SECTION 403 – HELICAL PILES

403.01 DESCRIPTION

This work consists of furnishing and installing helical pile support systems at locations shown on the plans and in accordance with the Contract Documents. The completed system shall be installed to meet all design loadings for each boardwalk location.

403.02 REFERENCE STANDARDS

ASW D1.1

403.03 DEFINITIONS

Not applicable.

403.04 MATERIALS

Helical piles suggested suppliers:

A.B. Chance Premium Technical Services Corp.
A Division of Hubbell Power Systems, Inc East Meadow, NY
Centralia, MO 1-800-282-PILE
573-682-8414

or approved equal.

1. Helical pile leads shall be:

   a. A.B. Chance, Model SS-5 or approved equal. Helical pile lead sections shall be a one and a half (1 ½) inch square shaft and single helix of eight inches (8") diameter with ten (10) inch diameter sharpen leading edge or approved equal.

   b. A.B. Chance, Model RS2875.203 Pipe Leads or approved equal. Helical pile lead sections shall be a two and a half (2-1/2) inches square shaft and single helix of ten (10) inches diameter with ten (10) inches diameter sharpen leading edge or approved equal.

   c. A.B. Chance, Model RS3500.300 Pipe Leads or approved equal. Helical pile lead sections shall be a three and a half (3-1/2) inches square shaft and single helix of ten (10) inches diameter with ten (10) inches diameter sharpen leading edge or approved equal.

2. Lead sections shall be minimum five (5) feet long. The length of helix pile extension is depending on vertical clearance. Each extension is to be provided with a means for
coupling to the lead or to another extension. Each coupling is to be provided with the proper bolts and nuts.

3. Helical pile bracket for concrete pier caps shall be A.B. Chance, Model C150-0465 or approved equal.

4. Helical pile bracket for timber pier caps shall be A.B. Chance, Models C110-0682 & C110-0736 or approved equal.

5. Helical piles, extensions and appurtenances shall be hot-dipped galvanized steel in accordance with ASTM A153 (latest revision). All galvanizing of welded areas shall be cleaned and coated with approved galvanizing compound.

6. All welding shall be done by certified welders in accordance with ASW D1.1.

7. Helical piles shall be installed to the manufacturer’s recommended torque to achieve an ultimate bearing capacity of thirty (30) kips. The design capacity of the piles is 10 kips providing a safety factor of three (3).

403.05 SUBMITTALS

A. Contractor shall submit Maryland State P.E. sealed shop drawings and support information for review and approval prior to installation.

B. Contractor shall submit all equipment that will be used to install piles.

C. The Contractor shall submit to the Construction Manager complete and accurate records of the pile installation operation. Written installation records shall be prepared for each helical pile. These records shall include, but are not limited to the following:

1. Project name and/or location.

2. Name of Contractor who installed the piles.

3. Description of lead section and extensions installed.

4. Overall depth of installations referenced from bottom of grade beam or footing.

5. Torque reading for the last three feet of installation if practical. In lieu of this requirement, the terminal torque shall be recorded as a minimum.

6. Any other relevant information relating to the installation. Including Manufacturer’s Literature and Data. The Contractor shall provide the Construction Manager manufacturer's information with properties and characteristics.
403.06  **QUALITY ASSURANCE**

The company installing the helical piles shall have at least five (5) years of experience installing this type of work and be pre-qualified by the pile manufacturer in accordance with the manufacturer’s requirements.

403.07  **CONSTRUCTION**

A. Any modifications to system installation due to field conditions shall be approved by M-NCPPC CM prior to installation.

B. The Contractor shall be responsible for accurately locating the installation point of each foundation anchor and to record this information. Contractor shall test pit all utilities that might be present in the area and adjust pile locations to maintain required clearances and design requirements.

C. Helical piles shall be installed as shown on the Contract Documents and as per the manufacturer’s specifications. All changes in pile location must be approved by the M-NCPPC CM.

D. If underground obstructions (other than utilities) are encountered during installation, the Contractor shall have the option of removing the obstruction if possible or relocating the pile with the M-NCPPC CM approval. The latter option may require the relocation of adjacent piles.

E. Fabrication Tolerances. The Contractor shall comply with the following construction Tolerances:

   1. Angle of helix pile foundation from vertical = ± 5°.
   2. Location of helix piles = ± 3/4 “.
   3. Elevation of top of helix piles = ± 1/4 “.

413.08  **MEASUREMENT AND PAYMENT**

The unit price bid Item for helical piles shall include the cost of furnishing all labor, material, tools, equipment including pile driving machinery and incidentals necessary to complete the Work. Payment for helical piers (both vertical and skewed) shall be for each helical pier including additional bracing, hardware, and appurtenances (assuming an average height of ten (10) feet from the underground tip of the pier to the bottom of the boardwalk support timber). In the event that field conditions require additional pier heights, the payment will be for each additional vertical foot, as directed by the M-NCPPO CM.