

# SOIL CONDITION

|                 |           |
|-----------------|-----------|
| PROJECT ID. NO. | SHEET NO. |
| U-4910A         | Sig.M8    |

|             |                   | STANDARD STRAIN POLES |                            |             |                 |                    | STANDARD FOUNDATIONS<br>48" Diameter Drilled Pier Length (L) - Feet |                          |                  |                    |                      |                   |              | Reinforcement  |              |               |   |    |
|-------------|-------------------|-----------------------|----------------------------|-------------|-----------------|--------------------|---|--------------------------|------------------|--------------------|----------------------|-------------------|--------------|----------------|--------------|---------------|---|----|
| Case No.    | Pole Height (Ft.) | Base Plate BC (In.)   | Reactions at the Pole Base |             |                 | Clay               |   |                          |                  | Sand               |                      |                   | Longitudinal |                | Stirrups     |               |   |    |
|             |                   |                       | Axial (kip)                | Shear (kip) | Moment (ft-kip) | Medium N-Value 4-8 | Stiff N-Value 9-15  | Very Stiff N-Value 16-30 | Hard N-Value >30 | Loose N-Value 4-10 | Medium N-Value 11-30 | Dense N-Value >30 | Bar Size (#) | Quantity (ea.) | Bar Size (#) | Spacing (in.) |   |    |
| WIND ZONE 1 | LIGHT             | S26L3                 | 26                         | 25          | 2               | 11                 | 270   | 19                       | 13               | 10                 | 8                    | 17                | 14.5         | 12.5           | 8            | 12            | 4 | 12 |
|             |                   | S30L3                 | 30                         | 25          | 2               | 11                 | 300   | 19.5                     | 13.5             | 10                 | 8                    | 17.5              | 15           | 13             | 8            | 14            | 4 | 12 |
|             |                   | S35L3                 | 35                         | 25          | 3               | 11                 | 320   | 20                       | 13.5             | 10.5               | 8                    | 17.5              | 15           | 13             | 8            | 14            | 4 | 12 |
|             | HEAVY             | S30H3                 | 30                         | 29          | 3               | 16                 | 450   | 24.5                     | 16               | 12                 | 9                    | 21                | 17.5         | 15             | 8            | 16            | 4 | 6  |
|             |                   | S35H3                 | 35                         | 29          | 4               | 16                 | 515   | 26                       | 17               | 12.5               | 9.5                  | 22                | 18.5         | 16             | 8            | 16            | 4 | 6  |
| WIND ZONE 2 | LIGHT             | S26L2                 | 26                         | 23          | 2               | 10                 | 245   | 18                       | 12.5             | 9.5                | 8                    | 16.5              | 14           | 12             | 8            | 12            | 4 | 12 |
|             |                   | S30L2                 | 30                         | 23          | 2               | 10                 | 270   | 18.5                     | 12.5             | 10                 | 8                    | 16.5              | 14           | 12.5           | 8            | 12            | 4 | 12 |
|             |                   | S35L2                 | 35                         | 23          | 3               | 10                 | 300   | 19.5                     | 13               | 10                 | 8                    | 17                | 14.5         | 13             | 8            | 12            | 4 | 12 |
|             | HEAVY             | S30H2                 | 30                         | 29          | 3               | 15                 | 415   | 23                       | 15.5             | 11.5               | 9                    | 20                | 17           | 14.5           | 8            | 16            | 4 | 6  |
|             |                   | S35H2                 | 35                         | 29          | 4               | 15                 | 475   | 25                       | 16.5             | 12                 | 9.5                  | 21                | 17.5         | 15.5           | 8            | 16            | 4 | 6  |
| WIND ZONE 3 | LIGHT             | S26L2                 | 26                         | 23          | 2               | 10                 | 245   | 18                       | 12.5             | 9.5                | 8                    | 16.5              | 14           | 12             | 8            | 12            | 4 | 12 |
|             |                   | S30L2                 | 30                         | 23          | 2               | 10                 | 270   | 18.5                     | 12.5             | 10                 | 8                    | 16.5              | 14           | 12.5           | 8            | 12            | 4 | 12 |
|             |                   | S35L2                 | 35                         | 23          | 3               | 10                 | 300   | 19.5                     | 13               | 10                 | 8                    | 17                | 14.5         | 13             | 8            | 12            | 4 | 12 |
|             | HEAVY             | S30H2                 | 30                         | 29          | 3               | 15                 | 415   | 23                       | 15.5             | 11.5               | 9                    | 20                | 17           | 14.5           | 8            | 16            | 4 | 6  |
|             |                   | S35H2                 | 35                         | 29          | 4               | 15                 | 475   | 25                       | 16.5             | 12                 | 9.5                  | 21                | 17.5         | 15.5           | 8            | 16            | 4 | 6  |
| WIND ZONE 4 | LIGHT             | S26L1                 | 26                         | 22          | 2               | 8                  | 190   | 16                       | 11.5             | 8.5                | 8                    | 15                | 12.5         | 11             | 8            | 12            | 4 | 12 |
|             |                   | S30L1                 | 30                         | 22          | 2               | 8                  | 205   | 16.5                     | 11.5             | 9                  | 8                    | 15                | 13           | 11.5           | 8            | 12            | 4 | 12 |
|             |                   | S35L1                 | 35                         | 22          | 3               | 8                  | 230   | 17                       | 12               | 9                  | 8                    | 15.5              | 13.5         | 11.5           | 8            | 12            | 4 | 12 |
|             | HEAVY             | S30H1                 | 30                         | 25          | 3               | 12                 | 320   | 20.5                     | 13.5             | 10.5               | 8                    | 18                | 15           | 13.5           | 8            | 16            | 4 | 6  |
|             |                   | S35H1                 | 35                         | 25          | 4               | 12                 | 350   | 21                       | 14               | 10.5               | 8.5                  | 18.5              | 15.5         | 13.5           | 8            | 16            | 4 | 6  |
| WIND ZONE 5 | LIGHT             | S26L2                 | 26                         | 23          | 2               | 10                 | 245   | 18                       | 12.5             | 9.5                | 8                    | 16.5              | 14           | 12             | 8            | 12            | 4 | 12 |
|             |                   | S30L2                 | 30                         | 23          | 2               | 10                 | 270   | 18.5                     | 12.5             | 10                 | 8                    | 16.5              | 14           | 12.5           | 8            | 12            | 4 | 12 |
|             |                   | S35L2                 | 35                         | 23          | 3               | 10                 | 300   | 19.5                     | 13               | 10                 | 8                    | 17                | 14.5         | 13             | 8            | 12            | 4 | 12 |
|             | HEAVY             | S30H2                 | 30                         | 29          | 3               | 15                 | 415   | 23                       | 15.5             | 11.5               | 9                    | 20                | 17           | 14.5           | 8            | 16            | 4 | 6  |
|             |                   | S35H2                 | 35                         | 29          | 4               | 15                 | 475   | 25                       | 16.5             | 12                 | 9.5                  | 21                | 17.5         | 15.5           | 8            | 16            | 4 | 6  |

**General Notes:**

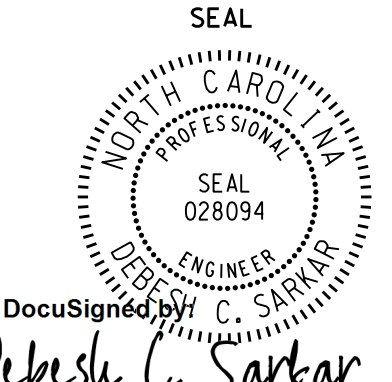
1. Values shown in the "Reactions at the Pole Base" column represent the minimum acceptable capacity allowed for design using a design CSR of 1.00.
2. Use chairs and spacers to maintain proper clearance.
3. For foundation, always use air-entrain concrete mix.

**Foundation Selection:**

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from M 1 drawing.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate standard pole case number from the plans or from the Engineer.
5. Select the appropriate column under "Standard Foundations" based on soil type and "N" value. Select the appropriate row based on the pole load case.
6. The foundation depth is the value shown in the "Standard Foundations" category where the column and the row intersect.
7. Use Construction Procedures and Design Methods prescribed by FHWA-NHI-10-016 for Reference Drilled Shafts.

Standard Strain Pole Foundation-All Soil Condition

48" Dia. Foundations Concrete Volume (cubic yards) = (0.465) x Drilled Pier Length

|   |  |   |
|---|--|---|
|  | Standard Strain Pole Foundation for All Soil Conditions                      |   |
|   | PLAN DATE: FEBRUARY 2016<br>PREPARED BY: N. BITTING                          | DESIGNED BY: C.B. COGDELL<br>REVIEWED BY: D.C. SARKAR |
| SCALE: 0 NA NONE  | REVISIONS: Changed "Foundation Depth" to "Drilled Pier Length" in Conc. Egn. | DATE: 7/12/2015                                       |
| DocuSigned by: <i>Debash C. Sarkar</i>  |  | 2/17/2016   |