

Edward Farrar Utility District WWTP Sludge Management Plan
NOTICE OF REQUEST FOR STATEMENTS OF QUALIFICATIONS
FOR ENGINEERING SERVICES

The Edward Farrar Utility District (EFUD) would like to begin the process of obtaining Statements of Qualifications from qualified engineering firms to develop a long term sludge management plan for the EFUD WWTP. The Statement of Qualifications shall include detailing the firms' qualifications, technical expertise, management and staffing capabilities, references, and related prior experience. Required professional services will include at this time feasibility study level engineering services,. The feasibility study, may in the future, lead to preliminary engineering with possible pilot testing of recommended alternatives from feasibility study, final design, preparation of bidding and contract documents, participation in the evaluation of bids received, and monitoring and inspection of construction activities to ensure compliance with plans and specifications associated for the **Edward Farrar Utility District WWTP Sludge Management Plan. WWTP History, Purpose of the Feasibility Study, Proposed Project Team and Feasibility Study Scope of Work** are attached to this RFQ.

Procurement of said services will be in accordance with elements of the procurement process in 40 U.S.C. § 1101-1104. Qualified firms/candidates interested in being considered for this project must submit five (5) hard copies and one electronic copy each of: (1) letter of interest; (2) statement of qualifications and experience of staff persons who will be involved with the project; (3) references; (4) related prior experience and (5) location of office where the majority of work on the project will be conducted. It is important for each firm to clearly show experience with the Feasibility Study Scope of Work. Submit the requested information to **(28 North Main Street, Suite 1, Waterbury, VT 05676)**; no later than **(4:00 P.M.)** on **January 8 2025** in order to receive consideration.

Attention is directed to the fact that the proposed project may be undertaken with a variety of Federal and state funds and that all work will be performed in accordance with the regulations issued by such agencies and the State of Vermont pertaining thereto.

The EFUD shall evaluate the statements of qualifications and performance data and other material submitted by interested firms and select a minimum of three firms which, in their opinion, are best qualified to perform the desired services. Interviews with each firm selected may be conducted, which may include discussions regarding anticipated concepts and proposed methods of approach. The EFUD shall rank, in order of preference, these three professional firms deemed to be the most highly qualified to provide the services required, and shall commence scope of services and price negotiations with the highest qualified professional firm for the engineering services.

WWTP History

The original Edward Farrar Utility District (EFUD) WWTP, located along US Rte 2 west of Waterbury Village, was constructed in 1978 and replaced an extended aeration package WWTP located in the Village. Design flow was 0.51 MGD. The WWTP included three (3) aerated lagoons followed by a chlorine contact tank and a control/laboratory building. WWTP effluent is discharged to the Winooski River. Approximately 16 acres of farmland surrounds three sides of the lagoons where lagoon sludge has been land applied in the past.

In 2014 the WWTP was upgraded to meet the Lake Champlain TMDL for phosphorus removal. Design flow remained at 0.51 MGD. The upgrade included the construction of a ballasted flocculation treatment process-so called CoMag. The process utilizes magnetite to enhance removal of the chemical floc. The CoMag Building includes the CoMag process train (feed pumps, three reaction tanks and clarifier), magnetic drum, chemical storage and feed systems (PAC, caustic soda and polymer) two sludge holding tanks with mixers and a rotating drum thickener (RDT) with associated polymer system and eight (8) covered sand drying beds with a dewatered sludge storage bunker. Waste chemical sludge (WCS) is removed from the clarifier and pumped to a magnetic drum where magnetite is separated from the WCS and returned to the reaction tanks. The WCS flows from the magnetic drum to the sludge holding tanks. Since 2014 the WWTP has routinely met the effluent phosphorus limit and the CoMag chemical process also enhances BOD and TSS removals. The staff, early on, determined that the CoMag process worked best when operated at the design flow of 0.51 MGD. Currently influent flows average around 1/3 of design flow. With the advantage of having the 3 lagoons upstream to attenuate and store influent flow the staff operates the CoMag process for 3-4 days at design flow and then turn off the CoMag process letting the lagoons fill to a predetermined level before restarting the CoMag process.

In recent years three Grid Bee slow speed mixers have been added to the lagoons (two (2) in Lagoon 1 and one (1) in Lagoon 2). The addition of the Grid Bee mixers has allowed the staff to reduce the number of aerators and thereby reducing power costs. The remaining aerators provide the needed dissolved oxygen and the Grid Bee mixers augment the mixing.

With the concerns on land application of WWTP sludges becoming more prevalent, actual land application of lagoon sludges has not occurred since 2011. Staff have recently added a sludge removal barge on lagoon 1 to remove sludge on an annual basis instead of conducting a land application of lagoon sludge onto the WWTP farmland as has been done in the past. The sludge removed from Lagoon 1 by the barge operation, has been placed onto two of the eight drying beds for dewatering.

Currently the CoMag and lagoon sludges, after drying on the sand drying beds, are co-mingled and stored in the sludge storage bunker until the sludges are trucked to Englobe for disposal.

Purpose of Feasibility Study

Since the CoMag process was put into operation, sludge management problems have developed:

- Waste chemical sludge (WCS) from the CoMag process, as noted above, is stored in two 79,000 gallon sludge storage tanks (SST). Periodically the SSTs are decanted and the decant is returned to Lagoon 1. The Basis of Design envisioned, at design year flows of 0.51 MGD, pumping 7200 GPD of WCS to the SSTs. Currently the WCS wasting rate averages between 15,000-25,000 GPD depending on seasonal algae and lagoon conditions, which obviously fills the SSTs quicker than anticipated in the design. Under current operation the SSTs are undersized.

- As the SSTs fill with WCS the WCS sludge has been pumped to the RDT for thickening and the thickened WCS (TWCS) pumped to the drying beds for dewatering. If the RDT thickened the TWCS to more than 2-3% the TWCS would not flow over the surface of the drying beds but remained in piles below the discharge pipe. The piping system between the SSTs and the sand drying beds do not allow for winter pumping. As the WWTP goes through winter WCS builds up in the SSTs and eventually the decant includes WCS returning to Lagoon 1. This adds to the sludge buildup in Lagoon 1.
- With no land application of lagoon sludges since 2011 sludge is accumulating in the lagoons.
- With the Lagoon 1 barge pumping sludge to one of two sand drying beds the shortage of sand drying beds is compounded further.
- The Lagoon 1 barge system cannot operate in the winter.
- EFUD had contemplated adding one additional (25' W X 100' L) sand drying bed (which is twice the surface area of one of the existing sand drying beds). However, this does not address the undersized SSTs or necessarily add sufficient sand drying bed area to keep up with both WCS and lagoon sludges.
- Rather than simply building an additional sand drying bed EFUD has now decided to stop and consider all options to develop a long term sludge management plan starting with a feasibility study.

Proposed Project Team

The proposed project team for the Feasibility Study (and hopefully beyond) will be:

- Town of Waterbury/EFUD Public Works Director William Woodruff
- Town of Waterbury/EFUD Engineer Alec Tuscany
- EFUD WWTP Chief Operator Matt Jones
- EFUD WWTP Operator Tony Mullis
- Ray Pepin-Senior Process Engineer (recently retired from Evoqua, current marketer of CoMag) with 50 years' experience in wastewater treatment. Ray was instrumental in CoMag startup and subsequent CoMag operating issues
- Selected Consultant

Feasibility Study Scope of Work

The proposed scope of work for the Feasibility Study centers on developing a long term sludge management plan and shall include but not be limited to:

- Get Start Meeting with Project Team
- Tour of WWTP site with emphasis on how WWTP currently operates
- Review Historical Data
 - Stantec Basis of Design
 - WWTP Operational Data (from CoMag startup in 2014 to present)
 - EFUD staff generated O&M Manual
 - WWTP As-builts and changes since CoMag 2014 startup
 - Identifying site limitations for additional structures
 - Past and current sludge management issues
- Identify Possible Sludge Management Alternatives such as:
 - Consider use of enzyme addition or other additive(s) to Lagoons to reduce sludge production
 - Modify CoMag process to reduce quantities of WCS
 - Enhance SST decanting system to reduce solids return to Lagoon 1 including modifying the inadequate telescoping valves
 - Continue land application of lagoon sludges for all three lagoons or only Lagoons 2 and 3. Confirm current and potential future EPA/State ANR Land Application Regulations
 - Add additional sand drying bed(s) with/without translucent roof
 - Remove some or all sand drying beds and replace with
 - Contract dewatering of either or both lagoon sludge and WCS
 - Add in-house mechanical dewatering (screw press, filter press, centrifuge, etc.) for either or both WCS and Lagoon sludge
 - Conversion of some drying bed(s) to house dewatering equipment and more storage bunker space
 - Possible sludge dryer
 - Various combinations of all above
 - Other Alternatives
 - **NOTE:** while current influent flows average around 1/3 of design flow and for the foreseeable future, probably will be in the 1/3 of design flow, all alternatives considered need to be based on the design flow of 0.51 MGD
- Rank alternatives considering feasibility level construction costs, need to upgrade electrical feed to WWTP, O&M costs, man power requirements, site constraints, permitting issues, potential funding sources.
- Prepare a Feasibility Study Report summarizing all work, findings and recommendation(s) on “best” alternative
- Feasibility Study report to be completed by end of 2025.

RFQ Questions

Questions concerning this RFQ must be submitted via email to William Woodruff, Town of Waterbury and EFUD Public Works Director at bwoodruff@waterburyvt.com. Questions must be submitted by Friday, December 20, 2024, at 12 noon and must have the Subject Line: “Engineering Services RFQ Question.” A digest version of all questions and answers will be emailed to all applicants. Please email as

detailed above to be included. EFUD shall distribute the Q&A Digest via email by 4:00 p.m. on Friday, January 3, 2025.

Evaluation Criteria

Statement of Qualifications will be evaluated in the following areas:

1. Firm's Qualifications and Capabilities (30 pts.): This refers to the qualifications of the firm or firms assigned, including area of expertise, technical capabilities, and work experience with Vermont Department of Environmental Conservation and federal agencies. Special interest to EFUD will be firms knowledgeable with aerated lagoons and the CoMag ballasted flocculation process.
2. Project Team (30 pts.): Qualifications of the professionals (including but not limited to the Project Manager) assigned to this project including technical attributes and relevant staff experience that make them uniquely qualified to undertake this work.
3. Past Performance (20 pts.): The quality and relevance of recent projects of similar nature completed by the Consultant.
4. Knowledge of Project Area (5 pts.): Experience working in central Vermont and/or Vermont.
5. Office location doing the majority of the work (5 pts.)
6. Overall Quality of Submittal (10 pts.): This refers to the clarity and organization of the submittal as well as the completeness of the information.

A Selection Committee will review qualifications submitted in response to this RFQ. EFUD intends to make its decision on the choice of an engineering consultant as soon as possible. EFUD may choose to interview candidates before making its final decision. The most qualified respondent will be selected, subject to negotiation of fair and reasonable compensation.

The selection of a consultant shall be made without regard to race, color, sex, age, religion, national origin, or political affiliation. EFUD is an Equal Opportunity Employer and encourages proposals from qualified minority and woman-owned businesses.

Disclaimers

1. Those submitting SOQs do so entirely at their own expense. There is no express or implied obligation by EFUD to reimburse any entity or individual for any costs incurred in preparing or submitting proposals, preparing, or submitting additional information requested by Selection Committee, or participating in any selection interviews.
2. EFUD reserves the right to withdraw this Request for Qualifications, to accept or reject any or all statement of qualifications, to advertise for new statement of qualification if it is in the best interest of the Town to do so, and to award a contract as deemed to be in the best interest of the Town.