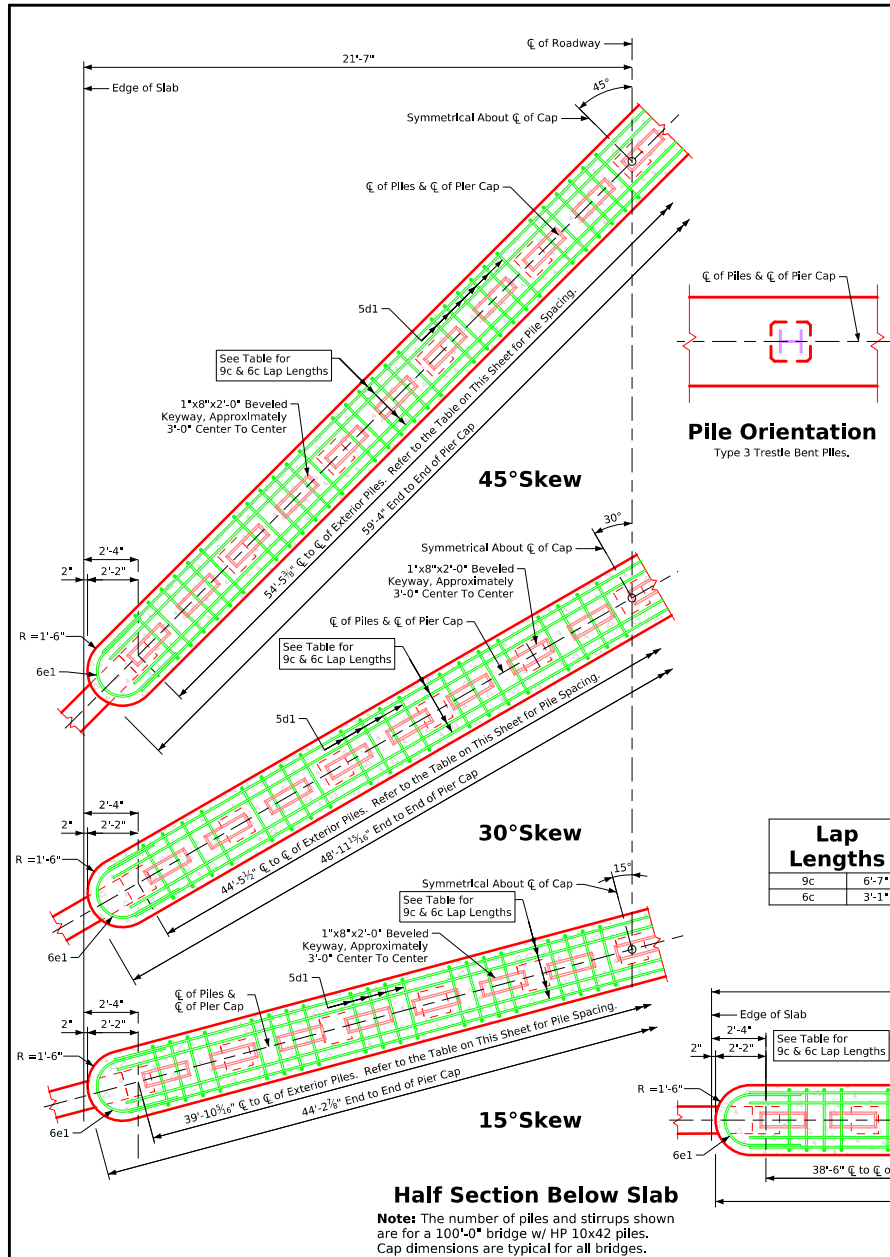




*Factored Loads And Number Of Piles - Non-Monolithic 40' Roadway																										
Bridge Length	HP 10 x 42					HP 10 x 57					HP 12 x 53					HP 14 x 73					HP 14 x 89					
	Pu (klps)	Number of Piles				Pu (klps)	Number of Piles				Pu (klps)	Number of Piles				Pu (klps)	Number of Piles				Pu (klps)	Number of Piles				
		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°	
70'-0"	941	9	9	9	9	934	7	7	7	8	959	7	7	7	8	1006	6	6	7	8	1005	6	6	7	8	
80'-0"	1035	10	10	10	10	1020	7	7	7	8	1046	8	8	8	8	1093	6	6	7	8	1092	6	6	7	8	
90'-0"	1141	11	11	11	11	1119	8	8	8	8	1155	9	9	9	9	1191	7	7	7	8	1191	6	6	7	8	
100'-0"	1255	12	12	12	12	1233	9	9	9	9	1273	10	10	10	10	1299	7	7	7	8	1298	6	6	7	8	
110'-0"	1367	13	13	13	13	1345	9	9	10	10	1387	11	11	11	11	1403	8	8	8	8	1403	6	6	7	8	
120'-0"	1499	14	14	14	14	1476	10	10	10	11	1522	12	12	12	12	1544	9	9	9	9	1527	7	7	7	8	
130'-0"	1636	15	15	15	16	1599	11	11	11	11	1655	13	13	13	13	1667	9	9	9	9	1650	8	8	8	8	
140'-0"	1771	N.A	N.A	17	17	1735	12	12	12	12	1794	14	14	14	14	1811	10	10	10	10	1778	8	8	8	8	
150'-0"	1922	N.A	N.A	18	18	1885	13	13	13	13	1948	15	15	15	15	1971	11	11	11	11	1938	9	9	9	9	

*Factored Loads And Number Of Piles - Non-Monolithic 40' Roadway																								
Bridge Length	Prestressed 14"					Prestressed 16"					Cast In Place 14"					Cast In Place 16"								
	Pu (kps)	Number of Piles				Pu (kps)	Number of Piles				Pu (kps)	Number of Piles				Pu (kps)	Number of Piles							
	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°								
70'-0"	990	10	10	11	11	1010	9	9	9	10	979	10	10	10	11	985	9	9	9	9				
80'-0"	1087	11	12	12	12	1110	10	10	10	11	1075	11	11	11	12	1083	10	10	10	10				
90'-0"	1195	13	13	13	13	1222	11	11	11	12	1183	12	13	13	13	1194	11	11	11	11				
100'-0"	1313	14	14	14	14	1343	12	12	12	13	1299	14	14	14	14	1313	12	12	12	12				
110'-0"	1428	N.A.	N.A.	15	15	1461	N.A.	N.A.	14	14	1413	N.A.	N.A.	15	15	1442	N.A.	N.A.	13	14				
120'-0"	1572	N.A.	N.A.	N.A.	17	1598	N.A.	N.A.	N.A.	15	1556	N.A.	N.A.	N.A.	17	1578	N.A.	N.A.	N.A.	15				
130'-0"	1706	N.A.	N.A.	N.A.	18	1735	N.A.	N.A.	N.A.	16	1688	N.A.	N.A.	N.A.	18	1713	N.A.	N.A.	N.A.	16				
140'-0"	1854	N.A.	N.A.	N.A.	N.A.	1890	N.A.	N.A.	N.A.	N.A.	1835	N.A.	N.A.	N.A.	N.A.	1853	N.A.	N.A.	N.A.	17				
150'-0"	2018	N.A.	N.A.	N.A.	N.A.	2047	N.A.	N.A.	N.A.	N.A.	1988	N.A.	N.A.	N.A.	N.A.	2021	N.A.	N.A.	N.A.	N.A.				

N.A. indicates the pile spacing for this pile size does not satisfy the maximum or minimum spacing requirements.

*Pu is Strength 1 Pier Design load which includes factored dead and live loads including dynamic load allowance (IM) pier cap weight based on 45° skew, and weight of pile encasement.

Pile Spacing - Monolithic - 40' Roadway Width					
No. Piles	No. Spaces	0° Skew	15° Skew	30° Skew	45° Skew
6	5	7'-8"	8'-0"	N.A.	N.A.
7	6	6'-5"	6'-8"	7'-5"	N.A.
8	7	5'-6"	5'-8"	6'-4"	7'-9"
9	8	4'-10"	5'-0"	5'-7"	6'-10"
10	9	4'-3"	4'-5"	4'-11"	6'-1"
11	10	3'-10"	4'-0"	4'-5"	5'-5"
12	11	3'-6"	3'-7"	4'-0"	4'-11"
13	12	3'-2"	3'-4"	3'-8"	4'-6"
14	13	3'-0"	3'-1"	3'-5"	4'-2"
15	14	2'-9"	2'-10"	3'-2"	3'-11"
16	15	2'-7"	2'-8"	3'-0"	3'-8"
17	16	N.A.	N.A.	2'-9"	3'-5"
18	17	N.A.	N.A.	2'-7"	3'-2"
19	18	N.A.	N.A.	N.A.	3'-0"

N.A. indicates the pile spacing for this pile size cannot satisfy for the limits of the maximum or minimum spacing requirements.

Pier Notes:

For skewed bridges, the bottom of the pier cap is to be sloped to compensate for grade. Therefore, bottom-of-cap elevations will be required at the centerline of the roadway and at each exterior pile.

The minimum clear distance from the face of the concrete to the nearest reinforcing bar is to be 2 inches unless otherwise noted or shown.

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. Concrete quantities are based on the use of Type 3 piling. If Type 1 or Type 2 is used, concrete quantities may be adjusted to account for the displacement caused by the piling.

All reinforcing steel is to be Grade 60.

Pier piling was designed for HL-93 loading with an allowance for a 20 lbs. per sq. ft. future wearing surface.

Note:

For Non-Monolithic Pier Cap Details And Quantities, See Sheet J40-28-25.

Latest Revision Date	IOWA DOT	
	Standard Design-40'-0" Roadway, 3 Span Bridge	
	Continuous Concrete Slab Bridge	
	July, 2025	
Approved By Bridge Engineer	Pier Cap Non-Monolithic Details All Bridges (1 of 2)	J40-27-25