Date: April 4, 1994

To: Staff Bridge Unit Leaders

From: A. J. Siccardi

Subject: Staff Bridge Worksheets

Updates for your book of worksheets are attached (37 sheets). These updates are provided in both English and Metric units. The sheet numbers have a "B" prefix for English units and "C" for metric units. Metric versions of our other worksheets will be made available as they complete the checking process.

B-INDEX-1 & 2: Updated indexes.

B-000-0: Revised Design Data for load factor design and HS25 live load. Revised dead load notes to clarify design HPB depth and to include the appropriate note for bare concrete decks. Added note to document friction surface assumed for slip critical connections.

B-601-1, 1A, 1EA & 1EC: Added new worksheet for 0" to 2" joint and asphalt surface using the plug joint, B-601-1A. On B-601-1 move sleeper slab 12" out to provide support for approach pavement. Revised longitudinal rebar details and added note to designers regarding slabs greater than 14’ long. Revised details of rebar in abutment.

B-601-4C, 4S, 5C & 5S: Redesigned panels. Strands will now be eccentric instead of at center-of-gravity of panel. Designers need to select the appropriate panel thickness. Panels designed for HS25 live load. Changed range of panel widths from 2.25’ minimum and 12.5’ maximum to 13.83’ maximum. Eliminated 0.5" strands. Reduced minimum longitudinal reinforcement from 0.22 to 0.11 square inches. Added notes for fabrication tolerances and construction loads. Revised notes regarding vents, roughening top surface, and bearing material. Changed orientation of transverse rebar in cast-in-place deck to parallel with skew for skews less than 20 degrees.

B-606-4 & 4A: Increased the amount of longitudinal reinforcing steel in Bridge Rail Type 4 to improve crack control.

B-618-42: Reorganized sheet. Corrected and clarified details. Shear reinforcement revised for HS25. Note for bending stirrups into deck revised for precast panels. Added longitudinal rebar as an alternative to providing well distributed strands at the end of girder.

B-618-54 & 68: Deleted concrete diaphragms, and stress relieved strand alternative. Replaced 1.0" threaded rods with 7/8". Revised notes and details for consistency with the bulb-tee worksheets. Shear reinforcement revised for HS25.

B-618-72: Deleted the G-72 girder worksheet. This worksheet number now applies to the bulb-tee 72. Changes for the BT-72 worksheet are the same as above for the BT-42.

B-618-BX: Deleted the stress relieved strand alternative. Several minor changes to the notes for consistency with the other precast girder worksheets. Shear reinforcement revised for HS25.

B-618-DF: Revised to make this the specified diaphragm for G-girders instead of an alternative diaphragm. Redesigned and revised to connect to bottom of top flange instead of web only for consistency with the bulb-tee diaphragm. For metric units, diaphragm details are included with girder details, therefore there is not a metric version of this sheet. Diaphragm details for English version of bulb-tee 42 and 72 are also included with girder details, therefore this sheet only applies to English version of G-54 and G-68.

Metric versions of above worksheets:
C-INDEX-1 & 2
C-000-0
C-601-1, 1A, 1EA & 1EC
C-601-4C, 4S, 5C & 5S
C-606-4 & 4A
C-618-1070, 1370, 1730, 1830 & BX

In addition to the above updates, the following proposed revisions to the worksheets are attached (11 sheets) for your information and comment:

B-206-1 & 2: Deleted cross section near end of wingwall. B-206-3 & 4 would be used for this information which is dependent on whether the wingwall is in a cut or a fill. Moved location of end of wingwall. Revised bottom of flow-fill profile to a single slope.

B-206-3 & 4: These sheets would be used in place of M-206-2 to define excavation and backfill for bridges. The revisions clarify, and make the details used for calculating excavation and fill quantities consistent with, our use of flow-fill. For bridges in fill a temporary over-embankment is shown. This over-embankment was requested by Region 6 to help insure the material under the flow-fill is properly compacted. The use of class 1 backfill outside the wingwalls and at the front face of abutments is replaced with class 2.

C-206-1, 2, 3 & 4: Metric versions of the flow-fill and excavation and embankment sheets.

B-601-4C?: Notched panel and added rebar at panel butt joints to reduce cracking of cast-in-place concrete and provide some longitudinal continuity in bottom mat rebar. Replaced U-Bars with spirals to improve connection with cast-in-place concrete. Combined panel details from two sheets to one sheet.

B-618-84: Proposed new precast bulb-tee section for greater economy in long spans (around 111’ to 172’ for simple spans) where adequate clearance for deeper section is available.

B-618-SL: Proposed new precast section for short spans with limited allowable superstructure depth.

Please share this information with the members of your unit. Contact Mark Leonard if you or any member of your unit has any question or comments.

Attachments

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