

## Preliminary Helical Pile Capacity Calculations

**Project Name:** HPW Test 3  
**Project Number:** HPW1234  
**Project Address:** 1234 Helical Blvd.  
 Cincinnati, Ohio 45242  
**Date:** Tue Nov 15 2011 09:42:53 GMT-0600 (CST)



SOIL BORING DATA			Water Level at 20 Feet			REQUIRED LOADS (Allowable)		
Boring ID: B-5			Unit Weight (pcf)	Cohesion (pcf)	Friction Angle (degrees)	Required Compression Load: 30 kips		
Depth (ft)	Soil Type	Helical Pile Diagram				Required Tension Load: 20 kips		
						Required Lateral Load: 1 kips, 1 ft eccentric		
1	MIXED		105	375	23.86	<b>HELICAL PILE CONFIGURATION</b> 3.500" O.D. Pipe (0.300" wall) extension shaft to a depth of 19.5 feet, followed by a 3.500" O.D. Pipe (0.300" wall) lead shaft to a depth of 25 feet. The pile is affixed to the structure using a NCB101006P35 new construction bracket.  Helix 6: None Helix 5: None Helix 4: 14 inches located at 16 feet Helix 3: 14 inches located at 19.5 feet Helix 2: 12 inches located at 22.5 feet Helix 1: 10 inches located at 25 feet		
2	MIXED							
3	MIXED							
4	MIXED							
5	MIXED							
6	MIXED							
7	MIXED							
8	MIXED							
9	MIXED							
10	MIXED							
11	CLAY		105.8	1500	0	<b>SAFETY FACTORS APPLIED</b> Compression: 2    Tension: 2 Lateral: 2        Buckling: 2  <b>CALCULATION RESULTS</b> <u>Ultimate Bearing Capacity:</u> 61 kips > 60 kips    PASS <u>Ultimate Tension Capacity:</u> 56 kips > 40 kips    PASS <u>Mechanical Compression Capacity of Shaft:</u> 105 kips > 60 kips    PASS <u>Mechanical Tension Capacity of Shaft:</u> 140 kips > 40 kips    PASS <u>Required Depth for Lateral Capacity:</u> 25 feet > 4.3 feet    PASS <u>Bending Strength for Lateral Capacity:</u> 11.2 ft-kips > 3.9 ft-kips    PASS <u>Buckling Strength:</u> 124 kips > 60 kips    PASS <u>Torque Capacity (based on Kt = 7):</u> 15000 ft-lbs > 8600 ft-lbs    PASS		
12	CLAY							
13	CLAY							
14	CLAY							
15	CLAY							
16	CLAY							
17	CLAY							
18	CLAY							
19	CLAY							
20	CLAY							
21	CLAY							
22	CLAY							
23	CLAY							
24	CLAY							
25	CLAY							
26	CLAY							
27	CLAY							
28	CLAY							
29	CLAY							
30	CLAY							
31	CLAY							
32	CLAY							
33	CLAY							

### NOTES

Prior to final pile design, preliminary tests, conducted with the proposed pile configuration, are recommended to assure that the desired capacity can be achieved and that the pile can be installed to the required depth. PLEASE SEE THE ADDITIONAL COMMENTS ON THE GENERAL NOTES DOCUMENT.

### CATALOG NUMBERS

Item Description	ID #	Qty
Bracket	NCB101006P35	50
Extension Shaft	P35HE60	150
Extension Shaft w/ helix	P35HE60S14	50
Lead Shaft	P35H84S101214	50

Prepared By: Bbones