

## Carson Loop Water Main Replacement Phase VI-B Leeds, AL



### PROJECT OVERVIEW AND CHALLENGES

Bradshaw Construction Corporation completed a microtunnel drive crossing under an interstate and state highway in Birmingham, Alabama. The project consisted of 1,174 feet of 59 inch jacked steel casing for a 36 inch ductile iron water main. Ground cover under the highways ranged from 10 to 100 feet while shafts were an average of 22 feet deep. Mining conditions began with a mixed face of sticky clay and very soft shale all below the water table. The tunnel transitioned to a full face of sandstone with unconfined compressive strength (UCS) up to 19,470 psi. The biggest challenges of this project included microtunneling a long drive with small diameter casing through mixed-face and mixed-reach ground conditions.



### PROJECT INFORMATION - 543

#### OWNER:

Birmingham Water Works & Sewer  
Board  
Engineering Department  
Douglas Stockham  
205-244-4000

#### ENGINEER:

Volkert, Inc.  
Theo Johnson  
205-214-5500

#### CONTRACTOR:

Rast Construction, Inc.

#### COMPLETION DATE:

11/1/2014

#### GEOLOGY:

Sticky Clay, Soft Shale, Sandstone  
with UCS

#### EXCAVATION METHOD:

Herrenknecht AVN-1200 MTBM

#### MINING DIMENSIONS:

1174' x 59" Ø

#### FINAL LINING:

36" Ductile Iron Pipe

#### FOR MORE INFORMATION:

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Refer to Project 543