



## Lancaster Multi-Purpose Stadium Lancaster, PA

UNITED STATES



### Owner

Redevelopment Authority of Lancaster

### Engineer

Herbert, Rowland & Grubic, Inc.

### General contractor

Warfel Construction Company

### Dates of work

2004/07 2004/09

## Main figures

Vibro stone columns

1100 EA.

## Description

This project involved the construction of a multi-purpose sports stadium in Lancaster, PA. The stadium was constructed on a portion of a 15-acre site; 11 acres of which was considered a brownfield.

Total investment in the stadium was more than \$20 million.

## Ground conditions

The site selected for the new stadium was over layers of soft compressible fill and soil, varying in terms of strength and overall engineering properties. Before construction, ground improvement was required to improve the soil's bearing capacity.

Specifications for the project required a minimum total allowable bearing pressure of 3,000 psf underneath continuous strip and spread column footings. In addition, total settlement was to remain under 1 in with differential settlement to remain under 1/2 in.

## Solution

Menard developed a ground improvement solution utilizing dry-bottom feed vibro stone columns to minimize settlement and to enhance global stability for retaining walls. Menard installed over 1,100 vibro stone columns to depths of up to 25 ft.

An unforeseen project challenge was the presence of a ballast layer consisting of shot rock up to 16 ins in diameter. Typically, this type of condition would slow or halt the installation of vibro stone columns. Menard was able to quickly mobilize the necessary pre-drilling equipment, allowing penetration of the ballast layer.

In summary, due to the potential for significant settlement underneath the stadium, Menard applied vibro stone columns as a ground improvement technique.