CASE STUDY
PILOT TUBE METHOD | PILOT TUBE MICROTUNNELING

Project Name:
Grand River Ave. 10-in. Sanitary Sewer

Prime Contractor:
DVM Utilities

Location:
City of Novi, MI

Owner:
City of Novi

Ground Conditions:
Soft sand, clay, marl and peat

Akkerman Equipment:
GBM 339A Jacking Frame & Guidance System

Pipe:
10-in. ID NO-DIG® Vitrified Clay Pipe, 1m

Total Length/Longest:
365-lf./365-lf. of 10-in. ID VCP

PROJECT OVERVIEW

The City of Novi, MI sought bids for an emergency repair of a 365-ft. section of sanitary sewer adjacent to a car dealership, at the intersection of Grand River and Meadowbrook Avenues.

The original PVC pipeline was 10-12-ft. deep, just above a foundation of marl and peat. The region received an additional 10-ft. of fill that was added above the sanitary sewer during redevelopment of the dealership. Surcharge loads, compounded by the foundation soils resulted in the failed section of pipeline.

Initial bids sought to excavate the marl, add a new foundation of crushed stone, then a geotextile wrap before replacing the pipe.

THE CHALLENGES

- Emergency repair
- High levels of groundwater
- Soil borings indicated the need for a 5-10-ft. deeper installation along the sanitary sewer
- Risk of over-excavating to existing foundations and need for shoring

THE SOLUTION

The winning contractor suggested a value engineered approach to the project by adding soil stabilization combined with trenchless pilot tube guided boring to install the pipeline.

The value engineered design included the replacement of the 365-ft. stretch of the existing sewer by applying the following construction methods:

- Acrtylamide grout inserted in the launch and reception shafts walls and vertically along the sanitary sewer main up to 18-ft. deep
- Accurate installation of pilot tubes, reaming head, temporary thrust casings and augers outfitted with a small spacer, followed by the VCP product pipe

OUTCOME

- Accurate and efficient installation in just 4-weeks
- Safer construction zone
- Project savings due to pilot tube guided boring method by reduced dewatering, aggregates and supports, volume of soil needing removal (600 vs. 180 cu yd) and restoration expenses
- Construction impacts limited to east end of car dealership
- Municipality left with a high compressive strength premium pipe for long-term benefits

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