



## Bay Area Medical Center

Marinette, WI

**Description:** The Bay Area Medical Center is a new facility, 4 stories tall, with column loads in the range of 150 to 1300 kips.

**Subsurface Conditions:** The soil conditions generally consist of very loose to medium dense sand with varying silt content to a depth of about 18 feet below the proposed FFE, underlain by medium dense to very dense sand and silty sand. Fines contents as much as 18 to 20 percent were observed at shallow depths at some boring locations. Groundwater was encountered at depths of 6 to 9 feet below the proposed FFE.

**Geopier Solution:** The geotechnical engineer recommended supporting the proposed structure on a shallow foundation system (with a bearing capacity of 4,000 psf) after removal and replacement of the looser native sand and silty sand soils. Given the relatively large column loads, the 4,000 psf bearing capacity solution was determined to be inefficient. Geopier® proposed supporting the more heavily loaded column footings on soils improved with the Densipact® system, while the more lightly loaded wall footings and floor slabs would be supported on unimproved, native soils. The Densipact® system allowed for bearing capacities up to 9,000 psf and post-construction settlements of 1 inch or less. The densification/improvement of the soil was field-verified using mechanical Cone Penetration Testing.



### Construction Challenges:

Geopier's original design intent was to install 502 Rammed Compaction Points (RCPs) at the column footing locations. Due to the presence of fine sand and silts within portions of the site, the Densipact® system was not able to achieve the level of densification required to control settlements (as determined by the real-time mCPT testing). Geopier already had a backup plan already in place for this scenario and installed 20-inch diameter Impact® piers at the subject locations at no additional cost to the project team.

### PROJECT TEAM

**Owner:**

Bay Area Medical Center

**Geotechnical Engineer:**

River Valley Testing Corp

**Structural Engineer:**

GRAEF

**General Contractor:**

The Boldt Company

**Geopier Designer:**

Ground Improvement Engineering

**Geopier Installer:**

Foundation Service Corporation