

U.S. Highway 30 Embankment Stabilization Le Grand, Iowa



Description: Construction of new 35-foot tall approach embankments to a new bridge spanning an existing double-track, high-usage railroad line.

Subsurface Conditions: Soft to medium-stiff silty clay underlain by dense sand and stiff glacial clay. SPT “N-values” ranged from 2 to 7 blows per foot in upper clay soils.

Design Details: Global stability calculations performed for the embankment placed on unreinforced soils indicated factors of safety of less than 1.3. *Geopier*® soil reinforcing elements were selected as a cost-effective alternate to over-excavation and replacement. *Geopier* elements, installed at spacings ranging from 12 to 14 feet on-center beneath the embankment, increased the factor of safety against global instability to 1.3. The use of *Geopier* soil reinforcement eliminated the problems associated with excavations below groundwater and shoring requirements near the railroad tracks. Peterson Contractors, Inc. completed the installation of over 800 *Geopier* elements in about two weeks using two crews.

Geopier Designer & Installer: GFC – Midwest; Peterson Contractors, Inc.

Owner: Iowa Department of Transportation

General Contractor: Tom Kueter Construction, Inc.