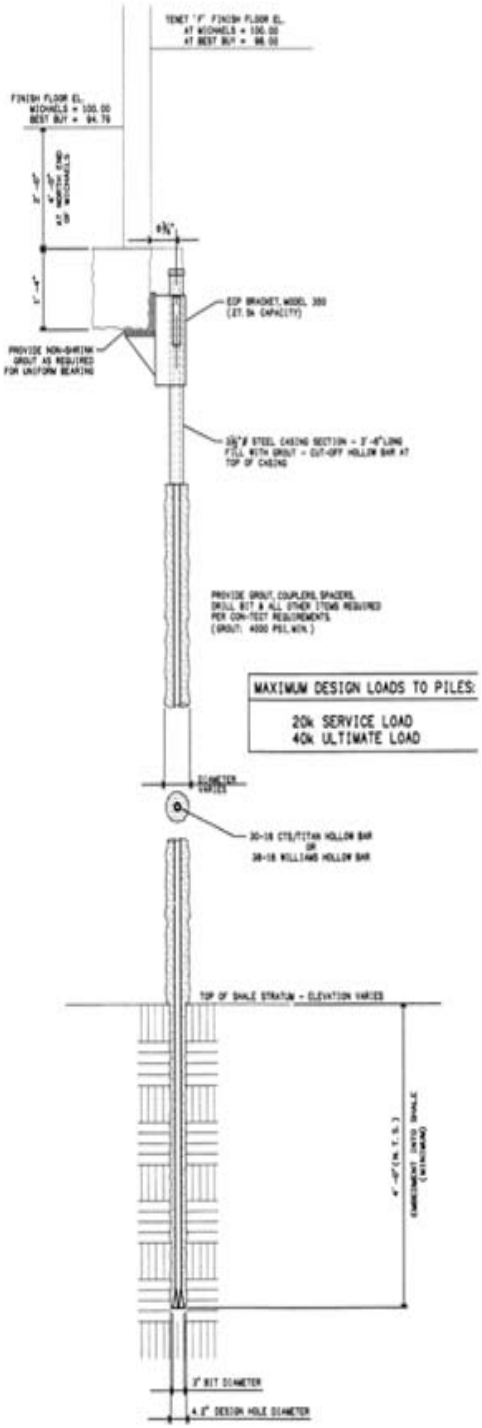
CASE HISTORY

ECP MICRO-PILE FOUNDATION SUPPORT BRACKETS



TYPICAL IBO MICROPILE AND CONNECTION BRACKET

HOLLOW BAR MICROPILES INSTALLED USING THE ECP Model 350-MP4 MICROPIER BRACKET SYSTEM

Fort Smith, Arkansas

Foundation Specialties, Inc. was retained to perform emergency remedial underpinning at the Fort Smith Pavilion. Several precast tilt-up panels with integral columns placed on spread footings with column pads had been damaged when the footings settled during construction.

The solution proposed by Foundation Specialties and James L. Burke, P.E. was to use drilled and grouted hollow bar micropiles through the boulder fill material down into the bedrock to support the footing. ECP was contacted to provide under-footing brackets that would connect the micropiles to the footing and transfer the loads to the micropiles.

Project Summary	
Project::	**Fort Smith Pavilion Underpinning**
Project Engineer:	**James L Burke, P.E.**
Installing Contractor:	**Foundation Specialties Inc., FSI GEO-CON**
Products Installed:	**Ischebeck 40/20 Titan hollow bar micropiles** **ECP Model-350-MP4 Micro-Pile Bracket**
Number of Placements:	**42 micropiles with brackets**
Avg. Depth Capacity:	**20 feet**
Pile Ultimate Capacity:	**40,000 pounds**
Pile Design Load:	**20,000 pounds**

The material under the footing consisted of up to 20 feet of back fill material containing boulders with highly variable blow counts over hard shale. The underpinning of the two walls required a total of forty-two 40/20 Titan bar micropiles installed with a TEI MP250H drill. The drill was mounted on the ECP Model 350-MP4 foundation brackets after the footing had been taken back inline with the wall panels. The footing was modified to minimize eccentricity of the underpinning system. After installation, the micropiles were cased with a four foot long, 4 inch diameter external sleeve supplied with the bracket. This locked the micropile system into the bracket.

After the grout achieved the design compressive strength of 4000 psi, the micropiles were loaded to 17,000 pounds and locked off within the brackets. This transferred 90% of the wall load to the micropiles. The gap between the wall panels and the footing was filled with grout to completely transfer the load to the micropiles.

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