

Water Treatment Plant Rehabilitation Contract Award

City Project No. 2023-03

May 13, 2024

Brian Connolly, Public Works Director



CITY OF
INVER GROVE
HEIGHTS

PUBLIC WORKS DEPARTMENT

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Action Requested Tonight

Consideration of three (3) Resolutions:

- Award Contract for WTP Rehab
- Amend professional services contract to include construction administration services
- Approve the project budget

Project Overview

- January 2023: Elevated Radium Levels in IGH Drinking Water
 - City made operational adjustments
 - Adjusted pumping operations, chemical injection, and filter backwash frequency.
- April 2023: Awarded Preliminary/Final Design Contract to Stantec
- August 2023: Completed Preliminary Design Report
 - Recommended "Phase 1" improvements - Focus on water treatment items (filter, chemicals, piping, etc.)
 - Council authorized final design
- December 2023: Received PFA/DWRF Loan Qualification
- March 2024: Received MDH Approval; Council authorizes final plans for bidding

Improvement Schedule

Action Item	Target Date
Award Design Contract	April 24, 2023
Preliminary Design Report (Draft) Complete	July 10, 2023
Preliminary Design - Progress Update	July 24, 2023
Preliminary Design Report - Presentation and Recommended Adoption by City Council	August 14, 2023
MDH/PFA DWRP Loan Program Notice	December 2023
Final Design Complete	January 2024
MDH Certification (Design/Funding Approval)	January - March 2024
Bidding & Contract Award	May 13, 2024
Construction	June 2024 - May 2025
<i>Relocate Chemical Injection Points</i>	<i>June 2024</i>
<i>Air Exchanger & External Building Elements</i>	<i>Summer 2024</i>
<i>Chemical Mixing Systems</i>	<i>Fall 2024</i>
<i>Filter Media, Valve, & Underdrain Replacement</i>	<i>Oct. 2024 - Mar. 2025</i>
<i>Commissioning & Testing</i>	<i>Spring 2025</i>

Key Noted Deficiencies - Phase 1

Filter Media, Wash Troughs, and Underdrain Nozzles

Filter Media

- Existing sand media has reached the end of its useful life.
- Install new sand/antracite media that is better for radium removal.

Wash Troughs & Underdrain Nozzles

- New, media retaining wash troughs need to be installed to retain the dual media.
- Underdrain nozzles located beneath media beds; best practice is to replace during a media replacement.

Key Noted Deficiencies - Phase 1

Backwash Blower Replacement

Distribution Box Replacement (Filter 1-4)

- Existing distribution box is carbon steel, and subject to paint degradation and rust
- Replace with a stainless-steel distribution box (will match Filter 5-8).

Valve and Actuator Replacement

- Select replacement of filter and backwash valves
- Replace pneumatic (air) actuators with electric actuators (more reliability and redundancy)

Chemical Feed System Upgrades

- New mixing tanks and chemical injection locations
- Increase contact time and treatment efficiencies

Key Noted Deficiencies - Phase 1

Filter 1-4 Distribution Box Replacement



Carbon Steel, Filter 1-4

Stainless Steel, Filter 5-8



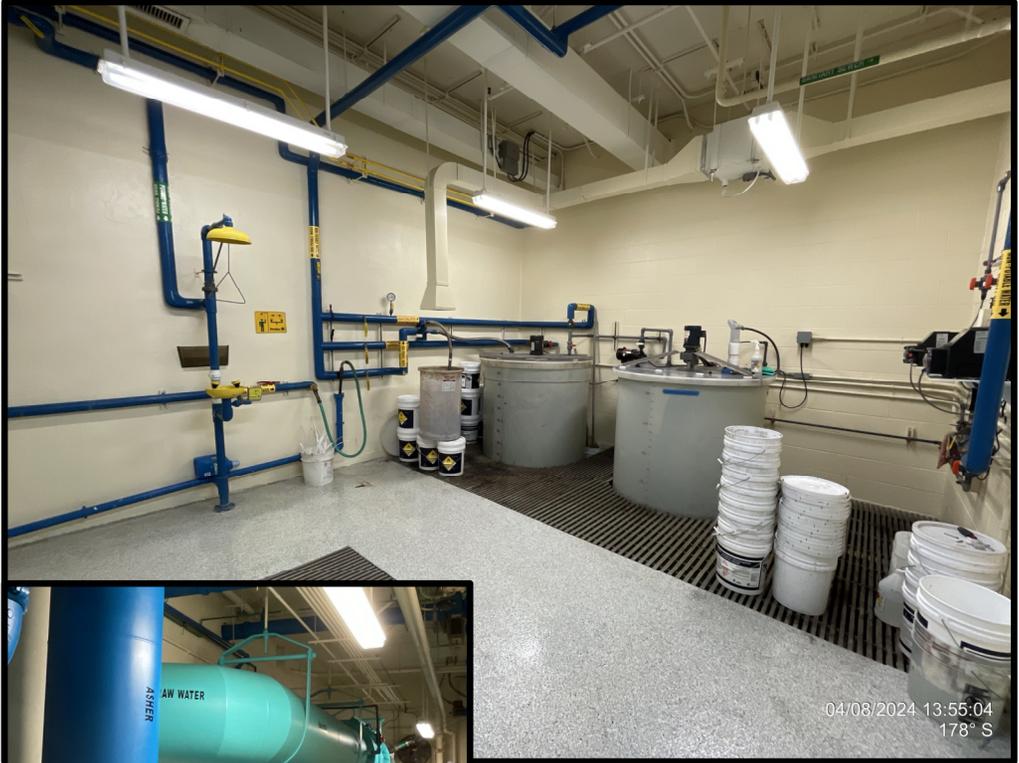
Key Noted Deficiencies - Phase 1

Replace Filter Valves and add Electric Actuation



Key Noted Deficiencies - Phase 1

Chemical Feed Systems



Key Noted Deficiencies - Phase 1

New Make-Up Air Units and Air Circulation

- Current high Radon gas concentrations in select areas of plant.
- Allows more air circulation and removal of Radon gas.
- Allows more control of air units.

New Flow Meters

- Existing meters are original and failing
- New technology more accurate and requires less maintenance
- Key component for new chemical feed systems; plant operations are automated based on flow meter data.

Bidding Process

Base Bid with Two Filter Alternates

- Alternate 1 - IMAR Filter Media w/compatible backwash nozzles
- Alternate 2 - Greensand w/Anthracite Cap w/compatible backwash nozzles

Contract Award Based on Base Bid:

Bidder	Base Bid Value
MN Mechanical Solutions	\$ 3,489,520.00
Shank Constructors, Inc.	\$ 3,745,100.00
Municipal Builders, Inc.	\$ 4,270,000.00
Magney Construction, Inc.	\$ 4,882,000.00

Bidding Process

City may choose filter media alternates

- Evaluated based on life cycle cost (15 years)
- Alternate 1 (IMAR) has lower capital cost, but greater chemical use to meet treatment goals.
- Alternate 2 (Greensand) has higher capital cost, but lower chemical use to meet treatment goals.

Bidder	Capital Cost	Chemical Cost (15 yr)	Disposal Cost	15-Year Life Cycle Cost
Alternate 1 - IMAR	\$ 350,000	\$ 3,205,429	\$ 0	\$ 3,555,429
Alternate 2 - Greensand w/Anthracite	\$ 537,800	\$ 2,883,355	\$ 17,600	\$ 3,438,755

Staff Recommend Alternate 2 for this contract award.

- Total Construction Cost: **\$4,027,320.00**

Construction Administration

Amend Contract with Stantec

- Construction Administration Fee: \$337,000
- Contingency (10%): \$33,700
- Total Construction Amendment: **\$370,700**

Budget Approval

Total Project Costs	
Construction Bid	\$4,027,320.00
Legal, Engineering, Administrative, Finance (LEAF)	\$564,215
<i>Preliminary & Final Design Engineering</i>	<i>\$127,730</i>
<i>Construction Administration (Stantec)</i>	<i>\$370,700</i>
<i>Material Testing (Estimated)</i>	<i>\$20,000</i>
<i>Startup Water Treatment Testing</i>	<i>\$15,000</i>
<i>Legal, Admin, Finance, and Contingency (5%)</i>	<i>\$30,785</i>
Construction Contingency (5%)	\$201,366
Total	\$4,792,901

Total Project Funding	
American Rescue Plan Act (ARPA) Fund	\$2,500,000
Drinking Water Revolving Fund (DWRF) Loan	\$2,165,171
Water Capital – Connection Fund (Fund 511)	\$127,730
Total	\$4,792,901

Total Estimated Budget (CIP and 2023/2024 Budgets): **\$5,506,000**

Recommended Council Action

Staff recommends approval of three (3) Resolutions:

- Award Contract to MN Mechanical Solutions
- Amend design contract with Stantec to include construction administration services
- Approve the project budget

Questions/Comments





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