



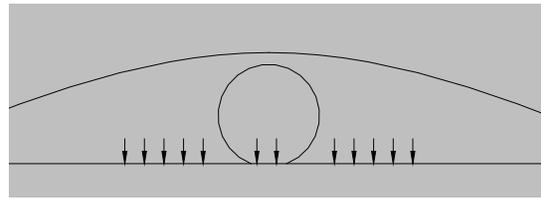
Road Over Rail Crossing Embankment Support

286 Geopier Rammed Aggregate Pier® elements were installed in less than two work weeks

Description: Railroad track loop passing through a 26-foot diameter culvert, with vehicular traffic passing over the 28-foot high embankment. Pressure on the existing soils was 500 psf due to the culvert, and 3,500 psf due to the placement of the embankment fill. The settlement criteria for installation of the culvert required less than one inch of differential settlement between the culvert and the surrounding embankment.

Subsurface Conditions: Layered alluvial deposits of clayey silt, silt and fine sand to depths of approximately 31 feet, over fine to medium coarse sand. SPT N-values ranged from 6 to 10 blows per foot in the upper 25 feet, and 13 to 21 blows per foot between 25 and 40 feet. Groundwater was observed between 13.5 and 17.9 feet below grade.

Geopier Solution: The Geopier GP3® system was chosen as the most cost effective solution over the overexcavation and replacement option originally recommended by the culvert manufacturer. Geopier Rammed Aggregate Pier® (RAP) elements were



installed to support both the culvert and the surrounding soil. RAP elements were installed on a 15-foot grid pattern beneath the relatively light culvert, and on a 4.5-foot grid pattern to limit settlement beneath the embankment. A total of 286 RAP elements were installed by Foundation Service Corporation in less than two work weeks.

PROJECT TEAM

Geotechnical Engineer:

Shively Geotechnical, Inc.

Civil Engineer:

CDG Engineers

Earthwork Contractor:

Bloomsdale Excavators

Geopier Installer:

Foundation Service Corp.

Geopier Designer:

GFC-St. Louis