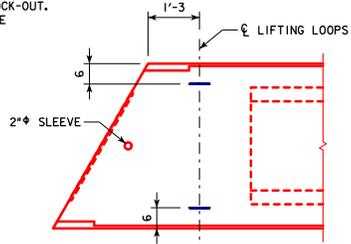
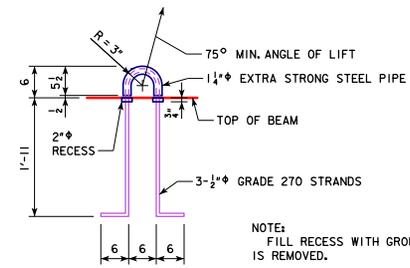


INTERIOR BEAM CROSS SECTION

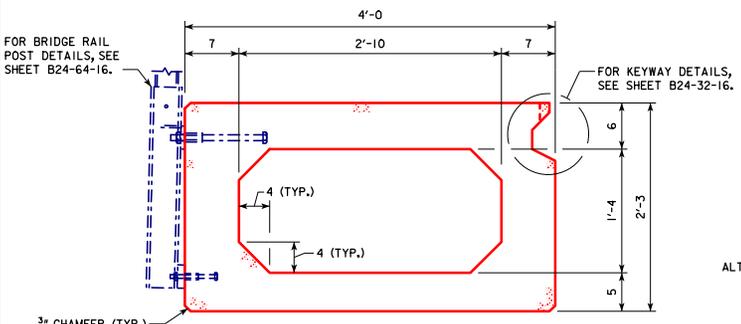


LIFTING LOOP PLAN

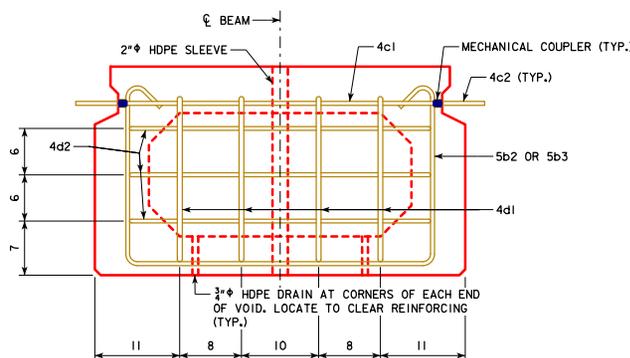


LIFTING LOOP DETAIL

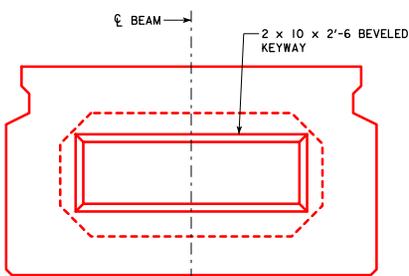
ALTERNATE TYPES OF LIFTING LOOPS MAY BE SUBMITTED FOR APPROVAL.



EXTERIOR BEAM CROSS SECTION



VIEW B-B
(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR)



VIEW B-B
(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR)
(SHOWING KEYWAY)

27" x 48" REINFORCED CONCRETE BOX BEAM DATA								
BEAM	SKIEW (DEGREES)	SPAN LENGTH (L-L BEARING)	OVERALL BEAM LENGTH	f'c (ksi)	WEIGHT (TONS)	CONCRETE (C.Y.)	REINFORCING STEEL (LBS.)	
RCBB 27" x 48" x 30'-0"	0	30'-0"	31'-2"	5.0	13.6	6.7	SEE SHEET B24-55-16	
	15		31'-2 1/2"		13.9	6.9		
	30		31'-4"		14.3	7.0		
RCBB 27" x 48" x 40'-0"	0	40'-0"	41'-2"	5.0	17.5	8.6	SEE SHEET B24-58-16	
	15		41'-2 1/2"		17.8	8.8		
	30		41'-4"		18.2	9.0		

SPECIFICATIONS:

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH ED., SERIES OF 2014.

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

LIVE LOAD DISTRIBUTION FACTOR NOTES:

AASHTO EQUATIONS WERE USED FOR DETERMINING THE LIVE LOAD DISTRIBUTION FACTORS FOR THE DESIGN OF THE BEAMS. SKIEW EFFECTS WERE INCLUDED IN THE LIVE LOAD DISTRIBUTION FACTOR FOR SHEAR AND CONSERVATIVELY IGNORED FOR THE LIVE LOAD DISTRIBUTION FACTOR FOR MOMENT. CONTROLLING LIVE LOAD DISTRIBUTION FACTORS ARE:
 30'-0" SPAN
 MOMENT = 0.39 LANES / BEAM
 SHEAR = 0.70 LANES / BEAM
 40'-0" SPAN
 MOMENT = 0.37 LANES / BEAM
 SHEAR = 0.69 LANES / BEAM

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH ED., SERIES OF 2014:
 -REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60.
 -CONCRETE IN ACCORDANCE WITH SECTION 5.

NOTES:

THESE BEAMS ARE DESIGNED FOR HL93 LOADING WITH AN ALLOWANCE OF 50 LB. PER SQUARE FOOT OF ROADWAY FOR GRAVEL OR FUTURE WEARING SURFACE.
 TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND LONGITUDINALLY TINED IN ACCORDANCE WITH ARTICLE 2301.03, H, 3 OF THE STANDARD SPECIFICATIONS.
 BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.
 BEAMS ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FUTURE WEARING SURFACE, IF USED, IS PLACED UNLESS A SHORTER CURING TIME IS APPROVED BY THE BRIDGE ENGINEER.
 LIFTING OPERATIONS SHALL BE PERFORMED IN SUCH A MANNER THAT LIFTING LOOPS CARRY LOADS EQUALLY.

NOTES:
 FOR VIEW B-B LOCATION, SEE SHEETS B24-53-16 & B24-54-16.
 FOR BEAM CHAMFER DETAILS, SEE SHEET B24-33-16.

LATEST REVISION DATE	
	STANDARD DESIGN - 24'-0" ROADWAY, SINGLE SPAN CONCRETE BOX BEAM BRIDGES DECEMBER, 2016
	27" x 48" RCBB DETAILS B24-52-16