CASE STUDY
PIPE JACKING & UTILITY TUNNELING | TUNNEL BORING

Project Name:
East Side Interceptor Sewer

Subcontractor:
Minger Construction, Inc.

Location:
Mequon, WI

Owner:
City of Mequon

Ground Conditions:
Clay with Trace Sand and Gravel

Akkerman Equipment:
TBM 420B, 5200 Pump Unit, 524 Haul Unit

Pipe:
48-in. ID Hobas®

Total Length/Longest:
7,985-lf./1,288-lf.

PROJECT OVERVIEW

In response to significant flooding events that caused basement backups for City of Mequon residents, the City's Sewer Utility District commissioned a study for a wet weather relief sewer.

The study and design lead to the construction of the two-phase East Trunk Sewer Construction project, designed by R.A. Smith Inc., and awarded to prime contractor Minger Construction Co., Inc. for $14.8 million.

Construction included 7,985-feet of 48-inch ID and 2,365-feet of 24-inch ID Hobas® pipe by trenchless methods, 316-feet of open cut installations, connections and restorative measures.

THE CHALLENGES

- Construction near waterways, wetlands, alongside and under railroads, freeways and streets, the Katherine Kearney Carpenter Park, and residential communities
- Permitting was required for the WDNR, Union Pacific Railroad, the Wisconsin Department of Transportation, Ozaukee County, and the MMSD, and easements were acquired on 15 private properties
- Longest drive of 1,288-feet ran parallel to the Union Pacific Railroad, along three medians on North Port Washington Road under live traffic along a very busy thoroughfare
- Squeezing clay around the TBM
- Existing utilities within close proximity to many of the tunnel drives

THE SOLUTION

Minger subcontracted J&J Boring, Inc. to assist, using two Tunnel Boring Machine (TBM) systems to accelerate installation efforts and take advantage of the milder temperatures.

Eleven drives were completed with Akkerman TBMs and tunnel boring systems at 26-32-foot depths. On the drives presenting squeezing clay, crews utilized a bentonite and lubrication pump to inject lubrication at the cutter face.

The TBM work started in July and was completed in December. After the TBM work, Minger crews installed 2,365 feet of 24-ID pipe with their GBM 4800 system with equal success.

OUTCOME

- Successful concurrent installations, completed within the required timeline
- Verification of the tunnel was completed via CCTV, indicating that no settlement occurred
- When boulders were encountered, the technology allowed for face access so even unanticipated boulders could be overcome

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