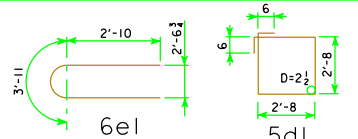


REVISED 03-09 - CHANGED PILE STANDARD FROM PI04 TO PI01 IN NOTE 4.

BILL OF EPOXY REINFORCING STEEL - ONE PIER

| BRIDGE LENGTH |     |                                                                                                                                                       | 70'-0" BRIDGE |        |        | 80'-0" BRIDGE |        |        | 90'-0" BRIDGE |        |        | 100'-0" BRIDGE |        |        | 110'-0" BRIDGE |        |        | 120'-0" BRIDGE |        |        | 130'-0" BRIDGE |        |        | 140'-0" BRIDGE |        |        | 150'-0" BRIDGE |        |        |
|---------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|--------|---------------|--------|--------|---------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| MARKS         | KEW | SHAPE                                                                                                                                                 | NO.           | LENGTH | WEIGHT | NO.           | LENGTH | WEIGHT | NO.           | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT | NO.            | LENGTH | WEIGHT |
| 6c1           | 0°  |  | 10            | 23'-0  | 346    | 10            | 23'-0  | 346    | 10            | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    |
|               | 15° |  | 10            | 23'-8  | 356    | 10            | 23'-8  | 356    | 10            | 23'-8  | 356    | 10             | 23'-8  | 356    | 10             | 23'-8  | 356    | 10             | 23'-8  | 356    | 10             | 23'-8  | 356    | 10             | 23'-8  | 356    | 10             | 23'-8  | 356    |
|               | 30° |  | 10            | 26'-0  | 391    | 10            | 26'-0  | 391    | 10            | 26'-0  | 391    | 10             | 26'-0  | 391    | 10             | 26'-0  | 391    | 10             | 26'-0  | 391    | 10             | 26'-0  | 391    | 10             | 26'-0  | 391    | 10             | 26'-0  | 391    |
|               | 45° |  | 10            | 31'-2  | 469    | 10            | 31'-2  | 469    | 10            | 31'-2  | 469    | 10             | 31'-2  | 469    | 10             | 31'-2  | 469    | 10             | 31'-2  | 469    | 10             | 31'-2  | 469    | 10             | 31'-2  | 469    | 10             | 31'-2  | 469    |
| 6c2           | 0°  |  | 10            | 19'-11 | 300    | 10            | 19'-11 | 300    | 10            | 19'-11 | 300    | 10             | 19'-11 | 300    | 10             | 19'-11 | 300    | 10             | 19'-11 | 300    | 10             | 19'-11 | 300    | 10             | 19'-11 | 300    | 10             | 19'-11 | 300    |
|               | 15° |  | 10            | 20'-7  | 310    | 10            | 20'-7  | 310    | 10            | 20'-7  | 310    | 10             | 20'-7  | 310    | 10             | 20'-7  | 310    | 10             | 20'-7  | 310    | 10             | 20'-7  | 310    | 10             | 20'-7  | 310    | 10             | 20'-7  | 310    |
|               | 30° |  | 10            | 23'-0  | 346    | 10            | 23'-0  | 346    | 10            | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    | 10             | 23'-0  | 346    |
|               | 45° |  | 10            | 28'-2  | 424    | 10            | 28'-2  | 424    | 10            | 28'-2  | 424    | 10             | 28'-2  | 424    | 10             | 28'-2  | 424    | 10             | 28'-2  | 424    | 10             | 28'-2  | 424    | 10             | 28'-2  | 424    | 10             | 28'-2  | 424    |
| 5d1           | 0°  |  | 38            | 11'-8  | 463    | 38            | 11'-8  | 463    | 32            | 11'-8  | 390    | 35             | 11'-8  | 426    | 38             | 11'-8  | 463    | 28             | 11'-8  | 341    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    |
|               | 15° |  | 38            | 11'-8  | 463    | 38            | 11'-8  | 463    | 32            | 11'-8  | 390    | 35             | 11'-8  | 426    | 38             | 11'-8  | 463    | 28             | 11'-8  | 341    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    |
|               | 30° |  | 38            | 11'-8  | 463    | 38            | 11'-8  | 463    | 42            | 11'-8  | 512    | 46             | 11'-8  | 560    | 38             | 11'-8  | 463    | 41             | 11'-8  | 499    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    | 32             | 11'-8  | 390    |
|               | 45° |  | 56            | 11'-8  | 682    | 56            | 11'-8  | 682    | 52            | 11'-8  | 633    | 46             | 11'-8  | 560    | 50             | 11'-8  | 609    | 54             | 11'-8  | 658    | 47             | 11'-8  | 572    | 47             | 11'-8  | 572    | 47             | 11'-8  | 572    |
| 6e1           | ALL |  | 6             | 9'-7   | 86     | 6             | 9'-7   | 86     | 6             | 9'-7   | 86     | 6              | 9'-7   | 86     | 6              | 9'-7   | 86     | 6              | 9'-7   | 86     | 6              | 9'-7   | 86     | 6              | 9'-7   | 86     | 6              | 9'-7   | 86     |

BENT BAR DETAILS



NOTE: DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

ESTIMATED QUANTITIES - ONE PIER

| BRIDGE LENGTH                         | SKIEW | 70'-0 | 80'-0 | 90'-0 | 100'-0 | 110'-0 | 120'-0 | 130'-0 | 140'-0 | 150'-0 |
|---------------------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| STRUCTURAL CONCRETE (CU. YDS.)        | 0°    | 14.1  | 14.1  | 14.1  | 14.1   | 14.1   | 14.1   | 14.1   | 14.1   | 14.1   |
|                                       | 15°   | 14.6  | 14.6  | 14.6  | 14.6   | 14.6   | 14.6   | 14.6   | 14.6   | 14.6   |
|                                       | 30°   | 16.2  | 16.2  | 16.2  | 16.2   | 16.2   | 16.2   | 16.2   | 16.2   | 16.2   |
|                                       | 45°   | 19.6  | 19.6  | 19.6  | 19.6   | 19.6   | 19.6   | 19.6   | 19.6   | 19.6   |
| REINFORCING STEEL EPOXY COATED (LBS.) | 0°    | 1195  | 1195  | 1122  | 1158   | 1195   | 1073   | 1122   | 1122   | 1122   |
|                                       | 15°   | 1215  | 1215  | 1142  | 1178   | 1215   | 1093   | 1142   | 1142   | 1142   |
|                                       | 30°   | 1286  | 1286  | 1335  | 1383   | 1286   | 1322   | 1213   | 1213   | 1213   |
|                                       | 45°   | 1661  | 1661  | 1612  | 1539   | 1588   | 1637   | 1551   | 1551   | 1551   |
| ④ PILING (NO.)                        | ALL   | 10    | 10    | 11    | 12     | 13     | 14     | 16     | 16     | 16     |

APPROXIMATE PILE SPACING, BEARING & PIER REACTION TABLE

| BRIDGE LENGTH           | 70'-0                | 80'-0                | 90'-0                 | 100'-0                | 110'-0               | 120'-0               | 130'-0               | 140'-0               | 150'-0               |
|-------------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 0° SKEW                 | 9 SPA. @ ABOUT 4'-3  | 9 SPA. @ ABOUT 4'-3  | 10 SPA. @ ABOUT 3'-10 | 11 SPA. @ 3'-6        | 12 SPA. @ ABOUT 3'-2 | 13 SPA. @ ABOUT 3'-0 | 15 SPA. @ ABOUT 2'-7 | 15 SPA. @ ABOUT 2'-7 | 15 SPA. @ ABOUT 2'-7 |
| 15° SKEW                | 9 SPA. @ ABOUT 4'-5  | 9 SPA. @ ABOUT 4'-5  | 10 SPA. @ ABOUT 4'-0  | 11 SPA. @ ABOUT 3'-7  | 12 SPA. @ ABOUT 3'-4 | 13 SPA. @ ABOUT 3'-1 | 15 SPA. @ ABOUT 2'-8 | 15 SPA. @ ABOUT 2'-8 | 15 SPA. @ ABOUT 2'-8 |
| 30° SKEW                | 9 SPA. @ ABOUT 4'-11 | 9 SPA. @ ABOUT 4'-11 | 10 SPA. @ ABOUT 4'-5  | 11 SPA. @ ABOUT 4'-1  | 12 SPA. @ ABOUT 3'-8 | 13 SPA. @ ABOUT 3'-5 | 15 SPA. @ ABOUT 3'-0 | 15 SPA. @ ABOUT 3'-0 | 15 SPA. @ ABOUT 3'-0 |
| 45° SKEW                | 9 SPA. @ ABOUT 6'-1  | 9 SPA. @ ABOUT 6'-1  | 10 SPA. @ ABOUT 5'-5  | 11 SPA. @ ABOUT 4'-11 | 12 SPA. @ ABOUT 4'-6 | 13 SPA. @ ABOUT 4'-2 | 15 SPA. @ ABOUT 3'-8 | 15 SPA. @ ABOUT 3'-8 | 15 SPA. @ ABOUT 3'-8 |
| ① BEARING PER PILE-TONS | 31                   | 34                   | 34                    | 35                    | 35                   | 36                   | 35                   | 38                   | 41                   |
| ② BEARING PER PILE-TONS | 28                   | 32                   | 32                    | 33                    | 33                   | 34                   | 33                   | 36                   | 40                   |
| ① MAXIMUM PIER REACTION | 609 KIPS             | 673 KIPS             | 747 KIPS              | 828 KIPS              | 908 KIPS             | 1004 KIPS            | 1099 KIPS            | 1198 KIPS            | 1310 KIPS            |
| ② STRENGTH I REACTION   | 804 KIPS             | 888 KIPS             | 985 KIPS              | 1092 KIPS             | 1196 KIPS            | 1320 KIPS            | 1443 KIPS            | 1571 KIPS            | 1716 KIPS            |

- ① VALUE INCLUDES DEAD LOAD (PIER CAP WEIGHT IS BASED ON 45° SKEW), LIVE LOAD AND LIVE LOAD IMPACT.
- ② VALUE INCLUDES DEAD LOAD (PIER CAP WEIGHT IS BASED ON 45° SKEW), AND LIVE LOAD, WITHOUT IMPACT.
- ③ FOR ESTIMATING PILE LENGTHS AND FOR DETERMINING ACTUAL PILE LENGTHS IN FIELD.
- ④ USE PILES AS SHOWN ON PI01 STANDARD PILE DRAWING. TYPE, SIZE, AND LENGTH OF PILES SHALL BE SPECIFIED ON THE PLAN. THE LARGER PILE SIZE SHOWN ON PI01 STANDARD PILE DRAWING SHALL BE USED IF EITHER THE ACTUAL "H" DIMENSION OR THE REQUIRED BEARING EXCEEDS THE MAXIMUM "H" OR MAXIMUM BEARING CAPACITY SHOWN FOR THE PILE.

PIER NOTES:

FOR SKEWED BRIDGES BOTTOM OF PIER CAP IS TO BE SLOPED TO COMPENSATE FOR GRADE. THEREFORE BOTTOM OF CAP ELEVATIONS WILL BE REQUIRED AT THE C OF ROADWAY AND AT EACH EXTERIOR PILE.

THE MINIMUM CLEAR DISTANCE FROM THE FACE OF THE CONCRETE TO NEAR REINFORCING BAR IS TO BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

THE PIER PILES ARE TO BE DRIVEN TO FULL PENETRATION, IF PRACTICABLE, BUT IN NO CASE TO A BEARING VALUE LESS THAN THE PILE BEARING REQUIRED FOR EACH BRIDGE LENGTH AS SHOWN ON THIS SHEET.

THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE 1 OR TYPE 2 IS USED, THE CONCRETE QUANTITIES MAY BE ADJUSTED TO ACCOUNT FOR THE CONCRETE DISPLACED BY THE PILING.

ALL REINFORCING STEEL IS TO BE GRADE 60.

PIER PILING WAS DESIGNED FOR HL-93 LOADING WITH AN ALLOWANCE FOR 20 LBS. PER SQ. FT. FUTURE WEARING SURFACE.

|                               |                                 |                                                                                                            |                                                   |           |
|-------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------|
| 03-09<br>LATEST REVISION DATE | <br>APPROVED BY BRIDGE ENGINEER | <br>STANDARD DESIGN - 40' ROADWAY, 3 SPAN BRIDGES<br>CONTINUOUS CONCRETE<br>SLAB BRIDGES<br>NOVEMBER, 2006 | NON-MONOLITHIC<br>PIER CAP DETAILS<br>ALL BRIDGES | J40-29-06 |
|-------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------|