



Sheldon A. Neeley, Mayor

CITY OF FLINT PROPOSAL NO.21000560
SECONDARY CLARIFIER IMPROVEMENTS – ENGINEERING SERVICES

Date Posted: 10/3/2020

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On Tuesday, March 10, 2020, Governor Gretchen Whitmer declared a State of Emergency after two individuals were confirmed testing presumptively positive for COVID-19. On Thursday, March 12, 2020, Mayor Sheldon A. Neeley declared a local State of Emergency to exist in the City of Flint as a result of the threat of COVID-19. On Sunday, March 15, 2020, effective March 17, 2020, Mayor Neeley, based on the COVID-19 public health threat, closed City Hall to the public. Residents were asked to take precautionary measures. On March 22, 2020, Mayor Neeley asked residents to participate in a voluntary shelter in place. City Council approved the continuation of the declaration of a State of Emergency.

Based on the White House guidelines issued on March 16, 2020, and these guidelines are still in place. It is recommended that people not gather in groups larger than 10 people in order to "flatten" the curve and slow the spread of the virus. On March 24, 2020, Governor Whitmer instituted Executive Order 2020-21, a temporary requirement to suspend activities that are not necessary to sustain or protect life, prohibiting "in-person" work with exceptions for essential and critical infrastructure workers.

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Sheldon A. Neeley
Mayor

Finance Department
Division of Purchases & Supplies

Joyce A. McClane
Purchasing Manager

REQUEST FOR PROPOSALS AND QUALIFICATIONS

OWNER:

THE CITY OF FLINT
DEPARTMENT OF PURCHASES AND SUPPLIES
1101 S. SAGINAW STREET, ROOM 203
FLINT, MI, 48502

Project Name: SECONDARY CLARIFIER IMPROVEMENTS – ENGINEERING SERVICES

Proposal No.: 210000560

The City of Flint is soliciting Statements of Qualifications (SOQ) from qualified consulting firms to provide consulting services in support of the City's [Secondary Clarifier Improvements](#).

[*This is a Qualification Based Selection \(QBS\) process. Cost or billing rates will not be included in the evaluation criteria, so the consultant should exclude any references to these in the SOQ.*](#)

If your firm is interested in providing the requested services, please submit one(1) original proposal AND one (1) unbound with all requested information, EXCEPT, the total price of your proposal. Outside of the envelope, the enclosed proposal should clearly identify that the information submitted is the **PROPOSAL ONLY** – With the title of the Proposal and Proposal Number.

In a separate envelope, the **TOTAL PRICE** of the proposal that is submitted must be in a **SEALED ENVELOPE**. The outside of the enclosed **TOTAL PRICE** should clearly identify that the information submitted is the **TOTAL PRICE ONLY** – **With the title of the Proposal and Proposal Number.**

For this project, faxed bids to the Purchasing Department will not be accepted. Bidding Documents shall meet requirements set forth in the Specification. Section 00 10 20, Instructions to Bidders.

A City selection committee will review the SOQ'S received and select the consultants it feels are the most qualified to furnish professional services to the City of Flint; however, the city reserves the right to conduct interviews with a short-list of firms as necessary.

The city reserved the right to reject any and or all SOQ's and waive any informalities therein. The SOQ is prepared at the consultant's expense and becomes city property, and therefore a public record. Proposal Guarantee shall provide assurance that the bidder will, upon acceptance of the bid, execute the necessary Contract with the City. No bid may be withdrawn for one hundred twenty (120) days after scheduled closing time for receiving bids.

Proposals submitted by Bidders who have been debarred, suspended, or made ineligible by any Federal Agency will be rejected. The project is funded through the State Clean Water Revolving Loan program and requirements of the program are included in the Contract Documents.

Each bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

The City of Flint reserves the right to reject all bids and to waive irregularities in bidding.

All additional bid documents, requirements, addendums, specifications and plans/drawings (if utilized) are available on the Purchasing page of the City of Flint's web site at <https://www.cityofflint.com/finance/purchasing/> under "open bids" and the specific bid or proposal number assigned to this notice.

Anticipated Bid Submission Schedule:

Date Released/Bid Posted to City's Website:	Monday, October 5, 2020
Bid Advertisement:	Monday, October 5, 2020
Final Date for Questions:	Wednesday, October 14, 2020 at 2:00 PM EST
Final Addendum:	Monday, October 19, 2020 by 5:00 PM EST
Bid Due Date:	Monday, November 2, 2020 by 2:00 PM EST ELECTRONIC BIDS ARE NOT ACCEPTED DROP OFF BIDS (A MASK MUST BE WORN)

The dates provided above are estimated dates only and may be subject to change.

Send to: The City of Flint
Department of Purchases and Supplies
1101 S. Saginaw Street, Room 203 Flint, MI 48502

Effective immediately upon release of these Bidding Documents, and until notice of contract award, all official communications from proposers regarding the requirements of this Bid shall be directed to:

Joyce A. McClane
810-766-7340
jmcclane@cityofflint.com

The City, or designee, shall distribute all official changes, modifications, responses to questions or notices relating to the requirements of this Bid. Addendum to this Bid may be developed and shared with all Vendors. Any other information of any kind from any other source shall not be considered official, and proposers relying on other information do so at their own risk.

Sincerely,



Joyce A. McClane, Purchasing Manager

REQUEST FOR PROPOSALS AND QUALIFICATIONS FOR ENGINEERING SERVICES

SECONDARY CLARIFIER IMPROVEMENTS

Flint Water Pollution Control
G-4652 Beecher Road
Flint, Michigan

INSTRUCTIONS TO BIDDER- SPECIFICATION SECTION 00 10 20

INTRODUCTION

The eight (8) secondary clarifiers, sometimes referred to as the final settling tanks (FSTs), are located west of the Battery A Aeration tanks and the Microstrainer building. Their design is circular with activated sludge entering the settling tank through a peripheral feed system. The eight (8) FSTs are split into two trains, Battery A and Battery B, with four tanks for each liquid train. The flow of mixed liquor from the aeration tanks to the secondary clarifiers is controlled by a pair of butterfly gates equipped with electric actuators. The butterfly gates' positions are set by WPCF personnel to distribute the flow between Battery A and B secondary clarifiers. Effluent is discharged from the secondary clarifiers through a single sided, fingered weir system. The clarifiers have metal sludge skirts and effluent troughs, but the influent trough is concrete in Battery B tanks and metal in Battery A tanks. Scum removal is accomplished by a scum skimming arm, scum baffle, and scum collection hopper. The scum is comingled with primary/secondary wasted sludge. The rotating assemblies and drives for each secondary clarifier are newer and in good condition. Standard geometric and hydraulic loading data for the secondary clarifiers can be found in Table 1.

While the secondary clarifier drives, rotating assemblies, and scum collection system appear to be in good condition, they should be inspected and any necessary repairs recommended and included in the proposal. The influent and effluent troughs and weirs are failing. There are holes in several areas of the trough systems. The finger weir configuration promotes algae growth due to the low weir overflow rates. This has occurred as average flows have decreased over time

The City of Flint is looking for secondary clarifier solutions to address several of the current deficiencies in their operation:

1. Influent/effluent troughs are in poor condition often causing "short circuiting" of the clarifier and uneven distribution of the influent to the tank.
2. Algae buildup in the effluent weirs can severely restrict flow causing throughput issues during high flow conditions.
3. Sludge buildup in the influent troughs can restrict flow causing throughput issues during high flow conditions.
4. There are minor structural issues with several of the tanks.

PROPOSED WEIR AND TROUGH IMPROVEMENTS

The final clarifier influent and effluent troughs that are metal need to be redesigned and replaced due to the damage present. The influent trough, effluent trough, scum baffle and weirs are all assembled as a unit and structurally supported as one. Therefore, the whole assembly should be replaced to ensure that the influent and effluent distribution systems continue to deliver quality effluent and sludge settling.

For Battery A, the influent trough, effluent trough, skirt baffle, and target baffle would be replaced in either stainless steel or painted carbon steel while the weirs and scum baffle would be replaced as fiberglass reinforced plastic (FRP). Battery B would have the same components replaced except for the influent troughs because they are concrete and in good condition.

Table 1 – Secondary Clarifier Data

Parameter	Battery A	Battery B
Number of Secondary Tanks	4	4
Diameter (ft) ¹	112	124
Side Wall Depth (ft) ¹	12	12
Total Surface Area (ft ²) ¹	39,400	48,300
Volume (MG)	0.885	1.085
Hydraulic Loading Rate (GPD/ft ²) ²	254	207
Max Hydraulic Loading Rate (GDPD/ft ²) ³	1,000	1,000

1 – Values from the Flint WPCF Operation and Maintenance Manual Vol 1

2 – Values based on 2.5 MGD avg. day flow to each final clarifier (average loading rate 2017, assumes equal distribution)

3 – Values based on 10 State Standards

The bottom of the existing, peripheral fed influent trough varies in elevation as it spans to the far end of the clarifier to sustain influent velocities. The new peripheral feed system must provide a solution to sustain influent velocities. Influent troughs in Battery B would not be replaced because the existing trough is concrete and in good condition.

A new weir and effluent trough design to increase overflow rates, reduce algae growth and sloughing, and reduce maintenance requirements will be required. The current finger weir layout provides too much lineal feet of overflow. Updating the weirs and troughs to a single sided circular configuration will increase overflow rates. Covers for these structures should also be considered.

Table 2 below compares the proposed overflow rates for Battery A and B clarifiers with 10 State Standards after conversion of the weir system to only a single weir along the entire circumference of the tank. As shown in the table, assuming flow is split evenly between all clarifiers, the overflow rate during max day flow still does not exceed 10 State Standards.

The existing flow split to Battery A and B FSTs has potential for improvement. Currently, the flow going to each battery of final tanks is equal even though the Battery B tanks are larger and have more surface area for settling. By equalizing the hydraulic loading rates between the clarifiers, sludge settling could be improved. Table 3 shows how the hydraulic loading rates could be equalized by changing the distribution of flow.

Table 2 – Proposed Weir Overflow Rates

Parameter	Battery A	Battery B
Weir Length (ft)	333 ¹	374 ²
Overflow Rate, ADF (GPD/lf) ³	7,507	6,687
Firm Overflow Rate, ADF (GPD/lf) ⁴	10,010	8,913
Overflow Rate, MDF (GPD/lf) ⁵	26,276	23,405
Max OFR 10 State Standards (GPD/lf)	30,000	30,000

1 – Value assumes that weir offset from inside of outer wall is 3 ft

2 – Value assumes that weir offset from inside of outer wall is 2.5 ft

3 – Values based on 2.50 MGD avg day flow to each final clarifier

4 – Value based on 3.33 MGD avg day flow to each clarifier

5 – Values based on 8.75 MGD max day flow to each final clarifier

Table 3 – Proposed Hydraulic Loading Rates

Parameter	Battery A	Battery B
Average Daily Flow (MGD) ¹	8.98	11.02
ADF per Clarifier (MGD)	2.25	2.76
Hydraulic Loading Rate (GPD/ft ²)	228	228
Maximum Daily Flow (MGD) ²	31.45	38.55
MDF per Clarifier (MGD)	7.86	9.64
Max Hydraulic Loading Rate (GPD/ft ²)	798	798

1 – Values based on 20 MGD avg day flow to WPCF

2 – Values based on 70 MGD max day flow to WPCF

Structural

The overall condition of the concrete in the secondary clarifiers is good with minimal signs of distress. During the asset management plan these tanks were reviewed and the following was noted:

1. Cracks were observed on the wall and base slab of the tank. The cracks were generally wandering and hairline in nature. Water seepage was not observed.
2. The coating was missing or damaged at several areas.
3. The connection of the launder to the wall had an active drip near the effluent box.
4. Valves were present in the tank wall, possible pressure relief valves. One valve had water flow.

Paint was missing at several locations on the launders. Corrosion was also present at several locations of the launders. The center walkway appeared newer and was in good condition.

Repair:

1. Cracks in the walls and slabs should be injected with repair material to prevent future water infiltration and concrete deterioration.
2. Pressure relief valves should be cleaned and repaired.

Most of the necessary drawings of the existing facilities, piping, and electrical may be obtained from the City of Flint Water Pollution Control, Wastewater Treatment Plant (WWTP) records. The City of Flint will provide the Engineering Consultant a paper copy of all existing records the Consultant determines would be useful in their work. However, the City does not warrant that the historical records are completely adequate, accurate or that they reflect the existing conditions.

Scope of Services - The Engineering Consultant shall perform the following services:

A. Design

The Consultant shall prepare Design and Construction documents consisting of Civil, Structural, Architectural, Mechanical, Electrical, and Instrumentation drawing sheets and specifications. The Construction Documents shall be developed for the purpose of bidding the construction of the facilities and acquiring a MDEQ Part 41 Construction Permit for the above improvements. Upon MDEQ approval, and receipt of the Permit, the documents shall be used to competitively bid the project for construction. The Consultant shall ensure that the Construction Documents result in a complete and operational system as described above. The design shall incorporate the following project elements:

1. Design new influent trough, effluent trough and target baffle for Battery A secondary clarifiers (1-4).
2. Design new effluent trough, skirt baffle and target baffle for Battery B secondary clarifiers (5-8).
3. Perform cost comparison for replacing the influent troughs, effluent troughs, skirt baffles, and target baffles in either stainless steel or painted carbon steel.
4. Perform cost comparison for algae control for all secondary clarifiers in either cleaning brushes or launder covers.
5. Design algae control for all secondary clarifiers.
6. Provide specifications for repair and coating of all tank concrete structures.
7. Provide specifications for inspection and repair, if needed, of the rotating mechanisms of each tank.

B. Bidding Support Services

The Consultant shall prepare appropriate bid documents, conduct a prebid meeting with potential contractors, respond to questions during the bidding process, and prepare addenda as required during the course of bidding. The Consultant shall distribute minutes and responses to questions raised at the meeting. The Consultant shall assist in the review of the bids and make a recommendation for award of the Contract.

C. Construction Services - The Consultant shall perform the following services during construction:

1. Respond to Construction Contractor Requests for Information (RFIs).
2. Attend regularly scheduled construction meetings during the course of construction. Take meeting minutes and provide copies to all attendees.
3. Insure that charges and costs are consistent with the Consultant's submitted bid and project schedule.
4. Insure that the Construction Contractor is in compliance with all EPA and EGLE requirements for a CWSRF project. Ex. Review of Davis-Bacon payroll requirements.
5. Resolve field engineering issues and provide supervision during construction. The Consultant shall include in the Proposal an anticipated level of resident engineering and onsite inspections.
6. Update and correct the design drawings to produce project record drawings depicting the as-built conditions.

D. Start-up Services

The Consultant shall assist the Contractor and Owner's staff during the start-up period and shall provide oversight and engineering during the start-up period. The Consultant shall include in the Proposal an anticipated level of office engineering, inspections, and onsite start-up services.

E. Deliverables - The Consultant shall provide the following:

1. Pre-design draft report, five copies for review.
2. Final pre-design report, five copies.
3. 50% design submittals, five copies.
4. Specification documents and drawings. Drawings shall be in AutoCAD format.

5. 90% design submittals, five hard copies and specifications.
6. 100% design submittals, five hard copies and specifications.
7. Bid drawing sets, five hard copies, 24" X 36" drawings, five copies of 11" X 17" drawings, and specifications.
8. Record Drawing Set - one hard copy, 24" X 36" drawings and one electronic AutoCAD copy.

F. Contents of the Proposal: The proposal shall be issued in the following format:

1. **Project Team-** Provide an organizational chart with a listing of the Consultant's project team members. Resumes of key project team members shall be attached to the proposal. Sub consultant resumes shall be included. Consultants shall agree not to substitute key members without written authorization of the City.
2. **Approach and Design Concept-** Describe the Consultant's proposed approach to the pre-design and design of the facilities.
3. **Scope of Services-** Provide a detailed list of all task items to be performed in conformance with the Scope of Services work herein.
4. **Project Schedule-** Provide a detailed project schedule listing pre-design, design, bidding, and anticipated construction period.
5. **References-** Provide references for any previous projects of this nature or for demonstration of the efficacy of the design concept.
6. **Insurance-** State the insurance types and limits to be maintained by the Consultant during the course of the project.

G. General Bid and Proposal Requirements

The formal detailed proposal is being solicited to provide engineering design and construction management services. Proposal statements must include the following:

1. The name, address, telephone number, and fax number of the consulting engineering firm.

2. The name, telephone number, and e-mail address of the primary contact person for the proposal.
3. Composition of the team proposed to provide the consulting engineering firm's design and construction services, including any subcontractors. The team description should include:
 - a. Specific discipline covered by each team member; that is, mechanical, process, structural, electrical, instrumentation and controls, etc.
 - b. Resumes demonstrating related work experience.
 - c. Indication of the current workload of specific team members, and hours available for this project. Please note that subsequent substitution of proposed team members without City concurrence may result in rejection of the firm for this project.
4. A description of the qualifications of the project manager proposed to lead this project.
5. Ability of the consulting engineering firm and any sub consultants to dedicate proposed project team members to provide the necessary services. Subsequent substitution of proposed team members without City concurrence may result in rejection of the firm for this project.
6. A summary statement indicating the Consultant's understanding of the project, its goals and purposes, and the constraints or limitations that must be observed while achieving them.
7. A listing of equipment the consultant envisions needing to obtain the project goals.
8. The design concept and approach to be used to achieve a successful and cost effective project.
9. A detailed Project Scope of Services. References to related experiences on previous projects may be included.
10. A schedule providing milestone dates after a "Notice To Proceed", and expected completion for each phase of the services to be provided.

Detailed responses to the RFP shall be submitted to the City Purchasing Department on or before the deadline date and time specified.

Failure to supply all requested information and documentation listed under proposal statements shall result in bid disqualification.

List any value-added considerations or alternate proposal on a separate sheet of paper.

The proposals will be rated to determine the best value for the City. Ratings will be based on the following factors:

- Qualifications of the firm and the team members to be dedicated to this project, including project-related experience
- Qualifications of the project manager to be dedicated to this project.
- Ability of the firm and dedicated personnel to provide the services.
- Understanding of the project, its goals, purposes, and related constraints.
- Quality of the design, design concept, and the potential for achieving project goals.
- Quality of the proposal, including level of detail and presentation.

These items are not of equal importance. Responding firms will be scored on each category, and a composite rating calculated based on the rating form below. The City reserves the right to reject any and all proposal submittals.

Proposal Statement Evaluation Form			
Item	Score	Weight (%)	Rating
1. Qualifications of firm, project manager, and personnel to be dedicated for provision of services		25	
2. Ability of the firm and dedicated personnel to provide the services (workload)		10	
3. Understanding of the project and its goals		30	
4. Design concept		30	
5. Quality of the proposal, including level of detail and presentation		5	
<i>Total</i>		<i>100</i>	