Bridges and Structures/Consultants August 30, 2001

All Employees 521.1

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Bridges and Structures

Bridge Superstructure Design-MM No. 10 (Closure Pours)

The following guidelines should be used when considering closure pours for bridge decks with longitudinal construction joints:

1. If there is more than 2 inches (50 mm) of dead load deflection in the bridge deck, then closure pours should be used.
2. If the stage construction is on a highway system with a high volume of truck traffic (approximately 500 or more trucks per day), then a closure pour should be considered. This will be addressed on a case by case basis, so check with your section leader

The closure pour should be wide enough to allow for splicing of the transverse reinforcing steel along with 2 inches (50 mm) of clearance for the end of the bars from the construction joint. The minimum closure pour width should be three feet (900 mm).
Closure pours should be placed in areas with constant cross-slope in the bridge deck. In addition, closure pours over beams should be avoided.

Reasons for closure pours:

1. For large deflections it may be difficult for the contractor to match up the elevations of the construction joints without a closure pour. Also it is difficult to tie the reinforcing steel due to the difference in elevations and possible interference with new beam lines.
2. For areas with high truck traffic there can be problems with vibrations due to traffic that could cause poor bonding of the concrete to the reinforcing steel adjacent to the construction joint.

If you're not sure whether a closure pour is needed, check with your section leader.

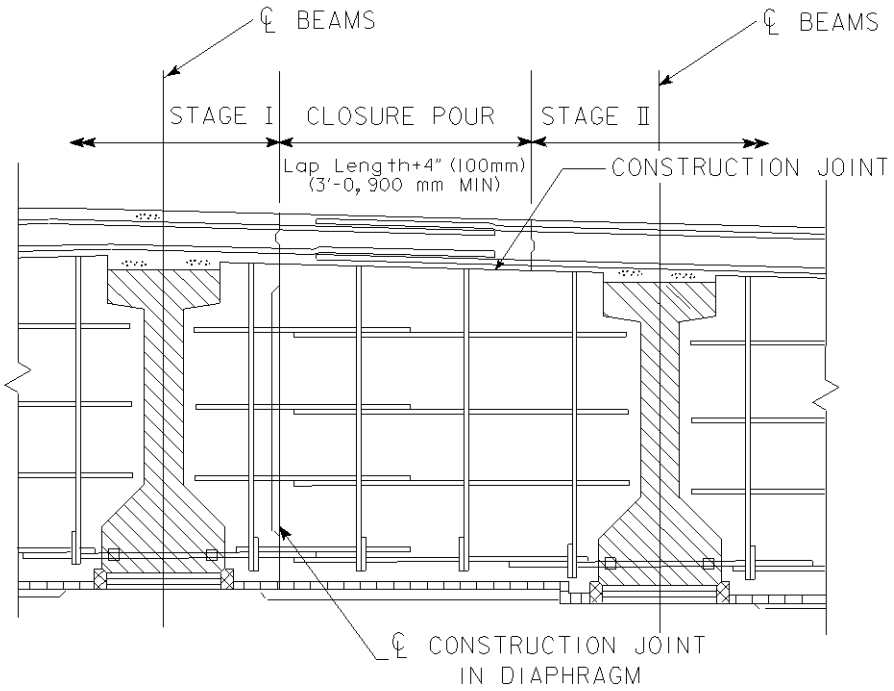
When closure pours are used, follow these guidelines for the different types of bridges:

1. Concrete Slab Bridges

   Closure pours are typically not used for continuous concrete slab bridges. This is because the false work is required to remain under the stage I construction until after the stage II construction has been completed and the falsework is ready for removal. Removing the false work at the same time allows the slabs from both stages to deflect under dead load together. This prevents moments from developing in the construction joint due to the slabs deflecting at different times.

2. Prestressed Concrete Beam Bridges

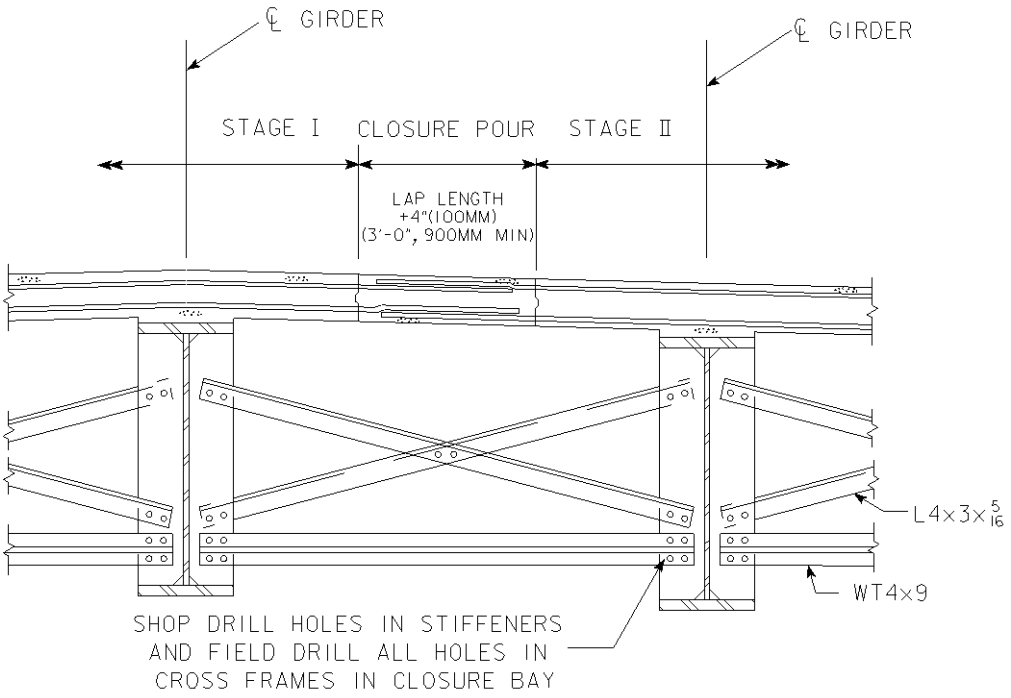
   a. For prestressed concrete beam bridges with intermediate concrete diaphragms, the diaphragm shall not be placed in the bay where the closure pour is to be placed. See notes on CADD standard 1036A and M1036A for additional information.
   b. For prestressed concrete beam bridges with steel intermediate diaphragms, the diaphragm bolts used in connecting the channel to the bent plate shall remain loose until the second stage has been poured then tightened before the closure pour. See notes on CADD standard 1036 and M1036 for additional information.
   c. The abutment and pier diaphragms should be staged with the deck pours and be in place before the closure pour is made as shown below.



PART SECTION
(ABUT OR PIER LOCATION)

3. Steel Girder Bridges

   The bracing in the bay that is to have the closure pour is to be installed after the second stage has been poured and prior to placing the closure pour. The bolt holes shall be field drilled in the cross bracing members to provide allowances for fit up of the diaphragm as shown below.



PART SECTION
(CLOSURE POUR)

For integral abutments, the same procedure as described for prestressed beams shall be used.

If you have any questions, check with your section leader.

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