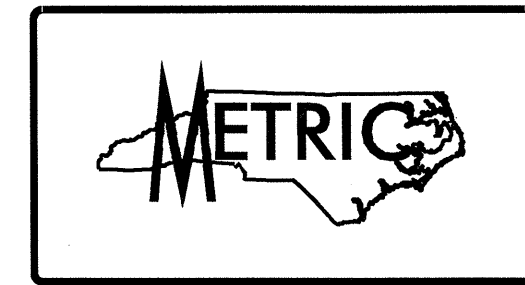
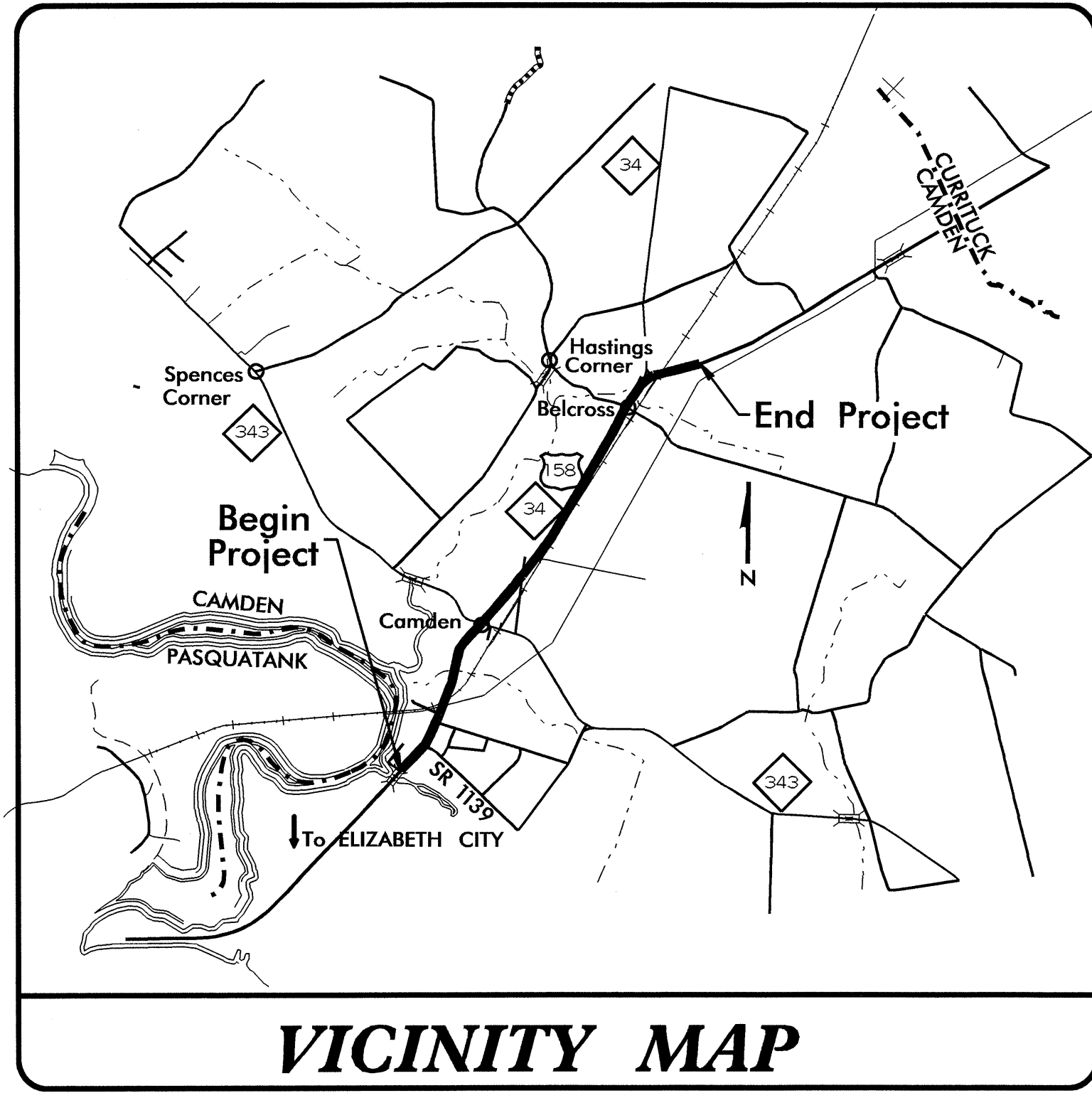


CONTRACT: C202241 TIP PROJECT: R-2414B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

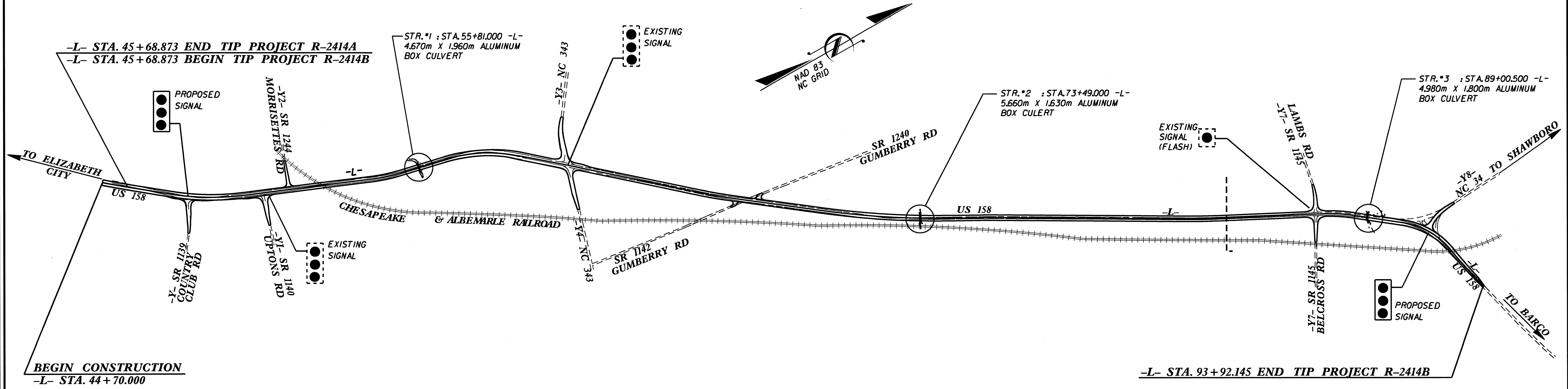
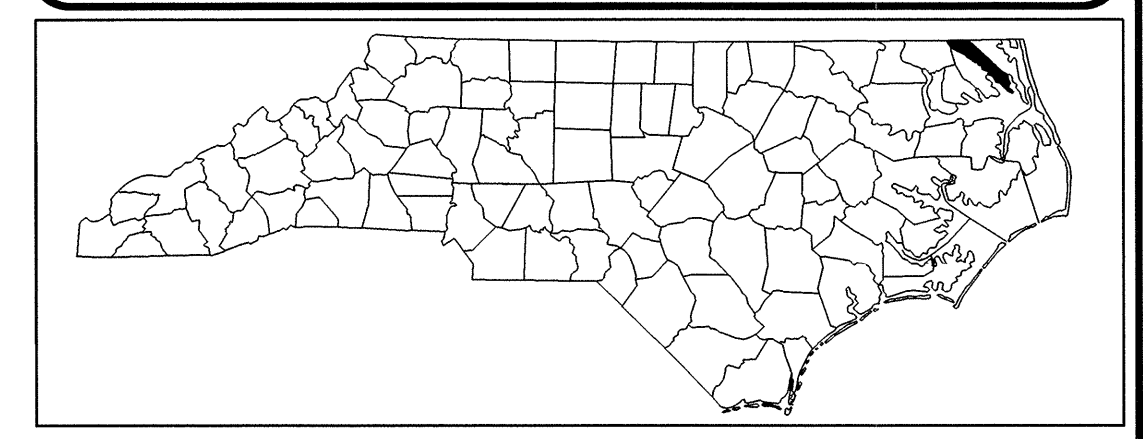


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2414B		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34430.1.1	STP-158(2)	PE	
34430.2.5		RW & UTIL.	
34430.3.3		CONST.	

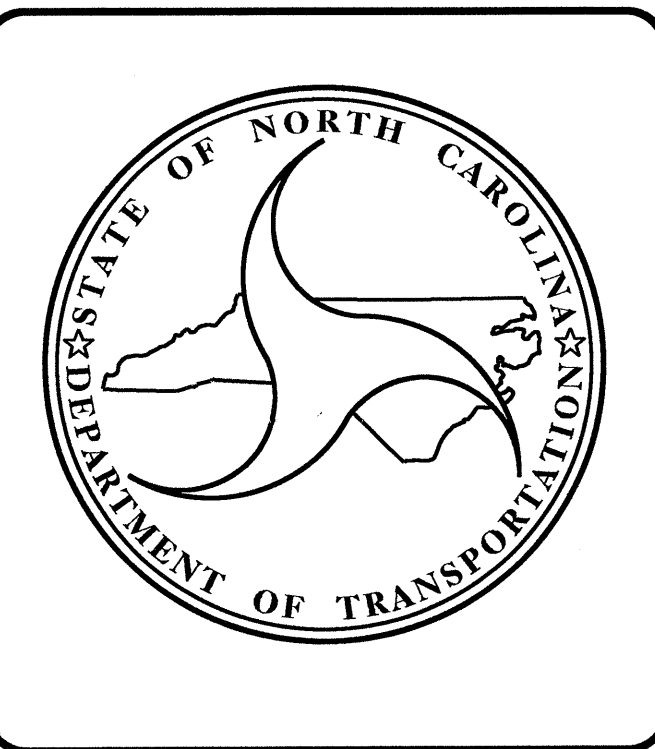


LOCATION: US 158 FROM NORTH OF SR 1257 (HAVENWOOD DRIVE) TO EAST OF NC 34 IN BELCROSS

TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING, CURB & GUTTER, SIGNALS & STRUCTURES



CULVERTS



DESIGN DATA

ADT 2009 =	26,000
ADT 2029 =	41,500
DHV =	12 %
D =	60 %
T =	6 % *
V =	80 KMH
* (TTST 2 % + DUAL 4 %)	
FUNC. CLASS. =	ARTERIAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2414B =	4.823 KM
TOTAL LENGTH OF TIP PROJECT R-2414B =	4.823 KM

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 21, 2011	N. N. BULLOCK, PE PROJECT ENGINEER
	D. R. CALHOUN, PE PROJECT DESIGN ENGINEER

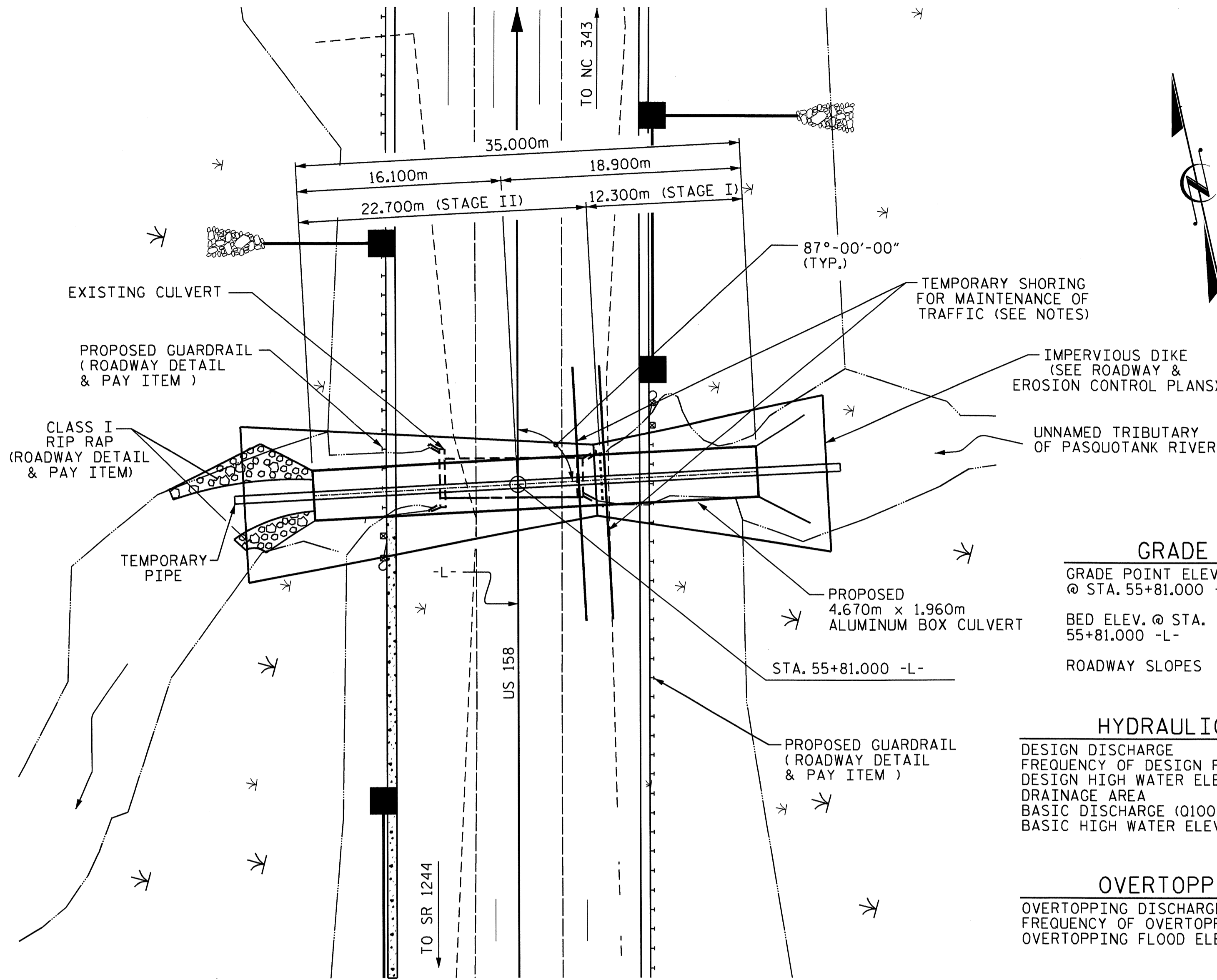
STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

21-APR-2011 12:10 R:\S:\Structure\2414b\Final Plans\Aluminum\R2414B-s.dwg TSH.dgn Dng:rdy



GRADE DATA

GRADE POINT ELEV. @ STA. 55+81.000 -L-	= 2.250
BED ELEV. @ STA. 55+81.000 -L-	= -0.745
ROADWAY SLOPES	= 3 : 1

HYDRAULIC DATA

DESIGN DISCHARGE	= 11.7 m ³ /s
FREQUENCY OF DESIGN FLOOD	= 50 yr.
DESIGN HIGH WATER ELEVATION	= 1.580
DRAINAGE AREA	= 3.63 sq.km
BASIC DISCHARGE (Q100)	= 14.9 m ³ /s
BASIC HIGH WATER ELEVATION	= 2.010

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 16.2 m ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 100 yr.
OVERTOPPING FLOOD ELEVATION	= 2.232

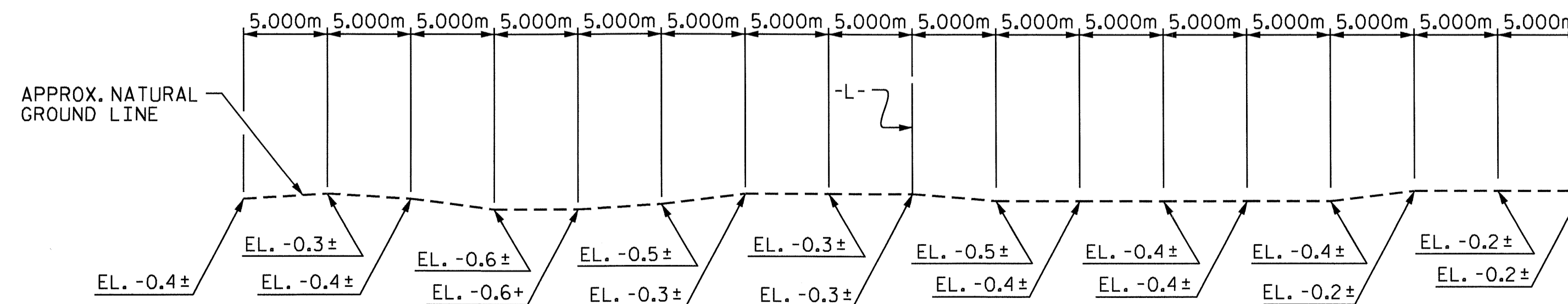
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

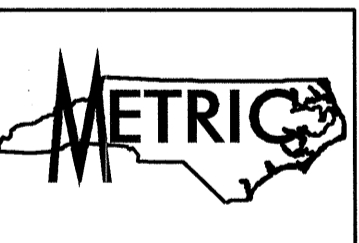
- ASSUMED LIVE LOAD -----MS22.5 OR ALTERNATE LOADING.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS ARE IN METERS.
- CULVERT IS TO BE DESIGNED FOR A MINIMUM FILL DEPTH OF 1.09m AND A MAXIMUM FILL DEPTH OF 1.27m.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- FOR ALUMINUM BOX CULVERT AND FOUNDATIONS, SEE SPECIAL PROVISIONS FOR ALUMINUM BOX CULVERT.
- ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JULY 2006.
- 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.
- GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR INSTALLATION.
- THE EXISTING 2.38m x 1.09m CULVERT WITH A 11.06m LENGTH AND A 250mm TOP SLAB AND LOCATED AT THE PROPOSED CULVERT SITE SHALL BE REMOVED. PAYMENT FOR REMOVAL OF CULVERT WILL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- DO NOT PERFORM CULVERT CONSTRUCTION INCLUDING THE INSTALLATION OF IMPERVIOUS DIKE FOR CULVERT CONSTRUCTION UNTIL AFTER THE SETTLEMENT WAITING PERIOD.
- FOR FOUNDATION MATERIAL, SEE SPECIAL PROVISIONS.
- FOR CULVERT BACKFILL, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES	
ALUMINUM BOX CULVERT-----	LUMP SUM
CULVERT EXCAVATION -----	LUMP SUM
FOUNDATION MATERIAL -----	94 m. tons
CULVERT BACKFILL -----	509 m. tons



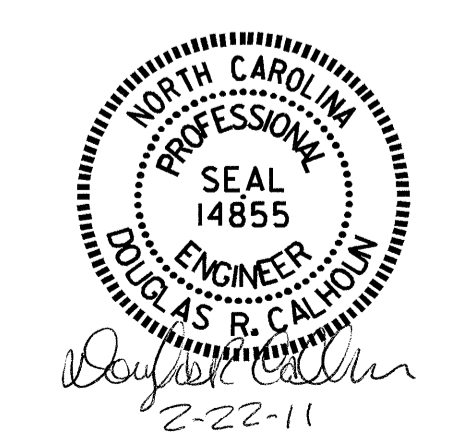
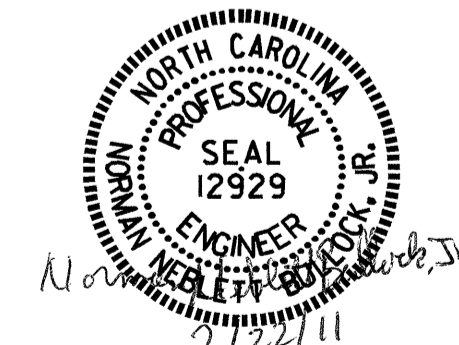
PROFILE ALONG CULVERT

DRAWN BY : B.N. GRADY DATE : 11/4/10
 CHECKED BY : D.R. CALHOUN DATE : 11/8/10



PROJECT NO. R-2414B
CAMDEN COUNTY
 STATION: 55+81.000 -L-

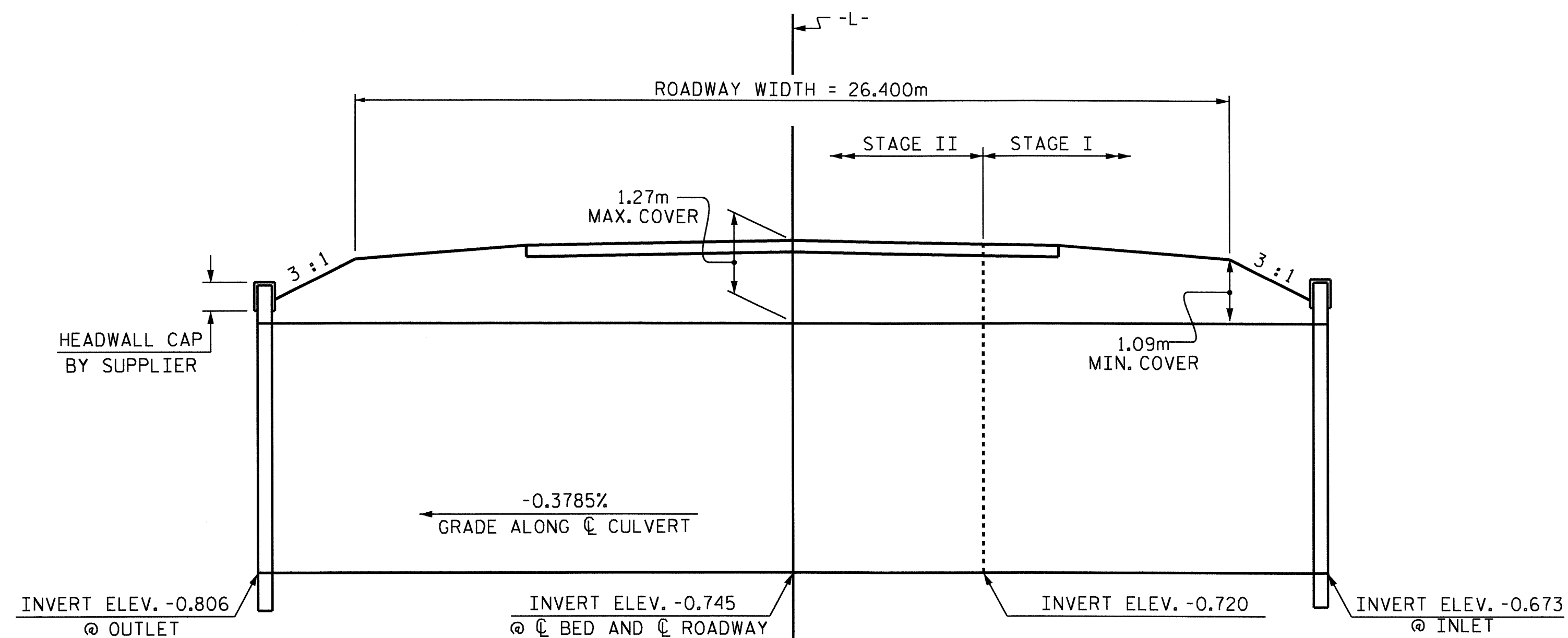
SHEET 1 OF 2



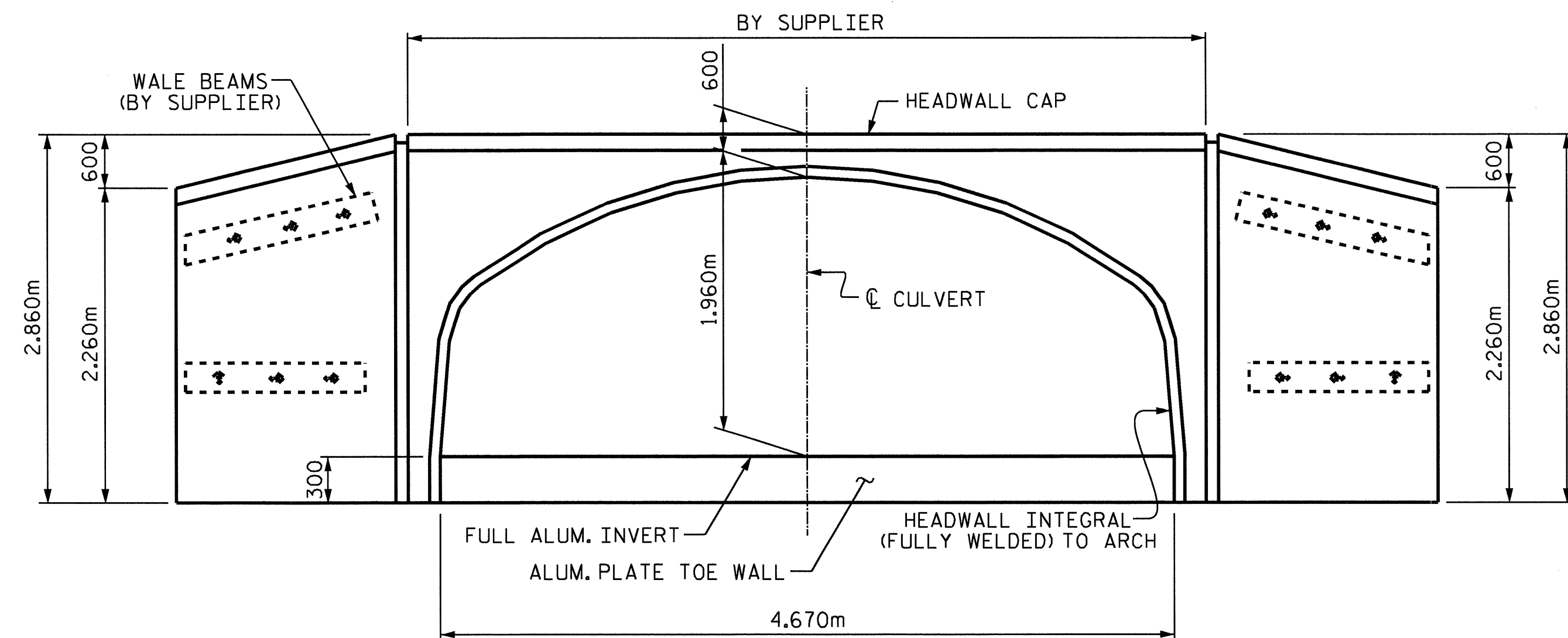
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 4.670m x 1.960m
 ALUMINUM BOX CULVERT
 90° SKEW

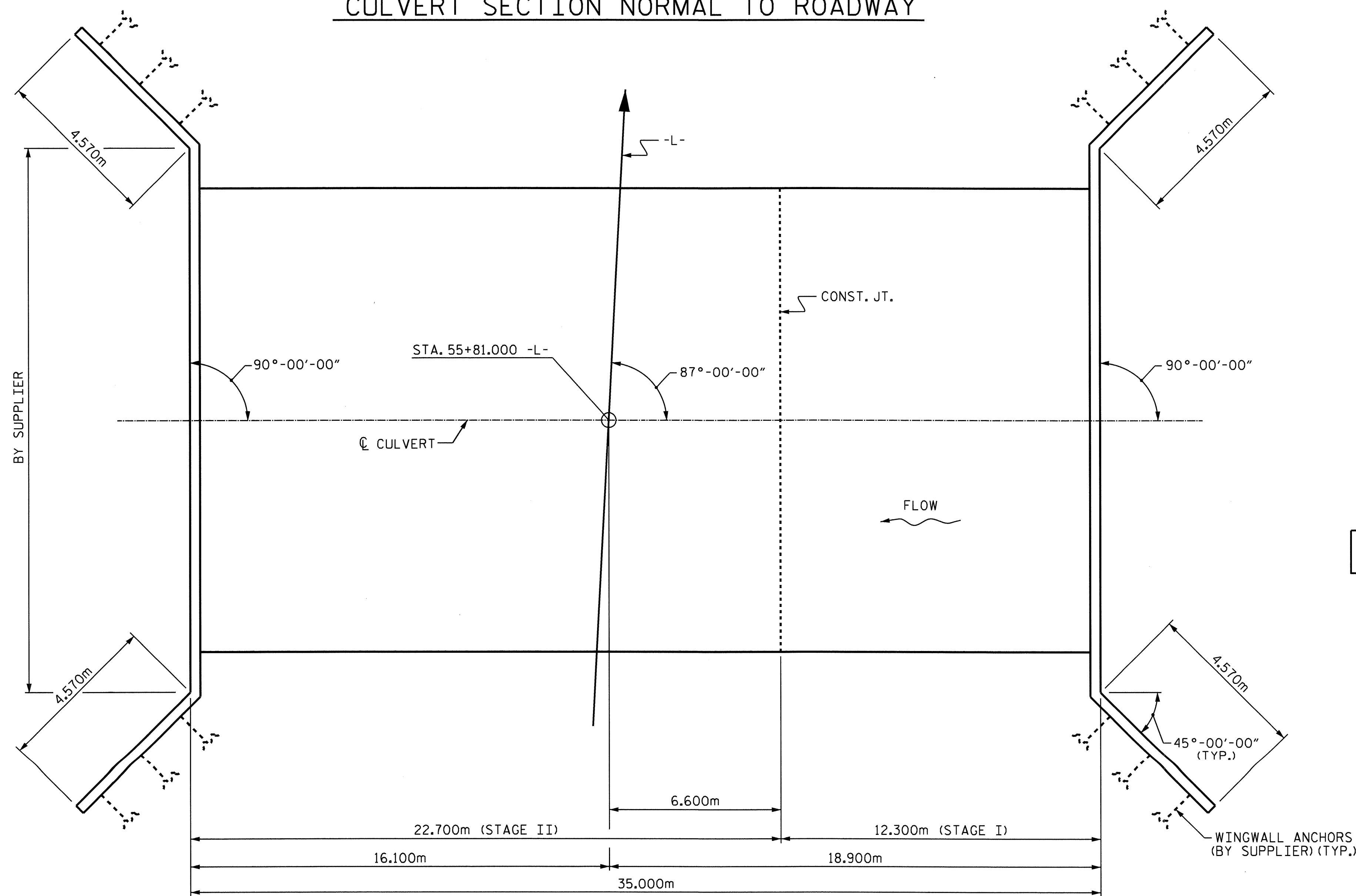
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NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
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2			4			7



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PLAN VIEW

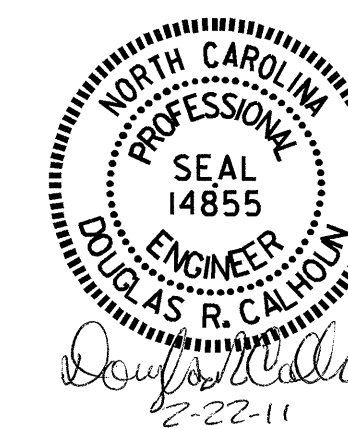
NOT TO SCALE

PROJECT NO. R-2414B
CAMDEN COUNTY
 STATION: 55+81.000 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

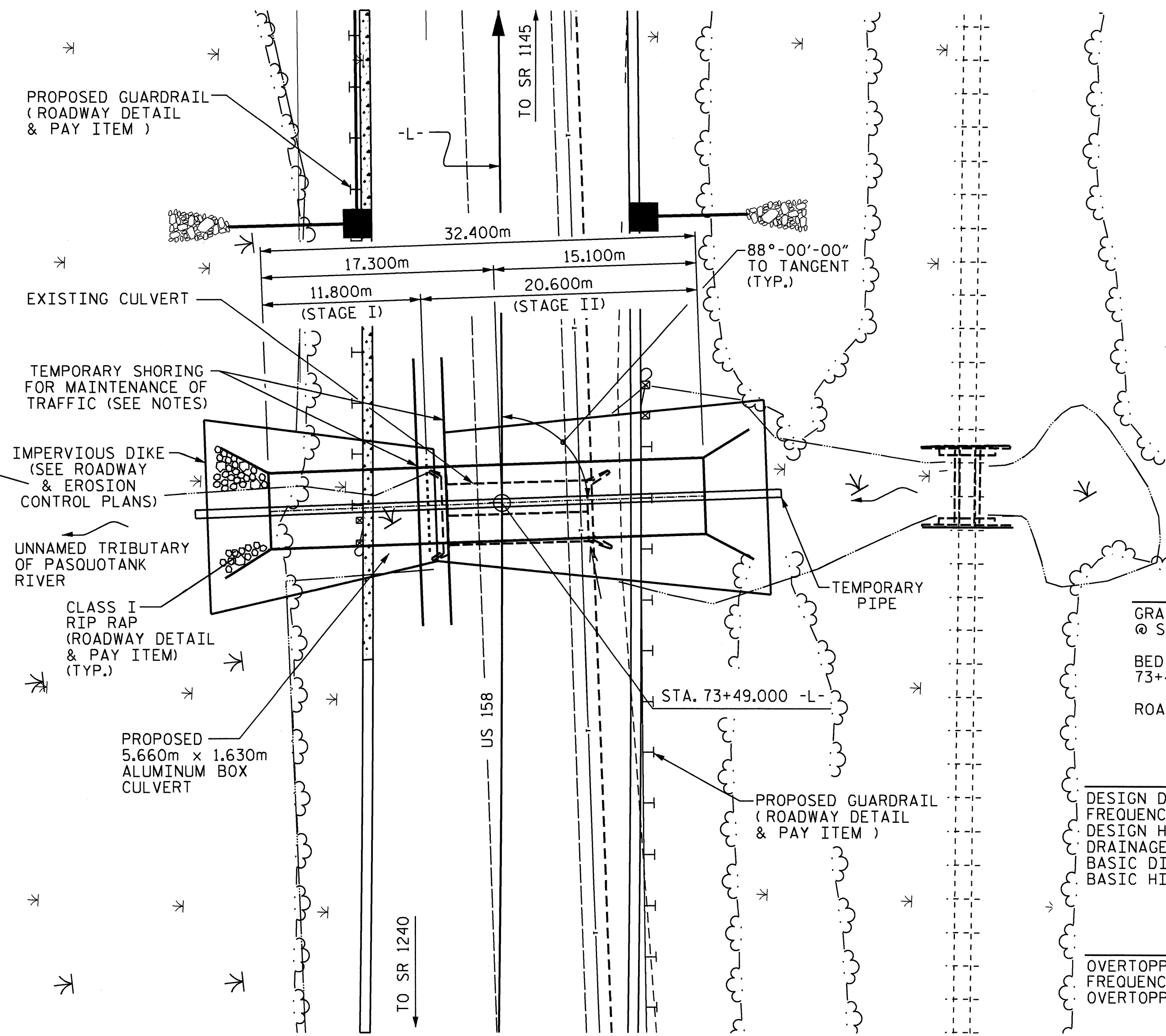
SINGLE 4.670m x 1.960m
 ALUMINUM BOX CULVERT
 90° SKEW



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 CHECKED BY : D.R. CALHOUN DATE : 11/8/10

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 bngrody

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			7



GRADE DATA

GRADE POINT ELEV. @ STA. 73+49.000 -L-	= 2.103
BED ELEV. @ STA. 73+49.000 -L-	= -0.447
ROADWAY SLOPES	= 3 : 1

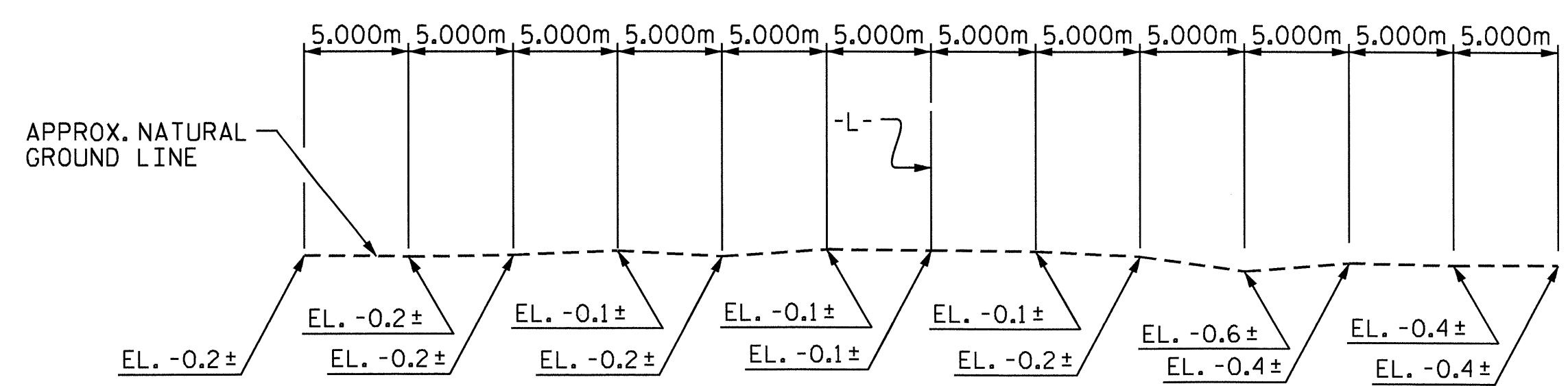
HYDRAULIC DATA

DESIGN DISCHARGE	= 12.5 m ³ /s
FREQUENCY OF DESIGN FLOOD	= 50 yr.
DESIGN HIGH WATER ELEVATION	= 1.270
DRAINAGE AREA	= 4.07 sq.km
BASIC DISCHARGE (0100)	= 16.0 m ³ /s
BASIC HIGH WATER ELEVATION	= 1.550

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 18.3 m ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 100+ yr.
OVERTOPPING FLOOD ELEVATION	= 1.820

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.
LOCATION SKETCH



PROFILE ALONG CULVERT

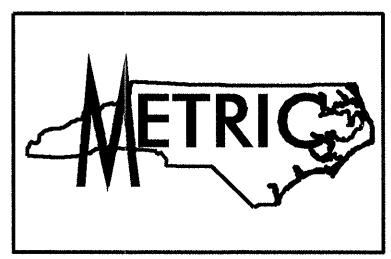
DRAWN BY : B.N. GRADY DATE : 11/5/10
CHECKED BY : D.R. CALHOUN DATE : 11/8/10

NOTES

- ASSUMED LIVE LOAD -----MS22.5 OR ALTERNATE LOADING.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS ARE IN METERS.
- CULVERT IS TO BE DESIGNED FOR A MINIMUM FILL DEPTH OF 0.90m AND A MAXIMUM FILL DEPTH OF 1.20m.
- 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 ALUMINUM BOX CULVERT AND FOUNDATIONS, SEE SPECIAL PROVISIONS FOR ALUMINUM BOX CULVERT.
- ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JULY 2006.
- 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 LFRD 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.
- GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR INSTALLATION.
- THE EXISTING 3.78m x 1.13m CULVERT WITH A 10.04m LENGTH AND AN UNKNOWN TOP SLAB THICKNESS AND LOCATED AT THE PROPOSED CULVERT SITE SHALL BE REMOVED. PAYMENT FOR REMOVAL OF CULVERT WILL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- DO NOT PERFORM CULVERT CONSTRUCTION INCLUDING THE INSTALLATION OF IMPERVIOUS DIKE FOR CULVERT CONSTRUCTION UNTIL AFTER THE SETTLEMENT WAITING PERIOD.
- FOR FOUNDATION MATERIAL, SEE SPECIAL PROVISIONS.
- FOR CULVERT BACKFILL, SEE SPECIAL PROVISIONS.

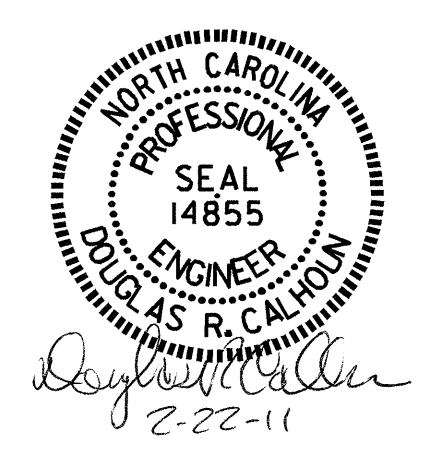
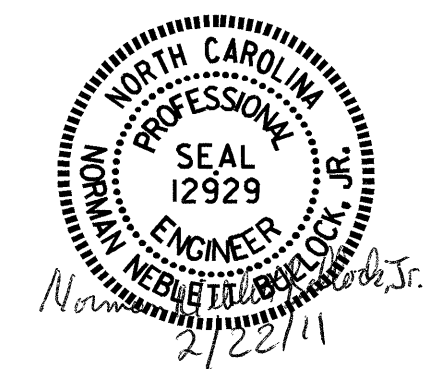
TOTAL STRUCTURE QUANTITIES

ALUMINUM BOX CULVERT	----- LUMP SUM
CULVERT EXCAVATION	----- LUMP SUM
FOUNDATION MATERIAL	----- 106 m. tons
CULVERT BACKFILL	----- 480 m. tons



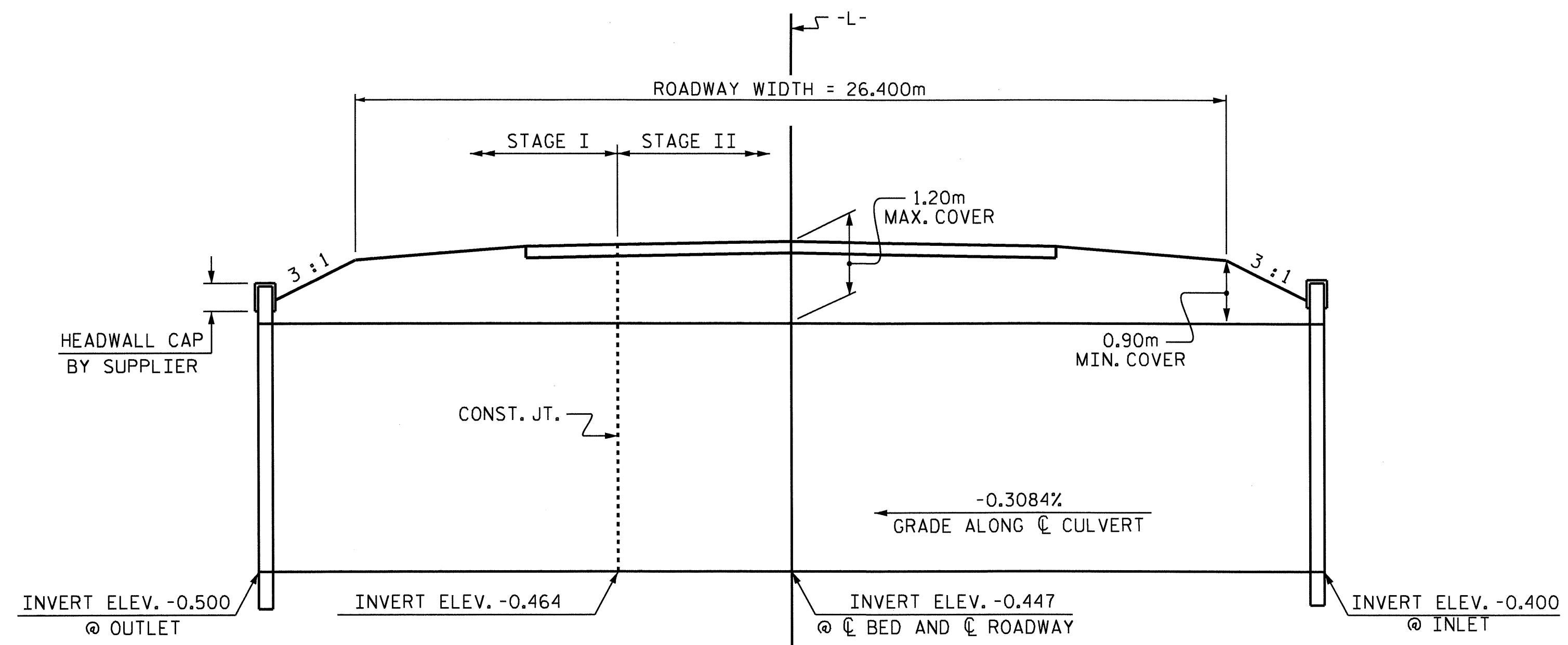
PROJECT NO. R-2414B
CAMDEN COUNTY
STATION: 73+49.000 -L-

SHEET 1 OF 2

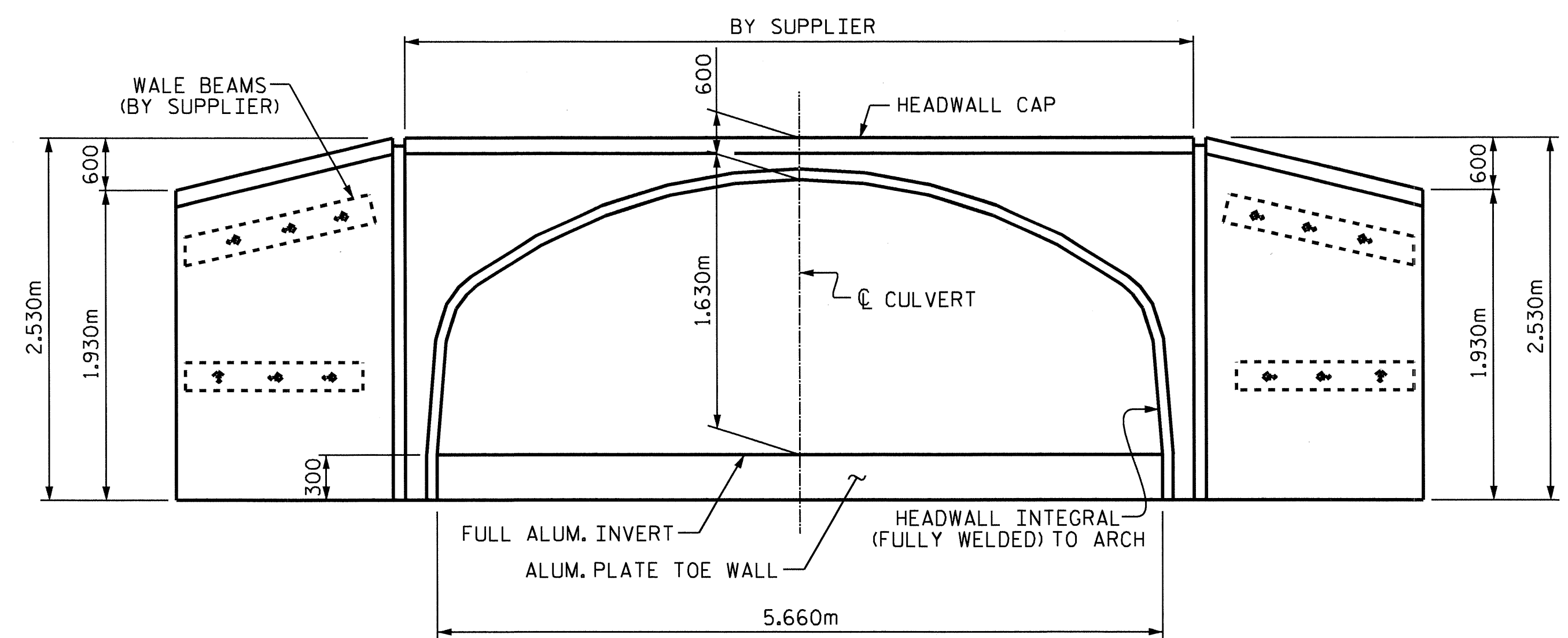


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SINGLE 5.660m x 1.630m
ALUMINUM BOX CULVERT
90° SKEW**

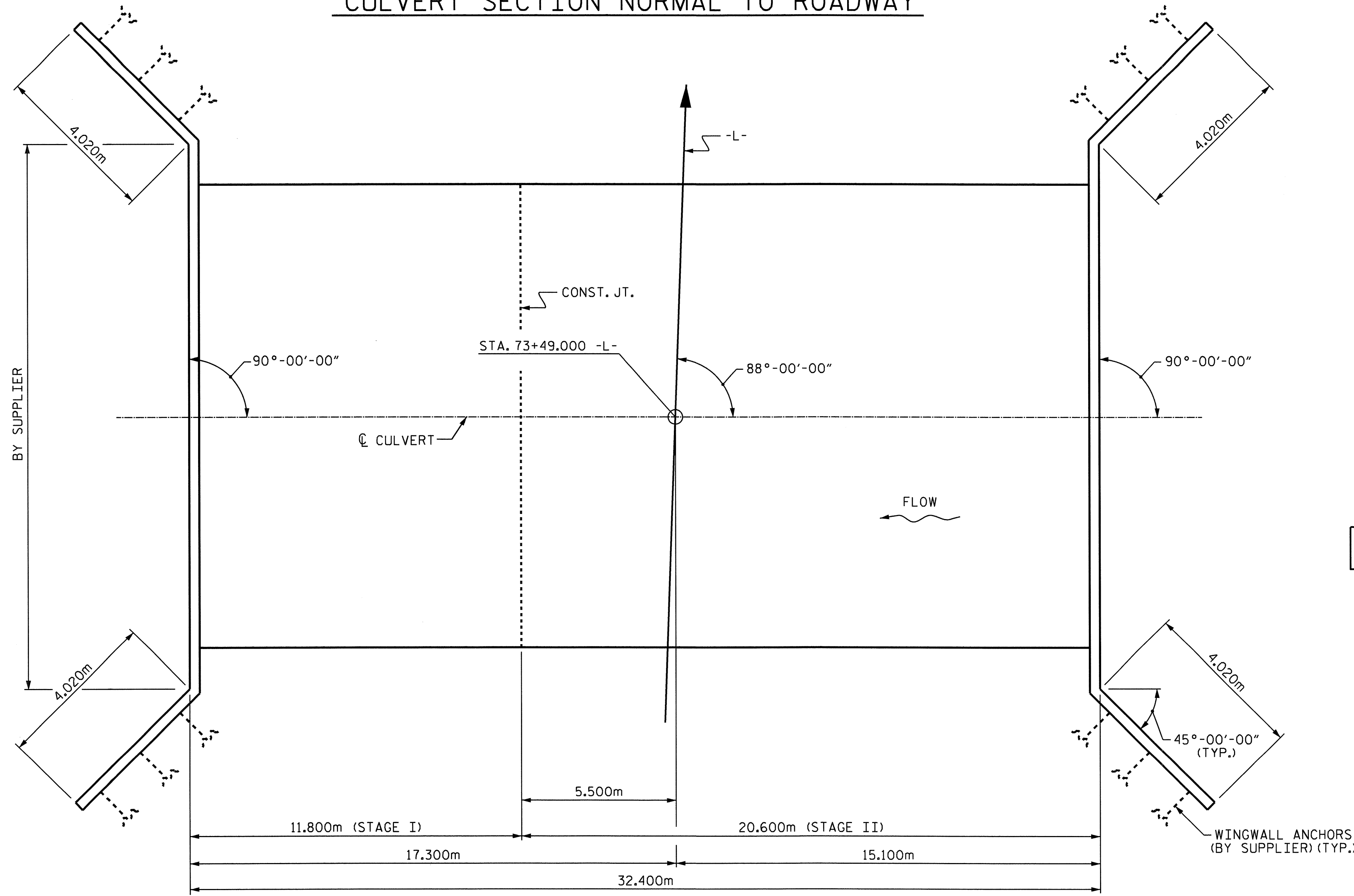
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2			4			7



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PLAN VIEW

NOT TO SCALE

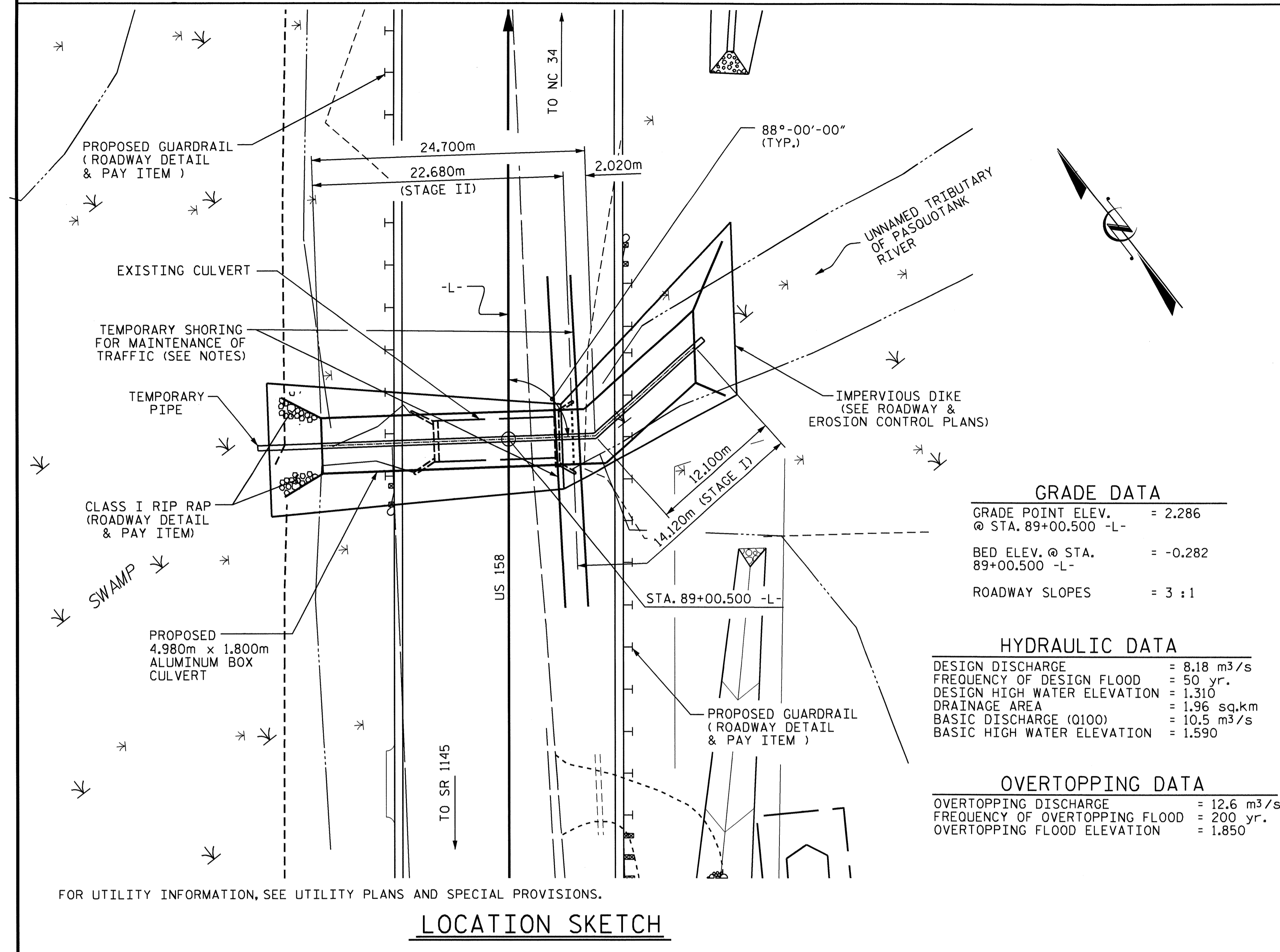
PROJECT NO. R-2414B
 CAMDEN COUNTY
 STATION: 73+49.000 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 5.660m x 1.630m
 ALUMINUM BOX CULVERT
 90° SKEW



DRAWN BY: B.N. GRADY DATE: 11/5/10
 CHECKED BY: D.R. CALHOUN DATE: 11/8/10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4
1			3			TOTAL SHEETS
2			4			7



LOCATION SKETCH

GRADE DATA

GRADE POINT ELEV. @ STA. 89+00.500 -L-	= 2.286
BED ELEV. @ STA. 89+00.500 -L-	= -0.282
ROADWAY SLOPES	= 3 : 1

HYDRAULIC DATA

DESIGN DISCHARGE	= 8.18 m ³ /s
FREQUENCY OF DESIGN FLOOD	= 50 yr.
DESIGN HIGH WATER ELEVATION	= 1.310
DRAINAGE AREA	= 1.96 sq.km
BASIC DISCHARGE (Q100)	= 10.5 m ³ /s
BASIC HIGH WATER ELEVATION	= 1.590

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 12.6 m ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 200 yr.
OVERTOPPING FLOOD ELEVATION	= 1.850

NOTES

ASSUMED LIVE LOAD -----MS22.5 OR ALTERNATE LOADING.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

CULVERT IS TO BE DESIGNED FOR A MINIMUM FILL DEPTH OF 1.07m AND A MAXIMUM FILL DEPTH OF 1.51m.

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 ALUMINUM BOX CULVERT AND FOUNDATIONS, SEE SPECIAL PROVISIONS FOR ALUMINUM BOX CULVERT.

ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JULY 2006.

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.

GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR INSTALLATION.

THE EXISTING 3.05m x 1.58m CULVERT WITH A 11.22m LENGTH AND A 460mm TOP SLAB AND LOCATED AT THE PROPOSED CULVERT SITE SHALL BE REMOVED. PAYMENT FOR REMOVAL OF CULVERT WILL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

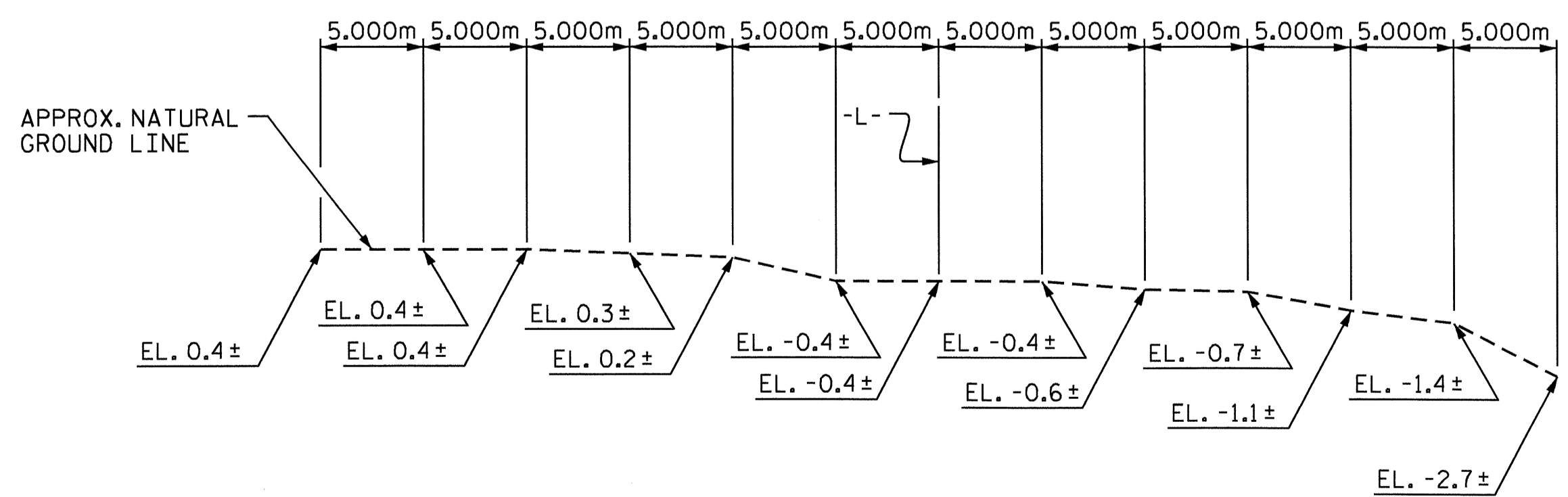
DO NOT PERFORM CULVERT CONSTRUCTION INCLUDING THE INSTALLATION OF IMPERVIOUS DIKE FOR CULVERT CONSTRUCTION UNTIL AFTER THE SETTLEMENT WAITING PERIOD.

FOR FOUNDATION MATERIAL, SEE SPECIAL PROVISIONS.

FOR CULVERT BACKFILL, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES

ALUMINUM BOX CULVERT-----	LUMP SUM
CULVERT EXCAVATION -----	LUMP SUM
FOUNDATION MATERIAL -----	106 m. tons
CULVERT BACKFILL -----	519 m. tons

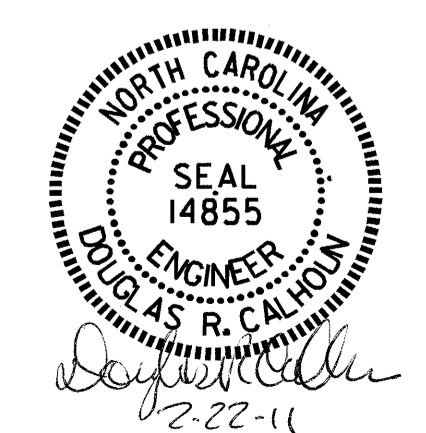
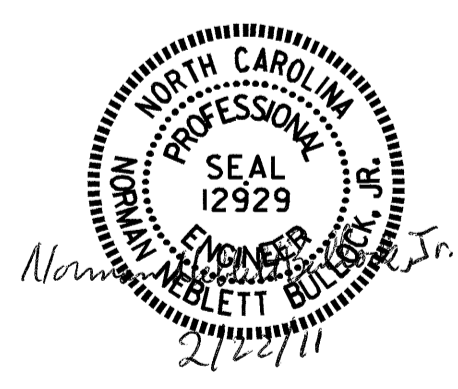


PROFILE ALONG CULVERT

DRAWN BY : B.N. GRADY DATE : 11/5/10
 CHECKED BY : D.R. CALHOUN DATE : 11/8/10



PROJECT NO. R-2414B
 CAMDEN COUNTY
 STATION: 89+00.500 -L-

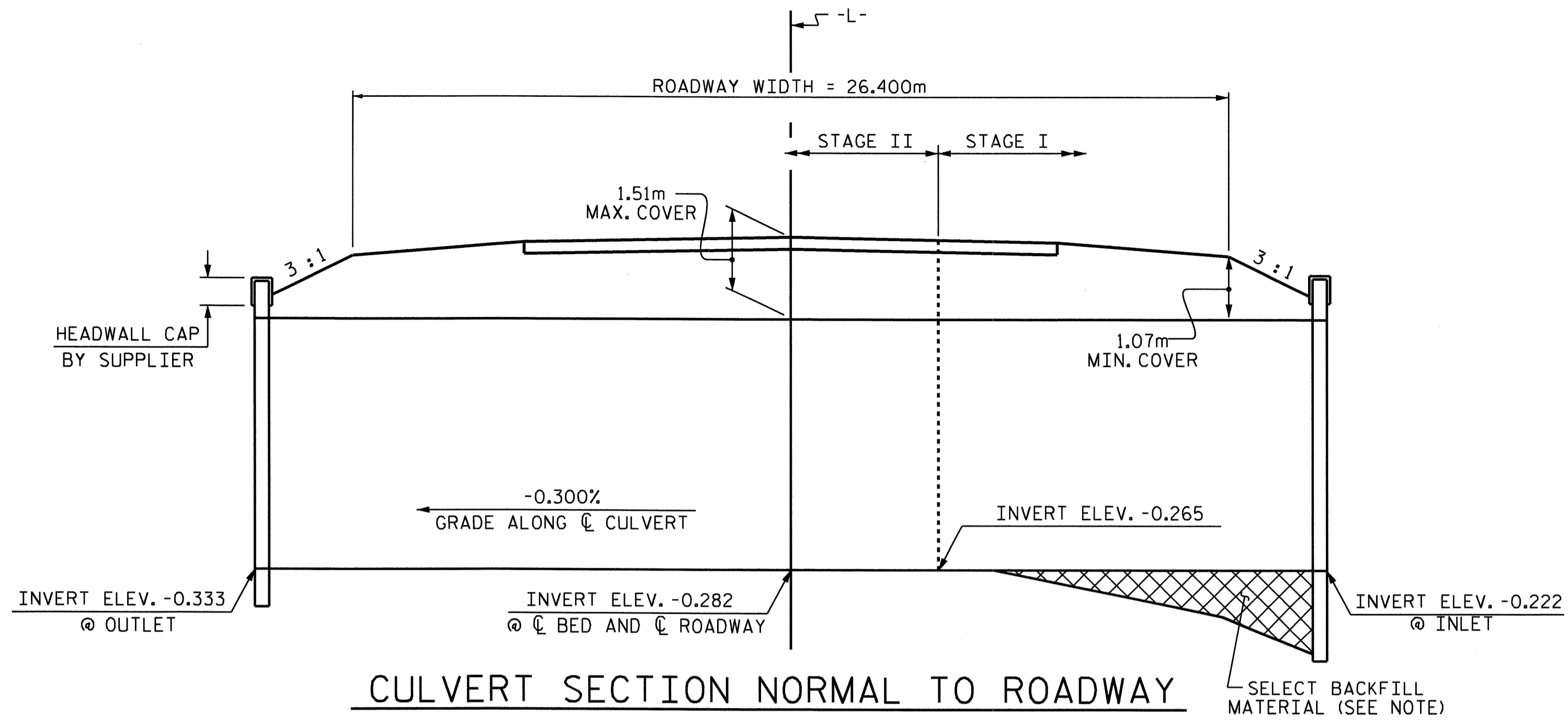


SHEET 1 OF 3

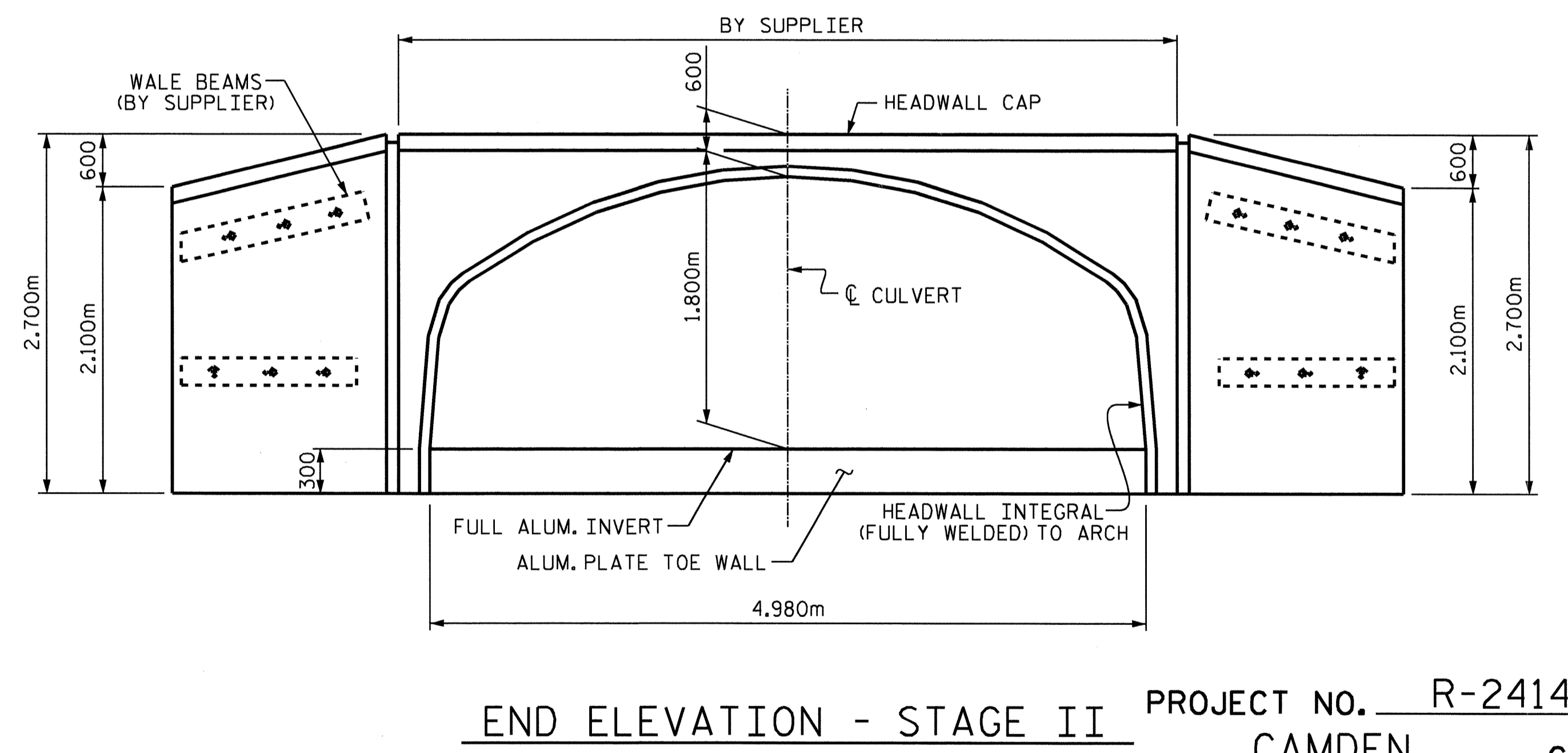
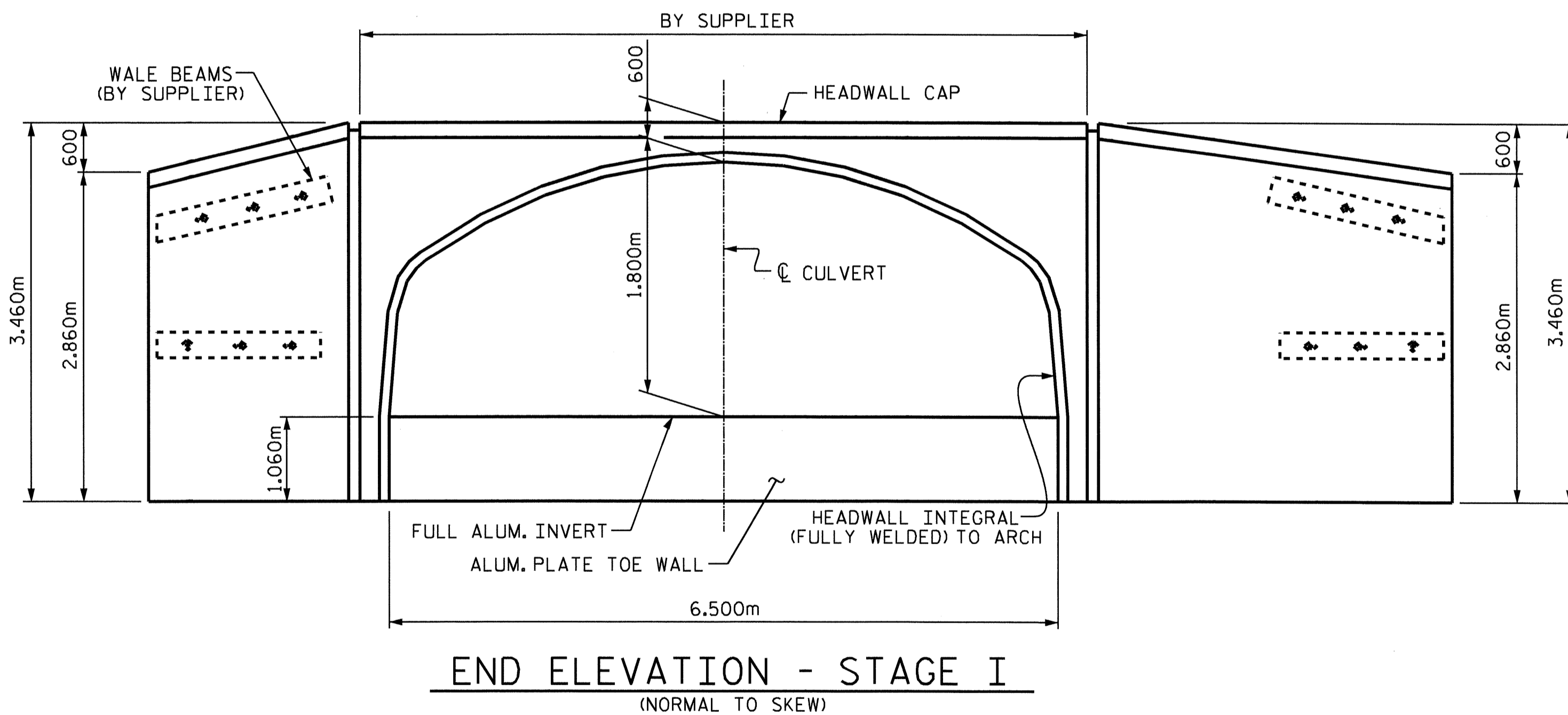
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 4.980m x 1.800m
 ALUMINUM BOX CULVERT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			7



NOTE: PAYMENT FOR THE SELECT BACKFILL MATERIAL WILL BE INCLUDED IN THE VARIOUS PAY ITEMS.

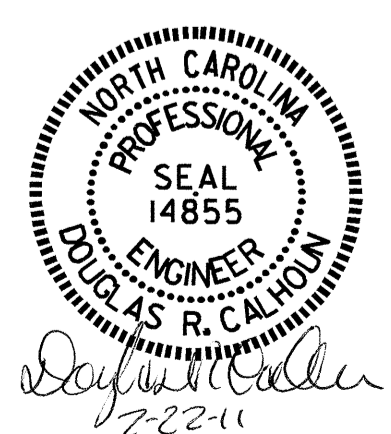


PROJECT NO. R-2414B
 CAMDEN COUNTY
 STATION: 89+00.500 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 4.980m x 1.800m
 ALUMINUM BOX CULVERT

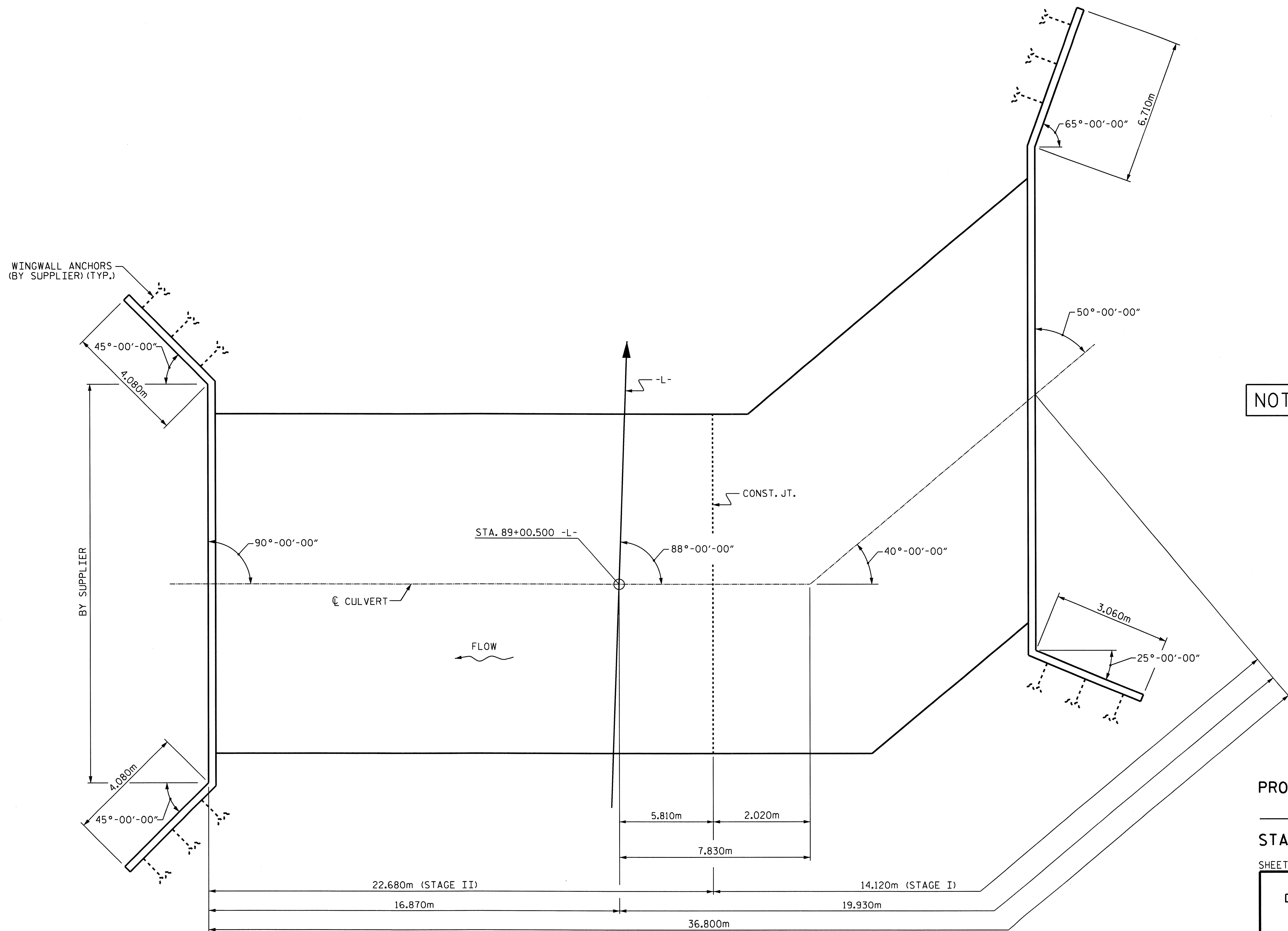


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2			4			7	

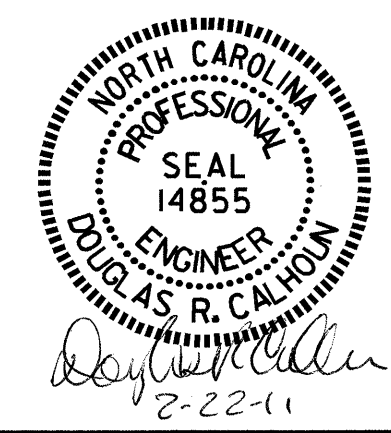
WINGWALL ANCHORS
(BY SUPPLIER) (TYP.)



NOT TO SCALE

PROJECT NO. R-2414B
CAMDEN COUNTY
 STATION: 89+00.500 -L-

SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 4.980m x 1.800m
 ALUMINUM BOX CULVERT



PLAN VIEW

DRAWN BY : B.N. GRADY DATE : 11/5/10
 CHECKED BY : D.R. CALHOUN DATE : 11/8/10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			7

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 bngrady

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 250	--	140 MPa
- AASHTO M270 GRADE 345W	--	190 MPa
- AASHTO M270 GRADE 345	--	190 MPa
REINFORCING STEEL IN TENSION		
GRADE 420	--	165 MPa
CONCRETE IN COMPRESSION	-----	8.3 MPa
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	12 MPa
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER		
-----	-----	2.6 MPa
EQUIVALENT FLUID PRESSURE OF EARTH	-----	480 kg/m ³
		(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 2006 "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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 19mm WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 38mm RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 6mm 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 6mm 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 300mm 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 22.23mm Ø SHEAR STUDS FOR THE 19.05mm Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 22.23mm Ø STUDS FOR 4 - 19.05mm Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 22.23mm Ø STUDS ALONG THE BEAM AS SHOWN FOR 19.05mm Ø STUDS BASED ON THE RATIO OF 3 - 22.23mm Ø STUDS FOR 4 - 19.05mm Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 610mm. 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 8mm IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 50mm 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. PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11. 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 2mm 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. FINIS 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.

METRIC

JANUARY, 1990