



16th Street Mall Millennium Bridge

Denver, Colorado

GROUND Engineering Consultants provided geotechnical engineering, materials testing, and weld inspection services for the Millennium Bridge Project located at the 16th Street Mall Extension in the City of Denver, Colorado. The pedestrian bridge was approximately 230 feet long and up to 110 feet wide spanning over consolidated main line railroad tracks connecting the 16th Street Mall and the Commons Park near the Platte River.

The bridge was a cable-stay steel structure consisting of a 196-foot mast founded on a group of four 60-inch diameter caissons located at one end, 20 suspension cables, 5 backstay cables anchored with three 60-inch diameter caissons, and lightweight concrete bridge deck. During the design process, GROUND worked directly with the Structural Engineer, and performed 3-dimensional foundation load analyses to provide deflection and moment information for the foundation and structure design. Due to the complication and magnitude of the design loads, GROUND designed and conducted conventional caisson static load tests for both compressive and tensile loads prior to the construction of the bridge to verify the foundation design parameters.

During the construction of the bridge, GROUND provided full-time observations on the caisson installation and reinforcing steel, and materials testing on soils and concrete. GROUND also performed structural steel observations including shop and field inspections on welds and bolts of the mast and bridge deck frame.