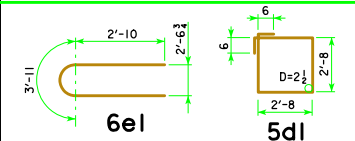


## BILL OF EPOXY REINFORCING STEEL - ONE PIER

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	
MARK/SKEW/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	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376	10	25'-0 376
15°	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387	10	25'-9 387
30°	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426	10	28'-4 426
45°	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511	10	34'-0 511
6c2 0°	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330	10	21'-11 330
15°	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341	10	22'-8 341
30°	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381	10	25'-4 381
45°	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466	10	31'-0 466
5d1 0°	38	11'-8 463	38	11'-8 463	42	11'-8 512	38	11'-8 463	41	11'-8 499	44	11'-8 536	34	11'-8 414	36	11'-8 439	36	11'-8 439
15°	38	11'-8 463	38	11'-8 463	42	11'-8 512	38	11'-8 463	41	11'-8 499	44	11'-8 536	34	11'-8 414	36	11'-8 439	36	11'-8 439
30°	47	11'-8 572	47	11'-8 572	42	11'-8 512	50	11'-8 609	41	11'-8 499	44	11'-8 536	50	11'-8 609	36	11'-8 439	36	11'-8 439
45°	56	11'-8 682	56	11'-8 682	62	11'-8 755	50	11'-8 609	54	11'-8 658	58	11'-8 706	50	11'-8 609	53	11'-8 645	53	11'-8 645
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



### ESTIMATED QUANTITIES - ONE PIER

BRIDGE LENGTH	SKEW	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
STRUCTURAL CONCRETE (CU. YDS.)	0°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
	15°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
	30°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
	45°	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
REINFORCING STEEL EPOXY COATED (LBS.)	0°	1255	1255	1304	1255	1291	1328	1206	1231	1231
	15°	1277	1277	1326	1277	1313	1350	1228	1253	1253
	30°	1465	1465	1405	1502	1392	1429	1502	1332	1332
	45°	1745	1745	1818	1672	1721	1769	1672	1708	1708
④ PILING (NO.)	ALL	10	10	11	13	14	15	17	18	18

### TYPICAL NUMBERS OF PILES AND SPACINGS AND FACTORED PIER LOADS

BRIDGE LENGTH	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
TYP. NO. OF PILES	10	10	11	13	14	15	17	18	18
TYP. PILE SPACES @ 0°	9 SPA. @ ABOUT 4'-9	9 SPA. @ ABOUT 4'-9	10 SPA. @ 4'-3	12 SPA. @ ABOUT 3'-6	② 13 SPA. @ ABOUT 3'-3	② 14 SPA. @ ABOUT 3'-0	③ 16 SPA. @ ABOUT 2'-8	③ 17 SPA. @ 2'-6	③ 17 SPA. @ 2'-6
TYP. PILE SPACES @ 15°	9 SPA. @ ABOUT 4'-11	9 SPA. @ ABOUT 4'-11	10 SPA. @ ABOUT 4'-5	12 SPA. @ 3'-8	② 13 SPA. @ ABOUT 3'-5	② 14 SPA. @ ABOUT 3'-2	③ 16 SPA. @ 2'-9	③ 17 SPA. @ ABOUT 2'-7	③ 17 SPA. @ ABOUT 2'-7
TYP. PILE SPACES @ 30°	9 SPA. @ ABOUT 5'-5	9 SPA. @ ABOUT 5'-5	10 SPA. @ ABOUT 4'-11	12 SPA. @ ABOUT 4'-1	13 SPA. @ ABOUT 3'-9	② 14 SPA. @ ABOUT 3'-6	② 16 SPA. @ ABOUT 3'-1	② 17 SPA. @ ABOUT 2'-11	② 17 SPA. @ ABOUT 2'-11
TYP. PILE SPACES @ 45°	9 SPA. @ ABOUT 6'-8	9 SPA. @ ABOUT 6'-8	10 SPA. @ ABOUT 6'-0	12 SPA. @ ABOUT 5'-0	13 SPA. @ ABOUT 4'-7	14 SPA. @ ABOUT 4'-4	16 SPA. @ ABOUT 3'-9	17 SPA. @ ABOUT 3'-6	17 SPA. @ ABOUT 3'-6
④ PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	934 KIPS	1028 KIPS	1135 KIPS	1252 KIPS	1366 KIPS	1502 KIPS	1635 KIPS	1776 KIPS	1933 KIPS

- ① THIS TYPICAL NUMBER OF PILES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PILE TYPE AND SIZE, HEIGHT, AND RESISTANCE. IF THE NUMBER OF PILES IS DIFFERENT THAN IN THE TABLE FOR THE BRIDGE LENGTH, THE NUMBER OF 5d1 BARS AND OTHER QUANTITIES NEED TO BE CHECKED AND ADJUSTED AS NEEDED. PILES 10 INCHES AND 12 INCHES IN SIZE MUST BE SPACED 2'-6 OR MORE, PILES 14 INCHES IN SIZE MUST BE SPACED 2'-11 OR MORE, AND PILES 16 INCHES IN SIZE MUST BE SPACED 3'-4 OR MORE.
- ② MAXIMUM PILE SIZE AT THIS SPACING IS 14 INCHES.
- ③ MAXIMUM PILE SIZE AT THIS SPACING IS 12 INCHES.
- ④ STRENGTH I PIER DESIGN LOAD INCLUDES DYNAMIC LOAD ALLOWANCE (IM), AND PIER CAP WEIGHT IS BASED ON 45° SKEW. USE THIS PU FOR DETERMINING NUMBER OF PILES AND PILE LENGTH.

### 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 1/4 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.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

**IOWA DOT** Highway Division

STANDARD DESIGN - 44' ROADWAY, 3 SPAN BRIDGES

**CONTINUOUS CONCRETE  
SLAB BRIDGES**

JULY, 2014

**NON-MONOLITHIC  
PIER CAP DETAILS  
ALL BRIDGES**

**J44-29-14**