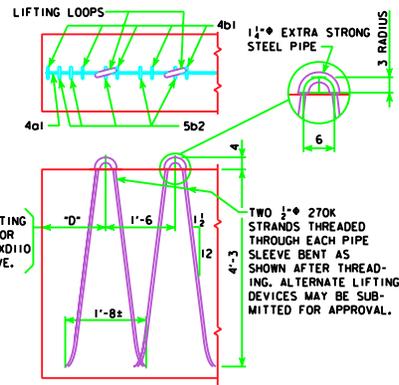
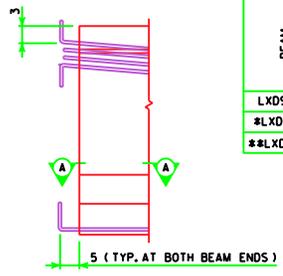


LXD BEAM DATA

BEAM	SPAN LENGTH ft.-in.	BEARING LENGTH (L)	STRAND SIZE	NO. OF STRANDS		TOTAL INITIAL PRESTRESS KIPS	HOLD DOWN FORCE-KIPS	CAMBER (in.)		DEFLECTION (in.)		WEIGHT (TONS)	CONCRETE (C.V.)	REINFORCING STEEL-C (lbs.)
				STRAIGHT	DEFLECTED			AT RELEASE	AFTER LOSSES	IMMEDIATE (ELASTIC) Δ ₁	TIME (PLASTIC) Δ ₂			
LXD90	90'-0"	91'-0"	1/2"-6	20	8	867	27.7	1.24	2.17	1.02	0.25	30.4	15.0	1227
#LXD100	100'-0"	101'-0"	1/2"-6	28	8	1115	24.9	1.89	3.33	1.38	0.35	33.6	16.6	1439
#LXD110	110'-0"	111'-0"	1/2"-6	32	14	1424	33.7	2.30	4.03	1.86	0.46	36.9	18.2	1581



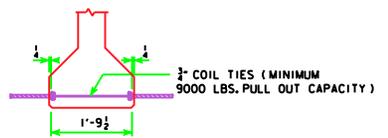
THE TOP AND BOTTOM DEFLECTED STRANDS ARE TO BE CUT WITH 1'-0\"/>



STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS

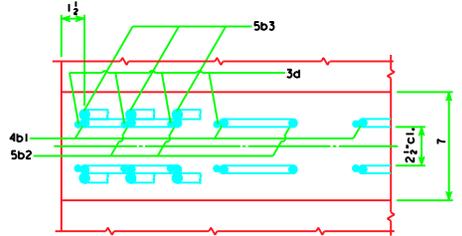
LIFTING LOOP DETAIL

D = 1'-3\"/>



COIL TIE DETAIL

NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON LONGITUDINAL SECTION SHEETS.



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

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., SERIES OF 1989, WITH MINOR MODIFICATIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1989:

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.

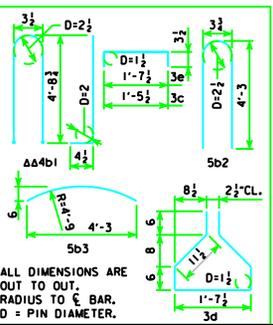
CONCRETE IN ACCORDANCE WITH SECTION 9, f'c = 5000 psi. (EXCEPT AS NOTED)

PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 9, f's = 270,000 psi.

A = SIZE B = NO. ΔΔ 4b1 BARS TO BE EPOXY COATED.

REINFORCING BAR LIST

BEAM	SPAN	LXD90	LXD100	LXD110			
BAR	SHAPE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
4a1	2	18'-0"	2	22'-0"	2	26'-6"	
α2	5/4	30'-10"	6/4	35'-4"	5/4	38'-4"	
α3	7/2	34'-0"	8/2	36'-0"	8/2	40'-0"	
4b1	74	10'-4"	81	10'-4"	91	10'-4"	
5b2	12	8'-8"	12	8'-8"	12	8'-8"	
5b3	20	4'-4"	20	4'-4"	20	4'-4"	
3c	74	2'-1"	81	2'-1"	91	2'-1"	
3d	74	5'-7"	81	5'-7"	91	5'-7"	
3e	14	2'-3"	16	2'-3"	16	2'-3"	



ALL DIMENSIONS ARE OUT TO OUT. RADIUS TO 1/2\"/>

NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO HS20 LIVE LOADS WITH AN ALLOWANCE OF 20 LB. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

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 I.M.570.

BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.

THE PORTIONS OF THE PRESTRESS BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT SHALL BE ROUGHENED FOR A DISTANCE OF 10\"/>

UNLESS OTHERWISE NOTED ALL BEAMS ARE TO BE INCREASED IN LENGTH BY .0005L 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.

FOR TRANSPORTING, THE OVERHANG SHALL BE IN ACCORDANCE WITH ARTICLE 2407.13 OF STD. SPEC., EXCEPT THE OVERHANG MAY BE INCREASED TO A MAXIMUM OF 9 FEET FOR THE LXD90 AND LXD100 AND 12 FEET FOR THE LXD110 BEAM.

IF BEAM CONCRETE STRENGTH f'c = 7500 psi, THEN BEAM OVERHANG MAY BE INCREASED AS FOLLOWS: 12 FEET FOR THE LXD100 AND 14 FEET FOR THE LXD110 BEAM.

THE CONTRACTOR SHALL ASSURE THE LATERAL STABILITY OF THE LXD100 AND LXD110 BEAMS DURING HANDLING, TRANSPORTING AND ERECTION BY PROVIDING TEMPORARY BRACING AS NEEDED.

1/2\"/>

BEAMS SHALL BE AT LEAST 28 DAYS OLD BEFORE THE SLAB IS PLACED EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.

LATEST REVISION DATE :

APPROVED BY: *[Signature]*

STANDARD DESIGN - 24' ROADWAY, SINGLE SPAN BRIDGE
PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
 JANUARY, 2005 HS20-44 LOADING
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
LXD BEAM DETAILS H24SI-27-05