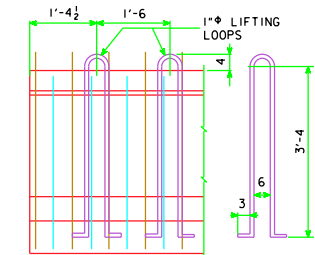
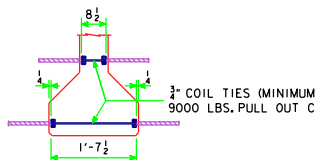


4a2 4b2



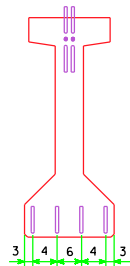
LIFTING LOOP DETAIL

ALTERNATE TYPES MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. LIFTING LOOPS ARE TO BE STRUCTURAL GRADE.

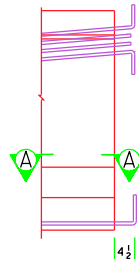


COIL TIE DETAIL

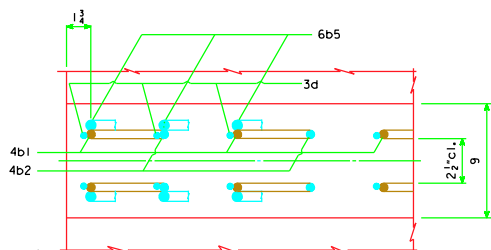
NUMBER AND EXACT LOCATION OF COIL
TIES TO BE AS DETAILED ON SPECIFIC
BRIDGE DESIGN.



THE TOP STRAIGHT STRANDS OF BEAMS C63 AND C67 ARE TO BE CUT WITH 1'-0" PROJECTIONS AND SHOP BENT UP. THE TOP AND BOTTOM DEFLECTED STRANDS OF BEAMS C71 THROUGH C80 ARE TO BE CUT WITH 1'-0" PROJECTIONS AND SHOP BENT UP OR DOWN AS SHOWN. THE REMAINING TOP STRANDS ARE TO BE CUT WITH 0'-3" PROJECTIONS. FOUR BOTTOM STRANDS ARE TO BE CUT WITH 1'-0" PROJECTIONS AND SHOP BENT AS SHOWN. THE REMAINING BOTTOM STRANDS SHALL BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.



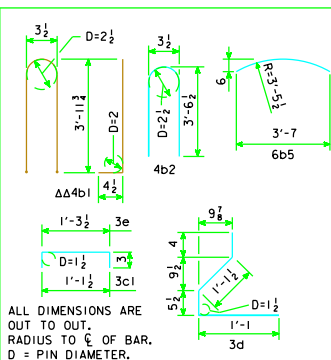
TYPICAL AT
BOTH BEAM ENDS

STRAND PROJECTION AT BEAM ENDS WHEN
EMBEDDED IN CONCRETE END DIAPHRAGMS

SECTION A-A SHOWING PLACEMENT
OF STIRRUPS NEAR END OF BEAM

** WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT,
SOME IN-PLACE BENDING MAY BE NECESSARY.

AA 4b1 BARS TO BE EPOXY COATED.

[illegible]

C BEAM DATA

BEAM	SPAN LENGTH ft.-in.	BEARING OVERALL BEAM LENGTH (L)	STRAND SIZE DIA. (inches)	NO. OF STRAIGHT STRANDS	DEFLECTED TOTAL INITIAL PRESTRESS ^① KIPS	HOLD DOWN FORCE-KIPS	CAMBER (in.)		DEFLECTION (in.) Δ_0				PERMISSIBLE SPACING		WEIGHT (TONS)	CONCRETE (C. Y.)	REINFORCING STEEL (IN.)	
							AT RELEASE	AFTER LOSSES	IMMEDIATE ^① (ELASTIC) Δ_1		TIME (PLASTIC) Δ_1 ^②		HL93 LOADING					
									CONC. DIAPH.	STEEL DIAPH.	CONC. DIAPH.	STEEL DIAPH.	CONC. DIAPH.	STEEL DIAPH.				
C63	63'-4"	64'-4"	0.60	16	—	681	—	0.70	1.24	0.59	0.54	0.15	0.14	7'-6"	7'-6"	18.9	9.34	536
C67	67'-6"	68'-6"	0.60	18	—	766	—	0.92	1.62	0.76	0.71	0.19	0.18	7'-6"	7'-6"	20.1	9.95	576
*C71	71'-8"	72'-8"	0.60	14	4	766	16	1.21	2.13	0.88	0.82	0.22	0.20	7'-6"	7'-6"	21.4	10.55	855
*C75	75'-10"	76'-10"	0.60	14	6	851	22	1.33	2.34	1.07	0.99	0.27	0.25	7'-6"	7'-6"	22.6	11.16	925
*C80	80'-0"	81'-0"	0.60	16	6	937	21	1.64	2.90	1.31	1.24	0.33	0.31	7'-6"	7'-6"	23.8	11.76	1191

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB WEIGHT OF 757 #/FT. (8" SLAB AND 7'-6" BEAM SPACING) AND ONE CONCRETE DIAPHRAGM (2635 #) OR ONE STEEL DIAPHRAGM (285 #) AT $\frac{1}{4}$ OF SPAN. FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.

② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.

TOTAL BEAM DEFLECTIONS AT $\frac{L}{4}$ OF SPAN, Δ_D , DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE:

(A) $\Delta_D = \Delta_1 + \Delta_T$ FOR SIMPLE SPAN.
 (B) $\Delta_D = \Delta_1 + \frac{3}{4}\Delta_T$ FOR END SPANS OF CONTINUOUS BRIDGE.
 (C) $\Delta_D = \Delta_1 + \frac{1}{2}\Delta_T$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE.

③ TOTAL INITIAL PRESTRESS IS BASED ON 72.6% f'_s ,
 $f'_s = 270$ ksi AND $A_s = 0.217$ sq. in.

* MINIMUM CONCRETE f'_c (AT 28 DAYS) SHALL BE 6,000 psi.
MINIMUM f'_c AT RELEASE SHALL BE 5,000 psi.

SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN: A.A.S.H.T.O. LRFD, SERIES OF 2004, WITH MINOR MODIFICATIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE
IN ACCORDANCE WITH A.A.S.H.T.O. LRFD SPECIFICATIONS
FOR HIGHWAY BRIDGES, SERIES OF 2004:

REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60.

CONCRETE IN ACCORDANCE WITH SECTION 5, $f'_c = 5000$ psi
(EXCEPT AS NOTED)

PRESTRESSING STEEL IN ACCORDANCE WITH
SECTION 5, $f_s = 270,000$ psi.

07-10 LAST REVISION DATE	 Iowa Department of Transportation Highway Division	STANDARD DESIGN - 30' ROADWAY, THREE SPAN BRIDGES PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES DECEMBER, 2006		
		APPROVED BY BRIDGE ENGINEER 	C BEAM DETAILS	
			H30-36-06	