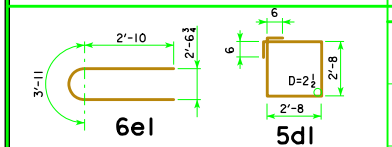
BILL OF REINFORCING STEEL - ONE PIER

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
6cl	0°		10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448	10	29'-10	448
	15°		10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464	10	30'-11	464
	30°		10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518	10	34'-6	518
	45°		20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676	20	22'-6	676
5dl	0°		20	11'-8	244	23	11'-8	280	26	11'-8	317	26	11'-8	317	20	11'-8	244	22	11'-8	268	24	11'-8	292	24	11'-8	292	24	11'-8	292
	15°		26	11'-8	317	23	11'-8	280	26	11'-8	317	26	11'-8	317	20	11'-8	244	22	11'-8	268	24	11'-8	292	24	11'-8	292	24	11'-8	292
	30°		26	11'-8	317	23	11'-8	280	34	11'-8	414	34	11'-8	414	29	11'-8	353	22	11'-8	268	24	11'-8	292	24	11'-8	292	24	11'-8	292
	45°		32	11'-8	390	30	11'-8	365	34	11'-8	414	34	11'-8	414	29	11'-8	353	32	11'-8	390	35	11'-8	426	35	11'-8	426	35	11'-8	426
6el	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	SKEW	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
STRUCTURAL CONCRETE (CU. YDS.)	0°	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
	15°	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
	30°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
	45°	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
REINFORCING STEEL (LBS.)	0°	778	814	851	851	778	802	826	826	826
	15°	867	830	867	867	794	818	842	842	842
	30°	921	884	1018	1018	957	872	896	896	896
	45°	1152	1127	1176	1176	1115	1152	1188	1188	1188
PILING (NO.)	ALL	7	8	9	9	10	11	12	12	12

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
①	TYP. NO. OF PILES	7	8	9	9	10	11	12	12	12
	TYP. PILE SPACES @ 0°	6 SPA. @ 4'-9	7 SPA. @ ABOUT 4'-1(-)	8 SPA. @ ABOUT 3'-7(-)	8 SPA. @ ABOUT 3'-7(-)	② 9 SPA. @ 3'-2	③10 SPA. @ ABOUT 2'-10(+)	③11 SPA. @ ABOUT 2'-7(+)	③ 11 SPA. @ ABOUT 2'-7(+)	③11 SPA. @ ABOUT 2'-7(+)
	TYP. PILE SPACES @ 15°	6 SPA. @ ABOUT 4'-11(+)	7 SPA. @ ABOUT 4'-3(-)	8 SPA. @ ABOUT 3'-8(+)	8 SPA. @ ABOUT 3'-8(+)	② 9 SPA. @ ABOUT 3'-3(+)	②10 SPA. @ ABOUT 2'-11(+)	③11 SPA. @ ABOUT 2'-8(+)	③ 11 SPA. @ ABOUT 2'-8(+)	③11 SPA. @ ABOUT 2'-8(+)
	TYP. PILE SPACES @ 30°	6 SPA. @ ABOUT 5'-6(-)	7 SPA. @ ABOUT 4'-8(+)	8 SPA. @ ABOUT 4'-1(+)	8 SPA. @ ABOUT 4'-1(+)	9 SPA. @ ABOUT 3'-8(-)	②10 SPA. @ ABOUT 3'-3(+)	②11 SPA. @ ABOUT 3'-0(-)	②11 SPA. @ ABOUT 3'-0(-)	②11 SPA. @ ABOUT 3'-0(-)
	TYP. PILE SPACES @ 45°	6 SPA. @ ABOUT 6'-9(-)	7 SPA. @ ABOUT 5'-9(+)	8 SPA. @ ABOUT 5'-0(+)	8 SPA. @ ABOUT 5'-0(+)	9 SPA. @ ABOUT 4'-6(-)	10 SPA. @ ABOUT 4'-0(+)	11 SPA. @ ABOUT 3'-8(-)	11 SPA. @ ABOUT 3'-8(-)	11 SPA. @ ABOUT 3'-8(-)
④	PU, STRENGTH I DESIGN LOAD FOR PIER (KIPS)	688 KIPS	757 KIPS	834 KIPS	918 KIPS	1000 KIPS	1097 KIPS	1192 KIPS	1292 KIPS	1404 KIPS

① THIS TYPICAL NUMBER OF PLES MAY NEED TO BE MODIFIED DEPENDING ON SELECTED PIOL 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 5dl 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 PIOL PILE SIZE AT THIS SPACING IS 14 INCHES.

③ MAXIMUM PIOL 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 ℄ 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. ADDITIONAL DRIVING CAPACITY MAY BE REQUIRED THROUGH SCOURABLE LAYERS. REFER TO GENERAL PLAN NOTES FOR ADDITIONAL INFORMATION.

THE CONCRETE QUANTITIES ARE BASED ON THE USE OF TYPE 3 PILING. IF TYPE I 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.

REVISION 05-14 - CHANGED THE NUMBER OF PILES AND THE PILE SPACINGS FOR THE 80' & 90' BRIDGE LENGTHS.

05-14
LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 30' ROADWAY, 3 SPAN BRIDGES

CONTINUOUS CONCRETE SLAB BRIDGES

NOVEMBER, 2006

NON-MONOLITHIC PIER CAP DETAILS ALL BRIDGES

SHEET 2 OF 2

J30-26-06