

Foundation Systems and Services

Farrell recommends, designs and installs Ground Improvement and Deep Foundation solutions that are best suited for the given site, soil, groundwater, and proposed structure condition. Farrell also provides foundation peer review and specialty design services. Our proven foundation systems are shown below.

DDP Drill Displacement Pile	DDC Drill Displacement Column™	RAP Geopier®	IRAP Impact® Pier	RIC Rapid Impact Compaction	HMP Helical Mini-piles
Depth Limit					
85 ft (26 m)	80 ft (24 m)	25 ft (8 m)	40 ft (12 m)	20 ft (6 m)	100 ft (27 m)
Compatible Soils					
Sand (SP, SM, SC) Silt (ML, MH) Clay (CL, CH) Contaminated Soil Undocumented Fill	Contaminated Soil Sand (SP, SM, SP) Silt (ML, MH) Clay (CL, CH) Undocumented Fill	Silt (ML, MH) Clay (CL, CH) Clayey Sand (SC) Silty Sand (SM) Undocumented Fill	Silt (ML) Clayey Sand (SC) Silty Sand (SM) Poorly Graded Sand (SP)	Sand (SP, SM, SC) Silt (ML, MH) Undocumented Fill Contaminated Soil	Sand (SP, SM, SC) Silt (ML, MH) Clay (CL, CH) Contaminated Soil Undocumented Fill
Bearing Capacity Range (ASD)					
100 kips (445 kN) to 500 kips (2224 kN)	4,000 psf (192 kpa) to 10,000 psf (479 kpa)	5,000 psf (239 kpa) to 9,000 psf (431 kpa)	3,000 psf (144kpa) to 6,000 psf (287 kpa)	2,000 psf (96 kpa) to 8,000 psf (383 kpa)	20 kips (89 kN) to 200 kips (890 kN)
Key Advantages					
Deep pile with ground improvement No vibration Low spoil High capacity 16" 18" 24" diameters Steel reinforcement	Very high stiffness No vibration Low spoil High capacity Well defined concrete column Liquefaction mitigation Uplift-tension hold-down	Cost effective support Readily available material LEED opportunity High bearing capacity Uplift-tension hold-down	Liquefaction mitigation No casing Low spoils High stiffness Densification	Highly cost effective Liquefaction mitigation Fast improvement process No spoils Densification	Small equipment for tight access Ideal for repair/retrofit Minimal site impact No spoils No vibrations
Key Considerations					
Deep Pile Grout with low spoil Concrete cleanup Flat stable pad Pile connections	Impermeable Grout with low spoil Concrete cleanup Flat stable pad Gravel cushion	Vibration system & Low noise High spoil haul-off Casing at high ground water sand Moderate depth limit	Vibration system & Low noise Soft clay requires grout Not good for small site No work next to buildings	Pad grading required Vibrations within 30 ft Shallow depth limit High noise	High material cost Steel below water Weld splice for SPP
Comparable To					
Concrete piers Driven piles Stone columns Soil-cement columns Torque piers	Concrete piers Driven piles Stone columns Soil-cement columns Franki piers	Overex/replace Concrete piers Driven piles Stone columns Soil-cement columns	Overex/replace Concrete piers Driven piles Stone columns Soil-cement columns	Deep dynamic compaction Overex/replace Stone columns	Micro-piles Soil-nails Concrete piers Driven piles

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Geopier systems by Farrell in Northern California.
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