



Construction Engineering Services for Temporary Support of Stringers | Grand Central Terminal Lower Level Train Shed

GeoDesign Inc. was retained by the contractor to prepare design and working drawings for a temporary jacking and support system to repair stringer seat connections. This work is part of a construction contract by Metro North Commuter Railroad to perform miscellaneous improvements to the Grand Central Terminal Lower Level Train Shed.

The contract documents detailed a temporary jacking and support system using steel beam and column bents to support the active upper level tracks during repairs. Due to varying vertical clearances the temporary tower system at each location would need to be custom fabricated. In addition, the low and varying vertical clearances in the tunnel precluded the use of heavy equipment such as a crane to install and remove the temporary steel tower bents. Thus, installation and removal of the temporary jacking system would need to be performed manually by workers using chain hoists, come-alongs and brute force.

GeoDesign worked with the contractor to redesign the temporary jacking and support system using pre-engineered tower leg supports manufactured by EFCO. The EFCO tower support system could be used at most of the stringer repair locations and could be easily assembled, moved and reassembled manually by the workers. The towers were supported on timber grillage footings placed over the lower level tracks. Adjustable legs at the bottom and top of the towers along with a grillage of shallow depth spreader and support beams accommodated the varying heights of the stringers above the tracks. This allowed the same tower to be reused at several repair locations thus saving the contractor money but more importantly, saving time.

Construction Cost:
\$7.5 million

Completion Date:
2003

Reference:
MTA Metro-North Railroad
Mari Miceli
(212) 499-4477

Scope of Services:
Construction Engineering
Services



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