



## Birmingham Northern Beltline

Pinson, Alabama

**The Geopier Rammed Aggregate Pier® solution was selected to support a 1,700 foot long by 32 feet high MSE wall.**

**Description:** As part of the Birmingham Northern Beltline (BNB), this project started west of State Route 79 and continued until east of State Route 75. The project included 1.3 miles of a 4-lane highway with on/off ramps. An MSE wall was needed to construct Ramp J due to the close proximity of Self Creek.

**Subsurface Conditions:** The subsurface soils consisted of very soft silty clay and clayey silt to very stiff silty clay and clayey silt generally 10 to 15 feet deep. The bedrock surface was highly variable across the project site because of the regional geology. There were slots in the bedding that contained very soft silty clay to a depth of approximately 40 feet.

**Geopier Solution:** The Geopier Rammed Aggregate Pier® (RAP) solution was selected as a more cost efficient alternative option to traditional deep foundation techniques. The Geopier GP3® system and Impact® systems were installed to accommodate variable soil conditions encountered during the subsurface exploration.

With slots in the bedrock consisting of very soft clay varying from 20 to 40 feet, a combination RAP was designed with the lower portion being an Impact®



system and the upper 8 to 10 feet being constructed using the Geopier GP3® system. A total of 1380 RAPs were installed. The Geopier solution was verified with a modulus testing during production that confirmed a stiffness of 511 pci at a pier design stress of 14,400 psf.

### PROJECT TEAM

**Owner:**

ALDOT

**Geotechnical Engineer:**

AMEC

**Geopier Installer:**

Peterson Contractors, Inc.

**General Contractor:**

Wright Brothers Construction Company, Inc.