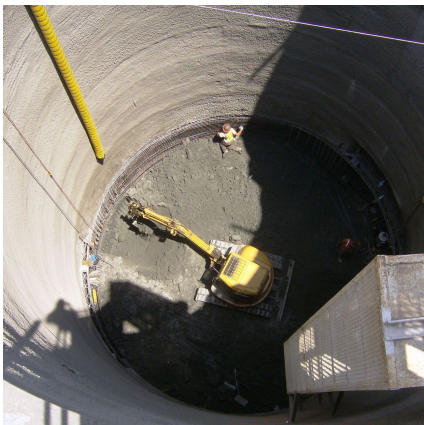


Battery Park Trunk Sewer Tunnel Richmond, VA



PROJECT OVERVIEW AND CHALLENGES

To resolve CSO flooding from a collapsed sewer for the City of Richmond, Bradshaw installed 4 tunnels from various drive and recovery shafts. These included the use of the New Austrian Tunnel Method (NATM – Sprayed reinforce shotcrete), steel sheet piling, steel rib and wood lagging, and trench box shafts. The all varied in depth up to 60' deep. The NATM shafts were 30' ID. The structures at tie-ins were installed in shallower but large steel sheeted shafts up to 20'x50'. The principal challenges installing these shafts were tying into the large existing sewers at the end of each tunnel, excavating solid waste from the City dump, and being exposed to flooding from the existing sewers.



PROJECT INFORMATION - 457

OWNER:

City of Richmond
Department of Public Utilities
Robert Stone, Project Manager
804-646-8557
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ENGINEER:

Greeley & Hansen Engineers
Kurt Stykemain
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CONTRACTOR:

Bradshaw Construction Corporation

CONTRACT VALUE:

\$23,698,300

COMPLETION DATE:

4/30/2008

GEOLOGY:

Miocene Clay, Solid Waste

EXCAVATION METHOD:

NATM, SP&L and R&B with track excavator

MINING DIMENSIONS:

30' Ø NATM + 30' Ø R&B + 20'x50'
SP&L

FINAL LINING:

30' Ø NATM + 30' Ø R&B + 20'x50'
SP&L

FOR MORE INFORMATION:

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Refer to Project 457