

West Side Primary Settling Tanks 1-9 and Aerated Grit Facility, SWRP

Project Number: 04-128-3P

Service Area: Stickney

Location: Stickney WRP

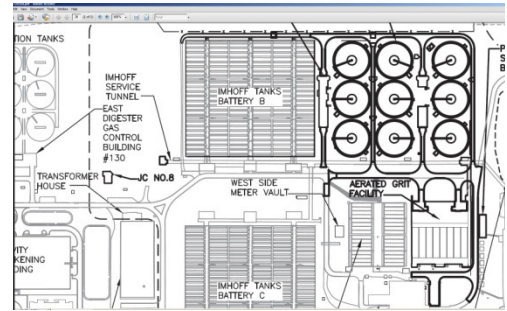
Engineering Consultant: Greeley & Hansen

General Contractor: To be determined

Estimated Construction Cost: \$198,572,000

Contract Award Date: October 16, 2014*

Substantial Completion Date: January 28, 2018*



Project Description: Construction of nine Primary Settling Tanks (PSTs) of 160-foot diameter and six 132-foot long aerated grit tanks, associated support facilities, service tunnels, and conduits. The aerated grit facility will include shaftless-screw conveyors, and centrifugal and airlift pumps for grit removal, grit classifiers and a dumpster-loading system. Grit tanks will be covered for odor control. A flow-splitting structure and one conduit to each PST will be provided from the grit facility to allow for even distribution of flow. Process air for the grit tanks and PSTs will be provided by new turbo blowers. The PST area will have Tunnel Access Pump Stations (TAPS) containing scum pumps, sludge airlifts, an electrical substation, odor control vessels and fans, and associated equipment. PST effluent weirs and troughs will be covered for odor control. Conduits from each tank will feed a new main effluent conduit, which will tie into the existing West Side Effluent Conduit to send flow to Southwest secondary treatment. The ability to bypass six PSTs will be provided.

Project Justification: As part of the Stickney Master Plan, the West Side Imhoff tanks are being decommissioned and replaced with more modern and effective treatment. Imhoff Battery A and Skimming Tanks 1-8 have already been demolished in preparation for this project, and flows to West Side plant are reduced until the new facilities come online. The Imhoff tanks have been in service since 1928, are labor-intensive to operate, and provide treatment inferior to PSTs. Valves for sludge withdrawal are difficult to operate, and have resulted in injuries to personnel. Skimming scum from Imhoff tanks requires personnel to walk narrow walkways above open sewage with no fall protection. Certain areas of the structures have exhibited structural cracking and leakage from conduits. Maintenance and repair supplies are not readily available for antiquated systems. Sludge solids are digested in the lower anaerobic zone of the Imhoff tanks, and the methane gas byproduct of digestion is impossible to capture, and is emitted to the atmosphere. The new PSTs will allow “fresher” sludge with higher volatile solids content to be directed to the new thickening facilities and then to the digesters, and a significant increase in digester gas production will occur, allowing the District to proceed on the path to energy neutrality. The aerated grit facility will replace the existing West Side skimming tanks, and provide superior grit removal, thus preserving downstream piping and equipment, such as pumps and centrifuges, from damage due to scouring by grit. The existing skimming tanks and grit concentration utilize maintenance-intensive chain-and-flight mechanisms. In addition, the skimming tanks and existing grit concentration create a recycle load of up to 100 million gallons per day; there will be minimal recycling from the new facilities. The existing Imhoff and skimming tanks are significant generators of odor. Odors from new facilities will be captured and removed, in keeping with the District’s good-neighbor policy.

Project Status: This project has been advertised for bid.

*Information shown is estimated.