



## Sam Houston Tollway Widening

Houston, Texas

**The Geopier GP3® system was chosen for its speed of construction and for increasing the factor of safety against bearing capacity failure**

**Description:** This project consisted of a roadway widening, where the existing retaining walls were demolished and two new walls were constructed.

**Subsurface Conditions:** The soil conditions below retaining wall 1 generally consisted of stiff to very stiff clay to the maximum explored depth of 130 feet. Soil conditions for retaining wall 2 consisted of six feet of existing clay fill followed by six feet of stiff clay underlain by dense silty sand and sand.

**Geopier Solution:** A total of 1,042 Rammed Aggregate Pier® (RAP) elements were constructed to support the retaining walls with embankment design pressure of 3,000 psf and height of up to 21 feet. The 30-inch diameter RAP elements extended to depths of up to 15 feet below the bottom of footing elevation to provide settlement control of one-inch or less. The Geopier GP3® system allowed the RAP elements to be installed despite unforeseen underground utilities and without disrupting traffic.



### PROJECT TEAM

**Owner:**

Harris County Toll Road Authority

**Geotechnical Engineer:**

Fugro Consultants, Inc.

**Structural Engineer:**

Lockwood, Andrews & Newman, Inc.

**General Contractor:**

Lone Star Road Construction, Ltd.

**Geopier Installer:**

Peterson Contractors, Inc.

**Geopier Designer:**

GFC-Houston