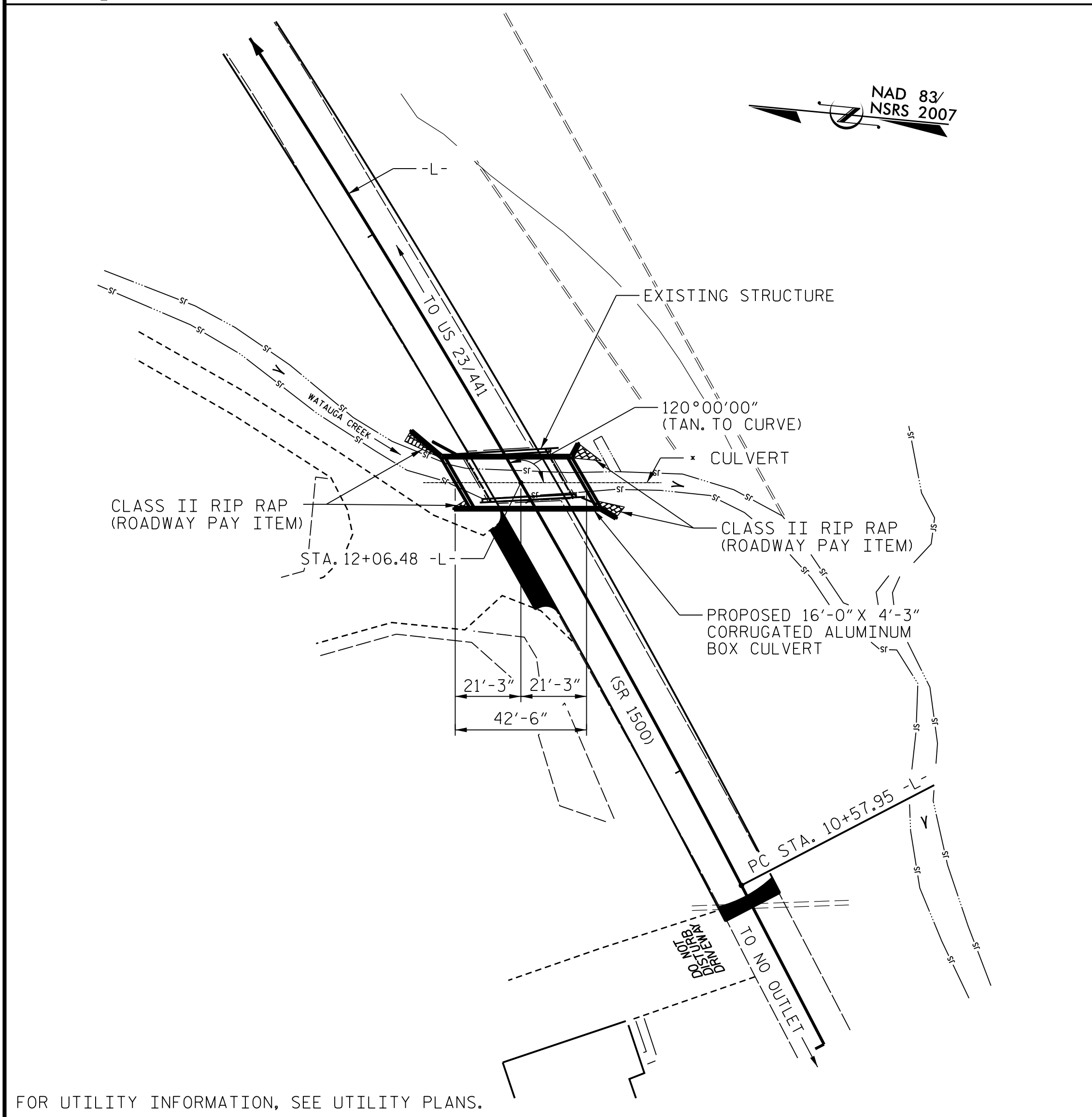


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with their signature on that page.**

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BM#1 - @ STATION 6+13.74, 53.37' LEFT, 8 INCH SPIKE IN ROOT OF 24" DOUBLE MAPLE, ELEV. 2303.67'



FOR UTILITY INFORMATION, SEE UTILITY PLANS.

LOCATION SKETCH

VERTICAL CURVE DATA -L-

+4.2500% Δ +3.0000%
 PI = 11+90.00 -L-
 EL = 2305.57
 VC = 60.00'

HORIZONTAL CURVE DATA -L-

PI STA. 12+34.48 -L-
 Δ = 5°56'40.1" (LT.)
 D = 1°41'06.6"
 L = 352.75'
 T = 176.53'
 R = 3400.00'

NOTES:

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL ----- 1.6'.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- FOR BORING INFORMATION, SEE GEOTECHNICAL REPORT.
- SEE ROADWAY PLANS FOR RIP RAP REQUIREMENTS AT CULVERT ENDS.
- FOR ADDITIONAL INFORMATION REGARDING DRAINAGE, GRADING, AND ROADWAY, SEE ROADWAY PLANS.
- THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY, THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.
- UNLESS OTHERWISE INDICATED, THE SUPPLIER SHALL DESIGN, DETAIL, AND FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.
- THE EXISTING STRUCTURE CONSISTING OF ONE 18'-6" SPAN WITH A TIMBER FLOOR WITH AN ASPHALT WEARING SURFACE ON TIMBER JOISTS, TIMBER CAPS, POSTS & SILLS END BENTS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- ASPHALT WEARING SURFACE IS INCLUDED IN THE ROADWAY QUANTITY ON ROADWAY PLANS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE CONTRACTOR SHALL STAKE OUT THE LENGTH OF CULVERT FOR ENGINEER REVIEW PRIOR TO ORDERING CULVERT.
- CONTRACTOR WILL MAINTAIN THE ALIGNMENT OF THE ALUMINUM BOTTOMLESS CULVERT SECTIONS DURING BACKFILL.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR ALUMINUM BOX CULVERT, SEE SPECIAL PROVISIONS.
- AT THE CONTRACTORS OPTION, CONCRETE HEADWALLS MAY BE PRICED IN LIEU OF ALUMINUM HEADWALLS.

FOUNDATION NOTES:

1. THE CORRUGATED ALUMINUM BOX CULVERT AT STATION 12+06.48 IS DESIGNED FOR A FACTORED RESISTANCE OF 2 TSF, CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 4.5 TSF JUST BEFORE PLACING CULVERT.
2. EXCAVATE 2 FEET BELOW CULVERT AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.
3. PLACE TYPE 5 GEOTEXTILE IN ACCORDANCE WITH SECTION 1060 OF THE STANDARD SPECIFICATIONS BEFORE PLACING FOUNDATION CONDITIONING MATERIAL.

TOTAL STRUCTURE QUANTITIES	UNIT
REMOVAL OF EXISTING STRUCTURE	LS
CULVERT EXCAVATION STA. 12+06.48 -L-	LS
FOUNDATION CONDITIONING MATERIAL	108 TONS
ALUMINUM BOX CULVERT STA. 12+06.48 -L-	LS
TYPE 5 GEOTEXTILE	LS

GRADE DATA

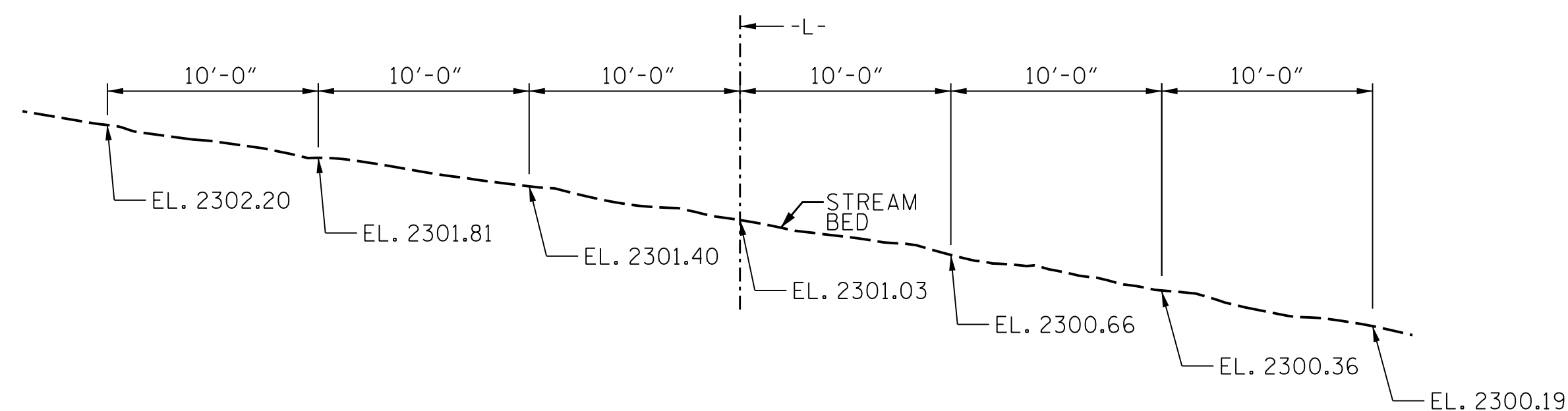
GRADE POINT ELEVATION @ STA. 12+06.48 -L- = 2306.05'
 BED ELEVATION @ STA. 12+06.48 -L- = 2300.07'
 ROADWAY SLOPES = 12:1

HYDRAULIC DATA

DESIGN DISCHARGE = 250 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 5 YEARS
 DESIGN HIGH WATER ELEVATION = 2305.4'
 DRAINAGE AREA = 1.30 SQ. MI.
 BASE DISCHARGE (Q100) = 700 C.F.S.
 BASE HIGH WATER ELEVATION = 2307.15'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 250 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 5 YEARS
 OVERTOPPING FLOOD ELEVATION = 2305.34'

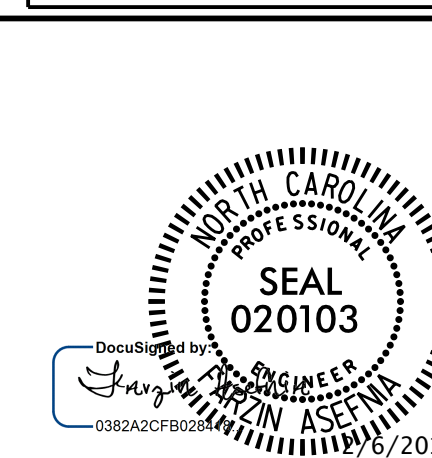


PROFILE ALONG CULVERT

PROJECT NO. 17BP.14.R.48
 _____ MACON _____ COUNTY
 STATION: 12+06.48 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 308

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 UNLESS ALL SIGNATURES COMPLETED

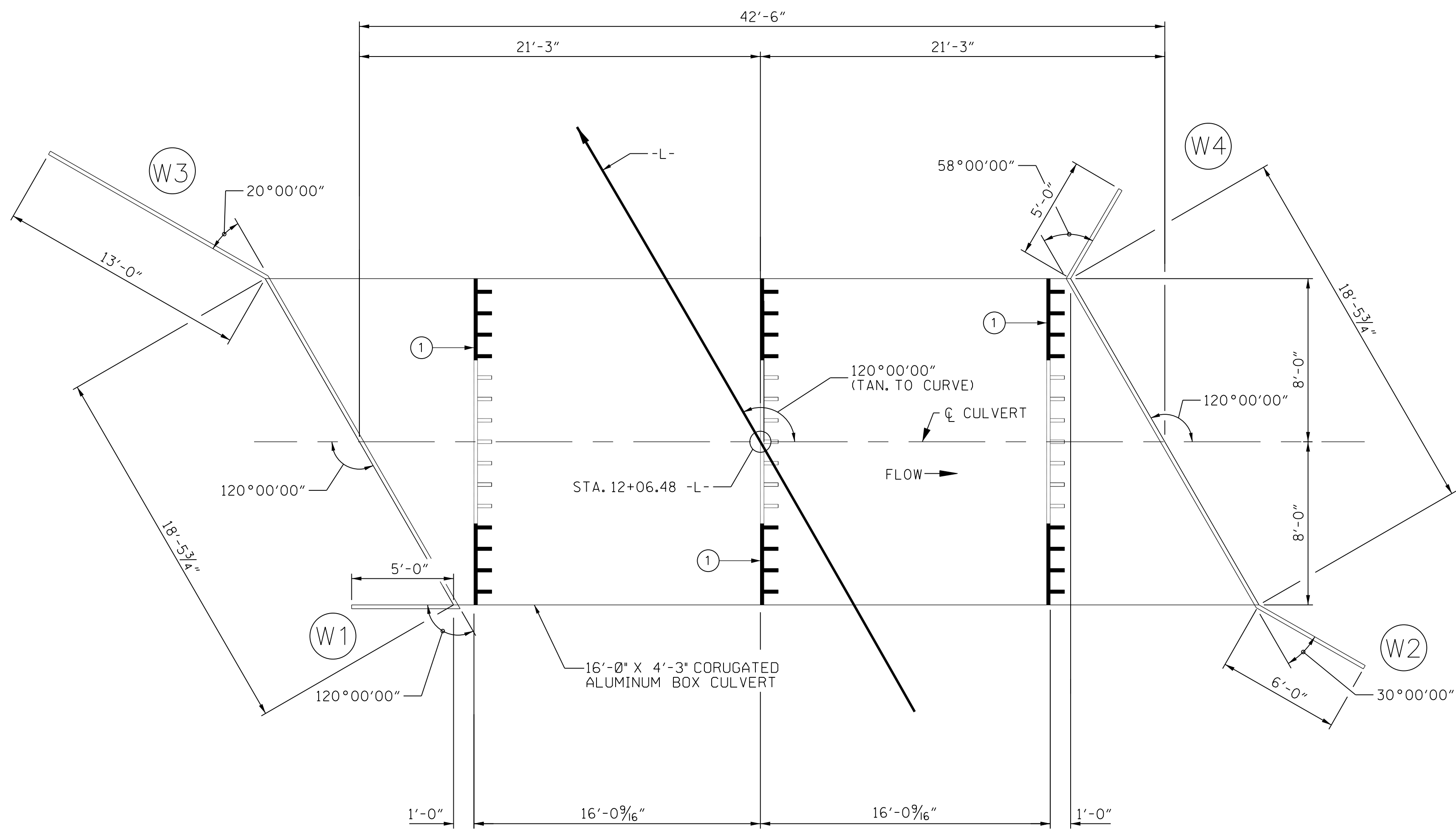


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 16'-0" X 4'-3" CORUGATED
 ALUMINUM BOX CULVERT
 ON SR 1500
 AT WATAUGA CREEK
 BETWEEN ELDERS RD AND
 WILD STRAWBERRY LN

DRAWN BY : M. HOGAN	DATE : 06/14	M. Hogan	DATE : 01/18
CHECKED BY : R. DECOLA	DATE : 11/14	F. Asefnia	DATE : 01/18
DESIGN ENGINEER OF RECORD : S. COOK	DATE : 5/15	F. Asefnia	DATE : 01/18

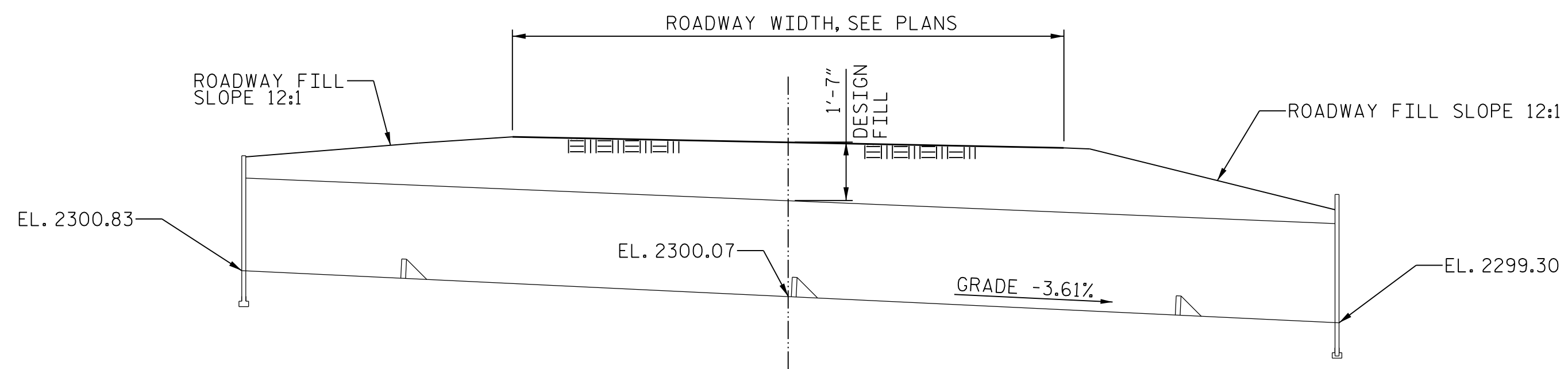
THE LOUIS BERGER GROUP, Inc. 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	NO. 1	BY:	DATE:	NO. 3	BY:	DATE:	SHEET NO. C-1
	2			4			TOTAL SHEETS 3

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PLAN VIEW

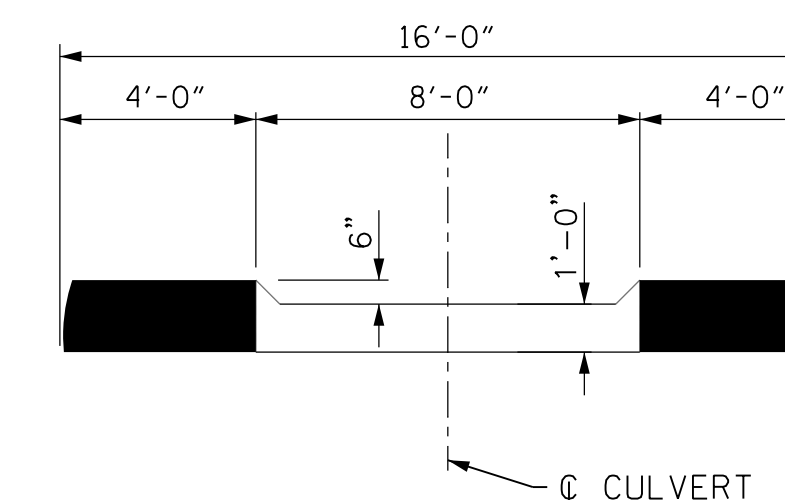
NOTE: NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



PROFILE ALONG CULVERT

PROPOSED ELEVATIONS	
EP INLET	2306.44
CENTERLINE ROADWAY	2306.05
EP OUTLET	2305.30
TOP OF HEADWALL INLET	2307.08
TOP OF HEADWALL OUTLET	2305.56
INVERT INLET	2300.83
INVERT OUTLET	2299.30

NOTE: SILL DETAILS SHALL BE PROVIDED BY MANUFACTURER.



INLET & OUTLET SILL & Baffle Detail

PROJECT NO. 17BP.14.R.48
 _____ MACON _____ COUNTY
 STATION: 12+06.48 -L-

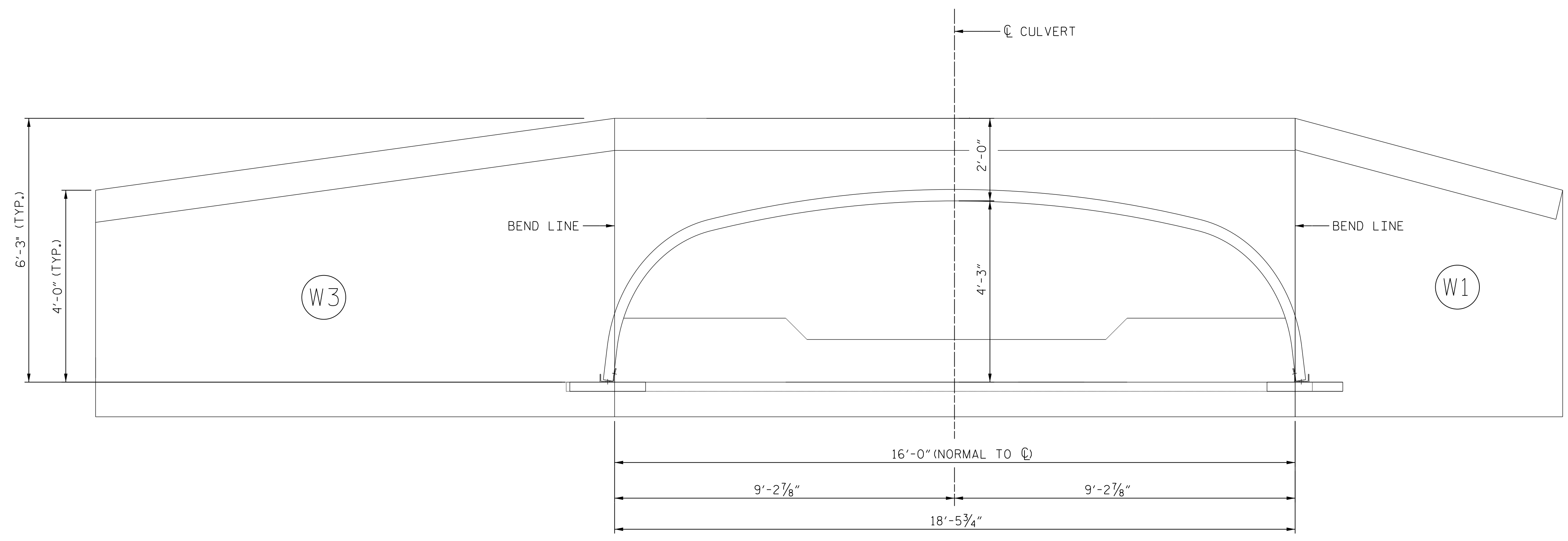
SHEET 2 OF 3

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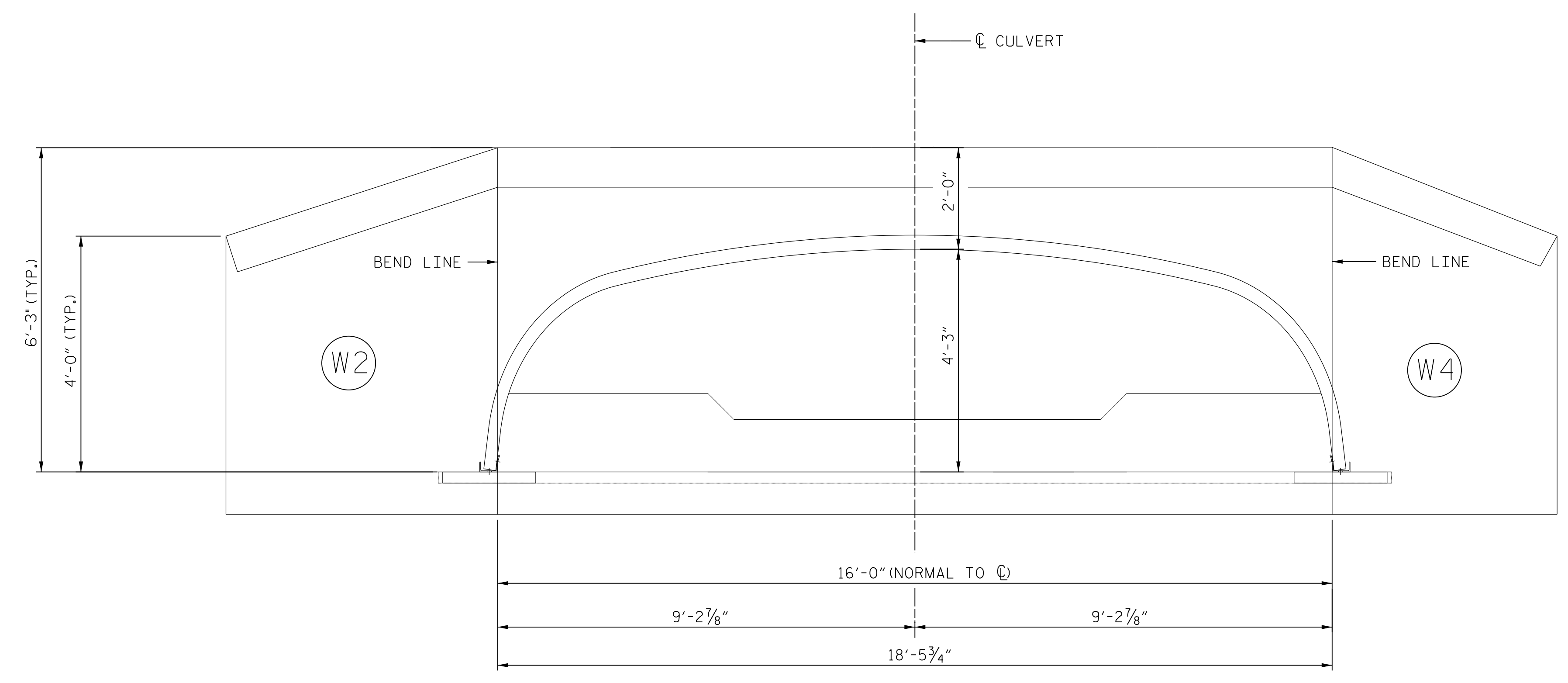
	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
	16'-0" X 4'-3" CORUGATED ALUMINUM BOX CULVERT ON SR 1500 AT WATAUGA CREEK BETWEEN ELDERS RD AND WILD STRAWBERRY LN	
THE LOUIS BERGER GROUP, Inc. 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840		REVISIONS NO. BY: DATE: NO. BY: DATE: 1 3 2 4
		SHEET NO. C-2 TOTAL SHEETS 3

DRAWN BY : M. HOGAN	DATE : 07/14	M. Hogan	DATE : 01/18
CHECKED BY : R. DECOLA	DATE : 11/14	F. Asefnia	DATE : 01/18
DESIGN ENGINEER OF RECORD : S. COOK	DATE : 5/15	F. Asefnia	DATE : 01/18

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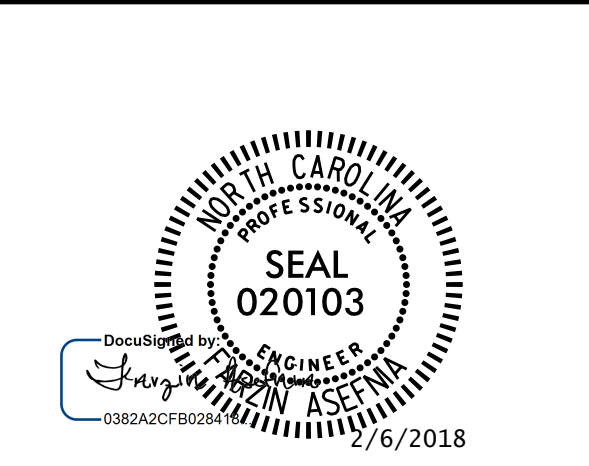
INLET END VIEW



OUTLET END VIEW

PROJECT NO. 17BP.14.R.48
 _____ MACON _____ COUNTY
 STATION: 12+06.48 -L-
 SHEET 3 OF 3

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 16'-0" X 4'-3" CORRUGATED
 ALUMINUM BOX CULVERT
 ON SR 1500
 AT WATAUGA CREEK
 BETWEEN ELDERS RD AND
 WILD STRAWBERRY LN

DRAWN BY : M. HOGAN	DATE : 07/14	M. Hogan	DATE : 01/18
CHECKED BY : R. DECOLA	DATE : 11/14	F. Asefnia	DATE : 01/18
DESIGN ENGINEER OF RECORD : S. COOK	DATE : 5/15	F. Asefnia	DATE : 01/18

THE LOUIS BERGER GROUP, Inc. 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO.		
	NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
	1			3			TOTAL SHEETS
	2			4			3

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

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