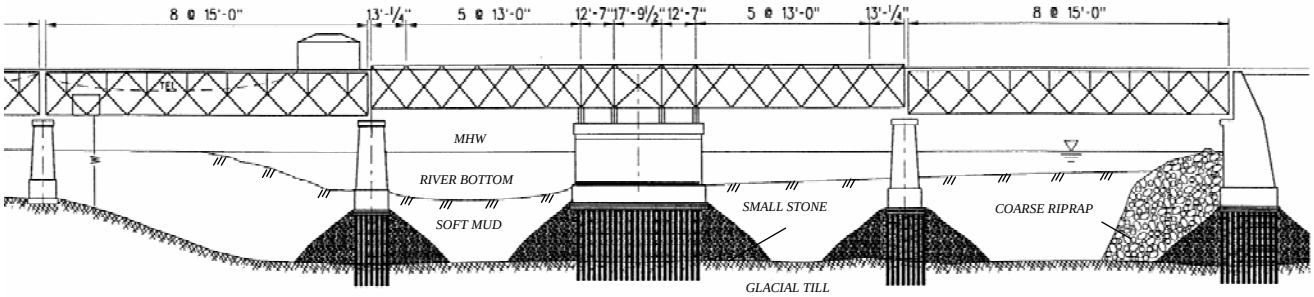

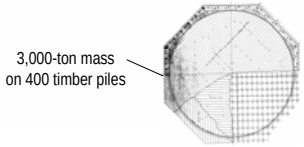

FOUNDATION PLAN

Norwalk Swing Bridge Study

Norwalk, CT

The Norwalk River Railroad Bridge railroad swing bridge is an Amtrak/Metro North bridge over Norwalk River in Connecticut. It is a 562 foot long deck-truss swing bridge, with a 202 foot swing span. The bridge was built in 1896 and currently carries four railroad tracks over the Norwalk River. The superstructure has two approach deck truss spans at the west side and one at the east side, and a rim bearing deck truss swing span at the center. As part of an evaluation of the bridge in 1999, Mueser Rutledge Consulting Engineers (MRCE) provided an engineering review of the bridge structure for a seismic retrofit project.

Seismic soil-structure interaction analyses were performed by MRCE and results for the main pivot pier of the bridge for soil profiles were estimated from available subsurface information. The pier consists of a perimeter mortared stone form filled with mortared stone rubble, estimated to weigh about 3,000 tons (27 MN). The pier is supported on 400 timber piles, 0.3 meters in diameter, spaced at 2 to 2.5 diameters apart. The pile foundation extends through soft organic clay to glacial till. Site-specific horizontal acceleration response spectra at the ground surface were developed using rock earthquake motions compatible with the AREMA Seismic Code and the program SHAKE. The results were summarized as equivalent ground and pier accelerations, and corresponding shear forces and moments in the pile elements.