



UNITED STATES

Target
Boston, MA



Owner
Target Corporation

Engineer
GEI Consultants, Inc

General contractor
J. & M. Brown Company, Inc.

Dates of work
2011/03 2011/04

Description

The expansion of the existing Target store at Boston's South Bay Shopping Center included 30,000 sq ft of expanded retail, storage, and stock space. All foundation work was to be done in restricted space during normal store operating hours.

Support was required for all of the new slabs and footings with tight settlement requirements to ensure compatibility between the new and existing structures. The original design called for driven timber piles with a structural slab and pile cap foundation system. Menard proposed an innovative alternative using two ground improvement techniques to provide a more economical foundation package.

Main figures

Controlled Modulus Columns (CMC)[™]
570 EA.

Ground conditions

The project site had an upper uncontrolled fill layer underlain by a soft organics and peat layer. The bearing stratum was a stiff marine deposit, encountered at depths between 25 ft and 50 ft. The site also had a very limited work area, being bound on all sides by active roadways, property lines, or the existing structure.

Solution

Menard's alternative approach used a combination of Rapid Impact Compaction (RIC) and Controlled Modulus Columns (CMC)[™] rigid inclusions to meet the design objective for the project.

To eliminate the need and the associated cost of removing contaminated site soils and replacing them with compacted structural fill, Menard used RIC to densify and improve the upper fill soils. RIC is a ground improvement technique for shallow ground densification that is useful in confined sites such as those found in urban areas.

CMC rigid inclusions were then installed down to the stiff marine deposits to provide support of the new slabs and foundations. The flexibility of CMC rigid inclusions was evident as multiple encounters with unexpected utilities, obstructions, and existing structural components, necessitated layout modifications without impacting the project's schedule and budget.

Despite unknown and uncontrollable urban site conditions, Menard provided ground improvement solutions for the expansion of a Target store.