

**GENERAL NOTES**

**SPECIFICATIONS:** AASHTO Standard Specifications for Highway Bridges, current edition; Criteria for Prestressed Concrete Bridges, U.S. Dept. of Public Works, 1974; and American Association of Highway Engineers, 1974. All drawings are subject to the latest revisions approved by the Committee on Bridges and Structures of the AASHTO.

**LIVE LOAD:** All highway live loads are specified by the AASHTO Standard Specifications for Highway Bridges. Live loads shall be distributed as specified in the AASHTO Standard Specifications for Highway Bridges.

**PURPOSE:** The purpose of the standards shown on this sheet shall be to establish a limited number of standard sections for use in the design and construction of highway bridges. The standards shall be applicable to all conditions of highway bridge loading and spans within the approximate span limits shown. The purpose is specifically not to displace or supplant established prestressing practices but to provide a standard design and construction method for similar cross sections but with minor dimensional variations, manufactured with presently established plant facilities, which comply with structural and geometrical requirements for any particular project may be substituted upon submission by the producer of the data necessary to show compliance with the requirements of the job and upon approval of the substitution by the Engineer. Further, the purpose is not to supersede other standard sections adopted by the AASHTO and PCI, but rather to complement those standards.

**SPAN LIMITS:** The span limits shown for the various sections on this sheet are based upon the following design conditions: H20-S16-44 live load, 2.8' roadway, line load distribution as specified above, concrete weighing 150 pcf and  $f_c = 5000$  psi and  $f_s = 40000$  psi, an allowance of 50% per square foot for wearing surface and allowable stresses as given in the design specifications.

Span limits shown are approximate only and are not a rigid limitation of the sections. The upper span limits may be extended by reduced loading, increased concrete strength, use of lightweight concrete, or other approved means within the limits of design specifications.

**CONCRETE:** Recommended minimum strengths for concrete in box beams are  $f_c = 5000$  psi; at transfer of prestressing force  $f_c = 4000$  psi. Concrete of greater or less compressive strength, but not less than  $f_c = 4000$  psi, may be used, in which case allowable working stresses and resulting utility of the box beams will be based upon the actual concrete specifications for the particular project.

**PRESTRESSING REINFORCEMENT:** Prestressing reinforcement shall generally be designed for particular projects or prestressing bridge practices and available manufacturing facilities. Materials for prestressing reinforcement may be any of the materials specified in the governing specifications or subsequent developments by manufacturers which have generally been accepted in prestressing practice.

**END BLOCKS:** The box beams shown utilize and block(s) long which have proven satisfactory in many installations. The length of end blocks may be increased to accommodate local plant facilities or particular job requirements. Sufficient mild steel reinforcement should be provided in end blocks to resist the tensile forces due to concentrated prestressing loads.

**DIAPHRAGMS:** Diaphragm cast within the beam are recommended at midspan for spans up to 50', at third points for spans from 50' to 75' and at quarter points for spans over 75'.

**LATERAL TIES:** Lateral ties shall be provided through the diaphragms in the positions indicated except that for the 36' and 42' deep sections, when adjacent walls are tied in pairs, one tie at diaphragm locations centered between bottom of top and bottom of beam will be permitted.

Each tie shall be equivalent to a  $1\frac{1}{2}$ " mild steel bar tensioned to 30,000 pounds or an equal bars applied by lateral tensioning of high strength tendons. Tension in  $1\frac{1}{2}$ " mild steel bars may be applied by a torque of approximately 600 foot pounds.

**BEAR KEYS:** After lateral ties have been placed and tightened, bear keys shall be filled with high strength, non-shrinking mortar.

**FORMS:** The use of steel forms on concrete founded casting beds is recommended. Yards may be formed as specified and be vented during the curing period.

**CHAMBERS AND CORNERS:** All exposed corners shall be chamfered  $\frac{1}{4}$ " or rounded to  $\frac{1}{4}$ " radius.

**FINISH:** Tops shall be given a broom finish normal to  $\frac{1}{4}$ " of roadway.

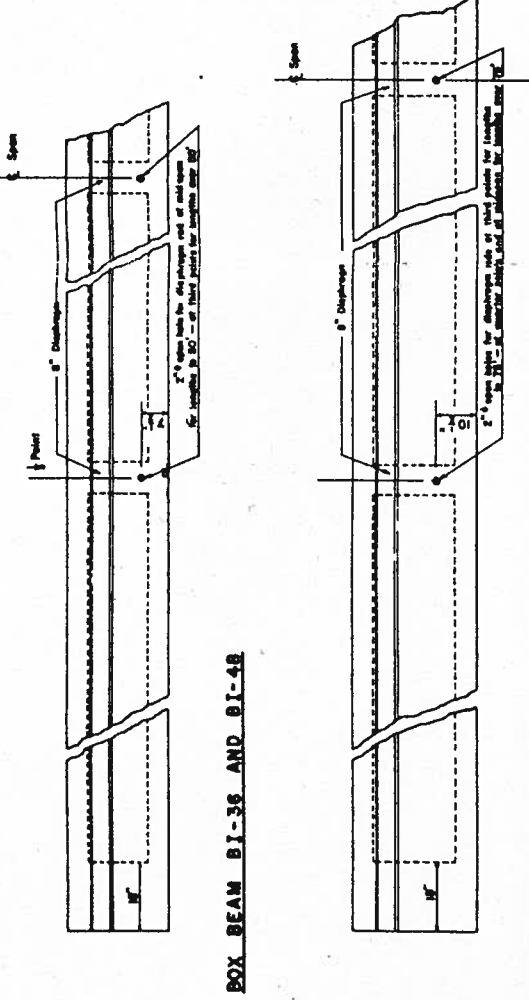
**MARKING:** In handling, the box beams must be maintained in an upright position at all times and must be packed only by means of approved devices near the ends of the beams.

**MILD STEEL REINFORCING, BEARING PADS, ANCHORAGES AND MISCELLANEOUS DETAILS:** All details not shown or specified herein shall be designed for particular job requirements and shall be in accordance with applicable job specifications.

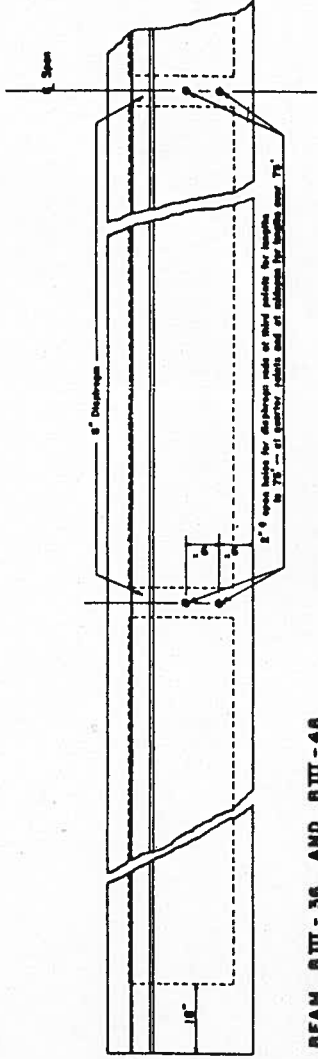
JOINT COMMITTEE  
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS  
COMMITTEE ON BRIDGES & STRUCTURES  
AND  
PRESTRESSED CONCRETE INSTITUTE  
STANDARD PRESTRESSED CONCRETE BOX BEAMS  
FOR HIGHWAY BRIDGE SPANS TO 103 FEET

SUBMITTED BY:  
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J. N. G. G. G.  
FOR AASHTO  
FOR PCI

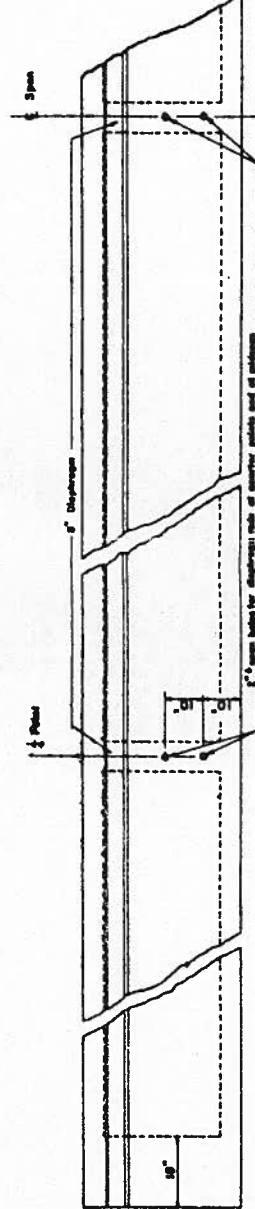
BEAM PROPERTIES		SPAN LIMITS	
TYPE	AREA (SQ. FT.)	7	8
BI-36	560.5	13.35	50,334
BI-42	682.5	13.37	65,841
BI-36	620.5	16.29	85,153
BI-48	732.5	16.33	110,489
BII-36	680.5	19.25	131,145
BII-42	812.5	19.29	168,367
BII-36	710.5	20.73	158,644
BII-42	842.5	20.78	203,088



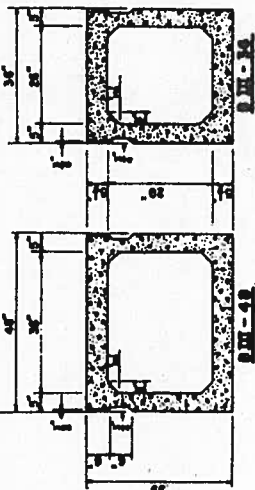
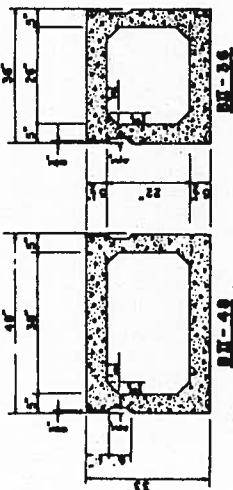
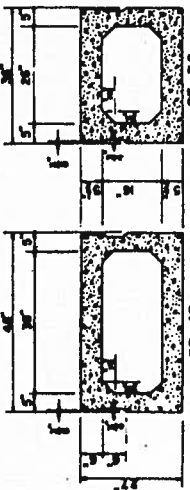
BOX BEAM BI-36 AND BI-48



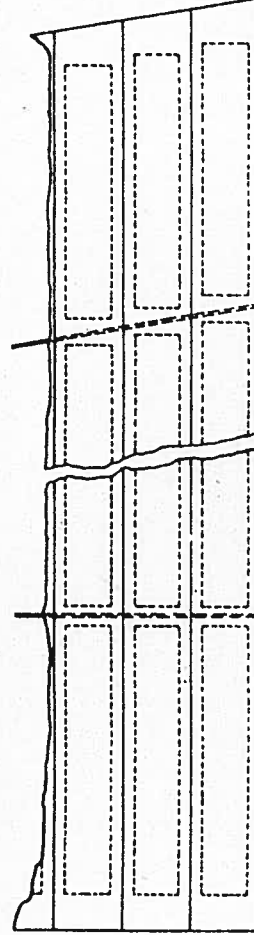
BOX BEAM BII-36 AND BII-48



BOX BEAM BIII-36 AND BIII-48

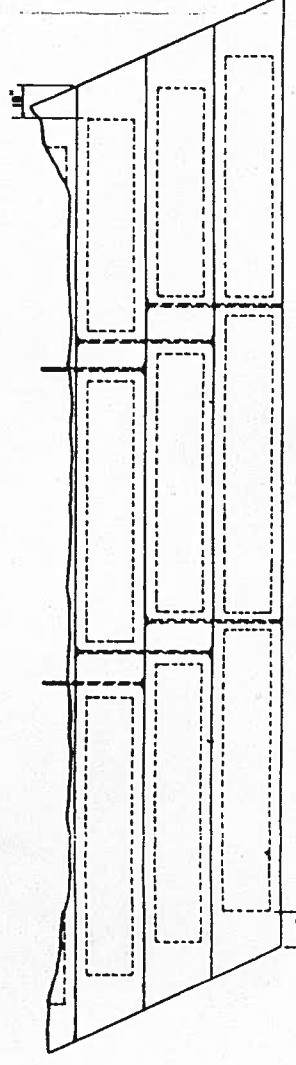


**CROSS SECTIONS**



PART PLAN

NORMAL SCREWS AND SKEWERS UP TO 10°



PART PLAN

SKEWERS IN EXCESS OF 10°

NOTE: THE SCALE OF THIS PRINT IS 1/4" THAT OF THE ORIGINAL DRAWING. FOR EXAMPLE: INDICATED SCALE 1/2" = 1'-0" SHOULD BE READ 1/8" = 1'-0". INDICATED SCALE 1/16" = 1'-0" SHOULD BE READ 1/32" = 1'-0".

**ALTERNATE SHEAR KEY**

