

TOWN OF SPENCER, MASSACHUSETTS
OFFICE OF THE
SEWER COMMISSION

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Compliance Report

Dec. 20, 2021

Over the last calendar year the design has progressed to the 90% completion level including design drawings, specifications and Opinion of Probable Construction Cost. These documents continue to be worked on with a goal of having them at a bid ready state in early 2021. The design documents include a new tertiary treatment process, cloth media filtration, that is specifically designed to meet the proposed total phosphorus effluent limit included in Spencer's NPDES permit. The cloth media filtration system will also achieve the stringent copper effluent limit included in Spencer's NPDES permit. In June and July of 2021 the Town solicited and received proposals for the cloth media filtration system utilizing the pre-procurement process pursuant to Mass General Law Chapter 30B. The Town received two proposals in response to the Chapter 30B request for proposals and ultimately determined that the cloth media filtration system submitted by Aqua Aerobic Systems, LLC of Loves Park, IL was the most advantageous system when considering both price and non-price criteria. After selection, Aqua Aerobic Systems, LLC completed a successful pilot study onsite at the Spencer WWTP between September 7, 2021 and October 8, 2021 that showed their proposed cloth media filtration system can successfully meet the proposed stringent total phosphorus and copper effluent limits outlined in Spencer's NPDES permit.

Over the last calendar year the Town of Spencer approved through a Town Meeting to borrow funds in an amount up to \$37,920,000 through the Massachusetts Clean Water State Revolving Fund (CWSRF) Program. These funds will cover costs associated with the construction of the tertiary treatment system for total phosphorus removal as well as other improvements throughout the WWTP facility. As part of the CWSRF funding program, the Town of Spencer submitted the Part A application (CWSRF Project Number 6919) to MassDEP on October 15, 2021. Stamped design plans and specifications titled "Spencer Wastewater Treatment Plant Upgrade Project" were submitted to the MassDEP as part of the Part A application. The following project schedule was included in the in the Part A application showing project completion and compliance prior to the December 31, 2024 deadline outlined in the Spencer NPDES permit.

Part II: Item 2
Detailed Project Schedule

Task	Schedule
Part A SRF Submission	October 15, 2021
DEP Authorization to Bid	February 1, 2022
Advertisement for Bid	February 15, 2022
Sub-bid Opening	March 29, 2022
General Bid Opening	April 12, 2022
DEP Authorization to Award	May 12, 2022
Signed Agreement and Notice to Proceed	June 1, 2022
Substantial Completion (730 days/2 years)	May 31, 2024
Final Completion (790 days)	July 30, 2024

To maintain project schedule and compliance with the total phosphorus compliance deadline of December 31, 2024, the activities expected to occur over the next year include the following:

- a. Develop final bid ready plans and specifications by February 1, 2022.
Due to value of project, prequalification of Contractors will occur prior the bid date of the project.
- b. As outlined in the schedule included in Part II above, between February 1, 2022 and June 30, 2022 it is expected that the project will be advertised for bid, bids will be received by both sub-contractors and general contractors, bids will be evaluated and a recommendation to award the project to the successful low bidder will be submitted to the Town and MassDEP, DEP will provide authorization to award the project and a signed agreement with the selected Contractor will be executed by June 30, 2022.
- c. Between June 30, 2022 and December 31, 2022 it is expected that the selected contractor will provide submittals for the construction project, mobilize to the site and begin construction of the Spencer WWTP Upgrade Project.

At this time there are no anticipated or potential areas of noncompliance with the Compliance Schedule outlined in the Spencer NPDES permit.

The Town plans to abandon the constructed wetland beds in place as part of the WWTP Upgrade Project. There are currently no plans to disturb, deposit material into, or build over the constructed wetlands beds. The constructed wetland beds will be taken offline once a new section of effluent piping (bypassing the wetland beds) is installed and the new tertiary treatment building is completed that will house the new cloth media filters and UV disinfection system. The exact timing of ceasing the flow of wastewater to the constructed wetland beds will be dependent on the

construction contractors schedule, however, it is expected that the wetland beds will be taken offline sometime during the 2024 calendar year.

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WHY IS AN UPGRADE NEEDED AT THE WASTEWATER TREATMENT PLANT?

- **Major drivers for upgrade project:**
 - **Regulatory compliance** – see below.
 - **Aging and obsolete infrastructure** – a large amount of existing equipment and infrastructure have not been upgraded since 1986. Much of this equipment and infrastructure have reached the end of its useful life.

• Regulatory Compliance

- Treatment plant must comply with effluent limits set forth by EPA via a National Pollutant Discharge Elimination System (NPDES) discharge permit

- Latest NPDES permit issued to Spencer on May 1, 2019

- NPDES permit includes stringent effluent limits for Total Phosphorus that requires compliance by December 31, 2024

- Existing treatment plant can not meet the Total Phosphorus limits

- Requires installation of new treatment technology for removal of Total Phosphorus

- Although the current NPDES permit does not include a limit for Total Nitrogen, it is expected that the next permit will. Based on MassDEP initiatives, Spencer should expect to have a future effluent TN limit of 90.1 lbs/day or 10 mg/L at the average day design flow. Existing treatment plant can not meet the future anticipated TN limit.

- Requires installation of new aeration tank for additional treatment volume and ancillary equipment for TN removal.

Summary of Spencer WWTP NPDES Permit Limits (issued May 1, 2019)

Effluent Characteristics	Unit	Monthly Average	Weekly Average	Maximum Daily
Flow	mgd	1.08	---	Report
BOD ₅	May 1-Oct 31	5.6	7.5	Report
	May 1-Oct 31	50	68	---
	Nov 1-Apr 30	30	45	Report
TSS	May 1-Oct 30	270	405	---
	May 1-Oct 31	5.6	7.5	Report
	May 1-Oct 31	50	68	---
Ammonia (Total as N) ¹	May 1-Oct 30	30	45	Report
	Nov 1-Apr 30	270	405	---
	Nov 1-Apr 30	270	405	---
Copper	pp/L	10.3	---	15.3
Total Phosphorus ²	May 1-Oct 31	0.56	0.84	Report
	May 1-Oct 31	5.0	7.5	---
	Nov 1-Apr 30	6.3	---	Report
E. coli ³	Nov 1-Apr 30	56.7	---	---
	April 1-Oct 31	0.1	---	Report
	Nov 1-Mar 31	0.79	---	Report
		0.2	---	---
		1.19	---	---
	May 1-Sept 30	126	---	409

¹ In addition, total nitrogen, total Kjeldahl nitrogen, nitrate and nitrite are required to be reported weekly between May 1 and October 31 and monthly between November 1 and April 30.
² These limits become effective beginning December 31, 2024. The mass limits are seasonal average limits, and shall be calculated as the arithmetic mean of the monthly average load calculated for each month in the season.
³ This limit is expressed as a geometric mean.

PROJECT COSTS AND SCHEDULE

- **2021 Annual Town Meeting approved borrowing up to \$37,920,000**
 - This amount was estimated during the design phase and includes all construction related costs, construction phase engineering services and contingency
 - Final amount borrowed will be based on actual bids received from contractors for construction of the project
- **Project will be financed by borrowing through the Clean Water State Revolving Fund (CWSRF) Program**
 - Program provides low interest loans including the potential to receive 0% financing for nutrient removal related aspects of the project (i.e. phosphorus and total nitrogen removal related costs)
- **Project Schedule:**
 - Design is currently at 95% complete
 - Design documents, drawings and specifications, have been submitted to the MassDEP for review as part of the CWSRF program procedures
 - Expect comments from MassDEP along with approval to bid the project in early 2022
 - Project bidding – expected to occur in Jan/Feb of 2022
 - Project award to General Contractor by June 30, 2022
 - Construction phase expected to take 24 to 30 months
 - Phosphorus compliance required by December 31, 2024.