TIP PROJECT: U-3812

CONTRACT: C202744

STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3812		

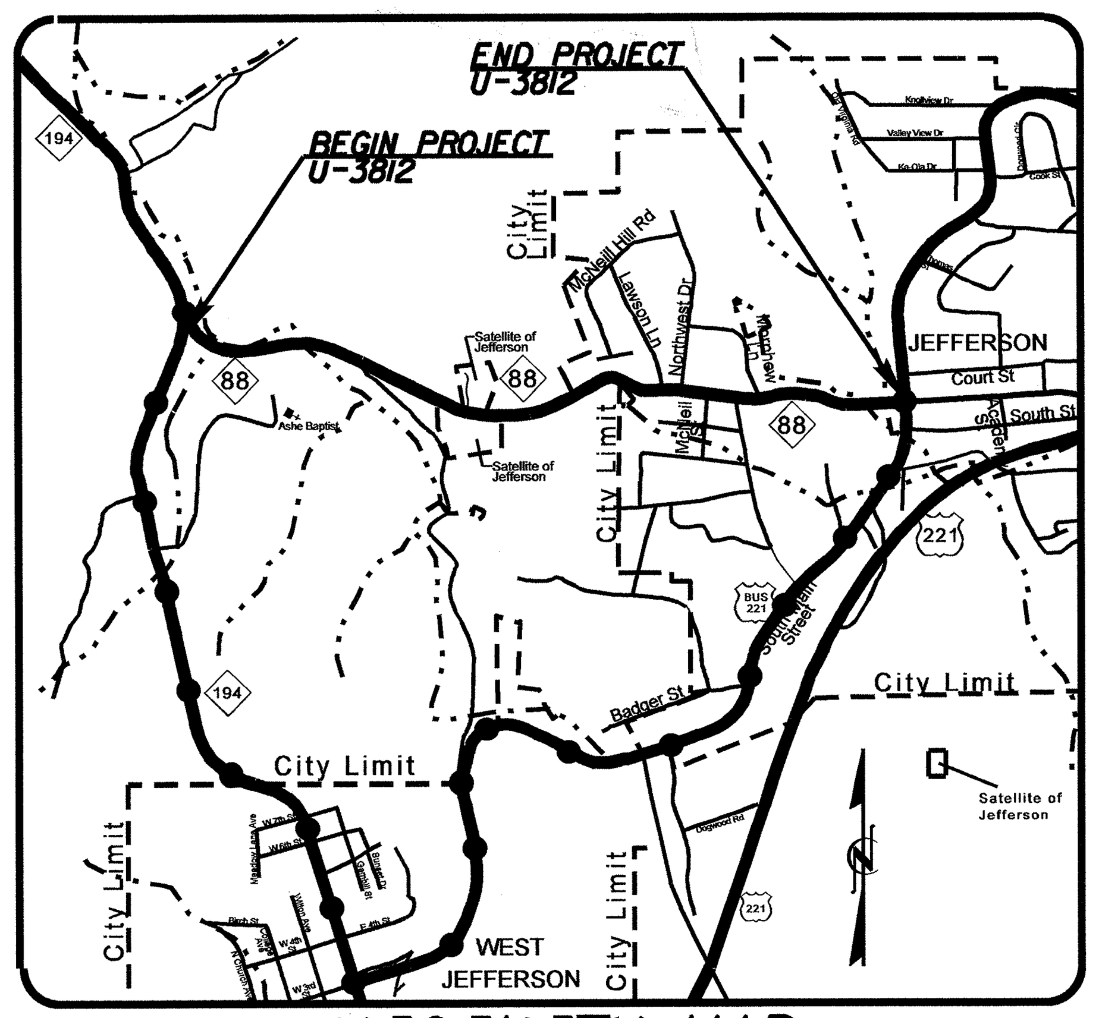
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34977.2.1	STP-88(2)	P.E.
34977.2.2.1	STP-88(2)	R/W & UTIL.
34977.3.1	STP-88(6)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

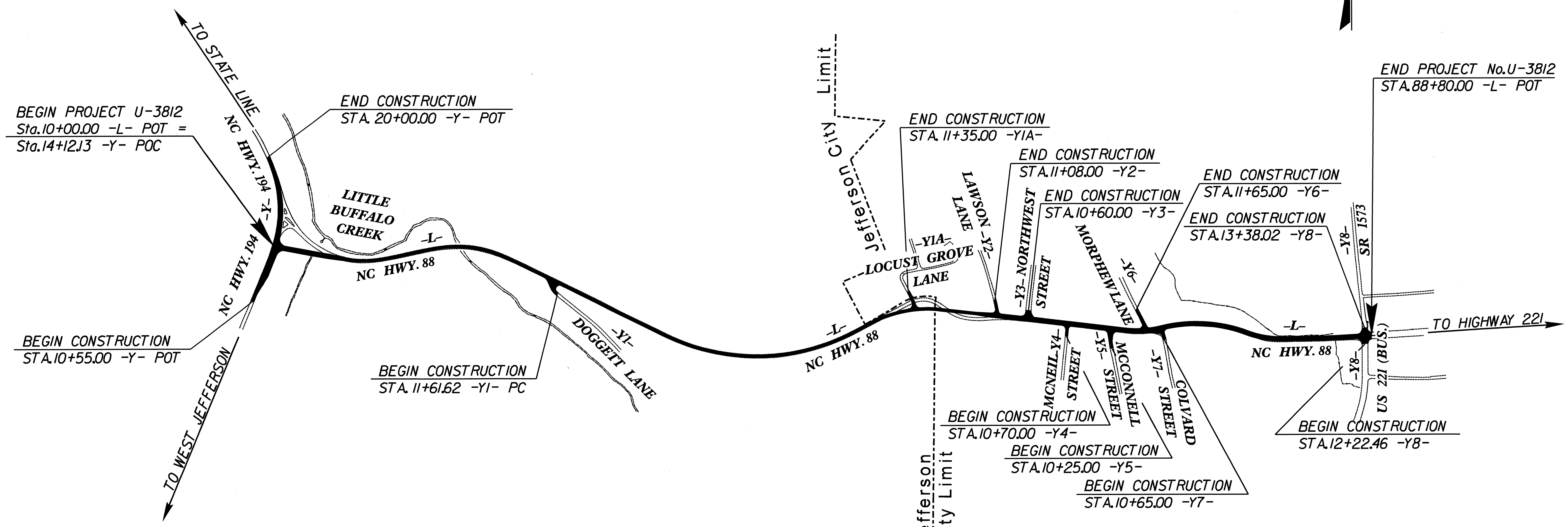
LOCATION: NC 88 (WEST MAIN ST.) FROM NC 194 TO US 221 BUSINESS (SOUTH MAIN ST.).

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS, CULVERT AND RETAINING WALL.



VICINITY MAP

DETOUR ROUTE = ●—●—●—●



DESIGN DATA

ADT 2009 = 8,700
ADT 2030 = 13,300
DHV = 12 %
D = 60 %
T = 6 % *
V = 50 MPH (Rural)
V = 35 MPH (Urban)
* TTST 1% DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT No. U-3812 = 1.492 MILES

LENGTH ROADWAY F. A. PROJECT No. STP-88 (6) = 1.492 MILES

TOTAL ROADWAY LENGTH STATE PROJECT No. U-3812 = 1.492 MILES

Prepared in the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 17, 2012

J.M. BAILEY, P.E.
PROJECT ENGINEER

D.A. DAVENPORT, JR., P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 Birch Ridge Drive
Raleigh NC, 27610

P.E.
STATE BRIDGE DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANPORTATION
FEDERAL HIGHWAY ADMINISTRATION

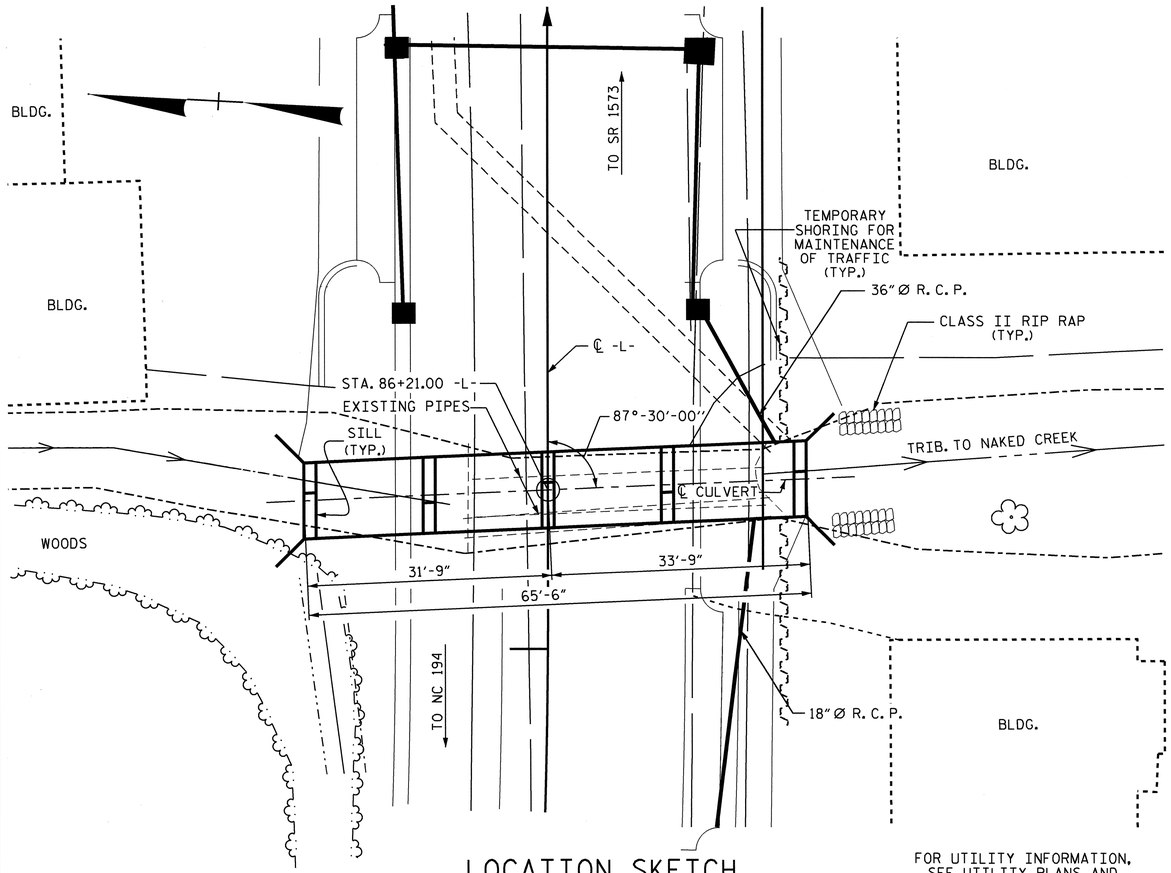
APPROVED
ENGINEER DIVISION ADMINISTRATION *DATE*

09/08/99

17-OCT-2011 09:08
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
adavenport

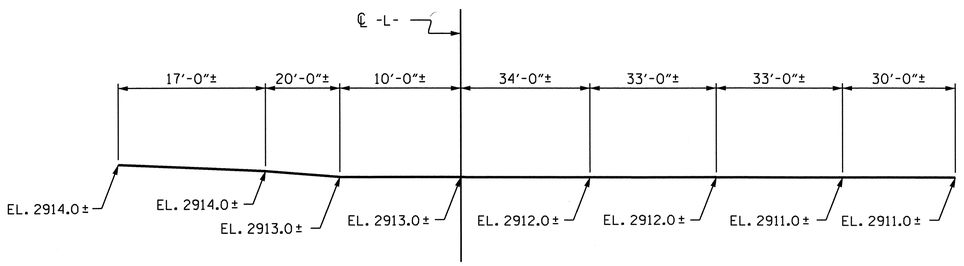
26-OCT-2011 10:01
R:\Structures\mshaikh\Microstation\U-3812_SD_CU.dgn
adavenport

BENCH MARK #6 : RAIL ROAD SPIKE IN BASE OF 12'' Ø POPLAR, BASE LINE OFFSET 221 FT. LEFT OF STA. 79+11.00 -L- ELEV. 2925.530



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS



PROFILE ALONG ℄ CULVERT

NOTES

ASSUMED LIVE LOAD, HS20-44 OR ALTERNATE LOADING.

FOR OTHER STANDARD DATA AND NOTES SEE SHEET S-N.

DESIGN EARTH COVER = 2.42 FT.

3'' Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

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.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

THE CONCRETE FOR THE PRECAST UNITS SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 P.S.I.. THE CONCRETE FOR THE HEADWALLS, WINGS AND END CURTAIN WALLS SHALL BE CLASS "A" CONCRETE AS PER THE STANDARD SPECIFICATIONS.

CAST-IN-PLACE CONCRETE SHALL BE POURED AFTER THE ROADWAY IS OPEN TO TRAFFIC IN THE FOLLOWING ORDER:

1. WING FOOTINGS, AND CURTAIN WALL.
2. HEADWALLS, WING WALLS.

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.

ALL PRECAST UNITS SHALL BE PLACED PRIOR TO POURING THE WINGS, END CURTAIN WALLS AND HEADWALLS. THE EXTERIOR PRECAST UNITS SHALL BE UNDERMINED TO PROVIDE FOR THE WING FOOTINGS TO BE POURED TO THE DEPTH AND DIMENSIONS AS SHOWN ON THIS PLAN SHEET.

FOUNDATION CONDITIONING MATERIAL SHALL HAVE A THICKNESS OF AT LEAST 1'-0" BELOW THE BOTTOM OF THE PRECAST UNIT. THE MATERIAL SHALL BE FORMED AND SCREEDED TO THE PROPER ELEVATION AT LEAST 1'-0" BEYOND THE SIDES OF THE PRECAST UNIT.

THE PRECAST UNITS SHALL BE CAREFULLY POSITIONED ON THE PREPARED FOUNDATION CONDITIONING MATERIAL, FEMALE END UPGRADE WITH THE MALE END FULLY INSERTED AND EACH JOINT CHECKED FOR ALIGNMENT PRIOR TO JACKING THE UNIT INTO PLACE. SATISFACTORY FITTING AND PROPER GRADE SHALL BE MAINTAINED AS THE WORK PROCEEDS.

BED MATERIAL PLACED BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL BETWEEN THE LOWER SILLS. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS B RIP RAP. STONES LARGER THAN EIGHT INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.

WHEN ANY PRECAST UNIT IS DAMAGED DURING HANDLING, THE ENGINEER AT HIS DISCRETION SHALL REJECT THE UNIT AS BEING UNFIT FOR INSTALLATION AND THE CONTRACTOR SHALL REMOVE SUCH REJECTED UNIT FROM THE PROJECT. MINOR DAMAGE TO THE UNIT MAY BE REPAIRED BY THE CONTRACTOR WHEN PERMITTED BY THE ENGINEER.

CARE SHALL BE TAKEN DURING BACKFILL AND COMPACTION OPERATION TO MAINTAIN ALIGNMENT AND PREVENT DAMAGE TO THE JOINTS. UNITS WHICH BECOME MISALIGNED, SHOW EXCESSIVE SETTLEMENT, OR HAVE OTHERWISE BEEN DAMAGED BY THE CONTRACTOR'S OPERATION SHALL AT THE DISCRETION OF THE ENGINEER BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT OF TRANSPORTATION.

CONCRETE CHAMFERS ON EXTERIOR LONGITUDINAL EDGES OF THE PRECAST UNITS MAY BE AS PER THE FABRICATORS RECOMMENDATION, HOWEVER ALL WORKMANSHIP SHALL PROVIDE CONCRETE COVER OVER THE WELDED WIRE FABRIC AS SPECIFIED ON THE PLANS AND THE CONCRETE CHAMFERS CHOSEN SHALL IN NO WAY FUNCTIONALLY LESSEN THE DESIGN SHOWN ON THE PLANS.

FOR PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

THE CONTRACTOR'S ATTENTION IS DRAWN TO THE 36"Ø & 18"Ø PIPE THROUGH THE SIDEWALL OF THE CULVERT. THE LOCATIONS SHALL BE COORDINATED WITH THE ENGINEER. THE PIPES SHALL NOT BE PLACED IN THE SAME PRECAST UNIT.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

NO SEPARATE PAYMENT SHALL BE MADE FOR REMOVAL OF EXISTING 30"Ø & 60"Ø PIPES. COSTS FOR REMOVAL OF THE EXISTING PIPES SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR CULVERT EXCAVATION.

THE CONTRACTOR MAY CHOOSE TO CONSTRUCT A CAST-IN-PLACE CULVERT IN ACCORDANCE WITH THE INCLUDED PLANS AT NO ADDITIONAL COST TO THE DEPARTMENT. THE CONTRACT REQUIREMENTS WITH RESPECT TO CONSTRUCTION STAGING AND TIME SHALL BE SATISFIED REGARDLESS OF WHETHER A PRECAST OR CAST-IN-PLACE CULVERT IS CONSTRUCTED.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

ROADWAY DATA

GRADE POINT ELEV. @ STA. 86+21.00 -L- __ = EL. 2920.040
BED ELEV. @ STA. 86+21.00 -L- _____ = EL. 2911.500
ROADWAY SLOPES _____ = 2 : 1

HYDRAULIC DATA

DESIGN DISCHARGE _____ = 340 C.F.S.
FREQUENCY OF DESIGN FLOOD ___ = 50 YR.
DESIGN HIGH WATER ELEVATION _ = EL. 2917.500
DRAINAGE AREA _____ = 430 ACRES
BASE DISCHARGE (Q100) _____ = 410 C.F.S.
BASE HIGH WATER ELEVATION _. = EL. 2918.400

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE _____ = 520 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD_ = 200 YR. ±
OVERTOPPING FLOOD ELEVATION __ = EL. 2920.100

TOTAL BILL OF MATERIAL

PRECAST REINFORCED CONCRETE BOX CULVERT @ STA. 86+21.00 -L-.....LUMP SUM
CULVERT EXCAVATION.....LUMP SUM
FOUNDATION CONDITIONING MATERIAL BOX CULVERT.....55 TONS
RIP RAP CLASS B.....37 TONS
RIP RAP CLASS II.....1 TON

11/8/11

NORTH CAROLINA PROFESSIONAL SEAL 022506 ENGINEER JESSE McARTHUR BAILEY

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT, JR.

F. A. PROJECT NO. STP-88(6)

PROJECT NO. U-3812
ASHE COUNTY
STATION: 86+21.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE BOX CULVERT SINGLE 10 FT. X 6 FT. 87°-30'-00" SKEW

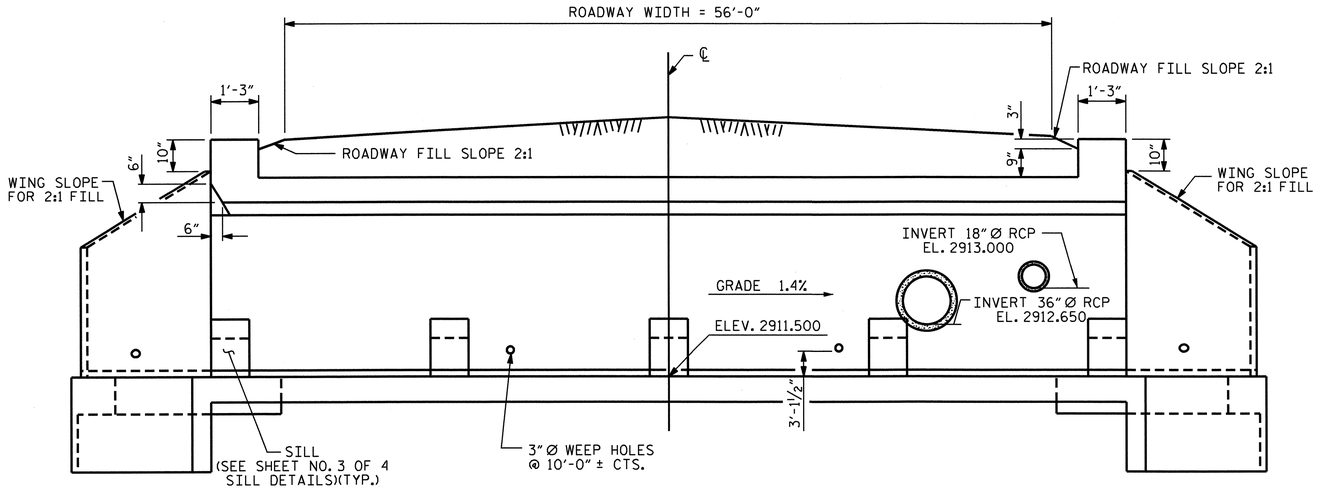
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			8

STD. NO. CB11A

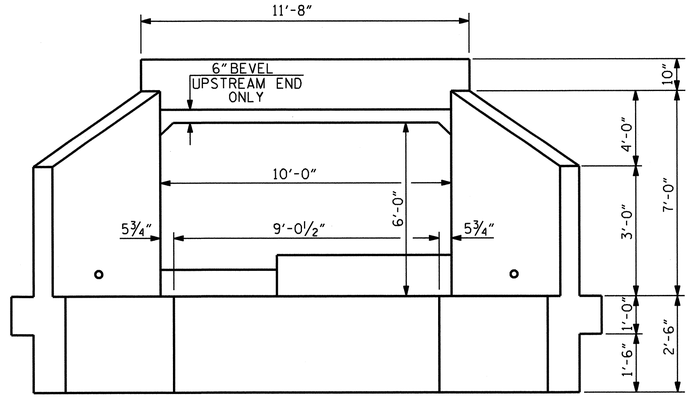
ASSEMBLED BY : M. G. SHAIKH	DATE : 02-15-10	SPECIAL
CHECKED BY : H. T. BARBOUR	DATE : 03-08-10	
DRAWN BY : R.W. WRIGHT	DATE : AUG. 1989	STANDARD
CHECKED BY : A.R. BISSETTE	DATE : AUG. 1989	

REVISED 11-13-91 BY E.L.R. CHECKED BY G.R.P.
ADDED 8-22-89

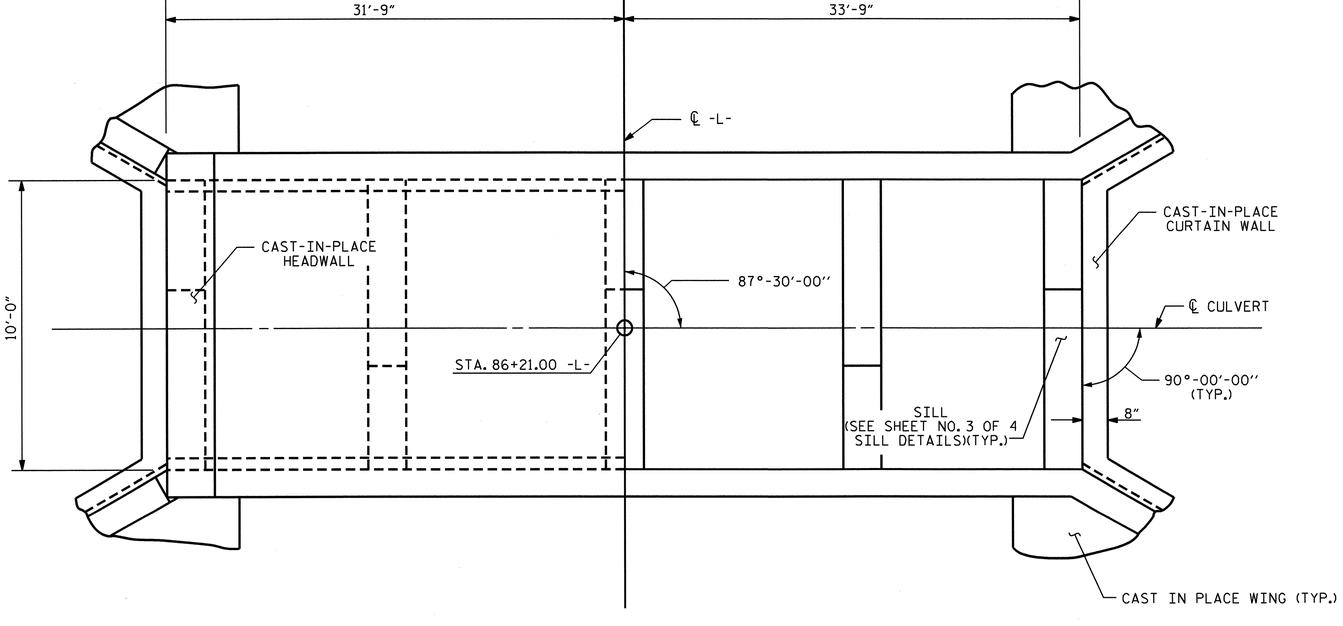
26-OCT-2011 10:01
R:\Structures\mshaikh\Microstation\U-3812_SD_CU.dgn
adavenport



CULVERT SECTION NORMAL TO ROADWAY



INLET END ELEVATION



PART PLAN ROOF SLAB

PART PLAN FLOOR SLAB

REVISED 8-28-92 BY E.L.R. CHECKED BY G.R.P.
REVISED 8-22-89 BY A.R.B. CHECKED BY C.R.K.
REDRAWN 8-22-1989
REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.

ASSEMBLED BY : M. G. SHAIKH	DATE : 02-16-10	SPECIAL
CHECKED BY : H. T. BARBOUR	DATE : 03-08-10	
DRAWN BY : R. WRIGHT	DATE : AUG. 1989	STANDARD
CHECKED BY : A.R. BISSETTE	DATE : AUG. 1989	

PROJECT NO. U-3812

ASHE COUNTY

STATION: 86+21.00 -L-

SHEET 2 OF 4

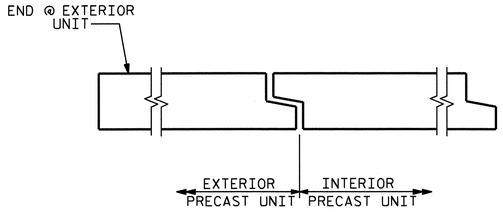
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE BOX CULVERT SINGLE 10 FT. X 6 FT. 87°-30'-00" SKEW

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT

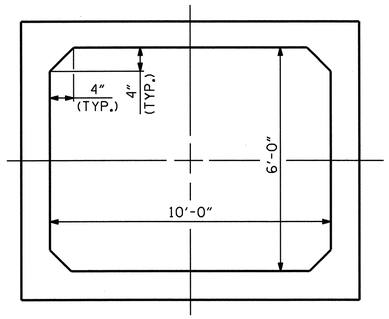
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			8

26-OCT-2011 10:01
R:\Structures\mshaikh\Microstation\U-3812_SD_CU.dgn
adavenport

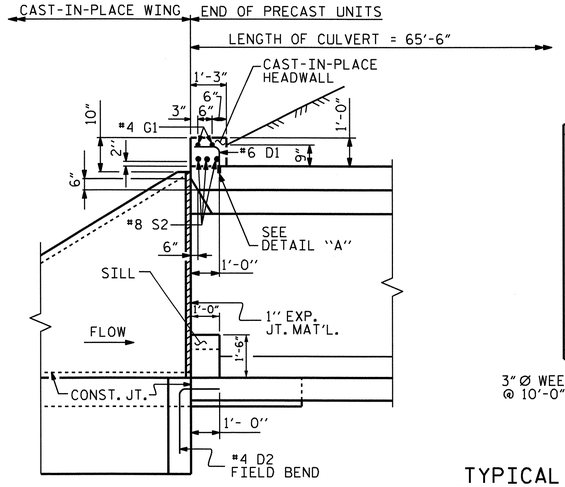


SECTION THRU TOP SLAB

(BOTTOM SLAB JOINT SIMILAR)

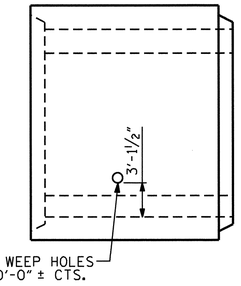


TYPICAL SECTION



SECTION B-B

NOTE: NO END UNIT SHALL BE LESS THAN 3'-0".



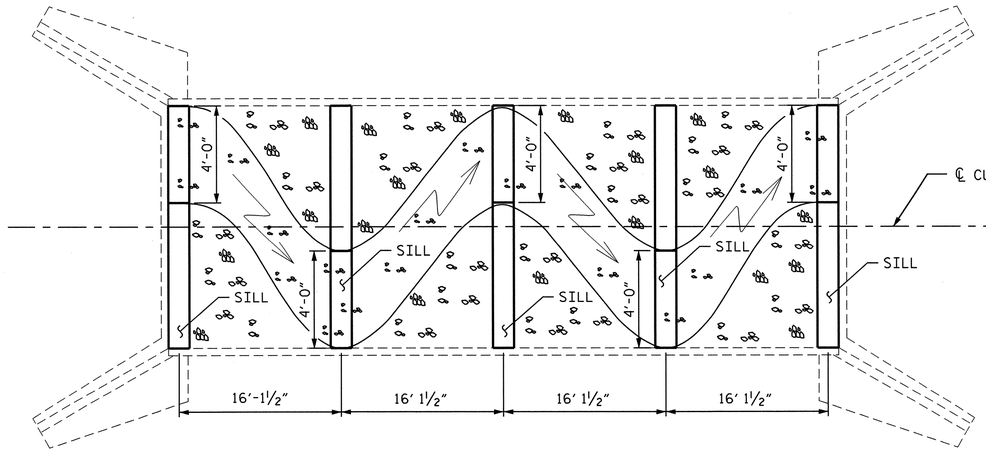
TYPICAL PRECAST UNIT

(INTERIOR UNIT SHOWN)

DETAIL A

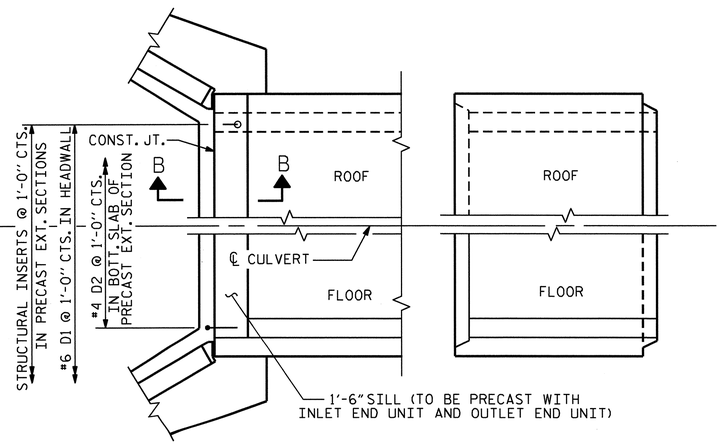
** STRUCTURAL CONNECTION INSERTS
2 STRUT OR EQUAL;
LENGTH = 4 ½", INSERT WIDTH = 2",
DIA. = ¾". NO. REQUIRED 20

ELEVATION



PLAN

SHOWING SILL LOCATION

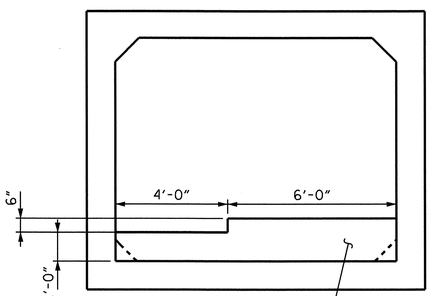


PLAN - END UNIT

(INLET END SHOWN)
(OUTLET END SIMILAR)

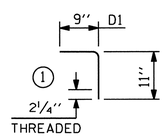
PLAN - TYPICAL PRECAST UNIT

(INTERIOR UNIT SHOWN)



TYPICAL SECTION WITH SILL

BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	20	6	1	1'-8"	50
D2	20	4	STR	3'-4"	45
G1	4	5	STR	11'-4"	47
S2	6	8	STR	11'-4"	182
TOTAL 324 LBS.					



BAR TYPE

PROJECT NO. U-3812
ASHE COUNTY
STATION: 86+21.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

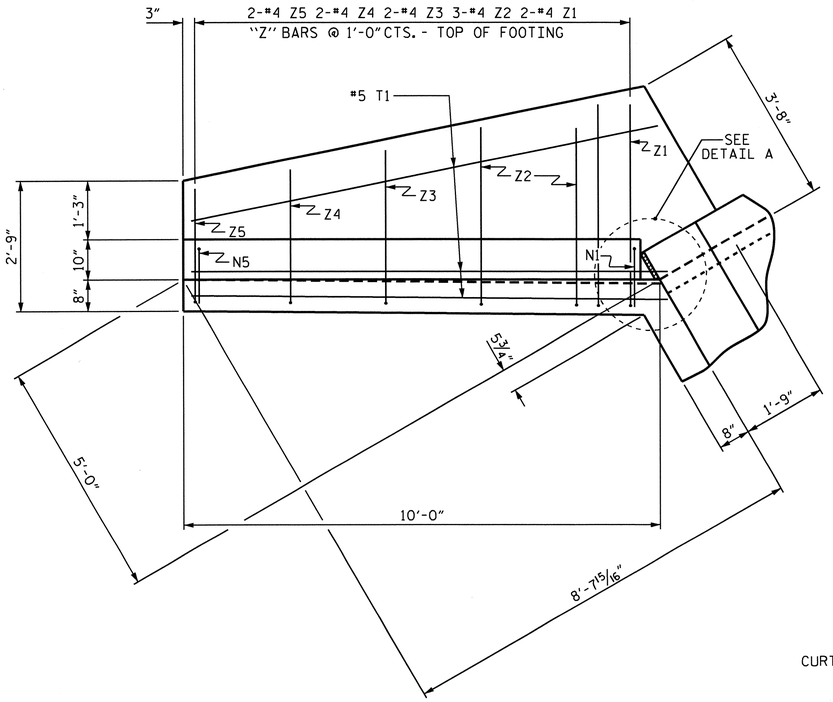
PRECAST REINFORCED CONCRETE BOX CULVERT SINGLE 10 FT. X 6 FT. 87°-30'-00" SKEW

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT, JR.
10-26-11

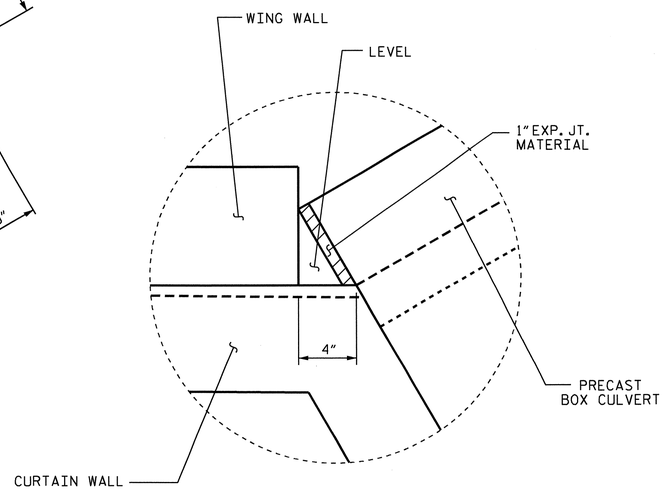
ASSEMBLED BY : M. G. SHAIKH DATE : 02-25-10		
CHECKED BY : H. T. BARBOUR DATE : 03-08-10		
DRAWN BY : FCJ 8/22/89	REV. 8-28-92	ELR/GRP
CHECKED BY : CRK 8/22/89	REV. 5-14-99	RWW/LES
	REV. 2-15-02	RWW/JTE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			8

STD. NO. PBCI



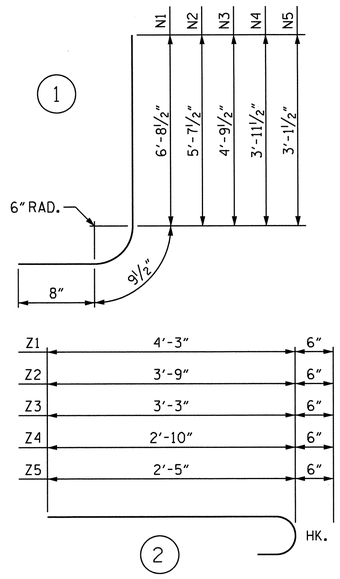
PLAN



DETAIL A

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



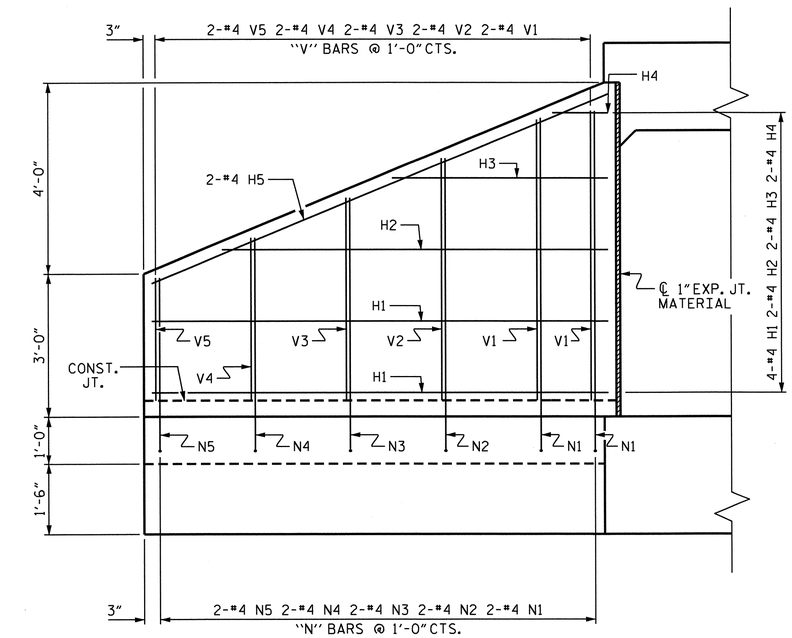
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	9'-4"	100
H2	8	#4	STR	7'-11"	42
H3	8	#4	STR	4'-4"	23
H4	8	#4	STR	1'-3"	7
H5	8	#4	STR	10'-1"	54
N1	8	#4	1	8'-2"	44
N2	8	#4	1	7'-1"	38
N3	8	#4	1	6'-3"	33
N4	8	#4	1	5'-5"	29
N5	8	#4	1	4'-7"	24
T1	12	#5	STR	10'-0"	125
V1	8	#4	STR	6'-1"	33
V2	8	#4	STR	5'-1"	27
V3	8	#4	STR	4'-3"	23
V4	8	#4	STR	3'-5"	18
V5	8	#4	STR	2'-7"	14
Z1	8	#4	2	4'-9"	25
Z2	12	#4	2	4'-3"	34
Z3	8	#4	2	3'-9"	20
Z4	8	#4	2	3'-4"	18
Z5	8	#4	2	2'-11"	16

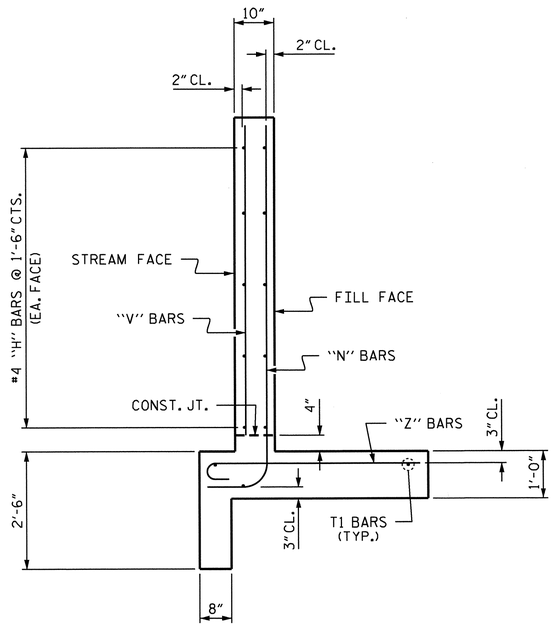
REINFORCING STEEL FOR 4 WINGS 747 LBS

CLASS A CONCRETE

4 WINGS	13.8	CY
2 HEADWALL	1.1	CY
END CURTAIN WALLS	1.1	CY
TOTAL	16.0	CY



ELEVATION



TYPICAL WING SECTION

ASSEMBLED BY : M. G. SHAIKH DATE : 02-24-10
CHECKED BY : H. T. BARBOUR DATE : 03-08-10

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00

PROJECT NO. U-3812
ASHE COUNTY
STATION: 86+21.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR PRECAST REINFORCED CONCRETE BOX CULVERT

H = 6'-0" SLOPE = 2:1
90° SKEW

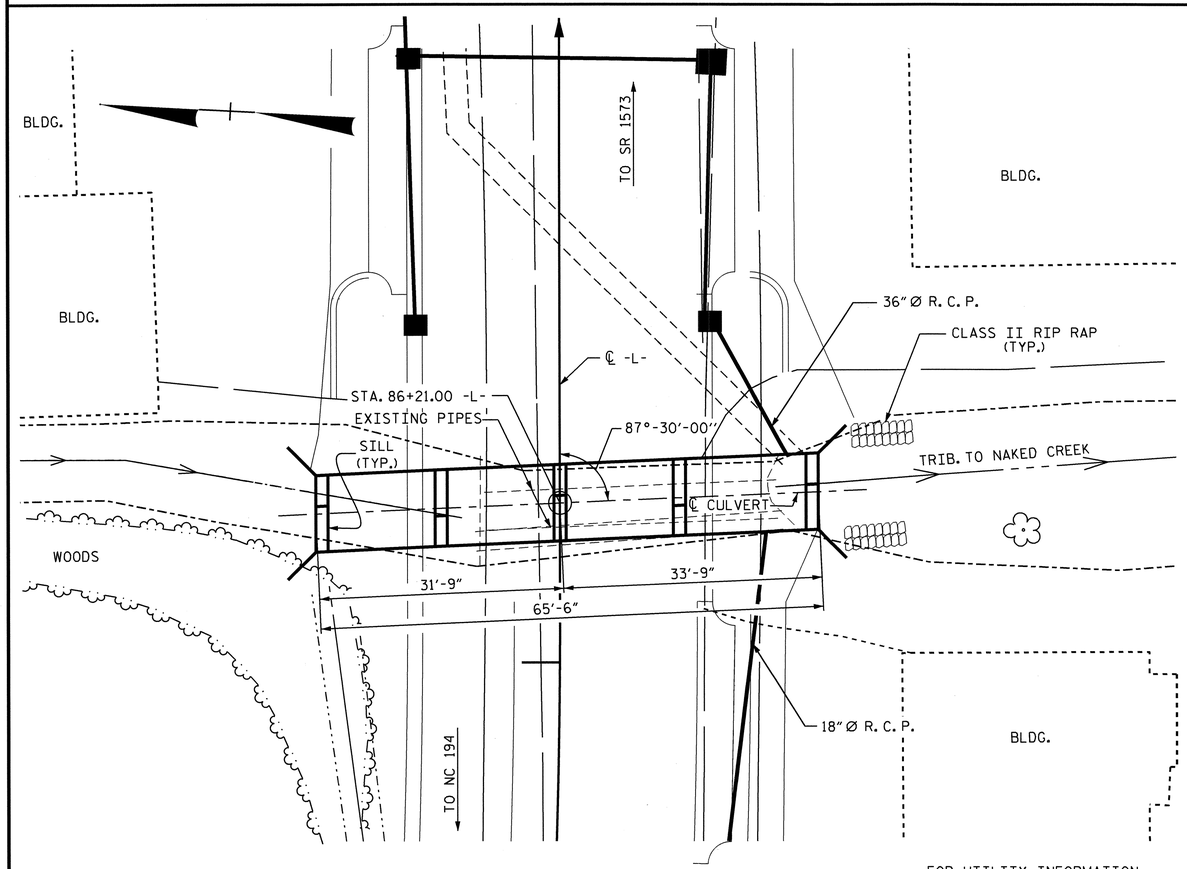
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4
1			3			TOTAL SHEETS
2			4			8

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT
10-10-11

26-OCT-2011 10:01
R:\Structures\mshaikh\Microstation\U-3812_SD_CU.dgn
adavenport

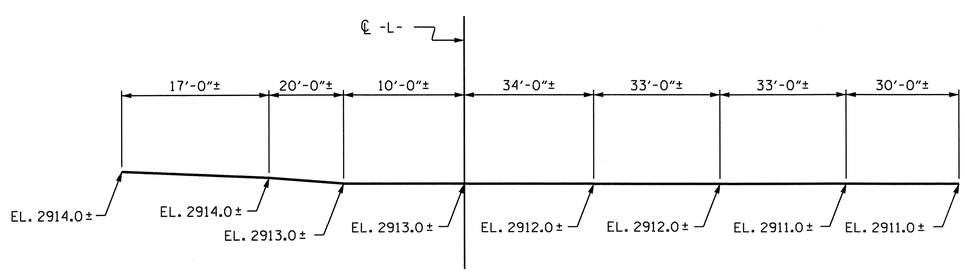
F. A. PROJECT NO. STP-88(6)

BENCH MARK #6 : RAIL ROAD SPIKE IN BASE OF 12'' Ø POPLAR, BASE LINE OFFSET 221 FT. LEFT OF STA. 79+11.00 -L- ELEV. 2925.530



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS



PROFILE ALONG ℄ CULVERT

ROADWAY DATA

GRADE POINT ELEV. @ STA. 86+21.00 -L- ___ = EL. 2920.040
BED ELEV. @ STA. 86+21.00 -L- _____ = EL. 2911.500
ROADWAY SLOPES _____ = 2 : 1

HYDRAULIC DATA

DESIGN DISCHARGE _____ = 340 C.F.S.
FREQUENCY OF DESIGN FLOOD _____ = 50 YR.
DESIGN HIGH WATER ELEVATION _____ = EL. 2917.500
DRAINAGE AREA _____ = 430 ACRES
BASE DISCHARGE (Q100) _____ = 410 C.F.S.
BASE HIGH WATER ELEVATION _____ = EL. 2918.400

OVERTOPPING FLOOD DATA

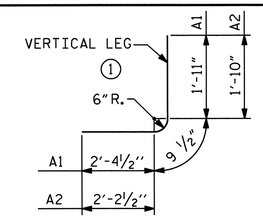
OVERTOPPING DISCHARGE _____ = 520 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD_____ = 200 YR. ±
OVERTOPPING FLOOD ELEVATION ____ = EL. 2920.100

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A100	131	#6	STR	10'-11"	2148
A200	121	#6	STR	10'-11"	1984
A1	210	#5	1	5'-1"	1113
A2	210	#5	1	4'-10"	1059
B1	226	#4	STR	7'-0"	1057
B2	210	#5	STR	5'-4"	1168
C1	114	#4	STR	23'-2"	1764
D1	10	#6	STR	1'-10"	28
D2	5	#6	STR	1'-4"	10
E1	16	#5	STR	4'-2"	70
E2	16	#5	STR	6'-8"	111
G1	4	#4	STR	11'-0"	29

REINFORCING STEEL = 10541 LBS.

BAR TYPES



BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTH CHART

BAR	SIZE	LENGTH
B1	#4	1'- 9''
C1	#4	1'- 11''

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE
BARREL @ 0.930 CY/FT 60.9 C.Y.
SILL 2.4 C.Y.
WING ETC. 15.9 C.Y.
TOTAL 79.2 C.Y.

REINFORCING STEEL
BARREL 10541 LBS.
WINGS ETC. 793 LBS.
TOTAL 11334 LBS.

CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	52 TONS
RIP RAP CLASS B	37 TONS
RIP RAP CLASS II	1 TON

NOTES

ASSUMED LIVE LOAD ---------- HS20-44 OR ALTERNATE LOADING.

DESIGN FILL 3.17 FT.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

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.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

AT THE CONTRACTORS OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE 36"Ø & 18"Ø PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.

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

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

BED MATERIAL PLACED BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL BETWEEN THE LOWER SILLS. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS B RIP RAP. STONES LARGER THAN EIGHT INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.

NO SEPARATE PAYMENT SHALL BE MADE FOR REMOVAL OF EXISTING 30"Ø & 60"Ø PIPES. COSTS FOR REMOVAL OF THE EXISTING PIPES SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR CULVERT EXCAVATION.

THE CONTRACTOR MAY CHOOSE TO CONSTRUCT A CAST-IN-PLACE CULVERT IN ACCORDANCE WITH THE INCLUDED PLANS AT NO ADDITIONAL COST TO THE DEPARTMENT. THE CONTRACT REQUIREMENTS WITH RESPECT TO CONSTRUCTION STAGING AND TIME SHALL BE SATISFIED REGARDLESS OF WHETHER A PRECAST OR CAST-IN-PLACE CULVERT IS CONSTRUCTED.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR. 10-27-11

PROJECT NO. U-3812
ASHE COUNTY
STATION: 86+21.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OPTIONAL CAST-IN-PLACE CULVERT BARREL STANDARD SINGLE 10 FT. X 6 FT. CONCRETE BOX CULVERT 87°-30'-00" SKEW

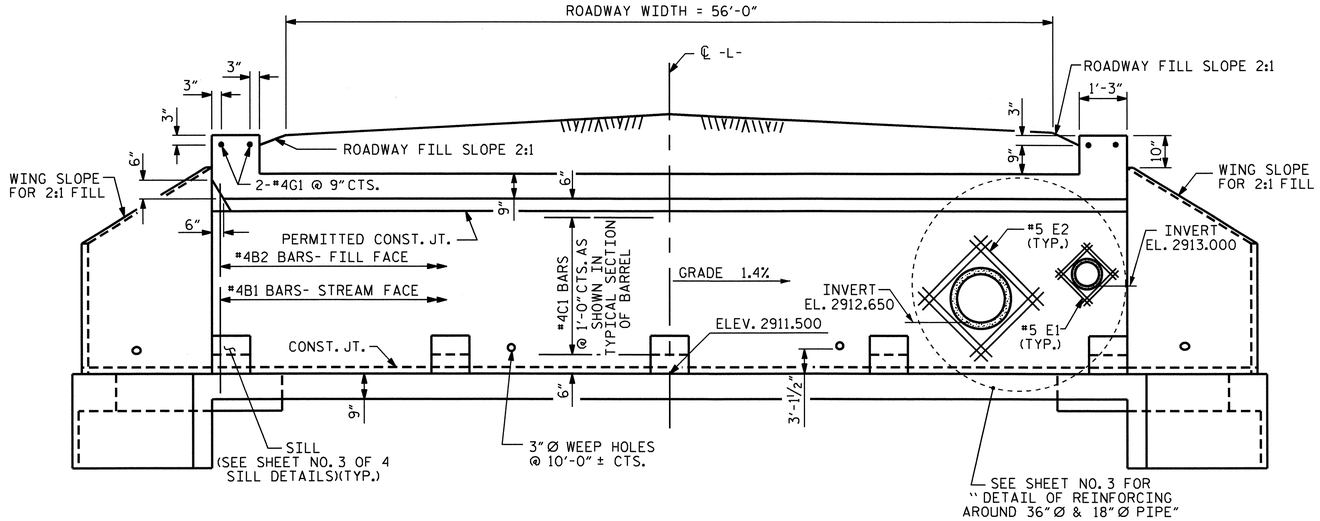
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			8

STD. NO. CB11A

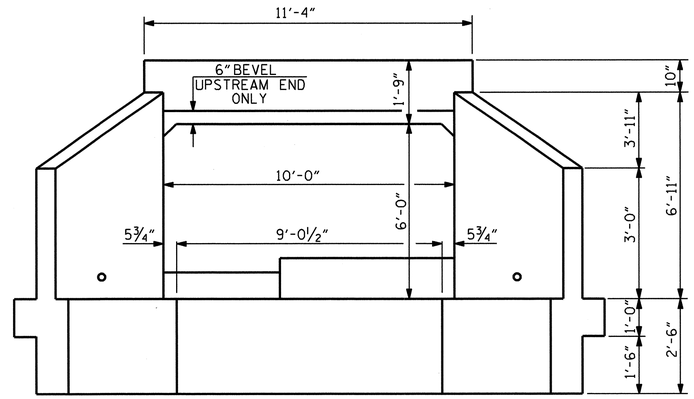
REVISED 11-13-91 BY E.L.R. CHECKED BY G.R.P.
ADDED 8-22-89

ASSEMBLED BY : M. G. SHAIKH DATE : 02-15-10 CHECKED BY : H. T. BARBOUR DATE : 03-04-10	SPECIAL
DRAWN BY : R.W. WRIGHT DATE : AUG. 1989 CHECKED BY : A.R. BISSETTE DATE : AUG. 1989	STANDARD

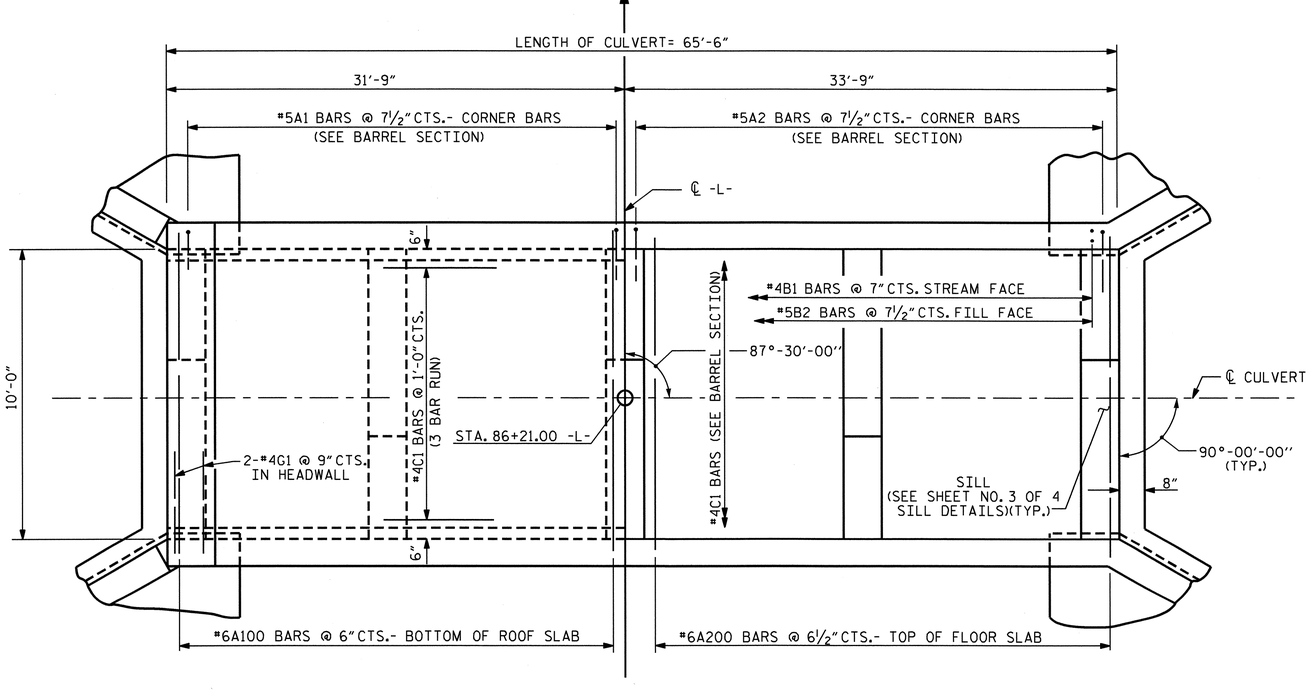
26-OCT-2011 10:01
R:\Structures\mshaikh\Microstation\U-3812_SD_CU.dgn
adavenport



CULVERT SECTION NORMAL TO ROADWAY



INLET END ELEVATION



PART PLAN ROOF SLAB

PART PLAN FLOOR SLAB

REVISED 8-28-92 BY E.L.R. CHECKED BY G.R.P.
REVISED 8-22-89 BY A.R.B. CHECKED BY C.R.K.
REDRAWN 8-22-1989
REVISED 11-9-99 BY M.M. CHECKED BY R.W.W.

ASSEMBLED BY : M. G. SHAIKH	DATE : 02-16-10	SPECIAL	
CHECKED BY : H. T. BARBOUR	DATE : 03-04-10		
DRAWN BY : R. WRIGHT	DATE : AUG. 1989	STANDARD	
CHECKED BY : A.R. BISSETTE	DATE : AUG. 1989		

PROJECT NO. U-3812

ASHE COUNTY

STATION: 86+21.00 -L-

SHEET 2 OF 4

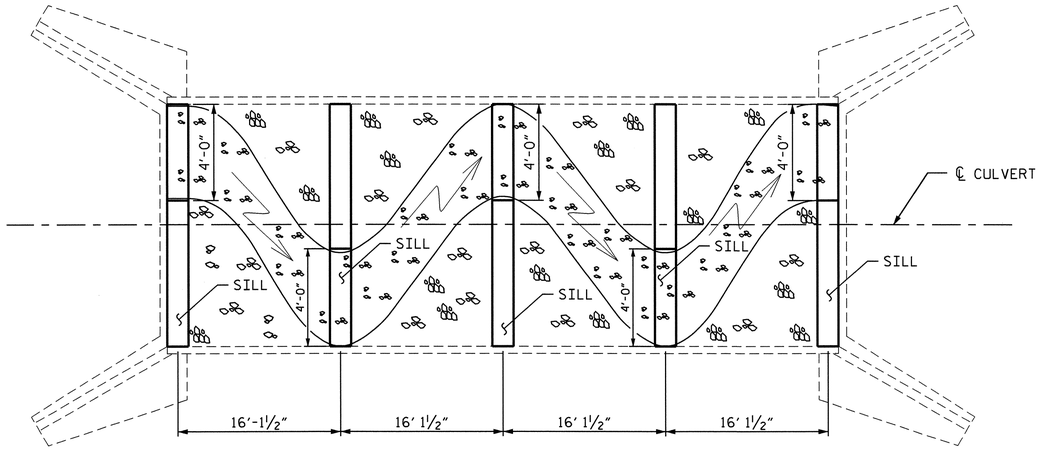
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OPTIONAL CAST-IN-PLACE CULVERT BARREL STANDARD SINGLE 10 FT. X 6 FT. CONCRETE BOX CULVERT 87°-30'-00" SKEW

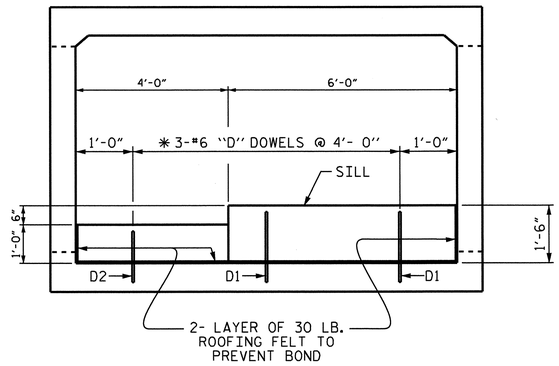
NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT
10-26-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			8

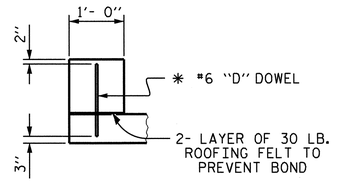
STD. NO. CB11



PLAN
SHOWING SILL LOCATION



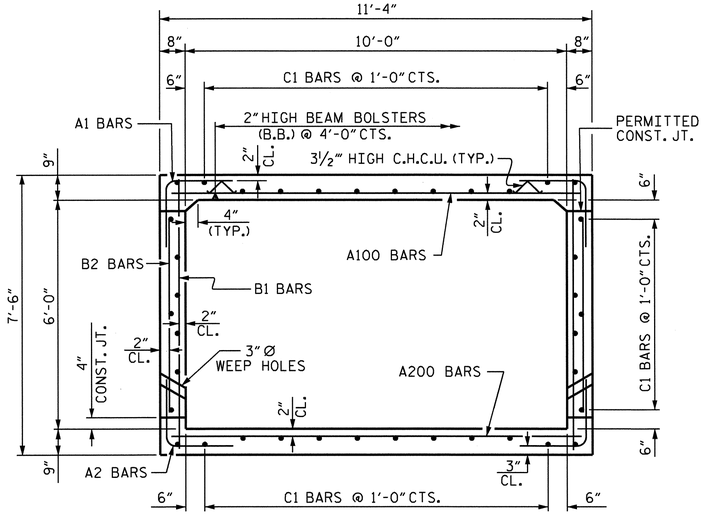
ELEVATION
INLET END



SECTION THROUGH SILL

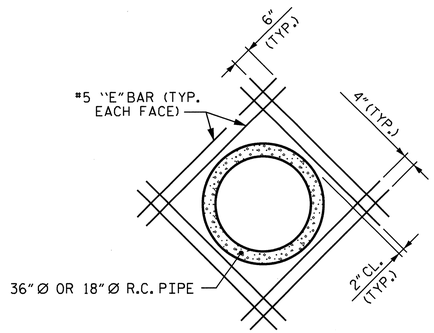
* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED

CULVERT SILL DETAILS



RIGHT ANGLE SECTION OF BARREL

THERE ARE 38 "C" BARS IN SECTION OF BARREL



DETAIL OF REINFORCING AROUND 36" Ø & 18" Ø PIPE

(E1 @ 18" Ø & E2 @ 36" Ø PIPE)

REVISED 8-28-92 BY E.L.R. CHECKED BY G.R.P.
REVISED 8-22-89 BY A.R.B. CHECKED BY C.R.K.
REDRAWN 8-22-1989
REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.

ASSEMBLED BY : M. G. SHAIKH	DATE : 02-16-10	SPECIAL
CHECKED BY : H. T. BARBOUR	DATE : 03-04-10	
DRAWN BY : R. WRIGHT	DATE : AUG. 1989	STANDARD
CHECKED BY : A.R. BISSETTE	DATE : AUG. 1989	

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT
10-24-11

PROJECT NO. U-3812

ASHE COUNTY

STATION: 86+21.00 -L-

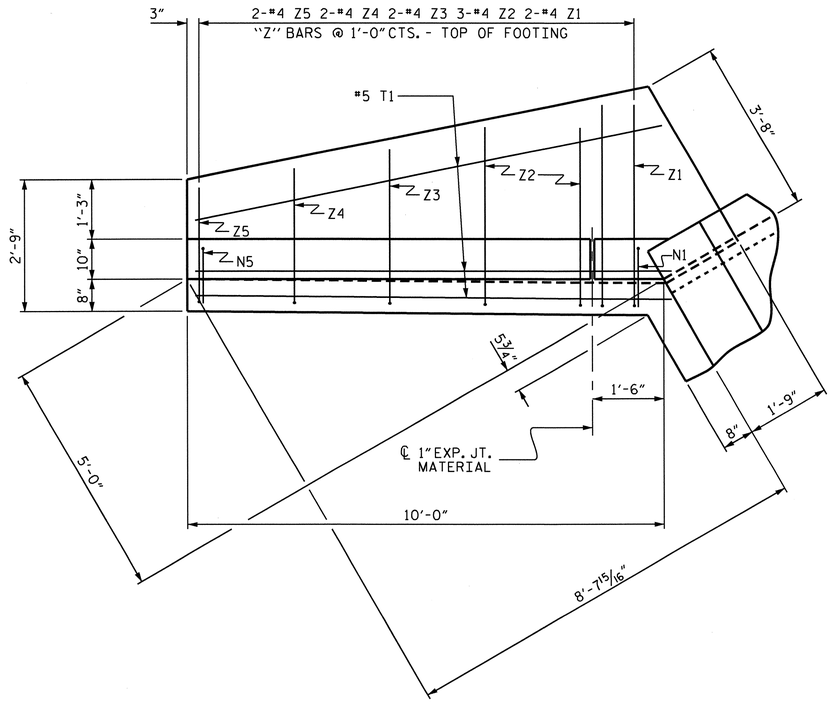
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

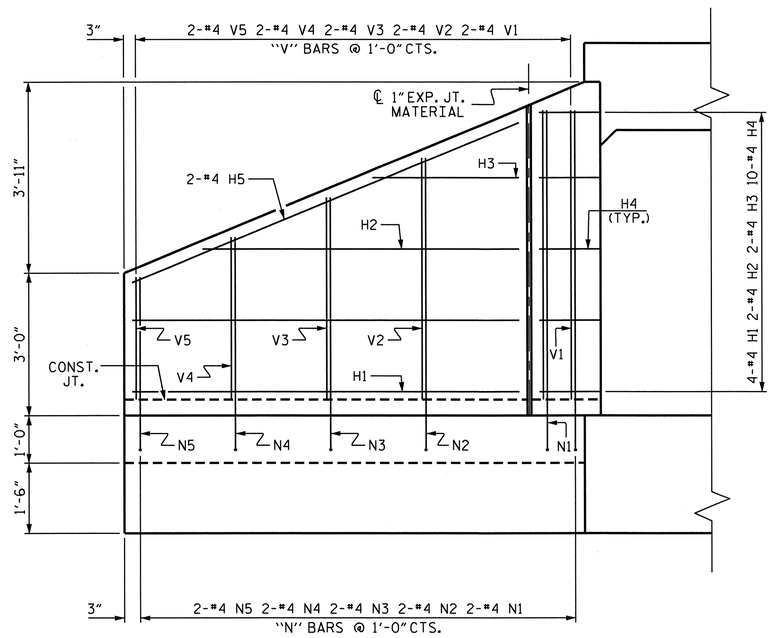
OPTIONAL CAST-IN-PLACE CULVERT BARREL STANDARD SINGLE 10 FT. X 6 FT. CONCRETE BOX CULVERT 87°-30'-00" SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-7
1			3			TOTAL SHEETS
2			4			8

STD. NO. CB11



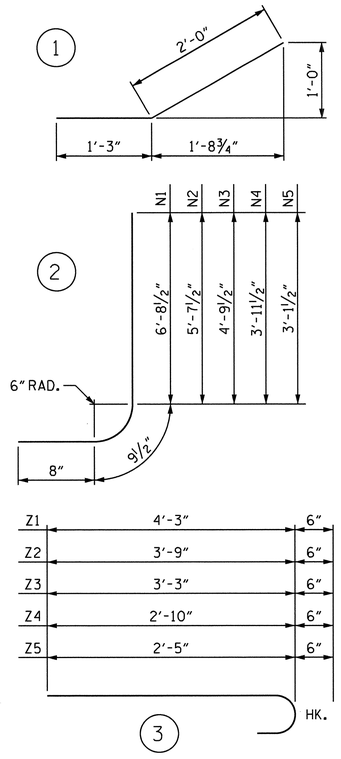
PLAN



ELEVATION

BAR TYPES

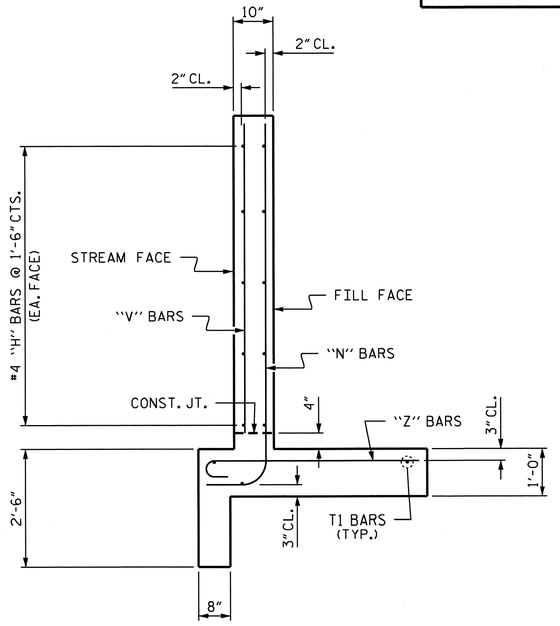
ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	8'-1"	86
H2	8	#4	STR	6'-8"	36
H3	8	#4	STR	3'-1"	16
H4	40	#4	1	3'-3"	87
H5	8	#4	STR	8'-9"	47
N1	8	#4	2	8'-2"	44
N2	8	#4	2	7'-1"	38
N3	8	#4	2	6'-3"	33
N4	8	#4	2	5'-5"	29
N5	8	#4	2	4'-7"	24
T1	12	#5	STR	10'-0"	125
V1	8	#4	STR	6'-1"	33
V2	8	#4	STR	5'-1"	27
V3	8	#4	STR	4'-3"	23
V4	8	#4	STR	3'-5"	18
V5	8	#4	STR	2'-7"	14
Z1	8	#4	3	4'-9"	25
Z2	12	#4	3	4'-3"	34
Z3	8	#4	3	3'-9"	20
Z4	8	#4	3	3'-4"	18
Z5	8	#4	3	2'-11"	16

REINFORCING STEEL FOR 4 WINGS	793 LBS
CLASS A CONCRETE	
4 WINGS	13.8 CY
2 HEADWALL	1.0 CY
END CURTAIN WALLS	1.1 CY
TOTAL	15.9 CY



TYPICAL WING SECTION

ASSEMBLED BY : M. G. SHAIKH DATE : 02-17-10
CHECKED BY : H. T. BARBOUR DATE : 03-04-10

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDREW DAVENPORT
10-10-11

PROJECT NO. U-3812
ASHE COUNTY
STATION: 86+21.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

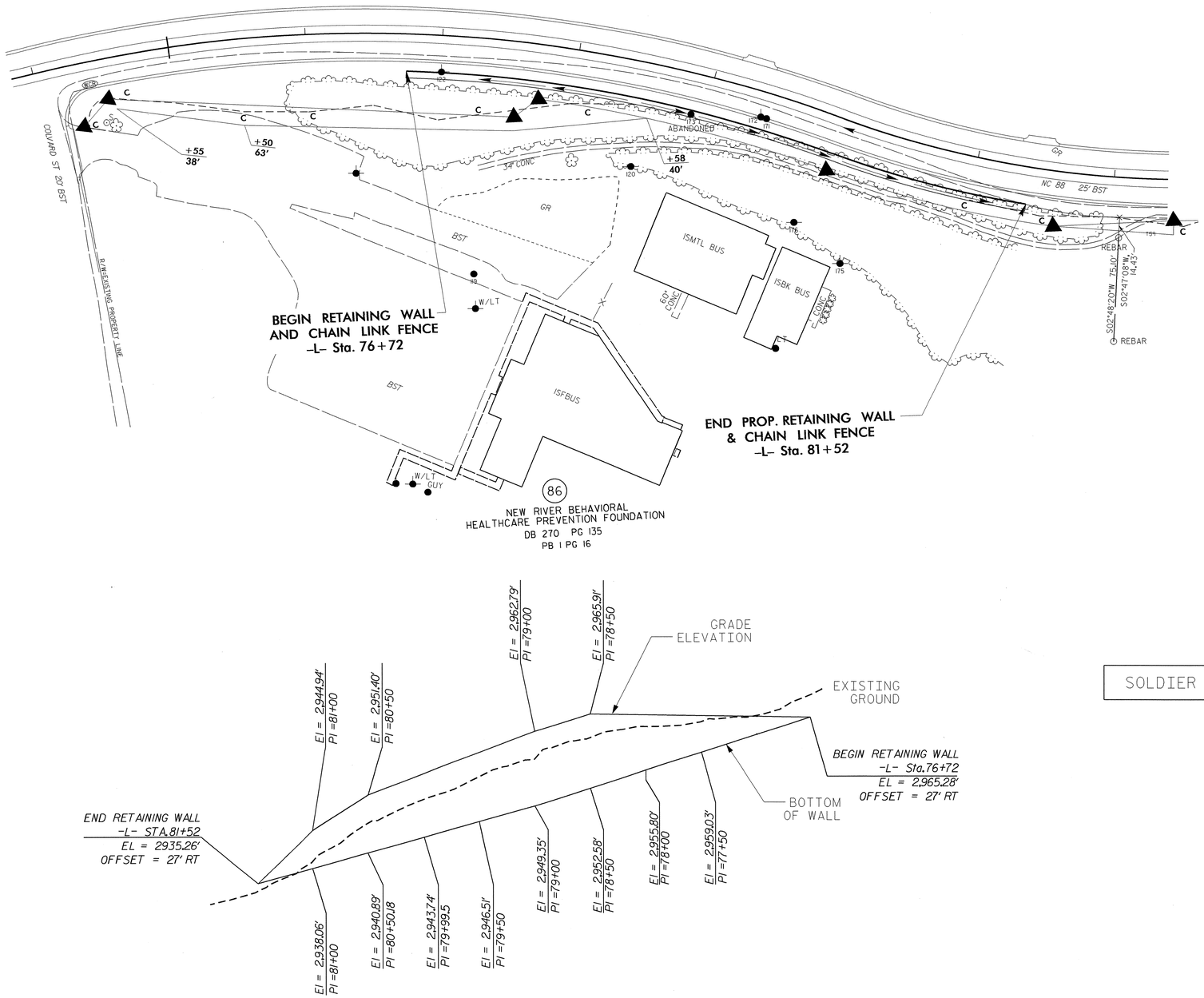
OPTIONAL CAST-IN-PLACE CULVERT STANDARD WINGS FOR CONCRETE BOX CULVERT

H = 6'-0" SLOPE = 2:1
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-8
1			3			TOTAL SHEETS
2			4			8

STD. NO. CW9006

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26962 ENGINEER ERIC N. WILLIAMS SIGNATURE 9/9/11 DATE	SIGNATURE DATE



SOLDIER PILE RETAINING WALL 4320 SF

PROJECT NO.: 34977.1.1 (U-3812)

ASHE ***COUNTY***

STATION: 76+72 -L- TO 81+52 -L-

SHEET 1 OF 2

PREPARED BY: E. WILLIAMS	DATE: 9/11
REVIEWED BY: D. TEAGUE	DATE: 9/11

GEOTECHNICAL ENGINEERING UNIT

☐ ***EASTERN REGIONAL OFFICE***

☐ ***WESTERN REGIONAL OFFICE***

☒ ***CONTRACT OFFICE***

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE RETAINING WALL

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

GEC242749 9/8/2011 u3812_GEO_RWAL_Revised ewilliams GEC-Oce860-34bond

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26962 ENGINEER E. N. WILLIAMS SIGNATURE 9/9/11 DATE	SIGNATURE DATE

NOTES

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

A CUSTOM ROCK #1208 DRYSTACK WITH STAINED MEDIUM TO DARK GRAY COLOR SIMULATED ROCK ARCHITECTURAL FINISH IS REQUIRED FOR THE CAST-IN-PLACE REINFORCED CONCRETE FACE. SEE CAST-IN-PLACE SIMULATED ROCK FORM LINER FINISH SPECIAL PROVISION.

A FENCE IS REQUIRED ON TOP OF RETAINING WALL.
SEE ROADWAY PLANS FOR FENCE ATTACHMENT DETAILS.

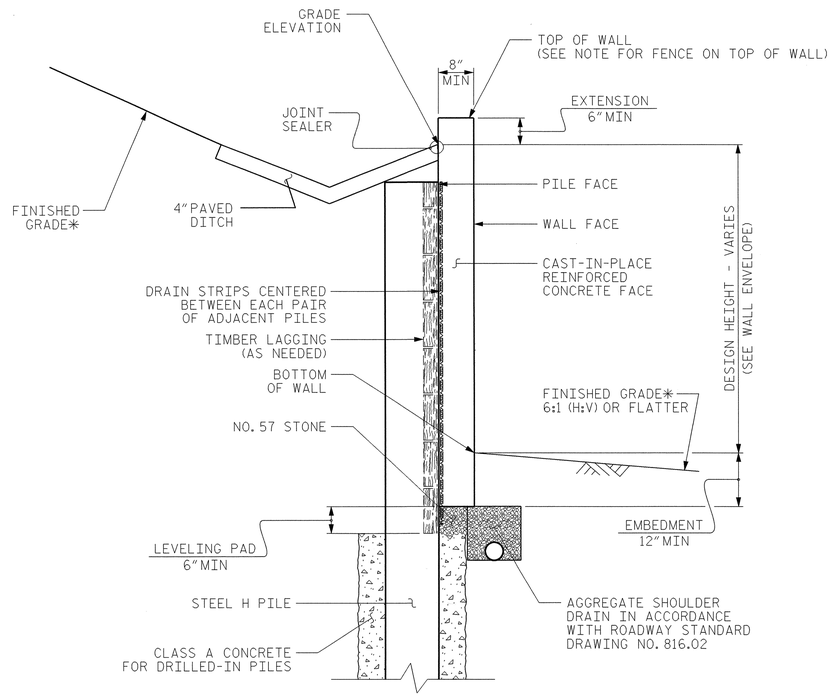
DRILLED-IN PILES ARE REQUIRED FOR RETAINING WALL.

USE A SOLDIER PILE RETAINING WALL WITH A CAST-IN-PLACE REINFORCED CONCRETE FACE.

BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL, PERFORM CUT BEHIND BEGINNING OF WALL, THEN SURVEY GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).

DESIGN RETAINING WALL FOR THE FOLLOWING:
1) MINIMUM SERVICE LIFE = 75 YEARS
2) IN-SITU ASSUMED MATERIAL PARAMETERS ABOVE THE WATER TABLE:
   UNIT WEIGHT, gamma = 120 PCF
   FRICTION ANGLE, phi = 32 DEGREES
   COHESION, c = 0 PSF
3) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW THE WATER TABLE:
   UNIT WEIGHT, gamma = 60 PCF
   FRICTION ANGLE, phi = 32 DEGREES
   COHESION, c = 0 PSF



SOLDIER PILE WALL WITH CAST-IN-PLACE FACE TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: 34977.1.1 (U-3812)
ASHE ***COUNTY***
STATION: 76+72 -L- TO 81+52 -L-
SHEET 2 OF 2

PREPARED BY: E. WILLIAMS	DATE: 9/11
REVIEWED BY: D. TEAGUE	DATE: 9/11

GEOTECHNICAL ENGINEERING UNIT
☐ ***EASTERN REGIONAL OFFICE***
☐ ***WESTERN REGIONAL OFFICE***
☒ ***CONTRACT OFFICE***
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDER PILE RETAINING WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-2
1			3			TOTAL SHEETS
2			4			2

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 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; 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

REV. 6-16-95 EBM @ RGW REV. 5-7-03 RWW @ JTE
REV. 8-16-99 RWW @ LES REV. 5-1-06 TLA @ GW

30-NOV-2006 10:08
N:\Share\Structures Standards\Standards english 2006\sn_05.std
rdisalvo