



UNITED STATES

Oakland Logistics Park Pontiac, MI

**Owner**

Flint Development

Engineer

Testing Engineering & Consultants
(geotechnical); Krudwig Structural Engineers

General contractor

Brinkmann Constructors

Dates of work

June 2021 July 2021

Main figures

Stone columns

600 EA.



Description

As part of Flint Development's efforts to construct 2.3 million sq. ft of speculative bulk warehouse space in the Detroit Metro Region, a 711,360 sq-ft warehouse was proposed for the sprawling site. The Oakland Logistics Center – with 36-ft clear-height ceilings and 150 trailer spaces – would meet the needs of a changing economy while contributing to one of the largest speculative projects in Michigan.

The project location, Oakland Logistics Park in Pontiac, once housed an automotive assembly plant. During previous construction, fills of up to 10 ft were placed with varying degrees of compaction – and deemed insufficient for bearing capacity and settlement control of the new construction. The geotechnical engineer recommended stone columns as a means of ground improvement – and Menard USA was selected to design and install the elements.

Ground conditions

Much of the existing area was covered by the previous building's concrete slab, which was removed – along with old foundations – prior to stone column installation. Underlying the slab was between 5 ft and 10 ft of loose, mostly sandy fill. Stiff to hard natural clays were beneath the fills. Groundwater was often perched within the near-surface fill.

Solution

Drilled piers were originally considered for the foundation system, but due to the variable bearing layer and cost of installation, they were eschewed for stone columns. The elements were installed through the fill soils and designed to provide 3,000 psf of bearing capacity while limiting settlement to 1 in. Slabs were constructed on-grade following a proof-roll. Menard installed 600 stone columns to depths of up to 15.5 ft, and performed two load tests to confirm the stone column modulus assumed during the design phase. Frequent and severe rain events caused delays, but Menard worked with General Contractor Brinkmann Constructors to work in dry areas of the site to maintain schedule. The rain also meant that more areas showed the perched groundwater, prompting Menard to switch from a top-feed installation to a bottom-feed installation to properly construct the stone columns in the wet conditions.

For an expansive, speculative bulk warehouse project in Pontiac, MI, Menard installed 600 stone columns to support a 711,000 sq-ft warehouse.