Glossary of Terms

Alignment Load (AL):	A nominal load applied to a HSF during testing to keep the testing equipment correctly positioned and remove any slack in the reaction system.
Allowable Load:	Maximum allowed load on HSF as determined by an approved formula, load test, or method of analysis.
Anchor	A foundation element used to attach or support an uplift load at the surface of the earth. A helical anchor uses helically shaped steel plate(s) to transfer uplift loads to soil.
Axial Load (P):	Axially oriented bearing or uplift load supported by a HSF resulting from dead, live, and seismic loads.
Bearing Load:	Generally regarded as an axial compressive load on a HSF.
Bearing Stratum:	Soil layer(s) of sufficient strength capable of resisting the applied axial load transferred by the HSF.
Contractor:	The person/firm responsible for performing the HSF work.
Coupling:	Central steel shaft connection means formed as integral part of the plain extension shaft material. For Type SS & HS helical screw foundations, couplings shall be hot upset forged sockets.
Coupling Bolt(s):	High strength, structural steel fasteners used to connect HSF segments together. For Type SS segments, the coupling bolt transfers axial load. For Type HS segments, the coupling bolts transfer both axial and torsional loads.
Creep:	The movement that occurs during the creep test of a HSF under a constant load.
Dead Load (DL):	Generally vertical loads comprising the weight of the structure, plus various fixed assets, such as equipment, machinery, walls, and other permanent items.
Design Load (DL):	Maximum anticipated service load applied to the HSF comprised of calculated dead and live loads. Also known as the working load (WL).
Effective Stress:	The total force on a cross section of a soil mass, which is transmitted from grain to grain of the soil, divided by the area of the cross section, a.k.a. intergranular stress.
Elastic Movement:	The recoverable movement measured during a HSF test resulting from the elastic shortening or lengthening of the pile material.
End Bearing:	Transfer of axial load to the soil at the tip of the HSF via helix plate(s).
Evaluation Report:	Evaluation of a manufactured product or building component by the evaluation services of the various model code agencies (BOCA, ICBO, ICC & SBCCI). The report outlines the requirements needed to satisfy the intent of the code.
Foundation:	A structural element used to attach or support a compression load. A helical foundation uses helically shaped steel plate(s) to transfer compression loads to soil.

Helical Extension:	Helical screw foundation component installed immediately following the lead section, if required. This component consists of one or more helical plates welded to a central steel shaft. Purpose is to increase bearing area.
Helical Pier Foundation Systems:	A.B. Chance Company name for HSF system used in the remedial repair of existing structures.
Helical Plate:	Generally round steel plate formed into a ramped spiral. The helical shape provides the means to install the screw pier, plus the plate transfers load to soil in end bearing. Helical plates are available in various diameters and thickness.
HELICAL PULLDOWN" Micropile:	A small diameter, soil displacement, cast-in-place HSF, in which most of the applied load is resisted by the central steel shaft and steel reinforcement, if installed. Load transfer to soil is both end bearing and friction. United States Patent 5,707,180, Method and Apparatus for Forming Piles In-Situ. A.k.a. HPM.
Helical Screw Foundation (HSF):	A helical screw foundation pile/pier is a bearing type foundation consisting of a lead section, helical extension (if so required by site conditions), plain extension section(s), and a pile cap. A.k.a. helical screw pile, screw pier.
In-situ:	In the natural or original position.
Installation Torque(T):	The resistance generated by an HSF when installed into soil. The installation resistance is a function of the soil, plus the size and shape of the various components of the HSF. The installation energy must equal the resistance to penetrate the soil (penetration energy) plus the energy loss due to friction (friction energy).
Kip:	One thousand pounds of force, or kilo-pound .
Lateral Load (V):	A load applied perpendicular to the longitudinal axis of a HSF resulting from live and seismic loads.
Lead Section:	The first helical screw foundation component installed into the soil, consisting of single or multiple helical plates welded to a central steel shaft. Helical plates transfer axial load to bearing stratum.
Live Load (LL):	Generally comprise a roof, wind, floor, and in some cases seismic loads. Floor loads include people, temporary or non-fixed equipment, furniture, and machinery. Roof loads include ice and snow.
Net Settlement:	The non-elastic (non-recoverable) movement of a HSF measured during load testing.
Open Specifications:	The Contractor is given the responsibility for the scope and design of the HSF installation. In addition, the construction, capacity, and performance of the HSF are the sole responsibility of the Contractor. This specification type is most common for securing bids on temporary projects, and is not recommended for permanent applications.
Overburden:	Non-rocky material, natural or placed, typically of soft consistency or loose relative density, which overlies competent load bearing stratum.

Performance Specifications:	The Contractor is given the responsibility for certain design and/or construction procedures, but must demonstrate to the Owner through testing and/or mutually agreed upon acceptance criteria that the production piles meet or exceed the specified performance parameters. The Contractor and Owner share the responsibility for the work.
Pile Cap:	Connection means by which structural loads are transferred to the HSF. The type of connection varies depending upon the requirements of the project and type of HSF material used. Care must be used in the design of pile caps to ensure adequate structural load transfer. Design constraints such as expansive soils, compressible soils, and seismic loads must be accounted for in pile cap design.
Pipe Shaft:	Hollow steel, round pipe central shaft elements ranging in diameter from 2" to 10". A.k.a. Hollow Shaft (Type HS), Round Shaft, Type T/C, Type PIF.
Plain Extension:	Central steel shaft segment without helical plates. It is installed following the installation of the lead section or helical extension (if used). The units are connected with integral couplings and bolts. Plain extensions are used to extend the helical plates beyond the specified minimum depth and into competent load bearing stratum.
Pore Pressure:	Unit stress carried by the water in the soil pores in a cross section.
Preloading:	Also known as prestressing, load is applied to the HSF prior to connection to structure, to minimize structural movement in service.
Prescriptive Specifications:	The Owner has the sole responsibility for the scope and design of the HSF installation and specifies the procedures that must be followed. Prescriptive specifications mandate the Owner to be responsible for the proper performance of the production piles. The Contractor is responsible for fulfilling the obligations/details as specified in the construction documents.
Proof Test:	Incremental loading of a HSF, holding for a period of time, and recording the total movement at each load increment.
Safety Factor:	The ratio of the ultimate capacity to the working or design load used for the design of any structural element.
Shaft:	Steel or composite steel/grout shaft or rod used to transfer load from the surface to the bearing-plate(s).
Seismic Load (SL):	Loads induced on a structure caused by ground motions resulting from a seismic event (earthquake). Usually included as part of the live load.
Square Shaft (SS):	Solid steel, round-cornered-Square central Shaft elements ranging in size from $1^1/_2$" to $2^1/_4$". A.k.a. Type SS.
Test Load (TL):	The maximum load applied to the HSF during testing.
Thread Bar Adapter:	Section of central steel shaft that can be used to connect a tiedown or ground anchor to a new or existing concrete foundation/pile cap via a high tensile strength pre-stressing thread bar.

Torque Rating:	The maximum torque energy that can be applied to the helical screw foundation during installation in soil, a.k.a. allowable, or safe torque.
Tiedown:	A.k.a. ground anchor, used to transfer tensile loads to soil. Tiedowns are used for seismic retrofit. They consist of central steel shaft, helix bearing plates, coatings, corrosion protection, connection means, etc.
Ultimate Capacity (UC):	Limit state based on the structural and/or geotechnical capacity of the HSF defined as the point at which no additional capacity can be justified.
Uplift Load:	Generally regarded as an axial tensile load on a HSF.
Verification Test (VL):	Similar to a Proof Test except a cyclic loading method is used to analyze total, elastic, and net movement of the pile. Used for pre-contract or pre-production pile load tests.
Working Load (WL):	Equivalent term for Design Load.