STD151.DGN

DESIGN NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (MARCH 1, 1995 EDITION) AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN SPECIFICATIONS: AASHTO 1996 EDITION WITH ADDENDA BY THE LOAD FACTOR DESIGN METHOD.

LOADING:
LIVE LOAD: HS20 WITH ALTERNATE MILITARY.

⚠2 EARTH LOAD: BASED ON SOIL WEIGHT OF 120 PCF AND 1.15 SOIL-STRUCTURE INTERACTION FACTOR. LATERAL EARTH PRESSURE: MAXIMUM OF 0.50 TIMES SOIL WEIGHT; MINIMUM OF 0.25 TIMES SOIL WEIGHT.

CONCRETE: SHALL BE CLASS "A" (CAST IN PLACE) WITH CONCRETE STRENGTH f'c = 3000 psi.

⚠1 WHEN FILL ABOVE THE TOP OF THE TOP SLAB IS LESS THAN 1 FT., THE TOP SLAB SHALL BE CONSTRUCTED WITH 2½ INCH CONCRETE COVER TO THE TOP MAT OF REINFORCING.

REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60. SEE SECTION 604 AND 907 OF THE STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS 600. WHEN FILL ON THE STRUCTURE IS LESS THAN 1 FOOT, EPOXY COATED REINFORCING STEEL SHALL BE USED IN THE TOP MAT OF THE TOP SLAB AND CURBS INCLUDING THE TIE (STIRRUP) BARS IN THE CURBS.

SPAN AND FILL HEIGHT: BOX AND SLAB BRIDGES ARE DESIGNED FOR THE SPANS AND FILL HEIGHTS SHOWN IN THE TABLES. FOR OTHER SPANS OR FILL HEIGHTS, A SPECIAL DESIGN IS REQUIRED. FILL HEIGHT, AS SHOWN IN THE TABLES, IS MEASURED FROM THE BOTTOM OF THE TOP SLAB TO THE TOP OF THE FILL. TO OBTAIN THE TOTAL HEIGHT OF FILL FROM THE FLOW LINE, ADD THE HEIGHT OF THE BOX. WHEN THE FILL ON THE STRUCTURE IS LESS THAN 1 FOOT, USE THE "NO FILL" SECTION AS SHOWN IN THE TABLES.

NON-UNIFORM LOADS: THE BOX AND SLAB BRIDGE DESIGNS SHOWN ASSUME UNIFORM LOADING ON EACH EXTERIOR WALL. FOR SIGNIFICANTLY NON-UNIFORM LOADS (FOR EXAMPLE, IF THE BOX OR SLAB BRIDGE RUNS ALONG THE TOE OF AN EMBANKMENT OR NEXT TO A RETAINING WALL) A SPECIAL DESIGN IS REQUIRED.

FOUNDATION BEARING PRESSURE: BOX AND SLAB BRIDGE FOOTINGS AND WINGWALL FOOTINGS SHALL BE FOUNDED ON SUITABLE FOUNDATION MATERIAL. UNSATISFACTORY MATERIAL IN THE FOUNDATION SHALL BE REMOVED IN ACCORDANCE WITH SECTION 204.10 OF THE SPECIFICATIONS.

CONSTRUCTION NOTES

BOX AND SLAB CONSTRUCTION DRAWINGS: THE CONTRACTOR SHALL PREPARE WORKING DRAWINGS WHICH SHOW PROPOSED CONSTRUCTION JOINTS, CONTRACTION JOINTS, SPLICES OF REINFORCING, AND THE BILL OF STEEL. THESE WORKING DRAWINGS SHALL BE SUBMITTED TO THE FIELD ENGINEER FOR REVIEW PRIOR TO BEGINNING CONSTRUCTION.

REINFORCING BAR SUPPORT DETAILS: SEE STANDARD DRAWING STD-9-1.

BRIDGE DECK FORMS: BRIDGE DECK FORMS FOR BOX AND SLAB BRIDGE CONCRETE DECKS SHALL BE CONSTRUCTED USING EITHER REMOVABLE FORMS OR PERMANENT FORMS. PERMANENT FORMS MAY BE REMAIN-IN-PLACE STEEL. FORMS SHALL BE ATTACHED BY MEANS OTHER THAN WELDING TO REINFORCING STEEL. SEE SECTION 604.05 OF THE SPECIFICATIONS. WALL HEIGHTS SHALL BE INCREASED THE DEPTH OF THE CORRUGATIONS OF THE METAL DECKING IN ORDER TO MAINTAIN THE CLEAR BOX DIMENSIONS CALLED FOR ON THE PLANS. PRECAST PRESTRESSED CONCRETE DECK PANELS ARE NOT ALLOWED.

BACKFILL: BACKFILLING OF BOX AND SLAB BRIDGES AND WINGWALLS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 204.11 OF THE STANDARD SPECIFICATIONS. THE REQUIREMENTS FOR STEPPING OF BOUNDARY SLOPES TO PREVENT WEDGE ACTION, FOR PROPER LAYERING AND COMPACTING OF BACKFILL, AND FOR MAINTAINING (AT ALL TIMES) EQUAL HEIGHTS OF BACKFILL AGAINST EXTERIOR WALLS OF BOX AND SLAB BRIDGES SHALL BE STRICTLY ENFORCED. SEE STANDARD STD-15-14 & 15 FOR OTHER NOTES AND DETAILS.

PAVED OUTLET DETAILS: SEE STANDARD DRAWING STD-15-16. PAVED OUTLETS SHALL BE USED WHEN SPECIFIED ON THE PLANS.

DEBRIS DEFLECTION WALL: SEE STANDARD STD-15-17 & 18. A DEBRIS DEFLECTION WALL SHALL BE CONSTRUCTED ON THE INLET END OF THE BOX OR SLAB BRIDGE WHEN SPECIFIED ON THE PLANS.

⚠1 CONTRACTION JOINTS: UNLESS OTHERWISE SPECIFIED ON THE PLANS, TRANSVERSE CONTRACTION JOINTS SHALL BE PLAIN BUTT JOINTS, AND LONGITUDINAL REINFORCEMENT SHALL NOT EXTEND ACROSS THE JOINT. CONTRACTION JOINTS SHALL BE SPACED AT INTERVALS OF 30 FEET TO 40 FEET. THE LOCATION OF JOINTS SHALL BE PREDETERMINED, AND WHEN PRACTICABLE, SHALL BE LOCATED AT CHANGES IN THE BOX OR SLAB BRIDGE SECTION. THESE JOINTS SHALL BE LOCATED PERPENDICULAR TO THE WALLS. WHERE THE BOX OR SLAB BRIDGE TOP SLAB IS TO BE THE RIDING SURFACE, NO CONTRACTION JOINTS SHALL BE USED, REGARDLESS OF THE LENGTH OF THE BARRELS.

⚠1 STAGE CONSTRUCTION JOINTS (FILL NOT GREATER THAN 3'-6"): WHEN A BOX OR SLAB BRIDGE MUST BE STAGE CONSTRUCTED SUCH THAT THE CONSTRUCTION JOINT IS NOT PERPENDICULAR TO THE BRIDGE, THE STAGE CONSTRUCTION JOINT SHALL BE A PLAIN BUTT JOINT, AND NO REINFORCEMENT SHALL EXTEND ACROSS THE JOINT. ADDITIONAL SLAB REINFORCEMENT PLACED PARALLEL TO THE JOINT AND DOWEL BARS PERPENDICULAR TO THE JOINT IN ACCORDANCE WITH STANDARD DRAWING STD-15-21 SHALL BE PROVIDED. THE STAGE CONSTRUCTION JOINT SHALL NOT BE LOCATED WITHIN A FINAL TRAFFIC LANE.

⚠1 STAGE CONSTRUCTION JOINTS (FILL GREATER THAN 3'-6"): JOINT SHALL BE CONSTRUCTED AS SPECIFIED FOR CONTRACTION JOINTS. SEE SKETCH THIS SHEET.

STAGE CONSTRUCTION OF BARRELS: FOR A MULTI-BARREL BOX OR SLAB BRIDGE WHERE BARRELS ARE STAGE CONSTRUCTED, THE SLAB BARS SHALL BE SPLICED THE MINIMUM LENGTH IN ACCORDANCE WITH THE TABLE ON THIS DRAWING. THE CONTRACTOR SHALL SUBMIT HIS PLAN FOR STAGE CONSTRUCTION SHOWING PROPOSED JOINT LOCATION AND BAR SPLICE LENGTHS TO THE FIELD ENGINEER FOR REVIEW PRIOR TO BEGINNING CONSTRUCTION.

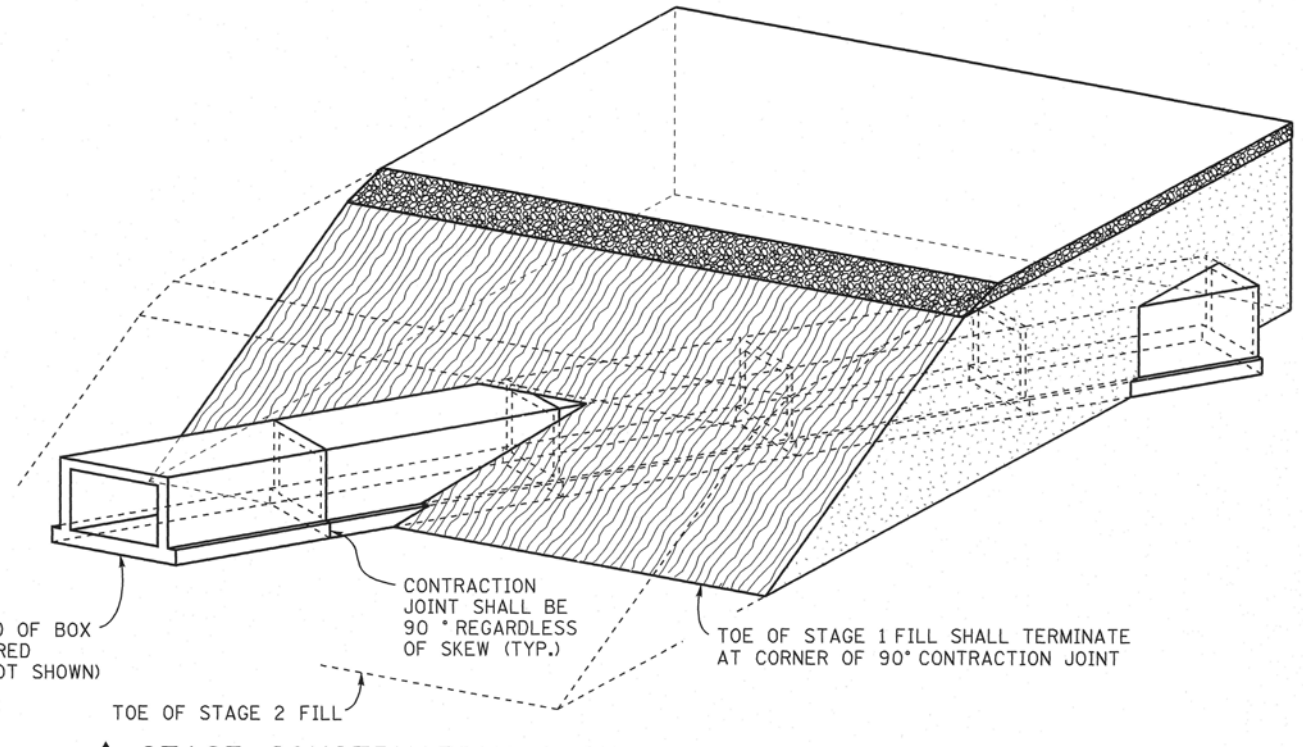
SLAB BRIDGE FOOTINGS ON ROCK: THE BOTTOM OF FOOTING SHALL FOLLOW THE ROCK SURFACE ALONG THE WALL LINE. HOLES 1.5 INCH IN DIAMETER AND 2'-6" IN DEPTH SHALL BE DRILLED ON 12 INCH CENTERS INTO COMPETENT ROCK. THE HOLES SHALL BE AIR BLOWN TO REMOVE ALL DEBRIS AND FILLED WITH NON-SHRINK GROUT. ALL GROUTING MATERIAL SHALL BE APPROVED BY THE DIVISION OF MATERIALS AND TESTS AND PLACED IN THE DRILL HOLE AS RECOMMENDED BY THE MANUFACTURER. IF THE HOLE CANNOT BE DEWATERED THEN THE GROUT MUST BE PLACED THROUGH A TREMIE TUBE OR PRESSURE PUMPED WITH THE INITIAL PUMP NOZZLE AT BOTTOM OF HOLE. NO. 8 REINFORCING BARS SHALL BE ROTATED FULL DEPTH OF HOLES. SLIGHT TAPPING WILL BE ALLOWED DURING THE BAR ROTATION PROCESS BUT TAPPING WITHOUT ROTATION WILL NOT BE ALLOWED.

BOX EXTENSION DETAILS: SEE STANDARD DRAWINGS STD-15-22 AND 23.

CURING CONCRETE: SLABS FOR BOX AND SLAB BRIDGES SHALL BE CURED IN ACCORDANCE WITH ARTICLE 604.24 OF THE STANDARD SPECIFICATIONS.

REMOVAL OF FORMS: FORM REMOVAL SHALL BE IN ACCORDANCE WITH ARTICLE 604.20 AND 604.29 OF THE STANDARD SPECIFICATIONS. GENERALLY, FORMS FOR WALLS MAY BE REMOVED WITHIN 12-48 HOURS. FALSEWORK FOR SLABS MAY BE REMOVED AFTER 7 DAYS OF CURING ABOVE 40° F AND THE REQUIRED CONCRETE STRENGTH IS REACHED. NO LOADS SHALL BE PLACED ON THE SLAB UNTIL 10 ADDITIONAL DAYS AFTER REMOVING FORMS HAVE ELAPSED.

CONCRETE FINISH: SEE STANDARD SPECIFICATION ARTICLE 604.22. IN GENERAL, CURBS, EDGES OF SLAB, EXPOSED FACES AND ENDS OF WINGWALLS, DEBRIS DEFLECTION WALLS, ENDS OF INTERIOR WALLS, AND EXPOSED FACE OF ENDWALLS SHALL RECEIVE A CLASS II FINISH.



⚠1 STAGE CONSTRUCTION SKETCH (FILL GREATER THAN 3'-6")

CONST. NO.

PROJECT NO.	YEAR	SHEET NO.
	2000	

REVISIONS

	NO.	DATE	BY	BRIEF DESCRIPTION
	1	12-7-01	CMH	REVISED OR ADDED NOTES AND ADDED DRAWING.
M/R	2	3-28-08	JHW	CORRECTED UNITS. ADDED SPLICE WT.

LIST OF STANDARD DRAWINGS — DWG. NO.

REINFORCING BAR SUPPORT DETAILS FOR CONCRETE SLABS ---------- STD-9-1

REINFORCING BAR MIN. SPLICE LENGTHS

BAR SIZE	MIN. SPLICE LENGTH	LB. / SPLICE ⚠2
4	1'-8"	1.11
5	2'-2"	2.26
6	2'-9"	4.13
7	3'-9"	7.66
8	4'-11"	13.13
9	6'-2"	20.97
10	7'-11"	34.07
11	9'-8"	51.36

M/R MINOR REVISION - FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

STANDARD REINFORCED CONCRETE BRIDGE BOX AND SLAB TYPE

2000

DESIGNED BY CMH / MAH DATE 12-99
DRAWN BY DIANE BUSH DATE 12-99
SUPERVISED BY RLH/JWP/MAH DATE 12-99
CHECKED BY ____ DATE ____

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

STD-15-2

01-DEC-2008 10:06 d:\std151.dgn