding of No Significant Impact (FNSI) Required"*, the existing

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Waterbury wastewater treatment plant is limited by its organic treatment capacity rather than its hydraulic capacity. This means that the Village is effectively not able to use all of its existing 510,000 gallons per day permitted hydraulic capacity. The proposed project, by increasing the plant's organic capacity, will enable the Village to use and allocate all of its existing hydraulic capacity, meaning that the proposed project will enable additional connections and development within the Waterbury sewer service area.

Upon inquiry by VT-DEC, Rosemary Monahan, PhD, Smart Growth Coordinator, USEPA Region 1, determined that the Waterbury wastewater project would need to undergo growth impact review by the USEPA, because the project would enable new development.

Dr Monahan reviewed growth impact submittals by the Village's consulting engineer, including technical memoranda 3.1 and 6, listed above in the "*Summary of Environmental Review*" section. Those documents presented the proposed project as providing enough additional organic treatment capacity to accommodate planning period growth needs within the existing sewer service area boundary, which is the same as the Village boundary, but not enough for needs outside the current Village boundary. The Village does have annexation authority, but annexation requests are made by landowners, not the Village, and the Village does not anticipate such requests during the project planning period. The Village has indicated that the project will not serve Waterbury Center, a secondary designated growth center, outside the Village boundary, or the VT Route 100 north (Waterbury-Stowe Road) commercial corridor.

Dr Monahan requested additional information about environmental resources within the Village boundary, as well as specific locations of potential new development within the Village boundary, all of which the consulting engineer did provide, to Dr Monahan's satisfaction, as indicated by her email of May 16, 2011.

Socio-Economic Effects of Proposed Project

The proposed project will not require relocation of people. Area employment will not be disrupted by project construction, and will actually be temporarily enhanced by construction.

The most recent (March 2011) total project cost estimate by the consulting engineer is \$6.39 million. Of that amount, \$5.55 million (87 percent of project) is estimated to be eligible for Vermont phosphorus grant funding. An estimated \$4.0 million in Vermont phosphorus grant funding is currently available. In addition, a \$0.800 million special USEPA grant has been appropriated for phosphorus removal at Waterbury. That leaves a \$0.750 million grant funding gap for the phosphorus eligible portion of the project.

The estimated non-phosphorus eligible project cost is \$0.840 million, mostly for headworks and disinfection improvements, and for rehabilitation of the existing control building. The funding for the non-phosphorus portion of the project has not yet been determined. Potential funding sources are a Vermont/USEPA clean water revolving loan (CWSRF) or a USDA Rural Development grant and loan package.

Because the funding of the overall Waterbury project is not yet fully defined, the impact on Waterbury

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sewer rate payers cannot be determined at this time.

Summary of Agency and Public Consultation (Public Meetings)

To date, no bond information meetings have been warned for the Waterbury phosphorus project.

One public hearing has been warned in accordance with Finding of No Significant Impact requirements. That hearing was warned as an agenda item within the Village of Waterbury trustees meeting held on Wednesday, November 9, 2011. No one from the general public attended. The meeting was held at the Thatcher Brook Primary School, a temporary meeting location, because the Waterbury municipal offices at 51 South Main Street were damaged by tropical storm Irene flooding on August 28, 2011.

The Village trustees did ask for clarification of the current and proposed design influent BOD₅ loadings of the wastewater plant, and how those trigger the requirement for a Finding of No Significant Impact hearing.

The hearing was closed after about 10 minutes of discussion.

List of Agencies and Groups Consulted (Direct Mailing)

An electronic copy of this document, as well as an electronic copy of the consulting engineer's (September 20, 2010) environmental information document, have been distributed to the following individuals by email. A hard copy of this document has been mailed to Josh Nemzer, Grants Project Officer, US Environmental Protection Agency, Region 1, Boston, Massachusetts.

Federal Agencies

US Environmental Protection Agency, Region 1, Boston, Massachusetts

- Grants Project Officer
- Smart Growth Coordinator

USDA Rural Development, Montpelier, Vermont

- State Engineer
- Community Programs Specialist

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State of Vermont

Vermont Department of Environmental Conservation

- Manager, Ecosystem Restoration Program, Lake Champlain Basin

Water Quality Division

- Watershed Coordinator, Northern Lake Champlain Basin
- Environmental Scientist, Lakes & Ponds Management
- River Scientist, Rivers Program
- NFIP Community Assistance Coordinator, Rivers Program
- Environmental Analyst, Stormwater Section
- District Wetlands Ecologist

Wastewater Management Division

- Environmental Analyst, Discharging Treatment Facilities Section
- Environmental Engineer, Discharging Treatment Facilities Section
- Chief, Residuals Management Section

Facilities Engineering Division

- Environmental Engineer, Design Section
- Chief, Financial Management Section

Waste Management Division

- Chief, Site Management Section

Vermont Department of Fish and Wildlife

- Biologist / Information Manager, Natural Heritage Information Project

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Vermont Agency of Commerce and Community Development

Department of Housing and Community Affairs

- Archeologist, Division for Historic Preservation

Local/ Regional

Village of Waterbury, Vermont

- President, Village Trustees
- Municipal Manager
- Public Works Director
- Chief Operator, Wastewater Treatment Plant
- Community Planner

Central Vermont Regional Planning Commission

- Senior Planner

Consulting Engineer

Stantec Consulting Services, Inc, South Burlington, Vermont

- Associate
- Engineer