THE DALLAS MAVERICKS PRACTICE FACILITY

Location: Dallas, TX

Project Type: Commercial

DUROTERRA™

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DUCTILE IRON PILE ADVANTAGES

- Rapid installation
- Low vibration levels
- Ability to work within existing facility with low overhead clearances
- Clean and safe alternative to micropiles

PROJECT DESCRIPTION

The project involved renovation of approximately 30,000 square feet of an existing commercial building to accommodate the new practice facility for the Dallas Mavericks basketball team. The completed facility included two full-sized courts, locker rooms, weight room and basketball operation offices. The renovation required support for new column foundations.

GEOTECHNICAL CONDITIONS

The subsurface conditions consisted of up to 26 feet of clay fill containing municipal waste fill including trash, concrete, glass, metal and other debris underlain by very soft clay to 34 feet below grade. The clay transitioned to soft to stiff sandy clay to a depth of 50 feet followed by very dense gravel. Rock was encountered at depths of about 63 feet. Groundwater was encountered at a depth of about 8 feet.

PROJECT CHALLENGES

Provide a deep foundation system installed with minimum vibrations to support new interior foundations in low overhead conditions.

DESIGN AND CONSTRUCTION SOLUTION

Construction of new foundations within the interior of the structure combined with very poor (waste) fill and soft clay resulted in the need for a deep foundation system. With overhead clearances limited to about 28 feet, traditional deep foundation options were limited to micropiles and helical piles. Keller also considered the use of low vibration driven Ductile Iron Piles based on previous experience with the system. A review of the logistics, schedule and pricing confirmed that the Ductile Iron Pile solution was the preferred option.

A total of 55 piles were designed for the project. Pile loads were limited to only 20 kips. Series 118/7.5 Ductile Iron Piles (118 mm OD with 7.5 mm wall thickness) were designed to resist the light loads while also including additional sacrificial material to address corrosion and also handle the driving through the variable fill conditions. Piles were rapidly installed using a high frequency percussion hammer to limit vibrations. Piles extended through the fill, clay and gravel to terminate on rock at depths on the order of 60 to 65 feet. Nearly 4,000 LF of pile was installed at the site to maintain the accelerated 5 month construction window for the facility.

PROJECT TEAM

DIP Design/Build Partner: Keller North America
General Contractor: Austin Commercial
Architect: HKS, Inc.