

Saddle Creek Retention Treatment Basin

Contractor's Corner



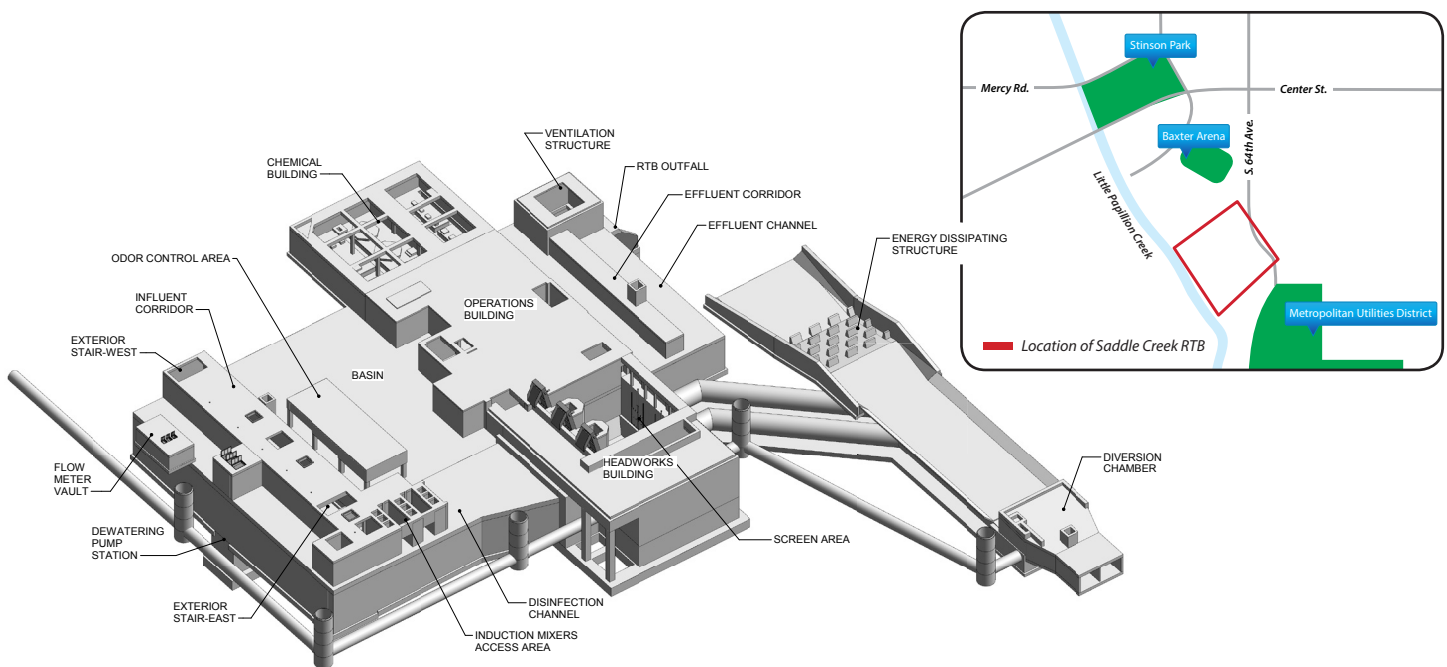
Introduction and Background Information

This project involves construction of the OPW 52049 City of Omaha Saddle Creek Retention Treatment Basin (RTB). The proposed facility will be located just south of 64th Avenue and Dupont Street near a Metropolitan Utilities District (MUD) facility and the University of Nebraska-Omaha (UNO) Baxter Arena.

This project was originally bid in 2015 as a 315 MGD facility. The City of Omaha elected not to proceed with construction of the facility at that time due to budgetary constraints. A Value Engineering process was completed in 2016 and the project is now in design to incorporate cost savings recommendations.

Facility Description

The RTB project is basically a treatment plant for combined sewage. When in operation, all combined sewage entering the Saddle Creek RTB will receive grit and screenings removal, disinfection, solids settling, and dechlorination before being discharged to the Little Papillion Creek (LPC). Captured volume in the tank will be pumped into the Papillion Creek Interceptor and conveyed to the Papillion Creek Water Resource Recovery Facility (PCWRRF) for full secondary treatment. The facility will result in a significant reduction in the volume of untreated CSO, total suspended solids (TSS), and E. coli bacteria entering the LPC. Flows in excess of the facility capacity will be routed around the RTB and discharged into the LPC.



The figure above provides an overview of the underground Saddle Creek RTB features. At the diversion structure, the facility will divert wet weather flow from the existing combined sewage channel to the facility headworks where large grit and floatable solids are removed via the grit pit and mechanical screens. At this point in the process disinfection will take place to eliminate bacteria. The disinfection channel will convey flows from the headworks area to the settling basin. An effluent channel is provided for discharge of stored combined sewage flow back to the CSO 205 outfall in the Papillion Creek.

The RTB will use pumps to empty the facility after a storm event ends. Dewatering pumps will convey captured combined sewage volume into the downstream Papillion Creek Interceptor sewer for subsequent treatment at the PCWRRF. A separate 60-inch diversion sewer is also provided with an independent grit removal facility for mostly dry weather flows, which are also sent directly to the Papillion Creek Interceptor.

Saddle Creek RTB (Continued)

The facility includes the following features

- CSO Retention Treatment Basin with a regulatory design flow rate of 160 million gallons per day (MGD) capacity with a design detention time of 30 minutes.
- RTB basin volume of 3.3 million gallons (MG)
- Diversion Chamber
- Grit Pit and Clam Shell Removal Equipment
- Three (3) Mechanical Screens with ¾-inch Spacing and Screenings Waste Handling
- Chemical Storage Tanks and Feed Pumps
- Six (6) Chemical Induction Mixers
- Chemical Diffuser Pipe Systems
- Three (3) dewatering submersible pumps
- Odor Control Fans and Activated Carbon Units
- Geothermal Heating and Cooling System and Loopfield
- Heating, ventilation, and plumbing components
- Electrical, instrumentation and SCADA control components including dual electrical feed and an emergency natural gas generator for backup power
- Two-story operations and office building, Chemical Storage Building, and Headworks Building
- Drives and parking areas
- Fencing and site improvements
- Natural and Concrete-Lined Improvements to the existing CSO 205 Channel
- Bio-retention storm water facilities and storm sewers
- Demolition of the existing grit facility
- Other miscellaneous associated work.

Major Project Revisions

A number of significant changes have been made since the original Saddle Creek RTB to fit the project within the City's budget and mitigate risks:

- In 2016, a site preparation contract was completed which removed over 100,000 cubic yards of on-site construction and demolition (C&D) debris
- The size of the underground concrete storage tank has been reduced in half, resulting in a reduction in excavation, concrete, and piling.
- The footprint of the tank has been adjusted to maximize construction traffic access and staging areas and to increase the distance from the existing Little Papillion Creek.
- The dewatering pump station has been relocated within the main tank to improve constructability.
- Performance testing of the facility under actual storm conditions will be conducted by the City.

Schedule

A preliminary schedule of design, pre-qualifications, bidding and construction is provided below.

- Design NTP – July 2017
- Concept Design – October 2017
- 60% Design – February 2018
- Project Industry Day – Spring 2018
- 90% Design – May 2018
- Pre-qualifications – June 2018
- 95% Design – July 2018
- 100% Design – September 2018
- Issue for Bid – October 2018
- Bids Due – January 2019
- Construction NTP – April 2019
- Regulatory Completion Requirement – Dec 2023

Project Funding Source

Funding is being provided by a combination of City and federal funding sources. It is anticipated that this will include WIFIA and SRF program requirements. Therefore, Federal defined Disadvantaged Business Enterprise goals will apply in lieu of the City of Omaha's Small Emerging Business goals. Prime contractors will need to partner with DBEs to meet these requirements, and are always encouraged to use SBEs from the City of Omaha.

Additional requirements will include, but are not limited to, Davis-Bacon wage rate requirements, and Buy-American requirements for non-process equipment-related iron and steel products.