

Ann Arbor Wastewater Treatment Plant Facilities Renovations Project March 1, 2013

The Facilities Master Plan was completed in 2004 and identified the need for improvements to the City of Ann Arbor's Wastewater Treatment Plant (WWTP). The renovations include rehabilitating existing structures, upgrading of primary and secondary wastewater treatment processes and replacing aging facilities with new facilities. These renovations will allow the City of Ann Arbor to meet future flow and loading demands as well as regulatory requirements. The current WWTP has a design capacity of 29.5 million gallons per day (MGD), and consists of an older West Plant (constructed in the 1930's) and a newer East Plant (constructed in the late 1970's).

The City of Ann Arbor retained Malcolm Pirnie (an engineering firm that specializes in the study, design and construction Management of wastewater treatment plants) to design the improvements. The Facilities Renovations Project was split into a Phase I and Phase II project. Phase I includes design and construction services for demolition of two existing structures. Phase II is the larger of the two projects and includes rehabilitation of the East Plant and demolition and reconstruction of the West Plant. Both phases are summarized below.



Facilities Renovations Project - Phase I

Phase I of the Facilities Renovations Project includes:

- Demolition of the Storage Building.
- Demolition of the Reaeration Tank.
- Relocation of utilities prior to demolition.
- Electrical work to isolate the East Plant power from the Solids Handling Building.
- Installation of a waste activated sludge line to convey sludge to the Solids Handling Building.

The Storage Building is located directly to the west of the Solids Handling Building and the Reaeration Tank is located to the south of the Solids Handling Building. The early demolition of these facilities will provide additional staging area and traffic patterns for the Residuals Handling Improvements Project, which was completed in 2012. Live utilities currently run through the Storage Building and as such, must be relocated prior to demolition of that building.

Phase I – Status

The Storage Building Demolition and Improvements Project was substantially complete as of November 2009 with finale completion in March 2011.

The following is a summary of the major events:

- The 100% drawings and specification were submitted to the WWTP in August 2007.
- The drawings, specifications and permit application were submitted to the MDEQ in November 2007 and the MDEQ Part 41 Construction Permit was issued on February 20, 2008.
- The MDEQ issued a Part 31 Floodplain Permit on April 30, 2008 and the Ann Arbor Township Planning Commission gave conditional approval of the Site Plan Review on May 7, 2008.
- The City of Ann Arbor issued a Notice to Proceed to Sorensen Gross Construction Services, L.L.C. for the work associated with the estimated 8 month Phase I project on January 27, 2009.
- Punch list was issued on November 5, 2009 and updated on November 23, 2009 which identified work items required for completion of the project.
- Security camera monitoring and wireless communication systems were added to the project by the City.

Facilities Renovations Project – Phase II

Phase II of the Facilities Renovations Project includes the majority of the work and includes the following elements:

➤ Field investigation phase that included:

- Pre-demolition survey of hazardous and other waste materials
- Concrete repair survey
- Access bridge survey
- Secondary clarifier equipment evaluation
- Ferric chloride storage and feed system evaluation
- East Plant biosolids sedimentation survey
- Administration Building evaluation
- Plant isolation gate evaluation
- Geotechnical investigations
- One-line verification
- PICs field wiring survey

➤ Design Phase

This phase of the project can be separated into the East Plant Modifications, West Plant Demolition and Reconstruction, and electrical and site work.

East Plant Modifications includes:

- Rehabilitation of the East Plant Aeration system including the new blowers, new air piping, new diffused aeration system, new mixers and reconfiguration of the tank flow patterns
- Modification of the East Electrical/Blower Building including: removal of the standby generators and electrical gear, installation of a new wastewater sampler room within this building and replacement of the East Plant return activated sludge pumps
- Electrical improvements to the East Plant Primary Building
- Miscellaneous repairs to the secondary clarifiers
- Conversion and rehabilitation of the Dechlorination Building to the Tertiary Filter Blower Building.
- Construction of the new East Plant Ferric Building
- Concrete repair and gate repair throughout the East Plant

West Plant Demolition includes:

- The demolition of six digester tanks, primary and secondary clarifiers, aeration tanks, Administration Building, a portion of the Old Chlorine Contact Tank, Chlorine Building, flow splitting structures, Fabrication Shop, Machinery Building, West Plant Blower Building and the old flocculation basins.

West Plant Reconstruction includes the design and construction of:

- Primary clarifiers
- West Plant Primary Building
- Aeration tanks
- Secondary clarifiers
- West Plant Secondary Building
- Administration Building
- An electrical building for the Raw Sewage Lift Station
- An influent splitter/flow monitoring station
- West Plant Ferric Building

Electrical and site work includes:

- Replacement of the existing 4800 KV power distribution system with a 13.2 KV power distribution system plant wide
- Central Electrical Building
- Replacement of existing standby generators with new generators located within the Central Electrical Building
- Re-routing of existing site utilities
- Upgrading and reconfiguration of the existing storm water system
- Upgrading the existing earthen embankment to meet FEMA's standards for certification
- Relocation of DTE power transmission lines
- Installation of new roadways throughout the plant
- Upgrading the existing SCADA system

Phase II – Status

Design of the Phase II Project is complete. The following is a timeline of the key project mile stones, to date:

- The 60% design was submitted to Ann Arbor in September 2008.
- The 90% design documents were submitted to Ann Arbor for review on December 14, 2009.
- A 90% design review workshop was held on March 18, 2010 to review the project status.
- The draft 100% design documents were submitted to the City for review on November 12, 2010.
- The 100% design was completed in the second quarter of 2011.
- The project advertisement date was November 15, 2011.
- The Bid Phase was from November 15, 2012 (advertisement date) to the bid opening date of January 11, 2012.
- Six Bidders submitted bids for the Facilities Renovations Project. The bidders and their bid amounts are summarized below:

▪ Barton Mallow	\$ 102,884,000
▪ Hunt/Colisanti	\$ 99,990,000
▪ Walbridge	\$ 95,380,441
▪ Walsh Construction	\$ 92,929,000
▪ Granger Construction	\$ 89,990,000
▪ Lakeshore Toltest	\$ 83,302,048
- After a bid evaluation by the City of Ann Arbor and Malcolm Pirnie, Walsh Construction was determined to be the lowest responsible and responsive qualified bidder for the project.

- On February 6, 2012, the Ann Arbor City Council tentatively approved Walsh Construction for the Facilities Renovations Project.
- A contract with Walsh Construction was executed and the notice to proceed for construction of the FRP was issued on June 8, 2012.

The following dates are other important regulatory milestones of the Facilities Renovations Project including submittal of the site plan application and permit process through Ann Arbor Township, Washtenaw County, the State of Michigan and FEMA. The following is a timeline of the key regulatory milestones, to date:

- The Preliminary Site Plan application including the Natural Features Impact Statement was submitted to Ann Arbor Township on November 18, 2009.
- A Natural Features Setback Use Permit public hearing was held during the Ann Arbor Township Planning Commission meeting on December 7, 2009.
- The final Preliminary Site Plan application and the final Natural Features Impact Statement were submitted to Ann Arbor Township on February 10, 2010.
- The preliminary Stormwater Management Plan was approved by the Washtenaw County Water Resource Commissioner on March 1, 2010.
- The Preliminary Site Plan application and Natural Features Impact Statement were approved during the Ann Arbor Township Planning Commission meeting on March 1, 2010.
- The FEMA Conditional Letter of Map Revision (CLOMR) application was submitted to FEMA on March 26, 2010.
- FEMA's administrative review comments were received on May 13, 2010 and the City's response to the administrative review comments were submitted to FEMA on July 22, 2010.
- The draft Final Site Plan application, the final Natural Features Impact Statement and final Stormwater Management Plan were submitted to Ann Arbor Township on August 18, 2010.
- The Final Stormwater Management Plan was approved by Washtenaw County on September 8, 2010.
- FEMA approved the CLOMR application and notified the City on October 8, 2010.
- The revised Final Site Plan application was submitted to Ann Arbor Township on November 17, 2010.
- The Final Site Plan application was approved by Ann Arbor Township on December 6, 2010.
- Final design documents were submitted to MDEQ for review and comments in April 2011.

The following dates are key milestones regarding the State Revolving Fund application, S2 Grant and the Water Pollution Control Tax Exemption Application:

State Revolving Fund application:

- The initial application for SRF funding was submitted in July 2011 and the project successfully made the MDEQ project priority list for SRF funding.
- Malcolm Pirnie and the City of Ann Arbor submitted SRF Parts I, II and III on November 29, 2011, January 6, 2012 and February 17, 2012 respectively.
- The City of Ann Arbor prepared and approved the Tentative Contract Award to Walsh Construction on February 17, 2012.
- On March 12, 2012, the MDEQ issued the Order of Approval for the SRF loan.
- The SRF loan closing occurred on April 10, 2012.
- The Notice of Award was issued to Walsh Construction on April 13, 2012.

S2 Grant Application:

- Malcolm Pirnie and the City of Ann Arbor prepared and submitted a S2 Grant Application on September 23, 2011.
- The DEQ approved the S2 grant amount of \$256,136 on October 28, 2011.

Water Pollution Control Exemption application:

- Malcolm Pirnie and the City of Ann Arbor prepared a water pollution control exemption application and submitted it to the State Tax Commission in September 2011.
- On October 13, 2011, the State Tax Commission approved the application and issued a tax exemption certificate.

Construction Activities:

FRP construction activities have begun and the project is moving forward on schedule. Demolition of the West Plant Chlorine Contact Chamber, Final Settling Tank 5 and the Administration Building is completed. The temporary administration field trailer and locker room facilities are installed and occupied. Installation of the south electrical duct bank and construction of the new East Plant Ferric Building is underway. All geotechnical instrumentation and five of 24 dewatering wells have been installed. Improvements to the earthen embankment along the Huron River are nearly complete and the concrete flood wall has been installed, which are required for the WWTP site to be recognized as out of the floodway and floodplain for flood insurance purposes. The current contractual final completion date for this project is September 4, 2017.



For more information on this project,
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