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GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



LIESL EICHLER CLARK
DIRECTOR

October 30, 2020

TO: All Interested Citizens, Organizations, and Government Agencies

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT
**Great Lakes Water Authority
Clean Water State Revolving Fund Project No. 5673-01
REHABILITATION OF FERRIC CHLORIDE FEED SYSTEM AT
PUMP STATION No. 1 AND COMPLEX-B SLUDGE LINES**

Michigan Department of Environment, Great Lakes, and Energy (EGLE) that an Environmental Impact Statement (EIS) is not required to implement recommendations discussed in the attached Environmental Assessment of a wastewater supply project plan submitted by the applicant mentioned above.

HOW WERE ENVIRONMENTAL ISSUES CONSIDERED?

Part 53, Clean Water Assistance, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, being Sections 324.5301 to 324.5316 of the Michigan Compiled Laws Annotated, requires EGLE to evaluate all environmental implications of a proposed wastewater project. EGLE has done this by incorporating a detailed analysis of the environmental effects of the proposed alternatives in its review and approval process. A project plan containing information on environmental impacts was prepared by the municipality and reviewed by the State. EGLE has prepared the attached Environmental Assessment and found that the proposed project does not require the preparation of an EIS.

WHY IS AN EIS NOT REQUIRED?

Our environmental review concluded that no significant environmental impacts would result from the proposed action. Any adverse impacts have either been eliminated by changes in the project plan or will be reduced by the implementation of the mitigative measures discussed in the attached Environmental Assessment.

HOW DO I GET MORE INFORMATION?

A map depicting the location of the proposed project is attached. This information is also available on our website at www.michigan.gov/CWSRF under "Related Links." The Environmental Assessment presents additional information on the project, alternatives that were considered, impacts of the proposed action, and the basis for our decision. Further information can be obtained by calling or writing one of the contact people listed below.

HOW DO I SUBMIT COMMENTS?

Any comments supporting or disagreeing with this preliminary decision should be submitted to me at EGLE, Constitution Hall, P.O. Box 30457, Lansing, Michigan 48909-7957. We will not take any action on this project plan for 30 calendar days from the date of this notice in order to receive and consider any comments.

WHAT HAPPENS NEXT?

In the absence of substantive comments during this period, our preliminary decision will become final. The applicant will then be eligible to receive loan assistance from this Agency to construct the proposed project.

Any information you feel should be considered by EGLE should be brought to our attention. If you have any questions, please contact Ms. Cindy Clendenon, the project manager, at 517-599-9394, by email at Clendenonc@michigan.gov, or you may contact me. Your interest in this process and the environment is appreciated.

Sincerely,



Kelly Green, Administrator
Water Infrastructure Financing Section
Finance Division
517-284-5433

Attachment

DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE)
CLEAN WATER STATE REVOLVING FUND (CWSRF)
Environmental Assessment
REHABILITATION OF FERRIC CHLORIDE FEED SYSTEM AT PUMP STATION No. 1
AND COMPLEX-B SLUDGE LINES

OCTOBER 2020

PROJECT HIGHLIGHTS

Applicant:	Great Lakes Water Authority (GLWA)
Counties of Service Area:	Wayne, Macomb, Oakland
Address:	735 Randolph Street Detroit, Michigan 48226
Authorized Representative:	Ms. Sue McCormick, CEO, GLWA
Project Number:	CWSRF 5673-01 (GLWA Contract 1802543)
Project Location:	Water Resource Recovery Facility in City of Detroit
Construction Period:	March 2021 – March 2023
Pre-Bid Loan Estimate:	\$10,800,000

OVERVIEW.

The Great Lakes Water Authority (GLWA) is applying for a below-market rate loan from the Clean Water State Revolving Fund (CWSRF) program in Fiscal Year (FY) 2021 to finance the rehabilitation of the ferric chloride system at Pump Station 1 and an associated sewage sludge transfer pipeline (see map). Upon completion, the project will resolve reliability concerns and enable proper operation to ensure that phosphorus removal in the treated wastewater effluent continues to meet discharge quality requirements in compliance with the wastewater treatment facility's discharge permit.

The expected annual debt repayment for the pre-bid loan estimate will be approximately \$550,125 at a CWSRF interest rate of 1.875 percent for a 20-year loan term. When the estimated debt service is distributed across 1,136,500 service-area households, it yields roughly \$0.48 per household per year. A 30-year loan term at an interest rate of 2.125 percent is another option, which GLWA will consider before finalizing the loan. The total cost of the project will be allocated to GLWA and suburban customers similar to other capital improvements at the GLWA Water Resource Recovery Facility or WRRF.

EXISTING FACILITY

The regional wastewater system operated by GLWA collects, transports, and treats wastewater generated within the city of Detroit and 76 suburban communities in three counties listed above,

serving more than 1.1 million households or approximately 3.1 million persons. The service area population is expected to remain fairly stable over the next 20 years.

Treated wastewater is discharged from GLWA Water Resource Recovery Facility (WRRF), formerly known as the Detroit Wastewater Treatment Plant. Discharge is regulated under a permit held jointly by GLWA and the City of Detroit Water and Sewerage Department, the latter of which continues to own the plant and has leased it to GLWA since January 1, 2016.

Influent wastewater from the Detroit River/Jefferson Interceptor and Oakwood/Northwest Interceptor reaches the WRRF through Pump Station (PS) No. 1. The PS No. 2 receives a portion of the Oakwood Interceptor influent flow, plus flow from the North Interceptor East Arm. Both pump stations are located on the WRRF property.

NEED FOR IMPROVEMENTS

A ferric chloride system at the WRRF uses iron salts in combination with physical and biological treatment at different points in the wastewater process stream to reduce phosphorus concentrations below limits specified in the discharge permit. Phosphorus has been shown to be a contributor to algae buildup in the western Lake Erie basin. The two pump stations at the WRRF have independent ferric chloride storage and feed facilities to accommodate differing flows and biochemical characteristics experienced at each station, and also the ability to coordinate ferric dosing when flows are mixed. The PS No. 2 ferric chloride facility recently underwent rehabilitation via GLWA contract 1802410, but this project, which still is in construction as of October 2020, is distinct from the upcoming PS No. 1 project that is seeking CWSRF financing.

At PS No. 1, the ferric chloride facility conditions have continued to deteriorate in recent years, finally reaching the point that rehabilitation is necessary. Due to the lack of redundancy and other facility problems described in recent planning documents, there is a high risk of permit violations related to exceedances of phosphorus limits. Condition assessments, engineering studies, flow schematics, and other details are available from GLWA in their prior documents and in the CWSRF Project Plan dated June 2018.

Moreover, rehabilitation is necessary on 1,600 linear feet of a 16-inch-diameter waste activated sludge transfer pipeline that carries thickened waste activated sludge (TWAS) from the WRRF Complex B to sludge storage tanks in Complex A where the TWAS is blended with thickened primary sludge, which is the sludge resulting from primary clarification. The blended sludge then is pumped for dewatering onsite or transported to the GLWA Biosolids Dryer Facility.

Because only this single pipeline carries all the TWAS to the sludge storage tanks in Complex A, it operates nearly 24 hours each day, and there is no redundancy or existing bypass options at the plant if this pipe should fail. Moreover, crystalline deposits known as struvite have accumulated inside this pipe. The struvite buildup reduces the pipe's cross-sectional area and can build up in valves, reducing sludge flow efficiency and potentially causing a complete blockage of flow.

ANALYSIS AND SELECTION OF ALTERNATIVES

As described in the CWSRF project plan submitted to EGLE by GLWA in June 2018, the engineering consultant conducted the alternatives analysis in accordance with CWSRF requirements.

The three feasible alternatives considered for the ferric system included the following:

- Rehabilitate existing facilities;
- Rehabilitate existing facilities with optional secondary feed point (selected);
- Replace ferric system with aluminum sulfate for phosphorus removal; and

It was determined that a fourth alternative was not feasible due to multiple technical complexities, limitations, discharge permit constraints, and full-scale pilot testing that would be necessary to study in sufficient detail the (non-feasible) option of totally incorporating biological phosphorus removal in lieu of the historical secondary treatment process.

The two feasible alternatives considered for struvite remediation of sludge piping included the following:

- Replace waste-activated sludge piping (selected); and
- Chemical or physical struvite removal.

All alternatives would involve a mix of equipment, valves, structures, and pipelines that are expected to have life expectancies between 20 and 100 years.

SELECTION OF ALTERNATIVES

GLWA selected the most cost-effective alternative that simultaneously provides the WRRF with better dosing control of ferric chloride within the overall treatment process while also addressing concerns with biomass settleability in the secondary clarifiers. The selected alternative for struvite remediation resolves the struvite problem while simultaneously providing redundancy for the plant for future operation of the WAS transfer pipeline. Details of implementing the alternative were refined during subsequent engineering study and design, but the implementation details remain consistent with the overall planning objectives.

In summary, the selected alternative for the rehabilitated PS-1 ferric chloride feed system will include a 30,000-gallon storage tank, a chemical feed pump skid with three 12-gallon-per-minute pumps, and all necessary appurtenances and piping. The rehabilitated PS-1 ferric chloride feed system will be co-located with the PS-2 ferric chloride feed system at the WRRF chemical facility near PS-2, the latter complex also being known as the PS-2 chemical facility. Other work at the PS-2 chemical facility include electrical, instrumentation and controls; heating, ventilation and air conditioning, and plumbing improvements; and a new Ovation Room for accommodating the Ovation input-output panel for the PS-1 ferric chloride feed and storage system's monitoring and control devices. Interconnections between the two pump station systems will provide process redundancy, back-up provisions, and increased reliability. Additional work includes demolition of the existing PS-1 ferric chloride feed and storage system and demolition of the abandoned polymer feed and storage equipment inside the PS-2 chemical facility.

With respect to influent interceptor flows, new and/or rehabilitated chemical feed piping and appurtenances will extend from the PS-1 ferric chloride feed system located at the PS-2 chemical facility to the Oakwood Interceptor at an interconnection near PS-2, thereby allowing for direct chemical feed into the incoming interceptor flow. Also, new pipelines from PS-1 ferric chloride feed system will go through the rectangular primary clarifiers pipe gallery to feed the Detroit River Interceptor/Jefferson Interceptor influent flow near PS-1.

The selected alternative for rehabilitation of the existing 16-inch-diameter TWAS (SCB-30) pipeline from Complex B to Complex A will involve various piping and valve modifications, appurtenances, repurposing of several pipes, piping interconnections, and various electrical, instrumentation, and controls modifications that will support TWAS pipeline monitoring. Several bypass connections are designed under this project. After bypass infrastructure is installed, the existing TWAS (SCB-30) pipeline will be inspected and chemically cleaned to remove the struvite/sediments. Installation of permanent 12-inch-diameter TWAS Bypass piping under the existing railroad tracks near Complex B on the WRRF property will include casing pipe installed using jack and bore methods, carrier pipe, and drain piping and valve, in accordance with railroad requirements.

IMPACTS AND MITIGATION

All construction activity will occur within the WRRF property, which is located near the confluence of the Rouge River and Detroit River in southwest Detroit. The property historically has been dedicated to industrial, commercial, and wastewater treatment purposes. Much of the construction work for the project will be occurring inside and near the PS-2 Chemical Building, Waste Sludge Building, Complex A Building, Complex B Building, primary clarifiers, and PS-1.

No tree or vegetation removals are required because the areas of work are comprised of existing structures, concrete, and pavement. No endangered or threatened species or special habitats are present at the WRRF. No work will occur in floodplains, wetlands, or rivers. No known historical or archaeological sites will be affected.

Except for construction traffic entering and exiting the WRRF property, no roadways outside the plant boundary will be disrupted to enable construction. All construction traffic will be through the Copland Security gate and no street shutdowns will be necessary. Soil erosion and sedimentation control measures will be implemented via standard construction contract requirements. Any contaminated materials encountered during construction will be managed properly according to local, state and federal regulations.

When completed, the project may have minor operational effects on the characteristics and amounts of sludge collected at the primary and secondary clarifiers of the WRRF. Despite minor changes, the project overall will provide better dosing control and feed points for the ferric chloride system at PS-1 and therefore will improve treatment processes at the WRRF. Sludge and residuals handling systems will be much improved by virtue of a more reliable TWAS transfer pipeline. Rehabilitation of this pipeline also should improve operating conditions of the TWAS pumps. The potentially overlapping Detroit River Interceptor (DRI) rehabilitation project via Design-Build Contract DB-226, upon its completion, should not yield permanent changes in flow quantities or flow characteristics at PS-1, although future DRI work at or near PS-1 may have temporary effects during its construction (e.g., temporary dewatering in the lowest portion of DRI Reach 3).

PUBLIC PARTICIPATION

After the required 30-day public notice period and availability of the CWSRF project planning document, a public hearing was held June 13, 2018 at 1:00 p.m. in the Water Board Building in downtown Detroit. The engineering consultant presented wastewater system problems and improvement options, as well as social and environmental impacts, estimated costs per household, and the construction schedule. No questions arose from board members or the public. After the hearing, the GLWA Board of Directors formally adopted the project plan by resolution. In the months following, GLWA procured a designer and anticipates selection of a construction contractor by early 2021.

REASONS FOR CONCLUDING NO SIGNIFICANT IMPACTS

The project will have no significant adverse, direct, indirect, or cumulative effects on socioeconomic, cultural, or environmental features. Minor construction impacts will be localized to the construction zones and will be temporary. These impacts can be mitigated with sound construction practices and adherence to permit requirements.

Questions regarding this Environmental Assessment should be directed to:

Kelly Green, Administrator
Water Infrastructure Financing
Michigan Department of Environment, Great Lakes, and Energy
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