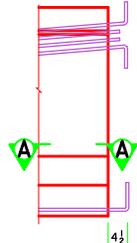
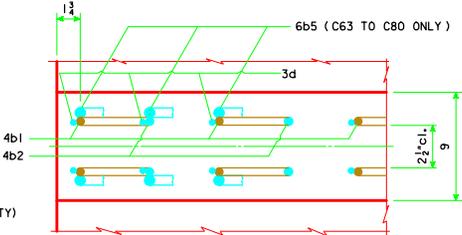


THE TOP STRAIGHT STRANDS OF BEAMS C30 THROUGH C67 ARE TO BE CUT WITH 1'-0 PROJECTIONS AND SHOP BENT UP. THE TOP AND BOTTOM DEFLECTED STRANDS OF BEAMS C71 THROUGH C80 ARE TO BE CUT WITH 1'-0 PROJECTIONS AND SHOP BENT UP OR DOWN AS SHOWN. THE REMAINING TOP STRANDS ARE TO BE CUT WITH 0'-3 PROJECTIONS. FOUR 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.

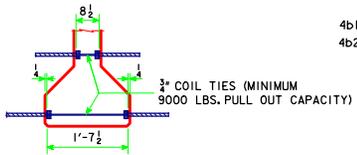


STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



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

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.

** WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.
ΔΔ 4b1 BARS TO BE EPOXY COATED.

REINFORCING BAR LIST	
BEAM	C80
SPAN	80'-0
BAR SHAPE	NO. LENGTH
6a1	4 41'-10
4a2	2 5'-0
8a3	2 40'-0
ΔΔ 4b1	60 8'-10
4b2	12 7'-2
6b5	16 3'-9
3c1	60 1'-8
** 3d	144 3'-0
3e	26 1'-10

ALL DIMENSIONS ARE OUT TO OUT. RADIUS TO C OF BAR. D = PIN DIAMETER.

C BEAM DATA

BEAM	SPAN LENGTH @ BEARING	OVERALL BEAM LENGTH (L)	STRAND SIZE DIA. (inches)	NO. OF STRANDS	TOTAL INITIAL PRESTRESS (KIPS) ③	HOLD DOWN FORCE (KIPS)	CAMBER (in.)		DEFLECTION (in.) Δ ₀		WEIGHT (TONS)	CONCRETE (C.Y.)	REINFORCING STEEL (LD)
							AT RELEASE	AFTER LOSSES	IMMEDIATE (ELASTIC) Δ ₁	TIME (PLASTIC) Δ _T			
C80	80'-0	81'-0	0.60	16	936	21	1.64	2.90	1.16	0.29	23.8	11.76	1191

- ① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM.
- ② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.
- TOTAL BEAM DEFLECTIONS AT C OF SPAN, Δ₀, DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE: (A) Δ₀ = Δ₁ + Δ_T FOR SIMPLE SPAN.
- ③ TOTAL INITIAL PRESTRESS IS BASED ON 72.6% f'_s, f'_s = 270 ksi AND A_s = 0.217 sq. in.

BEAM NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO HL-93 LIVE LOADS AS WITH AN ALLOWANCE OF 20 LB. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.
ALL PPC BEAMS SHALL USE HIGH PERFORMANCE CONCRETE (HPC) IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM AT PRODUCER'S OPTION.
ALL PRESTRESSING STRANDS SHALL CONFORM TO ASTM A416 GRADE 270 LOW RELAXATION STRANDS.
TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND FINISHED AS PER MATERIALS IM570.
BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.
BEAMS SHALL BE AT LEAST 28 DAYS OLD BEFORE THE SLAB IS PLACED EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.

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 2007:
REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60, CONCRETE IN ACCORDANCE WITH SECTION 5.
MINIMUM CONCRETE f'_c (AT 28 DAYS) SHALL BE 6,000 psi.
MINIMUM f'_c AT RELEASE SHALL BE 5,000 psi.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 5, f'_s = 270,000 psi.

THE PORTIONS OF THE PRESTRESS BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT SHALL BE ROUGHENED FOR A DISTANCE OF 10' FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2403.03, 1, OF THE STANDARD SPECIFICATIONS.

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 2007, WITH MINOR MODIFICATIONS.

ALL BEAMS ARE TO BE INCREASED IN LENGTH TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS AS DETAILED ON THE STEEL DIAPHRAGM DETAIL SHEET.

0.6" DIAMETER STRANDS STRESSED TO NOT MORE THAN 5,000 LBS. EACH MAY BE USED IN LIEU OF THE α BARS WHICH RUN THE FULL LENGTH OF THE BEAM IN THE TOP FLANGE.

LATEST REVISION DATE	 APPROVED BY BRIDGE ENGINEER	 STANDARD DESIGN - 30' ROADWAY, SINGLE SPAN BRIDGE PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES APRIL, 2012
		C BEAM DETAILS
		H30SI-25-12