GENERAL: THIS STANDARD DRAWING PROVIDES DESIGN AND GENERAL CONSTRUCTION DETAILS FOR Prestressed Concrete I-Beam Bridges. The details in this standard are applicable to STRUCTURES WITH BEAM SPANS LESS THAN 14'-0" AND SEEMS LESS THAN 9'-0". The project plans for each structure shall include the following details:

1. The designer shall specify a 28-day compressive strength of concrete in the range of 5600 psi to 7000 psi. Maximum and minimum values of the designer shall be specified in the structure general notes.

2. The designer shall specify a strength of concrete in the range of 4000 psi to 5000 psi. Maximum and minimum values of the designer shall be specified in the structure general notes.

3. The designer shall specify only the strand area used in the design in the structure general notes.

4. The designer shall not specify more than one strand size. One strand reinforcing and one 28-day strength in a single structure.

5. The designer shall specify one strand reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.

6. The designer shall specify one strand reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.

7. The designer shall specify the following:
   - Pre-tensioning: The designer shall specify the beam reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.
   - Fabrication and construction requirements:
     - Erection procedure: The contractor shall submit plans for erection and handling procedures according to 501-05.
     - Erection and lifting devices: The designer must be responsible for a lifting system for handling I-beams. As a minimum, the fabricator shall use at least 5 feet of lift at each end.
     - The fabricator shall specify the lifting system on the shop drawings and use a factor of safety of four in the design. Refer to part 5 of the PCI Handbook.

8. The designer shall specify the following:
   - Prestressed Concrete: F'c = 4000 psi
   - Reinforcing Steel: W = 4500 psi
   - Prestressed Strand: Y = 135 ksi
   - Structural Steel: ASTM A572, Grade 56 or 50

9. The designer shall specify a 28-day compressive strength of concrete in the range of 5600 psi to 7000 psi. Maximum and minimum values of the designer shall be specified in the structure general notes.

10. The designer shall specify a strength of concrete in the range of 4000 psi to 5000 psi. Maximum and minimum values of the designer shall be specified in the structure general notes.

11. The designer shall specify only the strand area used in the design in the structure general notes.

12. The designer shall not specify more than one strand size. One strand reinforcing and one 28-day strength in a single structure.

13. The designer shall specify one strand reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.

14. The designer shall specify one strand reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.

15. The designer shall specify the following:
   - Pre-tensioning: The designer shall specify the beam reinforcing over the pliers to resist the negative moments induced by any superimposed dead loads and live loads.
   - Fabrication and construction requirements:
     - Erection procedure: The contractor shall submit plans for erection and handling procedures according to 501-05.
     - Erection and lifting devices: The designer must be responsible for a lifting system for handling I-beams. As a minimum, the fabricator shall use at least 5 feet of lift at each end.
     - The fabricator shall specify the lifting system on the shop drawings and use a factor of safety of four in the design. Refer to part 5 of the PCI Handbook.

CONTINUOUS DECK PLANK PROCEDURES, WHICH PROCEED FROM END TO END OF THE BRIDGE AND PLACE THE PRE-TENSIONED PLANK CONCRETE CONCURRENTLY. WITH THE DECK CONCRETE, MAYBE ADEQUATELY SPACED BARS, CONCRETE IN THE DECK IS RENEWED TO THE DECK CONCRETE TO A DECIMAL OF A 14'-0" BEFORE THE CONCRETE HAS REACHED ITS INITIAL SET.

BAKELITE: BAKELITE PROVIDES ALL STRUCTURAL STEEL, BOLTS, TIES, THREADED RODS, NUTS AND WASHERS, EMBEDDED PLATE AND COVERS AND BEARING LOAD PLATES I/F ANY ACCORDING TO 51-05.

SEALING OF FASCIA BEAMS: SEAL THE FASCIA I-BEAM WITH AN EPOXY-CYRETE SEALER AS SHOWN ON SHEET 7 OF B. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES SEPARATELY UNDER SEALING OF CONCRETE SURFACES.

DIAPHRAGMS: ALL AND PIER DIAPHRAGMS SHALL BE CAST-IN-PLACE. THE INTERMEDIATE DIAPHRAGMS MAY BE CAST-IN-PLACE AS SHOWN ON SHEET 9 OF B OR BAKELITE CONCRETE AS SHOWN ON SHEET 7 OF B. ONLY ONE TYPE OF INTERMEDIATE DIAPHRAGM MAY BE USED PER STRUCTURE. DIAPHRAGMS ARE REQUIRED IN SPANS UP TO, AND INCLUDING, 40 FEET. DIAPHRAGMS ARE REQUIRED AT 40 FEET SPANS FOR 40-BO FEET AND AT QUARTER POINTS SPANS GREATER THAN 40 FEET. THE DEPARTMENT WILL PAY FOR ALL DIAPHRAGM CONNECTIONS AND DETAILS FOR ALL EXISTING AND LATERAL DIAPHRAGMS ON ALL STRUCTURAL STEEL, INCLUDING BOLTS, NUTS, LOCKNUTS AND PLATE WASHERS FOR INTERMEDIATE DIAPHRAGMS SHALL CONFORM TO THE REQUIREMENTS OF 51-05. CONCRETE FOR INTERMEDIATE DIAPHRAGMS SHALL CONFORM TO THE REQUIREMENTS OF 51-05. UNLESS OTHERWISE SPECIFIED, CONCRETE SHALL BE CLASS S-5.

ALTERNATE DESIGNS: AT NO EXPENSE TO THE PROJECT AND UPON ACCEPTANCE AND APPROVAL OF THE DIRECTOR, THE CONTRACTOR MAY SUBSTITUTE ALTERNATE DESIGNS FOR DETAILS AND I-BEAM SECTIONS TO THOSE SHOWN IN THE PLAN. IF A NEW DESIGN IS APPROVED, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE DESIGN OF THE PROJECT PLANS. THE DEPARTMENT WILL NOT PAY FOR DESIGN CHARGES ASSOCIATED WITH NEW MODIFICATIONS. THE CONTRACTOR SHALL SUBMIT THE ALTERNATE DESIGN TO THE DIRECTOR FOR ACCEPTANCE AT LEAST 30 DAYS BEFORE DESIGN CONSTRUCTION.

SHIPPING STRAPS: THE CONTRACTOR MAY USE SHIPMENT STRAPS AT THE LOCATIONS SHOWN ON THE SHOP DRAWINGS. THESE SHIPMENT STRAPS SHALL BE DESIGNED FOR THE ENTIRE LENGTH OF THE BEAM EXCEPT FOR THE LAST 10'-0" AT EACH END. THE SPANS WILL BE CUT AND HANDLING OPERATIONS ARE COMPLETE.

BASIS OF PAYMENT: IN ADDITION TO THE ITEMS LISTED IN S-51-05, THE DEPARTMENT WILL CONSIDER ALL COSTS ASSOCIATED WITH FORMWORK. THE COST OF THE I-BEAMS, THREADED RODS, BEARING PLATE DETAILS, TEMPORARY BRACING AND FIXED ANCHOR DOMES.

THE DEPARTMENT WILL PAY FOR ALL PRECAST AND ADJACENT DIAPHRAGMS SEPARATELY UNDER ITEM S-51, CONCRETE FOR STRUCTURES.