



Left: Subsurface investigation underway for the Route 9A Reconstruction project along Manhattan's west side. Stuyvesant High School Pedestrian Bridge and a World Trade Center tower appear in the background. Inset: Rendering of the completed project, courtesy of Vollmer Associates. Right: View showing the water's edge and the interface between Route 9A and Hudson River Park as it appeared during Segment 4 Reconstruction.

Route 9A Reconstruction

New York, NY

Mueser Rutledge Consulting Engineers (MRCE) provided geotechnical and structural design services to the NYSDOT for design of the Westway project in the late 1970s and early 1980s. The firm administered several major subsurface investigations (over 500 borings), implemented detailed laboratory testing and defined soil design parameters, and provided geotechnical designs of bulkheads and landfill. Subsequent to the abandonment of the offshore Westway alignment, NYSDOT formed a consulting team to study the alignment of the new project, called Route 9A, located inboard of the bulkhead. MRCE was engaged to evaluate the condition of the bulkheads along the entire length of the project from Battery Park City to 59th Street. Examinations were made of selected pier substructures to establish the general conditions and the jurisdiction lines for Corps of Engineers issues. MRCE performed a separate investigation of the potential impact of construction vibrations on existing structures adjacent to the project right-of-way.

For final design of the Route 9A reconstruction, NYSDOT elected to subdivide the project into six design and construction segments. MRCE provided project-wide geotechnical design and performed subsurface investigations and laboratory testing along the entire alignment. Special secondary consolidation testing was performed in the MRCE laboratory, which confirmed that the effect of aging on the underlying compressible clay would permit load application without initiating a new cycle of primary consolidation. MRCE developed geotechnical design criteria and established construction vibration performance and monitoring criteria for the project. MRCE provided geotechnical design services to the designer of Segment 4, the first segment completed. NYSDOT used the Segment 4 design as a basis for the remaining segments. MRCE provided geotechnical support to each segment designer for special structures. Lightweight fill was used in one small area to stay within the predicted secondary consolidation stresses. The firm provided foundation design recommendations for several tide gate structures which were moved west of the Route 9A alignment and for a large diameter waterline. The waterline was constructed from Battery Park City to the Holland Tunnel along the west side of the Route 9A alignment and inland several blocks where it connected to an existing main. MRCE managed a boring contract and provided a soil profile along the waterline alignment and provided design criteria for contractor-designed excavation bracing.