GN1125.DGN

GENERAL NOTES:

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (JANUARY 1, 2015 EDITION).

LOADING: HL-93 LIVE LOADING; SEISMIC DESIGN CATEGORY B WITH A_S=0.301, S_{DS}=0.657, S_{D1}=0.293, (1000 YEAR RETURN PERIOD). DEAD LOAD INCLUDES 35 LB./SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN SPECIFICATIONS: AASHTO LRFD SEVENTH EDITION, 2014, AND THE 2011 AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN, EDITION 2 (WITH INTERIMS.)

CONCRETE: TO BE CLASS "A" (CAST IN PLACE) f′c = 3,000 PSI EXCEPT AS NOTED OTHERWISE.

CLASS "D" CONCRETE FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS.

BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD 3 IN ARTICLE 604.22 OF THE STANDARD SPECIFICATIONS.

BRIDGE DECK FORMS: BRIDGE DECK FORMS FOR CONCRETE DECKS SHALL BE CONSTRUCTED USING EITHER REMOVABLE FORMS OR PERMANENT FORMS. PERMANENT FORMS MAY BE EITHER REMAIN-IN PLACE STEEL OR PRECAST, PRESTRESSED CONCRETE PANELS. IN EITHER CASE, FORMS SHALL BE ATTACHED BY MEANS OTHER THAN WELDING TO MAIN STRUCTURAL MEMBERS OR REINFORCING STEEL. TEMPORARY ERECTION DIAPHRAGMS MUST BE USED AT THE ENDS OF PRECAST CONCRETE GIRDERS WHERE END DIAPHRAGMS, SUPPORT DIAPHRAGMS, OR ABUTMENT BACKWALLS ARE TO BE POURED CONCURRENTLY WITH THE DECK AND SHALL BE PROVIDED ELSEWHERE IN ACCORDANCE WITH THE SPECIFICATIONS TO PREVENT GIRDER ROTATION. SEE STANDARD DRAWINGS STD-4-1 THRU 4, STD-14-2 AND ARTICLE 604.05 OF THE STANDARD SPECIFICATIONS.

REINFORCING STEEL: SHALL BE ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE. SEE SECTION 604 AND 907 OF THE STANDARD SPECIFICATIONS.

FRICTION PILES: TO BE PRECAST CONCRETE PILES (SIZE 1). AFTER EXCAVATION TO THE PROPOSED FOOTING ELEVATIONS, A TEST PILE SHALL BE DRIVEN AT EACH SUBSTRUCTURE AT THE LOCATION DESIGNATED ON DRAWING NUMBER U-57-129. A LOAD TEST WILL THEN BE APPLIED TO THE TEST PILE IN ABUTMENT NO. 1. FROM THE RESULTS OF THE LOAD TEST, THE ENGINEER OF STRUCTURES WILL DETERMINE THE REQUIRED LENGTH OF THE PRODUCTION PILES AND MINIMUM REQUIRED BEARING. FOR PILE DESIGN LOADS AND CUT-OFF ELEVATIONS, SEE TABLE ON THIS SHEET.

THE CONTRACTOR SHALL INSTALL PILING SUCH THAT ALL THE FOLLOWING REQUIREMENTS ARE MET. THE TIP ELEVATION FOR ALL TEST PILES AND PRODUCTION PILES SHALL BE EQUAL TO OR BELOW THE MINIMUM PILE TIP ELEVATION SHOWN ON THE PLANS. IN ADDITION, TEST PILES TO BE LOAD TESTED SHALL BE INSTALLED TO AT LEAST THE SPECIFIED BEARING SHOWN ON THE PLANS OR FULL LENGTH; ALL OTHER TEST PILES SHALL BE INSTALLED TO AT LEAST 1.5 TIMES THE SPECIFIED BEARING SHOWN ON THE PLANS OR FULL LENGTH. ALL PRODUCTION PILES SHALL BE INSTALLED FULL LENGTH UNLESS EXCESSIVELY HARD DRIVING WHICH MIGHT DAMAGE THE PILES IS ENCOUNTERED. IF THE PRODUCTION PILES DO NOT ACHIEVE THE MINIMUM REQUIRED BEARING, THE ENGINEER OF STRUCTURES WILL DETERMINE IF ADDITIONAL PILES ARE REQUIRED.

IN THE EVENT THAT DRIVING THE TEST PILE TO AT LEAST THE MINIMUM TIP ELEVATION OR DRIVING THE PRODUCTION PILE FULL LENGTH MIGHT DAMAGE THE PILE BECAUSE OF EXCESSIVELY HARD DRIVING, THE CONTRACTOR SHALL USE OTHER METHODS APPROVED BY THE ENGINEER FOR INSTALLING THE PILES SUCH AS JETTING OR PRE-DRILLING HOLES. HOWEVER, ALL PILES MUST BE DRIVEN BY HAMMER FOR THE LAST FEW FEET OF PENETRATION. NO MEASUREMENT FOR PAYMENT WILL BE MADE FOR PRE-DRILLING HOLES OR FOR JETTING PILING TO OBTAIN THE REQUIRED PILE PENETRATION.

THE PILE LOAD TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIFICATIONS. THE PILE LOAD TEST APPARATUS FOR APPLYING LOADS AND MEASURING MOVEMENT SHALL MEET THE REQUIREMENTS OF ASTM D1143, STANDARD METHOD OF TESTING PILES UNDER STATIC AXIAL COMPRESSIVE LOAD. WHEN INSUFFICIENT CLEARANCE IS AVAILABLE WITHIN AN EXCAVATION, THE CLEARANCE REQUIREMENTS IN ARTICLE 4.1.1 MAY BE REDUCED, BY ONLY WITH PRIOR APPROVAL OF THE ENGINEER.

ALTERNATE PILES: THE CONTRACTOR MAY USE PILING OF A DIFFERENT MATERIAL OR CONFIGURATION FROM THAT SHOWN ON THE PLANS PROVIDED THE SUBSTITUTION MEETS MINIMUM DESIGN STANDARDS AND SPECIFICATIONS, AND IS APPROVED BY THE ENGINEER.

BRIDGE RAIL SYSTEM: BUILD BRIDGE RAILINGS ACCORDING TO STANDARD DRAWING STD-1-1SS. THE RAILING SHALL BE FORMED AND CAST PLUMB, NOT PERPENDICULAR TO THE SLAB. THE DIMENSIONS AT THE TRAFFIC FACE SHALL BE KEPT CONSTANT, WITH VARIATION DUE TO CROSS SLOPE ACCOMMODATED AT THE REAR FACE.

NOTE: THE CONTRACTOR SHALL PROVIDE 100% CONVENTIONAL FALL PROTECTION FOR WORKERS INSTALLING DECKING ABOVE 15 FEET.

SHOP DRAWINGS: SEE SECTION 105.02 OF THE STANDARD SPECIFICATIONS.

RIP-RAP: MACHINED RIP-RAP SHALL BE CLASS "B" IN ACCORDANCE WITH SECTION 709 OF THE STANDARD SPECIFICATIONS AND SHALL BE MEASURED AND PAID FOR UNDER ROADWAY ITEM NO. 709-05.08.

VALUE ENGINEERING ALTERNATE BRIDGE DESIGN CRITERIA: ALTERNATE BRIDGE DESIGN PROPOSALS MAY NOT DIMINISH THE FUNCTIONAL OR STRUCTURAL EQUIVALENCY OF THE BRIDGE AND MUST MEET OR EXCEED BOTH THE SERVICE LEVEL AND ULTIMATE CAPACITIES OF THE CONTRACT PLANS STRUCTURE. ADDITIONALLY, THE WATERWAY OPENING AND FLOOD CLEARANCES MAY NOT BE REDUCED; FOR GRADE SEPARATIONS, THE HORIZONTAL CLEARANCES MAY NOT BE REDUCED, NOR MAY THE VERTICAL CLEARANCES BE LESS THAN THE MINIMUM ACCEPTABLE FOR THE TYPE FACILITY CROSSED.

REQUIREMENTS AND RESTRICTIONS FOR PHASE CONSTRUCTION

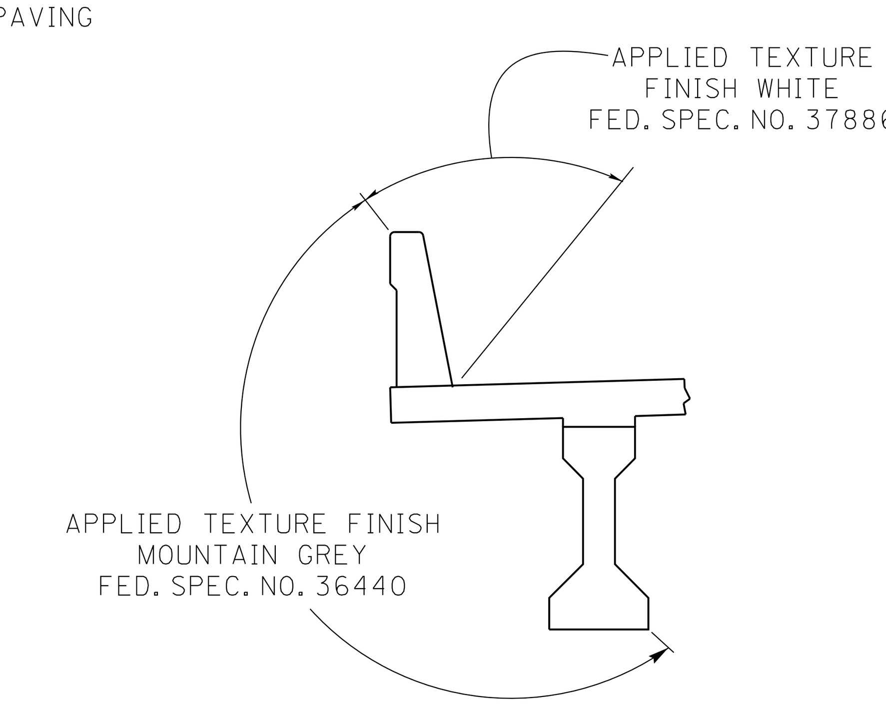
1. THE STAGE CONSTRUCTION SEQUENCE MAY PROHIBIT THE EXTRACTION OF SOME COFFERDAM SHEET PILING. ALL COSTS ASSOCIATED WITH SHEET PILING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS.
2. THE LOCATION OF LONGITUDINAL CONSTRUCTION JOINTS SHALL NOT BE CHANGED TO ACCOMMODATE REMAIN-IN-PLACE DECK FORMS.
3. NO SHEET PILES OR BEARING PILES MAY BE DRIVEN FROM THE EXISTING OR PROPOSED STRUCTURE.
4. ONE, 11 FOOT MINIMUM TRAFFIC LANE SHALL BE MAINTAINED AT ALL TIMES.

FINISHING CONCRETE SURFACES: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.21 OF THE TENNESSEE STANDARD SPECIFICATION. A CLASS I FINISH FOLLOWED BY AN APPLIED TEXTURE FINISH SHALL BE USED IN LIEU OF A CLASS II FINISH. NO TEXTURE FINISH SHALL BE APPLIED PRIOR TO COMPLETION OF PAVING AND HAULING OPERATIONS AT THE BRIDGE SITE. THE APPLIED TEXTURE FINISH SHALL BE MEASURED AND PAID FOR UNDER ITEM NO. 604-04.01.

CONST. NO. 57034-3205-94		
PROJECT NO.	YEAR	SHEET NO.
BR-STP-197(10)	2015	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



TYPICAL AT CANTILEVER
APPLIED TEXTURE FINISH SKETCH

NOTE: IN ADDITION TO THE SURFACES SHOWN IN THE APPLIED TEXTURE FINISH SKETCH ALL EXPOSED SURFACES OF THE WINGWALLS, ABUTMENT BEAMS, AND EXTERIOR PORTIONS OF ENDWALL ARE TO RECEIVE AN APPLIED TEXTURE FINISH MOUNTAIN GREY, FED. SPEC. NO. 36440.

ESTIMATED QUANTITIES

	ITEM NO.	DESCRIPTION	UNIT	TOTAL	SUPERSTRUCTURE	ABUTMENT 1	ABUTMENT 2
(1)	202-04.01	REMOVAL OF STRUCTURES (EXIST. BR. NO. 57-SR197-8.56)	L.S.	1			
(2)	204-02.01	DRY EXCAVATION (BRIDGES)	C.Y.	137		68	69
(5)	303-01.02	GRANULAR BACKFILL (BRIDGES)	TON	24		12	12
	604-02.03	EPOXY COATED REINFORCING STEEL	LB.	20,708	18,322	1,193	1,193
	604-03.01	CLASS 'A' CONCRETE (BRIDGES)	C.Y.	67		29	38
	604-03.02	STEEL BAR REINFORCEMENT (BRIDGES)	LB.	9,164		4,582	4,582
(8)	604-03.04	PAVEMENT @ BRIDGE ENDS	S.Y.	161			
	604-03.09	CLASS 'D' CONCRETE (BRIDGE DECK)	C.Y.	79	67	10	2
	604-04.01	APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	373	326	23	24
	604-05.31	BRIDGE DECK GROOVING (MECHANICAL)	S.Y.	410			
	606-09.01	TEST PILES (PRECAST CONCRETE, SIZE 1)	L.F.	75		40	35
	606-09.02	LOADING TEST (PRECAST CONCRETE, SIZE 1)	EACH	1		1	
	606-09.03	PRECAST CONCRETE PILES (SIZE 1)	L.F.	385		210	175
(7)	606-12.01	PILE ANCHORAGE SYSTEM (SEISMIC)	EACH	12		6	6
(3)	615-01.03	PRESTRESSED CONCRETE I-BEAM (TYPE III)	L.F.	308			
(9)	617-02	BRIDGE DECK CRACK SEALING	L.F.	80			
	617-05	SEALANT	GAL.	1			
	620-05.01	CONCRETE PARAPET SINGLE SLOPE (STD-1-1SS)	L.F.	217			
(4)	710-09.01	6" PERF. PIPE WITH VERTICAL DRAIN SYSTEM	L.F.	106		53	53
	710-09.02	6" PIPE UNDERDRAIN	L.F.	30		15	15

PILE DATA TABLE

LOCATION	DESIGN LOAD (TONS)	TEST PILE CUT-OFF ELEV. (FT.)	ESTIMATED PILE LENGTH (FT.)	TEST PILE LENGTH (FT.)	MINIMUM PILE TIP ELEVATION
ABUTMENT 1	100	389.38	30	40	N/A
ABUTMENT 2	100	390.00	25	35	365.00

(1) NOTE: LUMP SUM: TO INCLUDE COMPLETE REMOVAL OF EXISTING BRIDGE NO. 57-SR197-8.56 AND APPROACHES TO NATURAL GROUND BETWEEN STATIONS 55+15.00 AND 55+77.00. LENGTH OF 62′-0" AND WIDTH OF 29′-0" CONSISTS OF 3 SPANS OF PCCS WITH TIMBER SUBSTRUCTURES. MAINTAIN TRAFFIC BY STAGE CONSTRUCTION & SIGNALIZATION. ALL CHANNEL SLABS FROM THE EXISTING BRIDGE WILL REMAIN THE PROPERTY OF TDOT. COORDINATION WITH REGION 4 BRIDGE REPAIR (731-935-0247) SHOULD BE MADE PRIOR TO SLAB REMOVAL.

(2) EXCAVATION BASED ON FINAL PROFILE AT ABUTMENTS.

(3) NOTE: COST OF ELASTOMERIC PADS AND RUBBER BONDING CEMENT TO BE INCLUDED IN THE UNIT PRICE BID FOR THE PRESTRESSED BEAM.

(4) NOTE: COST OF POLYETHYLENE SHEETING AND ALL MISCELLANEOUS ITEMS NECESSARY FOR INSTALLATION TO BE INCLUDED IN THE UNIT PRICE BID FOR PERFORATED PIPE.

(5) NOTE: GRANULAR BACKFILL SHALL BE CLASS "A" GRADING "D" MATERIAL. SEE STANDARD DRAWING STD-10-1.

(6) NOTE: THE COST OF BITUMINOUS-FIBERBOARD AND ALL MISCELLANEOUS JOINT MATERIAL TO BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS.

(7) NOTE: COST OF PREPARATION OF THE TOP OF PILE FOR SEISMIC REQUIREMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606-12.01. SEE STANDARD DRAWING STD-6-1 FOR DETAILS. THE PILE AND TEST PILE LENGTHS SHOWN ON THE PLANS DO NOT INCLUDE THE 2 FEET REQUIRED FOR SEISMIC ATTACHMENT.

(8) NOTE: PRIOR TO CONSTRUCTION OF THE PAVEMENT AT BRIDGE ENDS, THE CONTRACTOR SHALL SUBMIT A PROPOSED BILL OF STEEL TO THE ENGINEER FOR APPROVAL.

(9) NOTE: INCLUDES ALL COST FOR INSTALLING THE BRIDGE DECK CRACK SEALER (HMWM) INCLUDING CRACK PREPARATION, CLEANING, LABOR AND ALL MISCELLANEOUS MATERIALS REQUIRED TO SEAL THE LONGITUDINAL CONSTRUCTION JOINT ACCORDING TO SPECIAL PROVISION 604CR AND MANUFACTURER'S SPECIFICATIONS. CRACK SEALING SHALL BE DONE AT THE END OF CONSTRUCTION TO ALLOW SHRINKAGE OF DECK CONCRETE CAUSING THE CRACK TO OCCUR.

DESIGNED BY	DAN SHIKE	DATE	03-15
DRAWN BY	T. WISEMAN	DATE	03-15
SUPERVISED BY	MBC / KDM	DATE	03-15
CHECKED BY	D. SHIKE	DATE	03-15

KATHLEEN D. McLAUGHLIN Registered Engineer AGRICULTURE COMMERCE STATE OF TENNESSEE
Kathleen McLaughlin
4/27/2015

CORRECT Wayne J. Seger
ENGINEER OF STRUCTURES

BRIDGE NO. 1
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
GENERAL NOTES AND ESTIMATED QUANTITIES
STATE ROUTE 197
OVER
BRANCH A
STATION 55+45.00
LOG MILE 8.56
MADISON COUNTY
2015

U-57-119