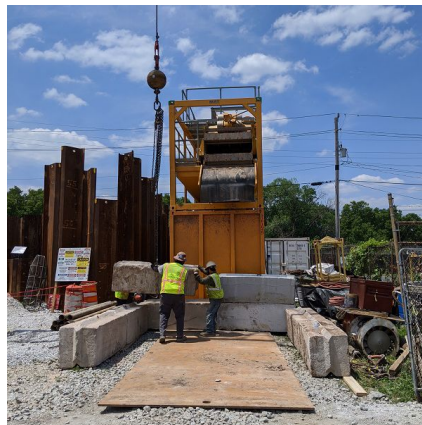
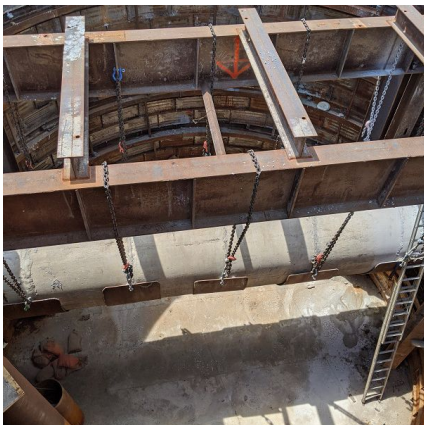


## CSO 13 Consolidation Sewer - Phase II Indianapolis, IN



### PROJECT OVERVIEW AND CHALLENGES

Bradshaw Construction installed two tunnels in Indianapolis, IN as part of a consolidation sewer project. The 60" FRP (62.9" OD) were direct-jacked behind an up-skinned Herrenknecht AVN 1200 MTBM. The tunnels were installed underneath a roadway through loose sand, silt and cobbles. Bradshaw was brought onto the project after initial attempts at hand-mining were unsuccessful given the raveling ground conditions. A major challenge was installing the microtunnel through the existing 18' of liner plate tunnel, sealed and backfilled before operations could commence. The excavation was challenging as the ground was incredibly loose and subject to potential heaving and settlement. Finally, line and grade control were critical as this was a direct-jack gravity sewer and the second recovery shaft contained an existing sewer line which would need to be cleared. Ultimately each challenge was met, culminating in a successful project.



### PROJECT INFORMATION - 610

**OWNER:**

Citizens Energy Group  
317-429-3978

**ENGINEER:**

AECOM  
Sam Cain  
913-201-3111

**CONTRACTOR:**

Reynolds Construction, LLC

**COMPLETION DATE:**

8/14/2020

**GEOLOGY:**

Sand, Silt, Cobbles

**EXCAVATION METHOD:**

Herrenknecht AVN-1200 MTBM

**MINING DIMENSIONS:**

475' x 62.9" Ø

**FINAL LINING:**

60" FRP

**FOR MORE INFORMATION:**

Jordan Bradshaw  
410-970-8300  
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Refer to Project 610