

South Interceptor Force Main Project *North Segment Construction*



 View of excavated tunnel as it is being constructed between Marcy Street and Heartland of America Park.

The existing South Interceptor Force Main (SIFM) was constructed in the early 1960s and has remained in continuous operation for more than 50 years. Its current condition makes it unreliable for continued long term use and replacement is necessary to convey increased dry and wet weather flows to the Missouri River Water Resource Recovery Facility (MRWRRF). The new SIFM under construction will provide greater reliability and maximize flow capacity for conveyance to the new MRWRRF headworks.

Construction of South and Central Segments began in January 2014 and were complete in November 2015. Construction of the North Segment started in January 2015 and consists of approximately 4,500 feet of 48-inch pipe. It begins near Lewis and Clark Landing, south of I-480, and continues south to Pierce Street. A significant portion of the alignment, approximately 3,500 feet, is being constructed in bedrock nearly 80 feet beneath Heartland of America Park, the ConAgra campus, and the Breakers Building.

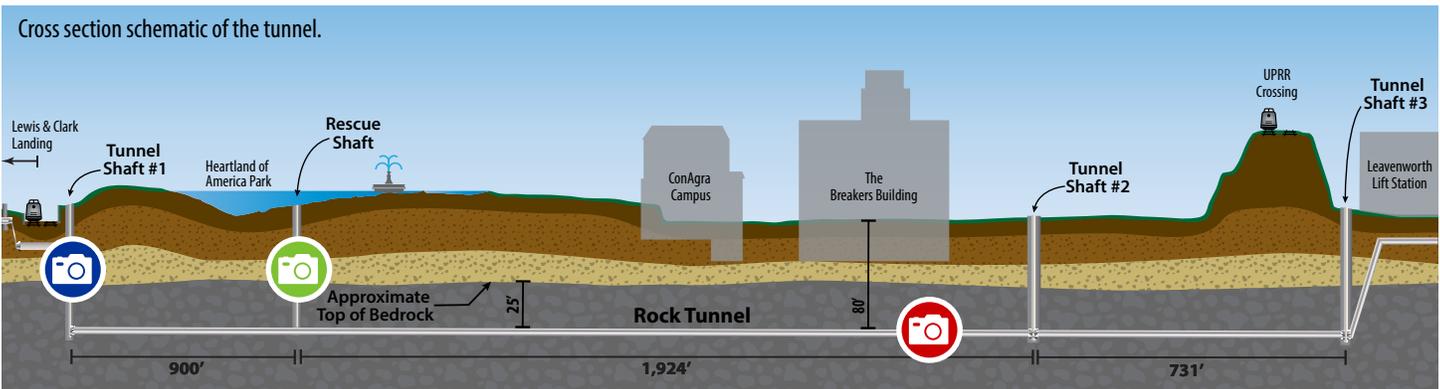
A tunnel boring machine (TBM) was used to bore through bedrock and construct a tunnel for the new force main of the North Segment. In 2016, the TBM encountered an unexpected geologic anomaly consisting of an area of sand, boulders, and groundwater instead of bedrock. The TBM was not equipped to handle this material and was unable to proceed and finish tunnel boring. Additionally, this anomaly threatened to flood the tunnel with water, endangering workers.

After evaluating many options to complete tunnel construction, use of a micro-tunnel boring machine was selected to mine gravel and boulders and complete the remaining 900 feet of tunneling. In July 2017, workers built a rescue shaft for the original TBM, just beyond where it became stuck in Heartland of America Park.

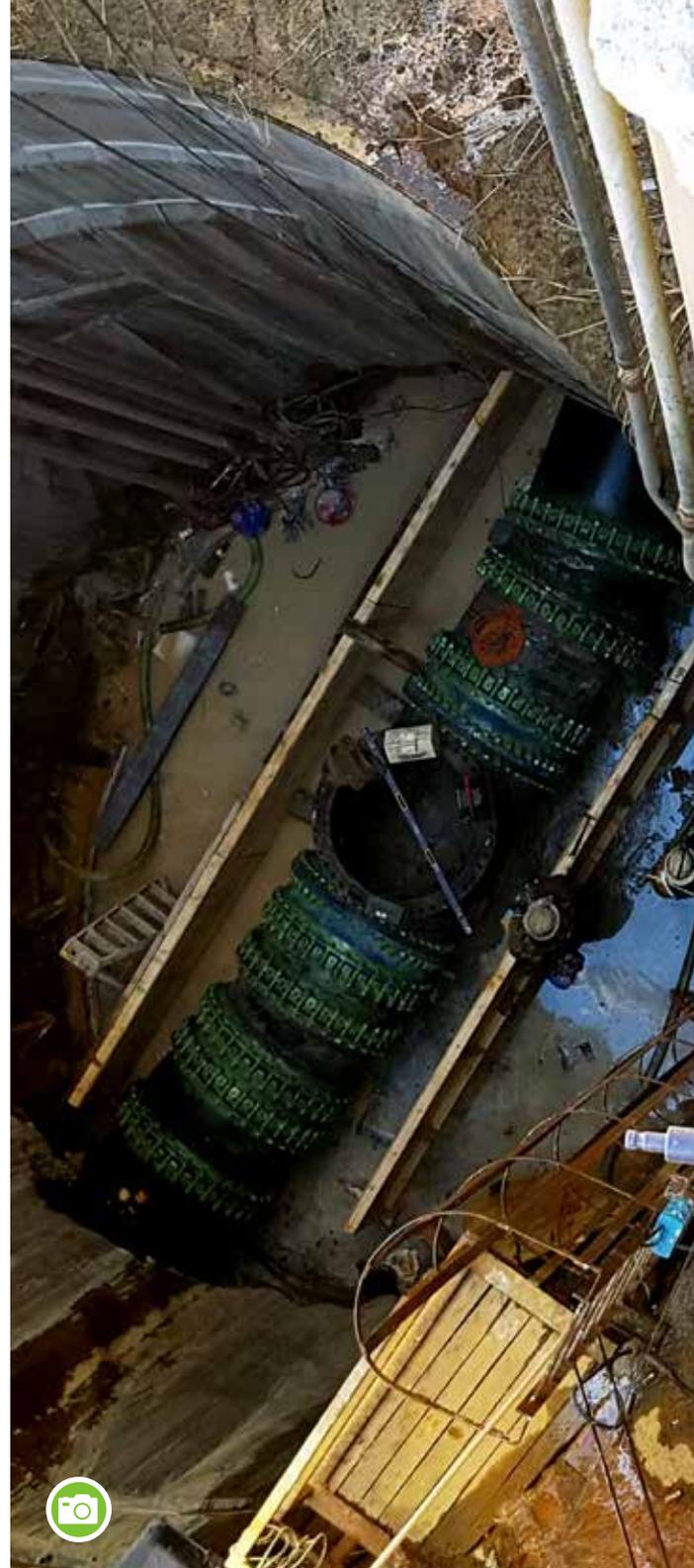
The micro-tunnel boring machine completed tunnel excavation in August 2017. Both the TBM and micro-tunnel boring machine were removed from the project



 South Interceptor Force Main extending from the newer surface into the tunnel.



(Continued on page 8.)



(Clockwise from top left) North tunnel shaft in Heartland of America Park; completed connection of the force main through the rescue shaft; old TBM breaking into the rescue shaft.

site and pipe is being installed through the tunnel. By January 2018 the project will be substantially complete and the new SIFM will pump sewage to the City's MRWRRF. This project allows Omaha to reduce the volume of sewage that is released into the Missouri River as part of CSOs, advancing the City toward meeting

federal mandates. Restoration of Heartland of America Park will be complete by spring 2018.

Removal of the TBM ended a 14-month construction delay and safely solved a series of engineering challenges.