

June 9, 2025

Jeff Jiang, P.E.
CITY OF HOLLYWOOD
Department of Public Utilities
Engineering and Construction Services Division
Post Office Box 229045
Hollywood, Florida 33022

City of Hollywood
PFAS Removal Phase 2A -
Design of Membrane Softening
(MS) Train Addition
City Project No. TBD

Dear Mr. Jiang:

As requested, Hazen and Sawyer, D.P.C. (HAZEN) is pleased to offer design, permitting, and bid assistance services for an additional membrane softening (MS) train for the City of Hollywood (CITY) Water Treatment Plant (WTP).

BACKGROUND

The CITY owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening and nanofiltration treatment plus treats the Floridan Aquifer well water through reverse osmosis treatment. The CITY also treats Biscayne Aquifer well water from the Broward County South Regional Wellfield (SRW) at Brian Piccolo Park through the MS plant. These three treatment process streams blend together to provide high quality drinking water to the residents of Hollywood and adjacent areas outside the City (parts of Town of Davie, City of Dania Beach and the Seminole Tribe of Florida).

However, PFAS has recently been detected in the CITY's wells. PFAS are a group of manufactured chemicals used to make coatings that resist heat, oils, stains, grease, and water. Throughout production and use, PFAS can migrate into soil and water, eventually entering drinking water sources. PFAS do not break down naturally in the environment, making them a persistent contaminant that can accumulate over time.

The final regulations require those compounds be removed to below the regulatory limits (4 parts per trillion) prior to the deadline (March 2031). While MS and reverse osmosis (RO) treatment processes are viable methods to remove PFAS, treatment through lime softening is not. The CITY selected in the first phase of this project to construct additional MS trains at the Hollywood WTP to maintain water treatment plant capacity while meeting regulatory requirements.

To replace the capacity of the lime softening process, the CITY requests HAZEN design for the addition of up to four additional MF trains along with associated feed pumps, electrical provisions, and appurtenances. The project includes review of potential upgrades to the existing antiscalant, sulfuric acid, sodium hypochlorite, sodium hydroxide, and corrosion inhibitor systems as well as considerations for future additional chemical and physical processes for optimal corrosion control.

This project also includes planning for a future additional degasifier to meet finished water demands.

The project will be completed in multiple phases. The summary of the PFAS Removal project phases is:

- Phase 1 – Regulatory Compliance Evaluation (ongoing)
- Phase 2A – Design of MS Train Addition (this scope)
- Phase 2B – Corrosion Control Study
- Phase 2C – Preliminary Design Report
- Phase 2D – Services during MS Train Addition Construction
- Phase 3 – Chemical and Post Treatment Addition
- Phase 4 – MS Trains Addition
- Phase 5 - MS Train Upgrades and Lime Softening Decommissioning

The first phase, the PFAS Removal Regulatory Compliance Evaluation, is nearing completion. Option 4, the addition of three 2.5 mgd NF trains and increasing the existing skids to 2.5 mgd was selected. This capacity increase is required such that the membrane plant can provide enough treated water to meet the maximum day demands with only the membrane plant in operation.

The second phase includes the design of an additional MS train, permitting, and bid assistance (Phase 2A). Design services under this scope include the design of one of the NF trains, and the associated feed pump. It is assumed that the new MS train under Phase 2A will be considered redundant equipment and will not require an update to the existing permit.

Phase 2 will also include the corrosion control study (Phase 2B) to determine optimal finished water stabilization for the 100% membrane facility, development of the preliminary design report (Phase 2C) to document the sizing for the future Phase 3, and Construction oversight of the MS train addition (Phase 2D).

Phase 3 will include the design of the chemical and post-treatment systems as defined under Phase 2B.

Phase 4 will include the design and construction oversight of three MS skids. Phase 5 will follow, once all MS trains are operational, to upgrade each existing MS train from 2 to 2.5 mgd.

Upon completion of this project and the future phases of the project, the additional MS trains will offset the production capacity of the lime softening facilities, which may then be decommissioned. The extent of decommissioning of the lime softening facilities is to be determined during the development of the Preliminary Design Report and will be conducted separately under Phase 5 of this project.

SCOPE OF SERVICES

PHASE 2A – MS SKID DESIGN, PERMITTING, AND BID ASSISTANCE

Task 1 – Kickoff Meeting

HAZEN will conduct and lead a kickoff meeting with CITY staff within two weeks after receiving the Notice to Proceed. The purpose of this task is to discuss the overall workplan and schedule

and identify project protocols, establish coordination between HAZEN and CITY staff, and collect any additional available documents from the CITY.

Task 2 – Basis of Design Memorandum

HAZEN will collect and compile existing drawings, record information and operating data related to the existing WTP and perform a field inspection to confirm key information defined in the existing documentation. HAZEN will develop a Technical Memorandum summarizing the basis of design for the 2.5 mgd NF train and submit to the CITY for review and comment. The additional nanofiltration train will be constructed in the existing membrane operations building and will not initially increase capacity of the WTP but will serve as redundant infrastructure.

No building design modifications are envisioned for the operations building for the addition of one MS train.

HAZEN will finalize the memorandum for use in pursuing regulatory acceptance and develop an opinion of probable construction cost (OPCC). The OPCC shall be classified as an order of magnitude estimate as defined by the Association for Advancement of Cost Engineering (AACE) International.

Task 3 – Detailed Design

HAZEN shall prepare detailed design drawings and technical specifications for the first 2.5 mgd nanofiltration train, associated feed pump and electrical facilities. This set of documents shall be used for permitting and will be submitted to CITY for review and comment prior to preparation of final bid documents. HAZEN shall meet the following design milestones:

1. **60% Design Submittal:** HAZEN shall provide CITY with three hard copies and one electronic copy (PDF format) of 60% design documents (drawings and technical specifications).
2. **60% Review Meeting and Meeting Notes:** HAZEN shall meet with CITY to receive and discuss CITY's review comments. HAZEN shall incorporate into the design documents the review comments from CITY as required. Meeting notes shall be prepared by HAZEN and distributed electronically to attendees.
3. **90% Design Submittal:** HAZEN shall provide CITY with three hard copies and one electronic copy (PDF format) of 90% design documents (drawings and technical specifications).
4. **90% Review Meeting and Meeting Notes:** HAZEN shall meet with CITY to receive and discuss CITY's review comments. HAZEN shall incorporate into the design documents the review comments from CITY as required. Meeting notes shall be prepared by HAZEN and distributed electronically to attendees.
5. **100% Design Submittal:** HAZEN shall provide CITY with three hard copies (additional copies will be provided if needed) and one electronic copy (PDF format) of 100% design documents. Hard copy drawings shall be 22-inch by 34-inch. Drawings will be signed and sealed for use in the CITY's "dry run" review, if required.

Task 4 – Permitting

HAZEN shall prepare and submit permit applications for the construction of the proposed train and appurtenances. HAZEN shall prepare permit applications and backup documents as required by each entity. Backup documents may consist of description of methods, figures, calculations, drawings, specifications, etc. A list of agencies anticipated to require permits are provided below:

- Florida Department of Environmental Protection
- Broward County Environmental Protection and Growth Management Department
- City of Hollywood Building Department Dry Run Review

HAZEN shall meet with the CITY Building Department to review the drawings and technical specifications. All comments received in a timely manner shall be addressed by inclusion into the bid documents or by inclusion through an addendum.

All permit fees shall be paid by CITY. It is assumed that no other permits will be necessary for the completion of this work, other than those to be obtained by the Contractor in accordance with the normal engineering standard-of-care. The Engineer's technical specifications shall define the Contractor's responsibility relative to permits it is required to obtain (e.g., Stormwater Pollution Prevention Plan, dewatering).

Task 5 – Bidding Services

HAZEN shall perform the following services during the bidding phase of the project:

- Preparation of Final Bid Documents: HAZEN shall make final revisions to the documents based on review comments received by permitting agencies and the CITY. HAZEN shall provide one (1) electronic PDF copy and three (3) hard copies of the drawings and specifications to the CITY. It is anticipated that the CITY will prepare all documentation required to support the Front End for each bid package.
- Pre-Bid Conference and Job Walk Through: HAZEN shall attend one pre-bid conference and job walk-through prior to the advertised date.
- Respond to Bidder Questions and Prepare Addenda: HAZEN shall provide responses to bidder questions to the CITY's Purchasing Department for uploading to a web based system. Where required, HAZEN shall prepare written addenda to the Contract as needed to clarify technical requirements of the Bid Documents.
- Bid Evaluation: HAZEN shall evaluate the lowest responsible bidder for technical ability to perform the work and prepare recommendation of award.
- Conformed Documents: HAZEN shall prepare conformed documents which incorporate addenda as well as the executed contract into a final set of construction documents. HAZEN shall provide one (1) electronic PDF copy and three (3) hard copies of the conformed documents to the CITY.

CITY shall perform the following services:

- Distribute bid documents to contractors requesting documents;
- Maintain a list of plan holders;
- Issue addenda to plan holders; and
- Provide HAZEN with a copy of the bid tabulation prepared by CITY.

KEY ASSUMPTIONS

Key assumptions concerning this scope are:

- The addition of one NF train initially assumes that the CITY will utilize the additional train as redundant infrastructure. The CITY should not increase their ratio of membrane treated to lime softened water until the chemical stabilization techniques are studied and upgrades are constructed.
- The following items shall be reviewed, evaluated, and designed under separate task orders:
 - Additional well capacity
 - Modifications to existing wells
 - Upgrades to existing well pumps
 - Additional plant yard piping
 - Additional emergency generator capacity
 - Additional concentrate disposal capacity, including upgrades to existing sanitary lift stations that may be required during injection well mechanical integrity testing
- The existing cleaning system will not require upgrades.
- All permit and certification fees shall be paid by CITY.
- CITY will provide access to all necessary facilities for execution of the work. No owner-furnished / pre-purchasing of equipment is anticipated.
- Value engineering and other outside reviews (other than City staff review) are not anticipated.
- No local minority business enterprise or local small business enterprise participation is envisioned.
- CITY will competitively bid the project and enter into an agreement with an outside Contractor to complete the work. No prequalification of Contractors will be performed.
- CITY will provide front end documents applicable to the project.

SCHEDULE OF COMPLETION

The Schedule for the major work tasks is summarized below

Task	Description	Duration for task/subtask (days)	Calendar Days From Notice To Proceed
Phase 2A – MS Train Design, Permitting, and Bid Assistance			
1	Kickoff Meeting	14	14
2	Basis of Design TM	90	90
3	Detailed Design	300	390
4	Permitting	60	450
5	Bidding Services	30	480

COMPENSATION

Compensation shall be made to CONSULTANT for a total amount not to exceed an upper limit of \$ 487,212 to be billed as summarized below.

Task	Description	Compensation Type	Estimated Fee
Phase 2A – MS Train Design, Permitting, and Bid Assistance			
1	Kickoff Meeting	Not to Exceed	\$5,187
2	Basis of Design TM	Not to Exceed	\$42,943
3	Detailed Design	Not to Exceed	\$371,653
4	Permitting	Not to Exceed	\$24,665
5	Bidding Services	Not to Exceed	\$42,664
	Reimbursables	Reimbursables	\$100
TOTAL			\$487,212



We look forward to your reply. In the meantime, should you have any questions, please contact us.

Sincerely,

A handwritten signature in blue ink, which appears to read "Janeen M. Wietgreffe".

Hazen AND SAWYER, P.C.

Janeen M. Wietgreffe, P.E., PMP
Vice President

c: File No. 4321-115

Attachments