

ERECTION DIAGRAM

SERVICE BEAM REACTIONS (KIPS)			
BEAM SPAN (ε BRG-ε BRG) (FT)	DC	DW	LL+I
20	19	3	103
30	30	4	107
40	40	5	111
50	55	7	115
60	55	5	120
70	74	6	126
80	87	7	132
90	99	8	137
100	111	9	142
110	125	10	147

THIS TABLE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE FINAL DESIGN DRAWINGS

DC DENOTES SERVICE DEAD LOADS DUE TO BEAM SELF WEIGHT, DECK WEIGHT, & DIAPHRAGMS.
 DW DENOTES SERVICE BEAM REACTION DUE TO FUTURE WEARING SURFACE.
 LL+I DENOTES SERVICE LIVE LOAD PLUS IMPACT REACTION PER LANE.

PRESTRESSING STRAND LIFTING DEVICES		
ESTIMATED BEAM WEIGHT (TONS)	STRAND SIZE	NO. OF STRANDS PER BEAM END
20	3/8"	2
27	7/16"	2
36	1/2"	2
30	3/8"	3
40.5	7/16"	3
54	1/2"	3

THIS TABLE SHOULD INCLUDE ONLY APPLICABLE INFORMATION ON THE FINAL DESIGN DRAWINGS

NOTES:

- THE TOP SURFACE OF THE BEAMS SHALL BE INTENTIONALLY ROUGHENED.
- THE ESTIMATED BEAM CAMBER AT RELEASE IS [XX"]. THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.
- TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS [X"].
- PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS AS FOLLOWS:
0.6" DIA. - 44,000 lbs. PRESTRESS.
- THE COMPRESSIVE STRENGTH OF THE CONCRETE AT THE TIME OF PRESTRESSING FORCE RELEASE SHALL NOT BE LESS THAN 7000 psi.
- THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE NOT LESS THAN 8000 psi AT 28 DAYS.
- THREADING OF REINFORCEMENT AND INSTALLATION INTO CONCRETE INSERTS IS INCLUDED IN THE BID ITEM "PREST CONC BOX BEAM, FURN, [XX]INCH"
- LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. REMOVAL IS INCLUDED IN THE BID ITEM "PREST CONC BOX BEAM, ERECT, [XX]INCH"
- POSITION DOWELS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232. POSITION DOWELS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS.
- ITEMS CAST INTO THE BEAMS TO FACILITATE BRIDGE CONSTRUCTION (FORMING, FINISHING, ETC.) SHALL BE GALVANIZED OR EPOXY COATED.
- PRESTRESSING STRAND SHALL BE 0.6" NOMINAL DIAMETER MEETING THE REQUIREMENTS OF AASHTO M203 (ASTM A416), GRADE 270, LOW RELAXATION STRAND.
- COAT THE ENTIRE OUTSIDE AND BOTTOM OF THE FASCIA BEAM USING A MATERIAL SELECTED FROM THE SPECIAL PROVISION FOR CONCRETE SURFACE COATINGS. APPLY THE COATING ACCORDING TO THE SPECIAL PROVISION.
- STEEL FOR SOLE PLATES AND OTHER BEARING COMPONENTS SHALL MEET THE REQUIREMENTS OF AASHTO M 270 GRADE 36.
- BEAM STIRRUPS, SHALL BE GRADE [XX](ksi).
- FIELD DRILLING SHALL BE ALLOWED FOR SIGN SUPPORT ANCHORS ONLY. LOCATION OF ANCHORS SHALL BE AS DETAILED ON TRAFFIC & SAFETY SIGN SUPPORT SPECIAL DETAILS. ANY DAMAGE TO THE BEAMS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND APPROVED BY THE ENGINEER.
- ALL LONGITUDINAL "EA" BARS IN THE TOP AND BOTTOM FLANGES SHALL BE GRADE 60 KSI.
- CONCRETE INSERTS FOR BACKWALLS SHALL BE 1" DIAMETER (AT EXPANSION ABUTMENT) & 1/2" DIAMETER (AT FIXED ABUTMENT); DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS FORM, TYPE C 12 OR TYPE C -19; MEADOW BURKE, TYPE CT-2 OR TYPE CX-4; OR EQUAL. INSERTS (COIL OR FERRULE) MUST BE ELECTROPLATE GALVANIZED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION 4. INSERTS SHALL BE CAST WITH THE BEAMS. FIELD INSTALLATION OF INSERTS IS NOT ALLOWED.
- ADHESIVE ANCHORS SHALL USE A NON-SHRINK GROUT (WHICH IS CEMENTIOUS) LISTED IN MDOT'S QUALIFIED PRODUCTS LIST.
- ITEMS CAST INTO STRUCTURAL PRECAST CONCRETE TO FACILITATE BRIDGE CONSTRUCTION (FORMING, FINISHING, ETC.) SHALL BE GALVANIZED OR EPOXY COATED.

FOR INFORMATION ONLY:

THE DESIGN OF THESE STRUCTURES IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATION HL-93 LOADING WITH THE EXCEPTION THAT THE DESIGN TANDEM PORTION OF THE HL-93 LOAD DEFINITION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE LOAD BEFORE APPLICATION OF THIS 1.2 FACTOR. THE RESULTING LOAD IS DESIGNATED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH.

A 4" HAUNCH SECTION WAS USED FOR THE LOADING ON ALL BEAMS. THE HAUNCH SECTION WAS NOT INCLUDED IN THE COMPOSITE SECTION PROPERTIES FOR THE DESIGN OF THE BEAMS.

A 9" DECK SECTION WAS USED FOR THE LOADING ON ALL BEAMS. THE EFFECTIVE DECK SECTION IS 7 1/2" AND THE SACRIFICIAL DECK SECTION IS 1 1/2".

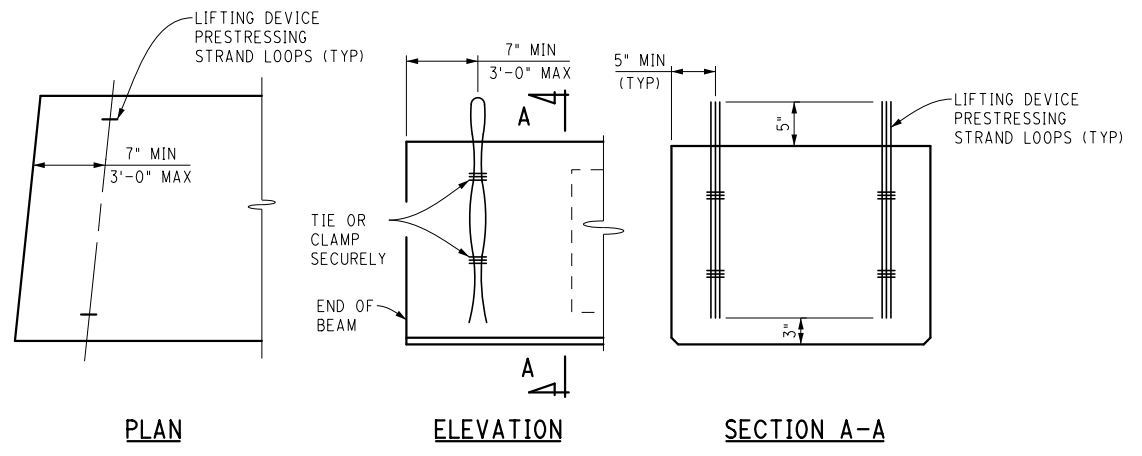
THE LONGITUDINAL "EA" BARS IN THE TOP AND BOTTOM FLANGES OF THE BEAMS ARE NOT INCLUDED TO PROVIDE ADDITIONAL CAPACITY.

BEAM DESIGNS DO NOT INCLUDE PRESTRESSING STRANDS IN THE TOP FLANGES.

ALL VERTICAL "ED" STIRRUP BARS SHALL BE GRADE 40 KSI FOR 17" & 21" DEEP BOX BEAMS AND GRADE 60 KSI FOR ALL OTHER BEAM DEPTHS.

"A" & "B" ARE MEASURED FROM BRIDGE CONST ε TO ADJACENT BEAM ε.

THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.



DETAILS OF LIFTING DEVICE

LIFTING OF BEAM SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.
 LIFTING DEVICES SHALL BE REMOVED

□ VALUES TO BE DETERMINED BY DESIGNER

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)								NO SCALE	DATE: 05/09/18		CS:		PRESTRESSED BEAM DETAILS		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION		DESIGN UNIT:	JN:			SBB	SECT		
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