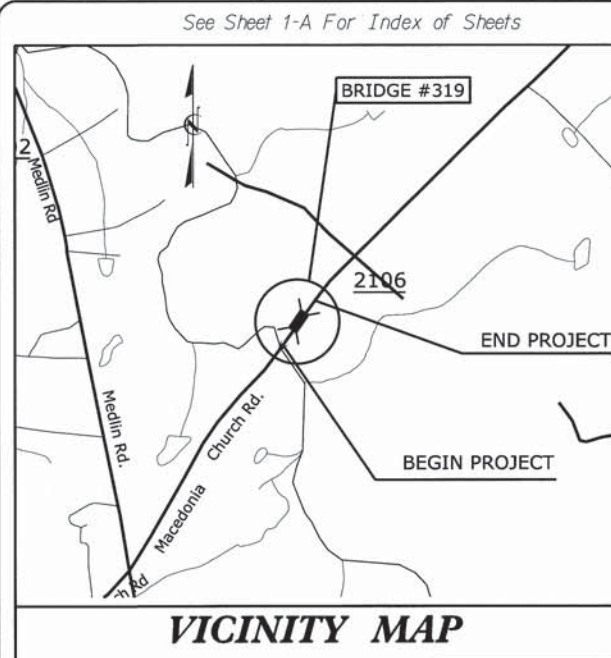


CONTRACT:

PROJECT: WBS 17BP.10.R.15

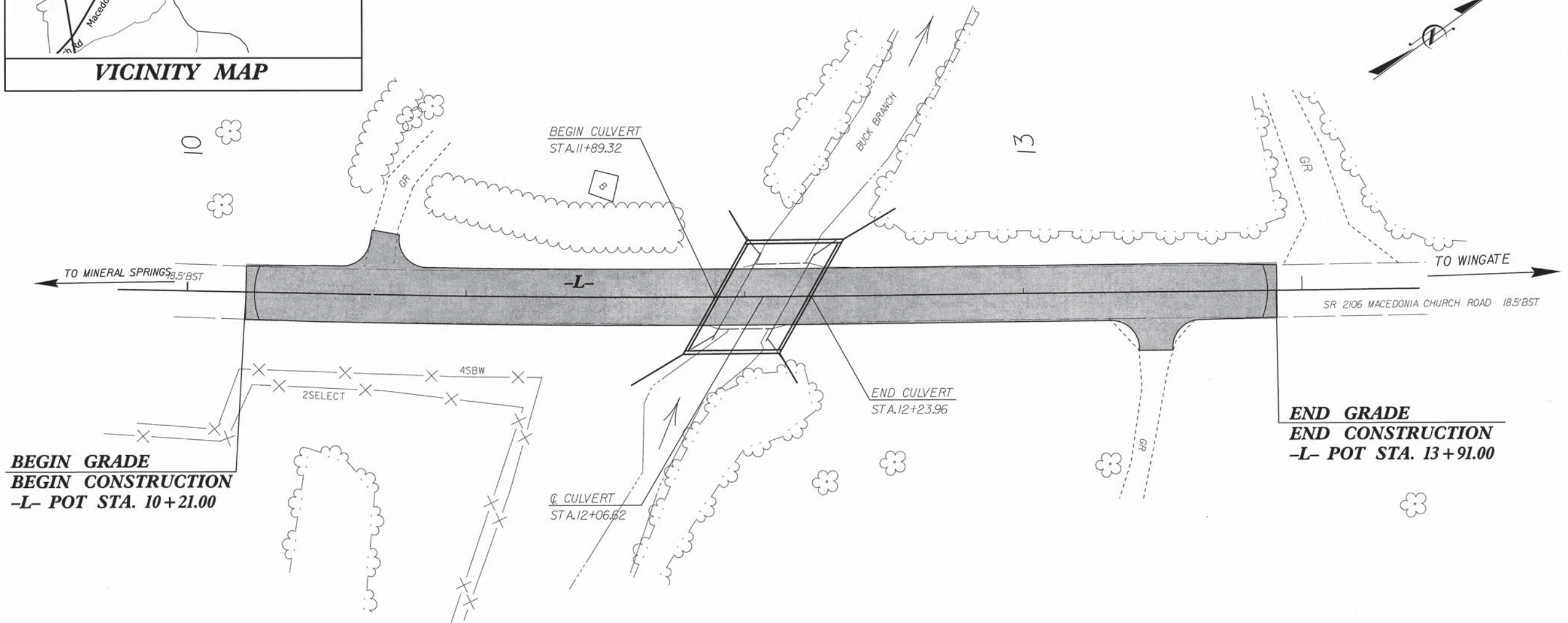


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
UNION COUNTY

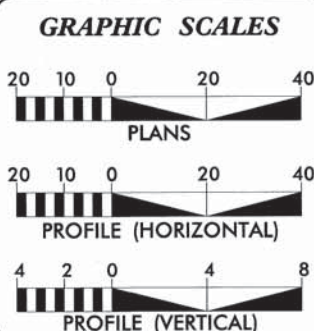
**LOCATION: BRIDGE NO. 319 ON SR 2106 (MACEDONIA CHURCH ROAD)
OVER BUCK BRANCH**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES AND
TRAFFIC CONTROL**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.15	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.15		PE	
		ROW/UTIL.	
		CONST.	



- CLEARING SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.



DESIGN DATA

ADT 2010 =	680
ADT 2030 =	1114
DHV =	NA %
D =	NA %
T =	6 % *
V =	55 MPH
FUNC CLASS =	
LOCAL	
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT 17BP.10.R.15	= 0.070 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT 17BP.10.R.15	= 0.000 MI.
TOTAL LENGTH OF T.I.P. PROJECT 17BP.10.R.15	= 0.070 MI.

NCDOT CONTACT: **GARLAND HAYWOOD, PE**
BRIDGE PROGRAM MANAGER

PREPARED IN THE OFFICE OF:

Stantec

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **JUNE 19, 2013**

LETTING DATE: **JUNE 19, 2013**
JULY 16, 2014

GARLAND HAYWOOD, PE
PROJECT ENGINEER

ROBERT WILLIAMS, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

ROADWAY DESIGN ENGINEER

SEAL 30932

SEAL 30932

4/15/13



PROJECT REFERENCE NO.
17BPJ0RJ5

SHEET NO.
1-A

ROADWAY DESIGN
ENGINEER



3/29/13

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE & TYPICAL SECTIONS
3	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND DRAINAGE
4	PLAN/PROFILE SHEET
5	DRAINAGE SHEET
TMP-1 THRU TMP-3	TRAFFIC MAINTENANCE PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITY BY OTHER PLANS
X-1 THRU X-3	CROSS-SECTIONS
C-1 THRU C-3	CULVERT PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY AND FRONTIER COMMUNICATIONS. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
DIVISION 8 - INCIDENTALS	
806.02	Granite Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----X
Property Monument	□ ECM
Parcel/Sequence Number	(23)
Existing Fence Line	-X-X-X-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ †
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	➤
Spring	○
Wetland	⬇
Proposed Lateral, Tail, Head Ditch	➤ FLOW
False Sump	◇

RAILROADS:

Standard Gauge	CSX TRANSPORTATION
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○ R W
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R W ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	○ R W ▲
Proposed Control of Access Line with Concrete C/A Marker	○ C A
Existing Control of Access	○ C A
Proposed Control of Access	○ C A
Existing Easement Line	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Drainage / Utility Easement	---DUE---
Proposed Permanent Utility Easement	---PUE---
Proposed Temporary Utility Easement	---TUE---
Proposed Aerial Utility Easement	---AUE---

Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----

Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	~~~~~
Woods Line	~~~~~

Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	---S---

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	○
H-Frame Pole	●
Recorded U/G Power Line	---P---
Designated U/G Power Line (S.U.E.*)	---P---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⬇
U/G Telephone Cable Hand Hole	○ T H
Recorded U/G Telephone Cable	---T---
Designated U/G Telephone Cable (S.U.E.*)	---T---
Recorded U/G Telephone Conduit	---TC---
Designated U/G Telephone Conduit (S.U.E.*)	---TC---
Recorded U/G Fiber Optics Cable	---T FO---
Designated U/G Fiber Optics Cable (S.U.E.*)	---T FO---

WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	⬇
Recorded U/G Water Line	---W---
Designated U/G Water Line (S.U.E.*)	---W---
Above Ground Water Line	---A/G Water---

TV:

TV Satellite Dish	☼
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○ T H
Recorded U/G TV Cable	---TV---
Designated U/G TV Cable (S.U.E.*)	---TV---
Recorded U/G Fiber Optic Cable	---TV FO---
Designated U/G Fiber Optic Cable (S.U.E.*)	---TV FO---

GAS:

Gas Valve	◇
Gas Meter	⬇
Recorded U/G Gas Line	---G---
Designated U/G Gas Line (S.U.E.*)	---G---
Above Ground Gas Line	---A/G Gas---

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	---SS---
Above Ground Sanitary Sewer	---A/G Sanitary Sewer---
Recorded SS Forced Main Line	---FSS---
Designated SS Forced Main Line (S.U.E.*)	---FSS---

MISCELLANEOUS:

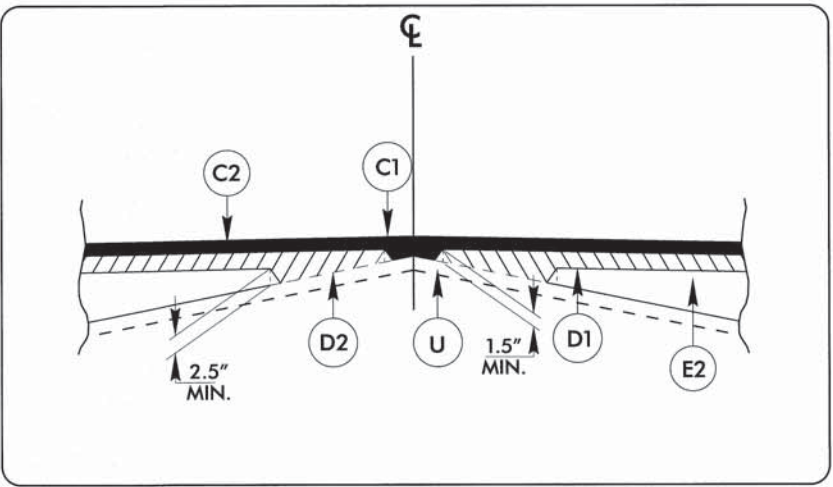
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	---2UTL---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⬇ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⬇
U/G Test Hole (S.U.E.*)	⬇
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

5/14/99

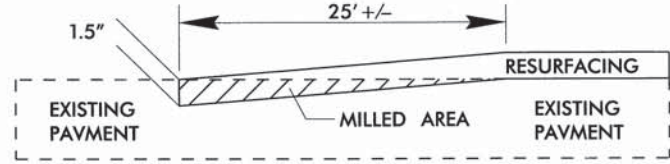
U:\Union319\319\Roadway\Pro\UNION319.rdw TYP.dgn 3/14/2013 3:11 PM

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4.0"
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE. TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5"
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
Z	VARIABLE DEPTH MILLING

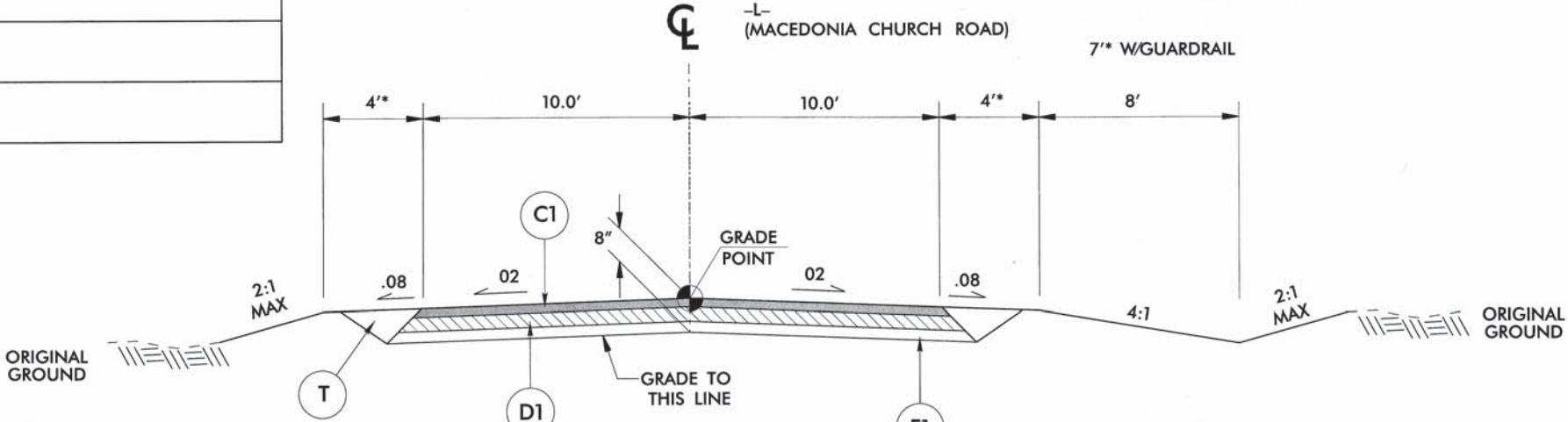
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



WEDGING DETAIL
(AS NEEDED)

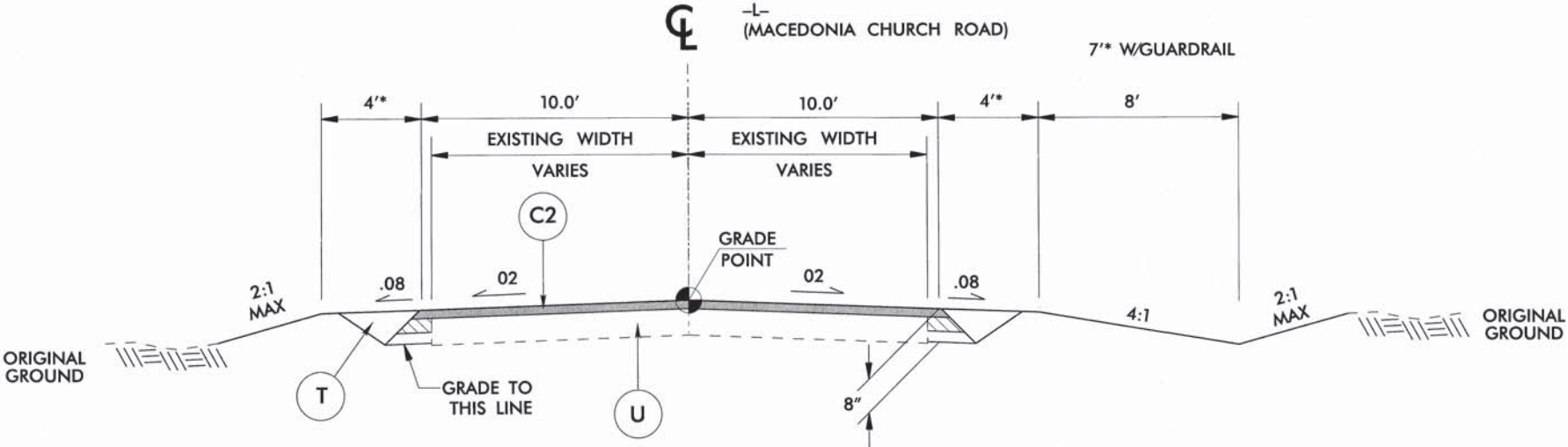


MILLING DETAIL



TYPICAL SECTION NO. 1

-L- STA. 10+21.00 TO STA. 13+91.00



TYPICAL SECTION NO. 2
AS NEEDED

PROJECT REFERENCE NO. 17BPJ0.RJ5	SHEET NO. 2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER ROBERT A. WILLIAMS 4/5/13	HYDRAULICS ENGINEER RICHARD L. HINER 29185

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

EARTHWORK SUMMARY (CY)

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L- STA. 10 + 21.00 TO STA. 13 + 91.00	97		758	661	
SUBTOTAL SUMMARY	97		758	661	
SUMMARY	97		758	661	
LOSS DUE TO CLEARING & GRUBBING					
PROJECT TOTAL	97		758	661	
WASTE IN LIEU OF BORROW					
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS				33	
GRAND TOTAL	97		758	694	
SAY	110			750	

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	STATION	STATION	LOCATION	SY
-L-	10 + 21	13 + 91	LTRT	760
			SAY	770

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

[illegible]

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

[illegible]

8/17/99

DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 433964.423(FT) EASTING: 1548242.145(FT)
ELEVATION: 551.30(FT)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO L- STA. 10+00.00 IS
N 31°12' 14" E 90.11 (FT)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	BL-1	433964.4230	1548242.1450	551.30	OUTSIDE PROJECT LIMITS	
2	BL-2	434245.5920	1548420.9420	537.28	12+47.59	15.97 LT
3	BL-3	434381.5020	1548555.7150	543.19	14+36.59	14.82 RT

ROSE JAMES H & WIFE MARJORIE A
DB 4125 PG 489

END GRADE
END CONSTRUCTION
-L- POT STA. 13+91.00

PROJECT REFERENCE NO.
17BPJ0RJ5

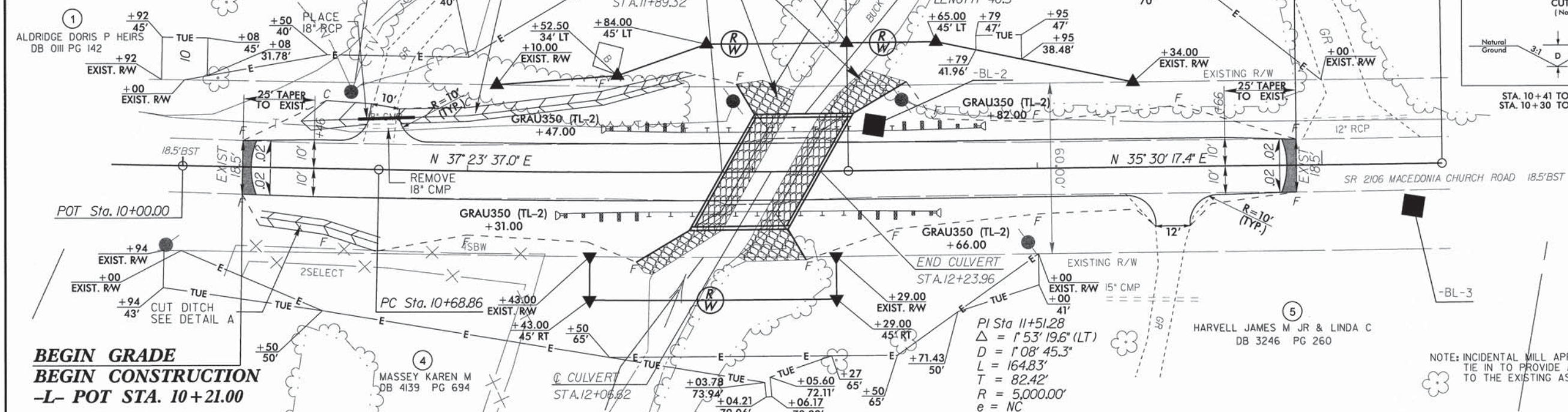
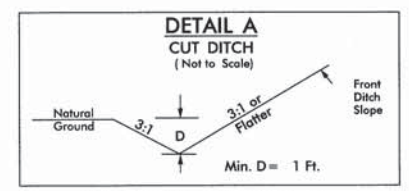
SHEET NO.
4

R/W SHEET NO.

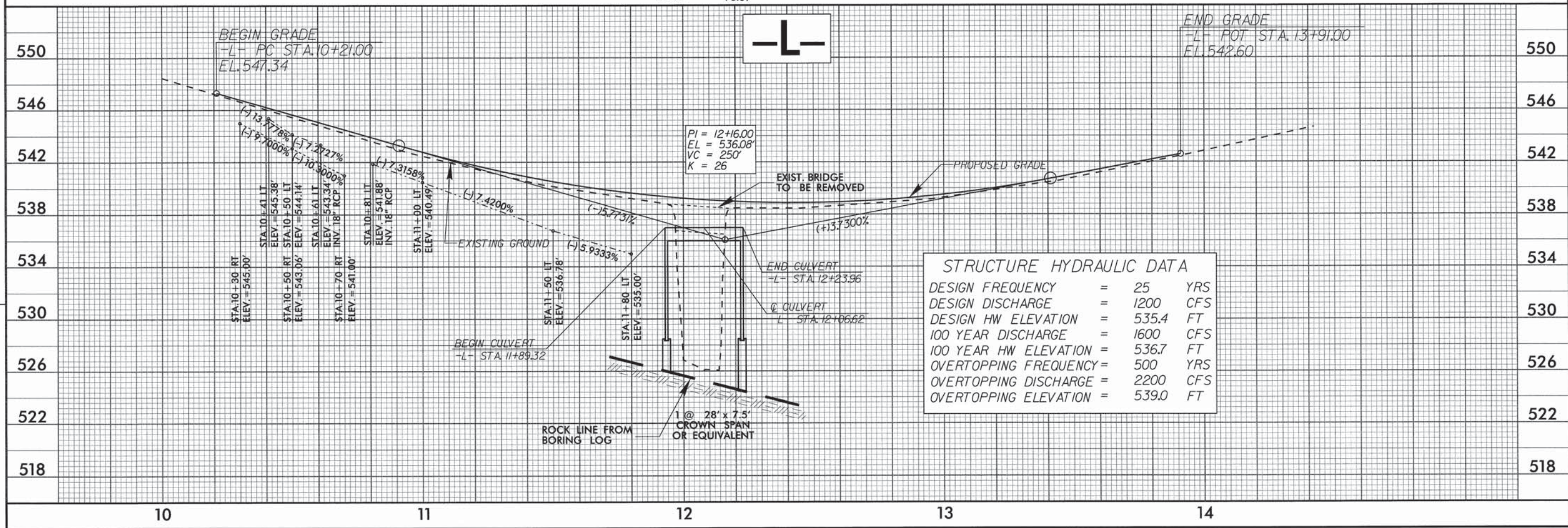
ROADWAY DESIGN ENGINEER
ROBERT A. WILLIAMS
30932

HYDRAULICS ENGINEER
RICHARD L. HINER
29185

02:30:45 PM 8/15/13

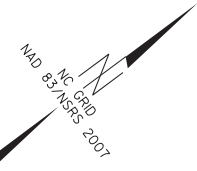
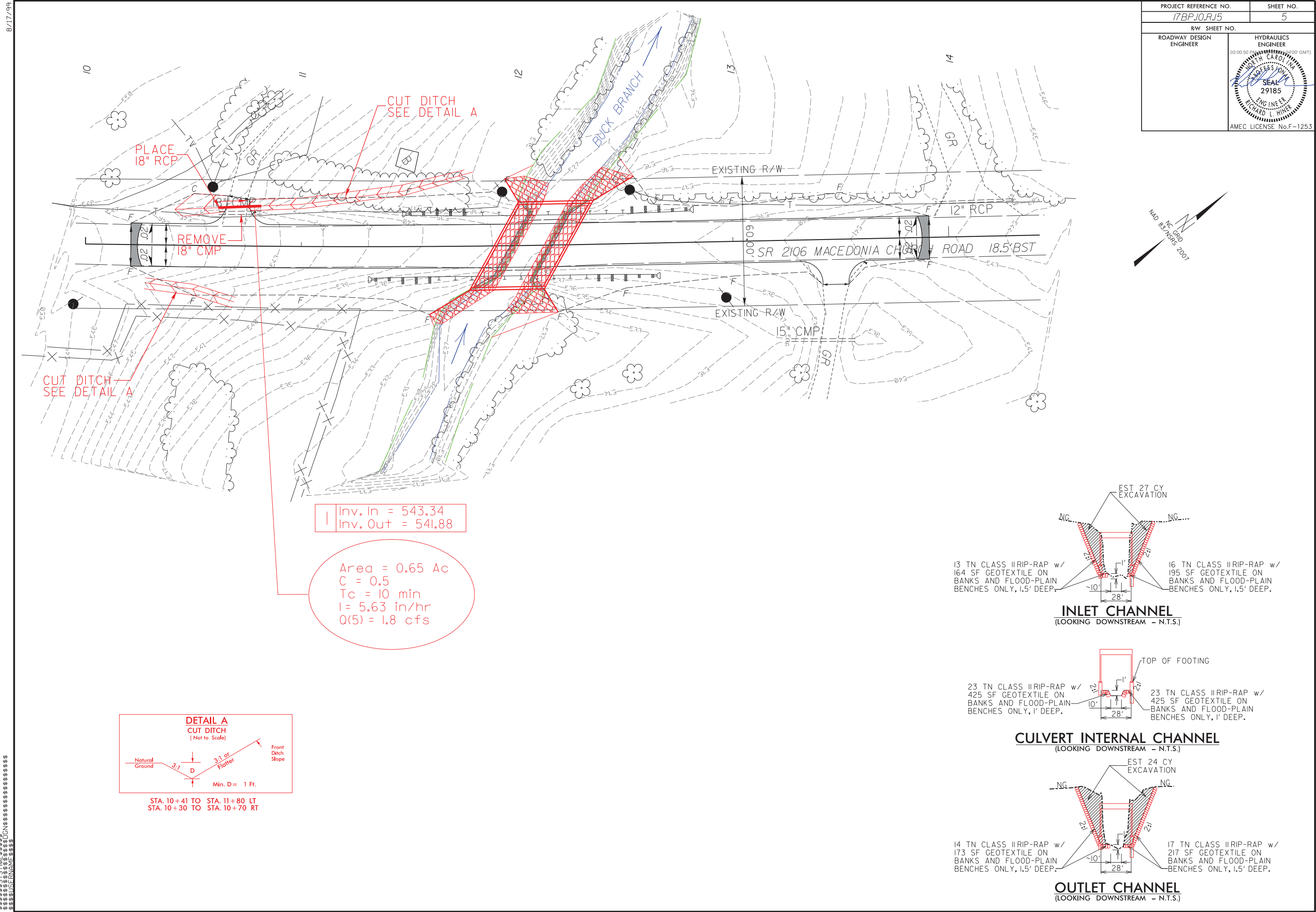


NOTE: INCIDENTAL WILL APPROX. 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.



8/17/99

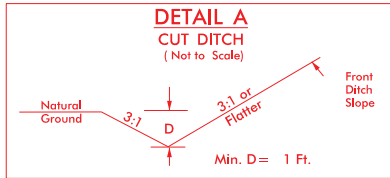
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\$\$\$\$\$USLENGH\$\$\$\$\$



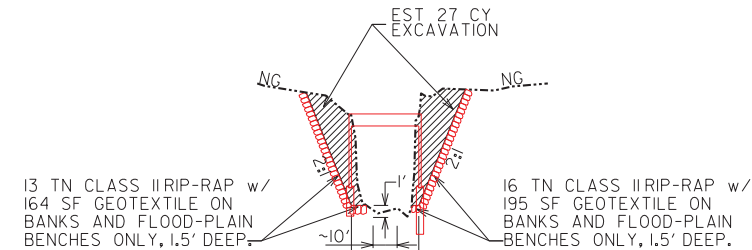
PROJECT REFERENCE NO.		SHEET NO.	
17BPJO.RJ5		5	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
		03.00.50 PM 03/00' GMT	
		NORTH CAROLINA	
		SEAL	
		29185	
		ENGINEER	
		WILLARD L. HINER	
		AMEC LICENSE No.F-1253	

Inv. In = 543.34
Inv. Out = 541.88

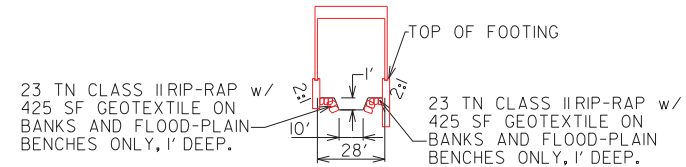
Area = 0.65 Ac
C = 0.5
Tc = 10 min
I = 5.63 in/hr
Q(5) = 1.8 cfs



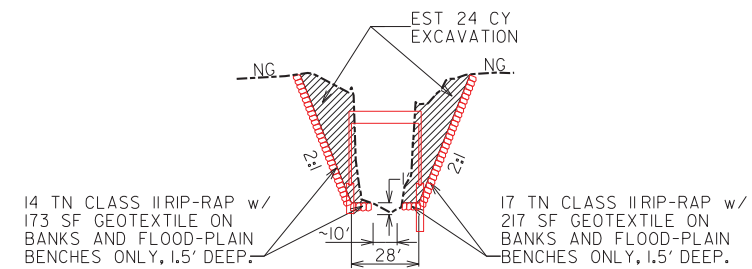
STA. 10+41 TO STA. 11+80 LT
STA. 10+30 TO STA. 10+70 RT



INLET CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)



CULVERT INTERNAL CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)



OUTLET CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)

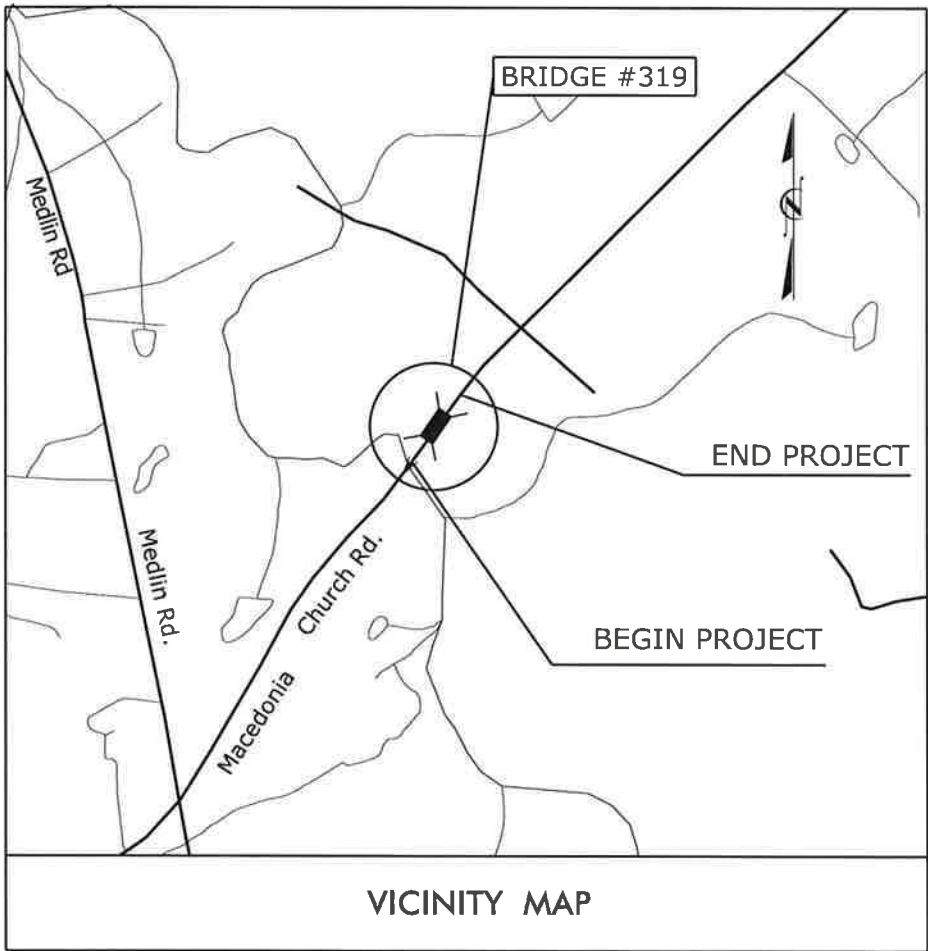
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

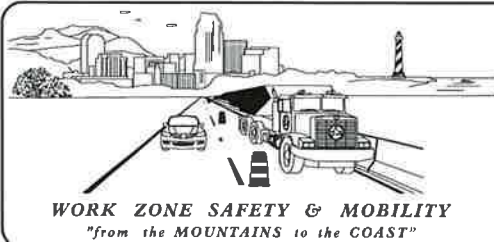
UNION COUNTY
DIVISION 10



BRIDGE #319 – SR 2106 (MACEDONIA CHURCH ROAD) OVER BUCK BRANCH



VICINITY MAP



BETSY L. WATSON, P.E.
GEORGE KARAGEORGE
TRAFFIC ENGINEER
WORK ZONE TRANSPORTATION DESIGN MANAGER

PLAN PREPARED BY:
Stantec Consulting Services Inc.
801 Jones Franklin Road-Suite 300
Raleigh, NC 27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

APPROVED: *Betsy L. Watson*
DATE: 4/18/13
NORTH CAROLINA
PROFESSIONAL
SEAL
29449
ENGINEER
BETSY L. WATSON

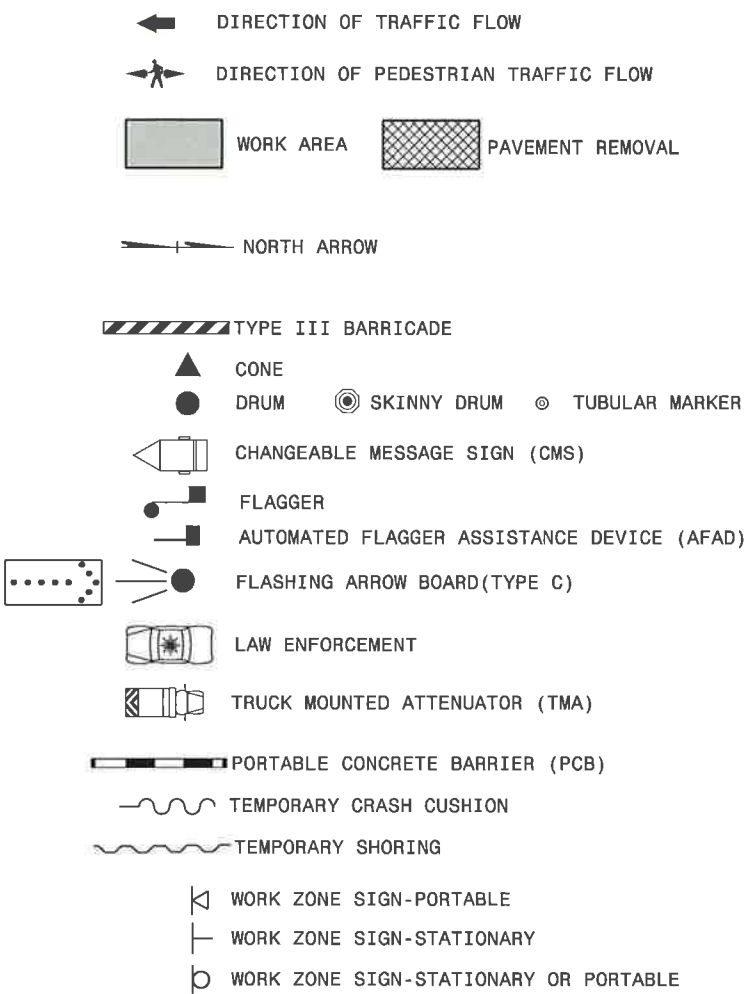
INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES
TMP-3	BRIDGE #319 - ROAD CLOSURE & DETOUR ROUTE

WBS 17BP.10.R.15

SHEET NO.
TMP-1

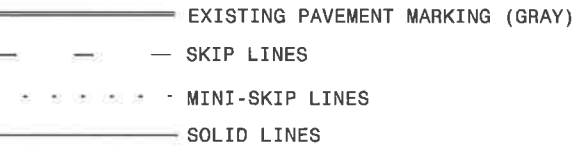
LEGEND



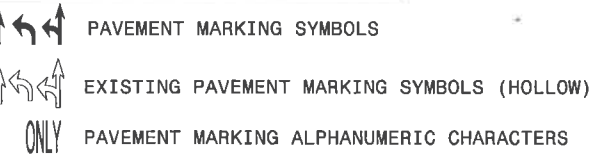
SIGNALS



PAVEMENT MARKINGS



PAVEMENT MARKING SYMBOLS



PAVEMENT MARKERS



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS



LEGEND
&
ROADWAY STANDARD DRAWINGS

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

ROAD CLOSURES

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY ROAD CLOSURE.
- B) FURNISH AND INSTALL SIGNING AND DEVICES FOR ROAD CLOSURES ACCORDING TO THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE ALL SIGNS AND DEVICES FOR ROAD CLOSURES WHEN NOT IN EFFECT.
- C) FURNISH AND INSTALL OFFSITE-DETOUR ROUTE SIGNING AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE OFFSITE-DETOUR SIGNING WHEN THE DETOUR IS NOT IN OPERATION. ALL DETOUR ROUTES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTING.
- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- E) OTHER BRIDGE PROJECTS MAY BE ONGOING IN THE AREA. COORDINATE ALL DETOUR ROUTES WITH ENGINEER AND OTHER CONTRACTORS.

PAVEMENT MARKINGS AND MARKERS

- F) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME PATTERN ON THE NEW SURFACE.
- G) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>PAVEMENT MARKER</u>
SR 1206	PAINT	NONE

- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- I) REPLACE PAVEMENT MARKINGS BEFORE OPENING LANES TO TRAFFIC.

PHASING

REFER TO SHEET TMP-3

STEP 1:
INSTALL DETOUR ROUTE SIGNS.

STEP 2:
CLOSE SR 1206 (MACEDONIA CHURCH RD.) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.03 SHEET 1 OF 9, TEMPORARY ROAD CLOSURES-CLOSURE BEYOND DETOUR POINT.

STEP 3:
WITH SR 1206 CLOSED TO TRAFFIC, REPLACE BRIDGE #319 AND COMPLETE ALL CONSTRUCTION OPERATIONS.

STEP 4:
INSTALL FINAL PAVEMENT MARKINGS.

STEP 5:
OPEN SR 1206 TO TRAFFIC.

4/1/2013
Us:\Union319\Traffic\TrafficControl\TCP\Plansheet\17BP.10.R.15-TC-TMP_02- GENERAL NOTES.dgn
blaton



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

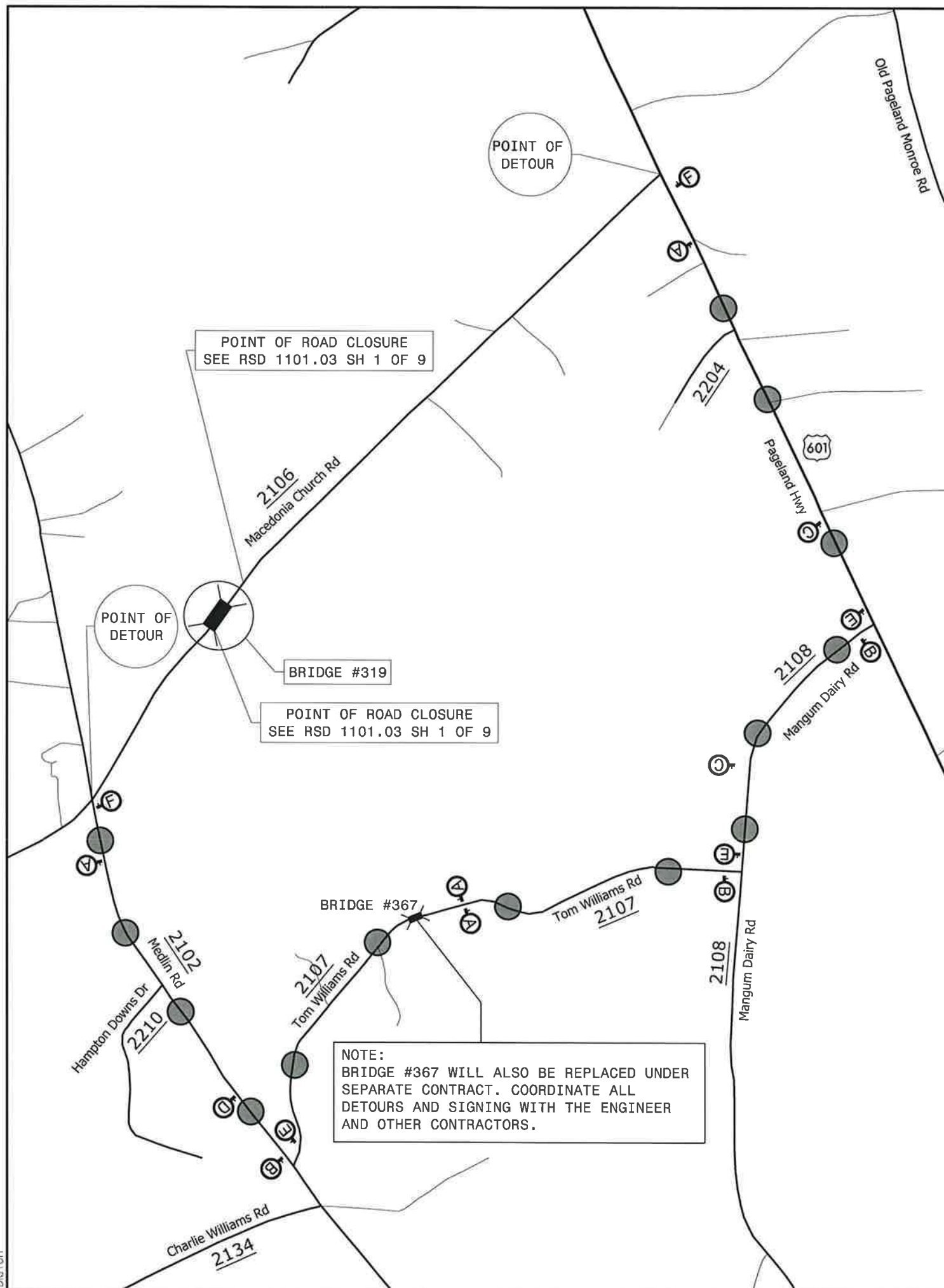
APPROVED:

DATE:



GENERAL NOTES
AND PHASING

4/1/2013
L:\Union319\TrafficControl\TCP\Plansheets\17BP.10.R.15_TC_TMP_03_DETOUR ROUTE SHEET.dgn
blaton



- Ⓐ **DETOUR** M4-8 24" X 12"
M6-3 21" X 15"
- Ⓑ **DETOUR** M4-8 24" X 12"
M6-1 L 21" X 15"
- Ⓒ **DETOUR** M4-8 24" X 12"
M5-1 R 21" X 15"
- Ⓓ **DETOUR** M4-8 24" X 12"
M5-1 21" X 15"
- Ⓔ **DETOUR** M4-8 24" X 12"
M6-1 21" X 15"
- Ⓕ **END DETOUR** M4-B A 24" X 18"

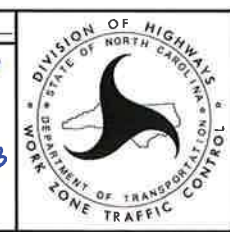


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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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APPROVED: _____ DATE: _____

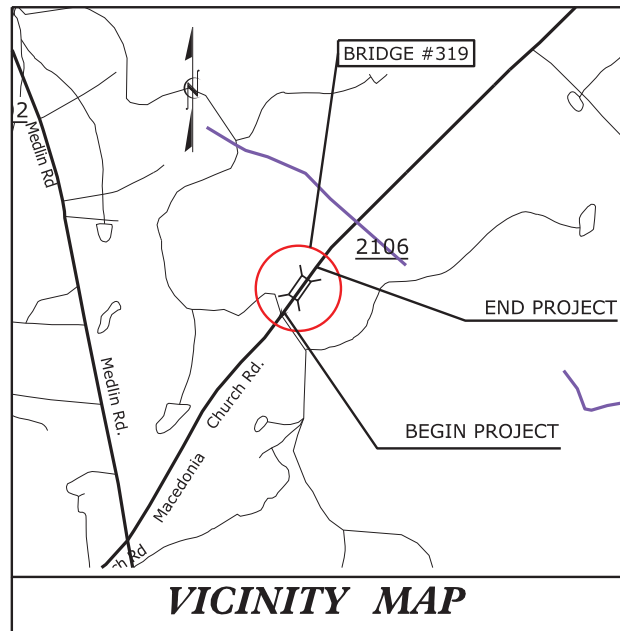
Robert Watson
4/8/13

PROFESSIONAL ENGINEER
SEAL NO. 25449
NORTH CAROLINA
TERRY L. WATSON



UNION CO. BRIDGE #319
ROAD CLOSURE &
DETOUR ROUTE

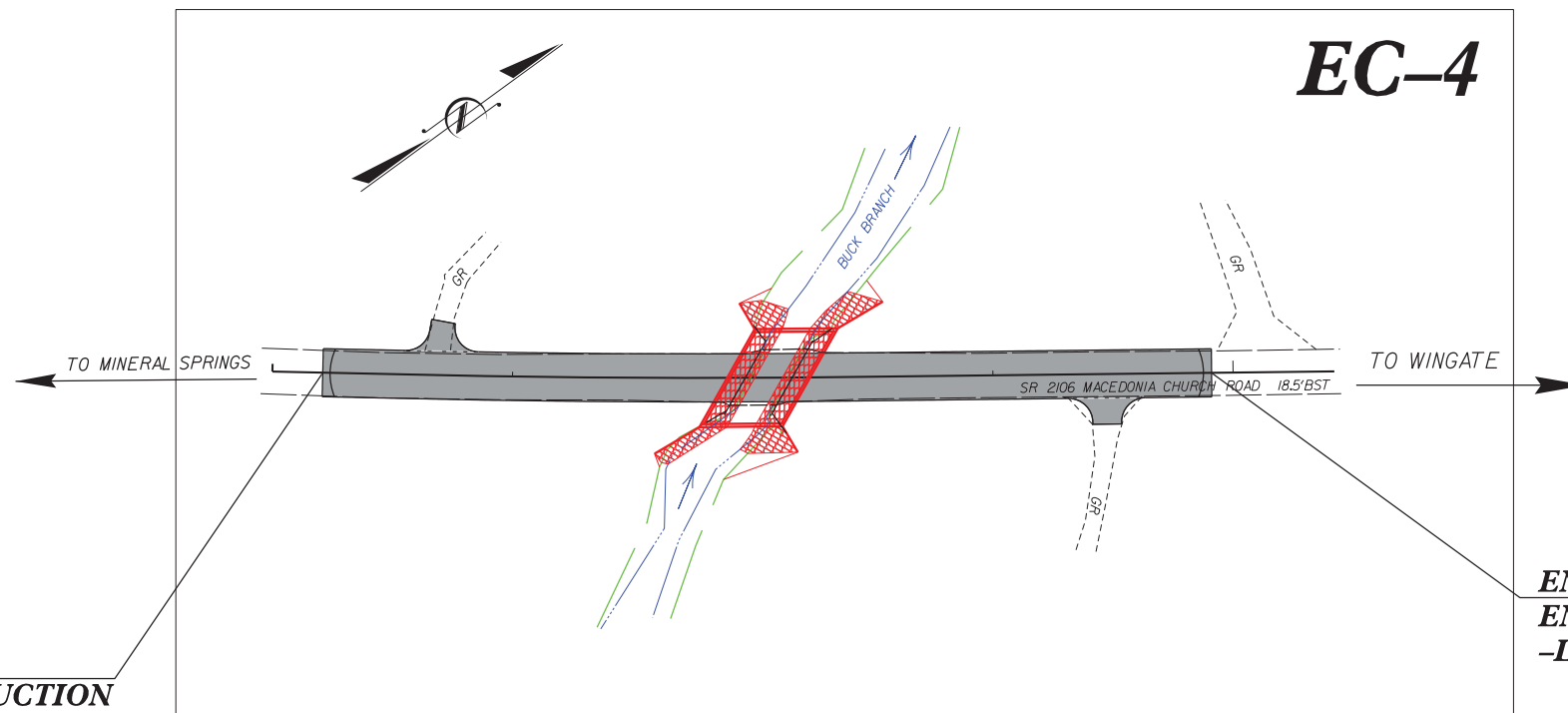
TIP PROJECT: 17BP.10.R.15



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
UNION COUNTY

LOCATION:
BRIDGE NO. 319 ON SR 2106 (MACEDONIA CHURCH ROAD)
OVER BUCK BRANCH



BEGIN GRADE
BEGIN CONSTRUCTION
-L- POT STA. 10 + 21.00

END GRADE
END CONSTRUCTION
-L- POT STA. 13 + 91.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.15	EC-1	4
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.15		PE	
		ROW/UTIL.	
		CONST.	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TD
1630.02	Silt Basin Type B	TD
1633.01	Temporary Rock Silt Check Type-A	TD
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	TD
1633.02	Temporary Rock Silt Check Type-B	TD
	Wattle / Coir Fiber Wattle	TD
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	TD
1634.01	Temporary Rock Sediment Dam Type-A	TD
1634.02	Temporary Rock Sediment Dam Type-B	TD
1635.01	Rock Pipe Inlet Sediment Trap Type-A	TD
1635.02	Rock Pipe Inlet Sediment Trap Type-B	TD
1630.04	Stilling Basin	TD
1630.06	Special Stilling Basin	TD
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	TD
	Tiered Skimmer Basin	TD
	Infiltration Basin	TD

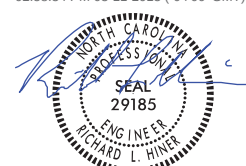
THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

GRAPHIC SCALES



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

02:58:34 PM 03-11-2013 (-04'00' GMT)



AMEC LICENSE No.F-1253

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.

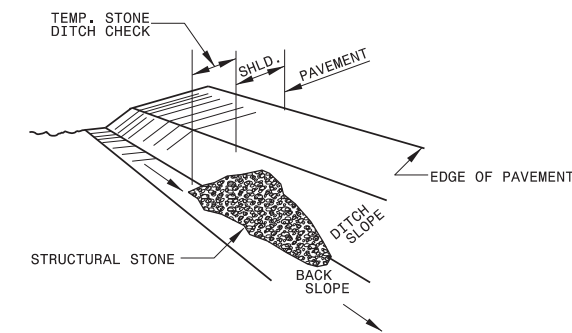
Prepared In the Office of:
AMEC Environment & Infrastructure, Inc.
4021 Siltup Creek Drive, Suite 100
Durham, North Carolina, 27703
NC Eng. License #: F-1253
amec
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

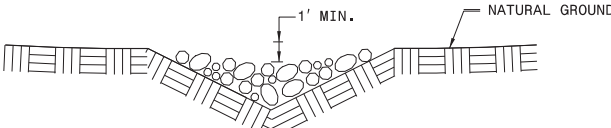
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

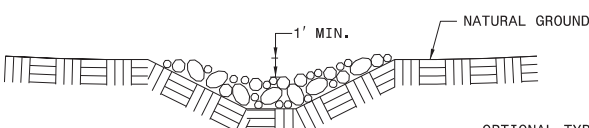
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW

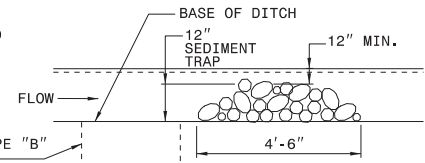


CROSS SECTION VEE DITCH



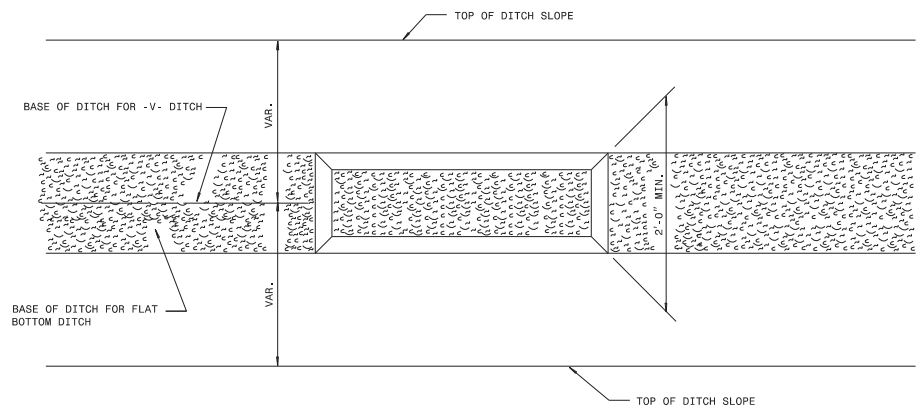
CROSS SECTION TRAPEZOIDAL DITCH

NOTES:
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

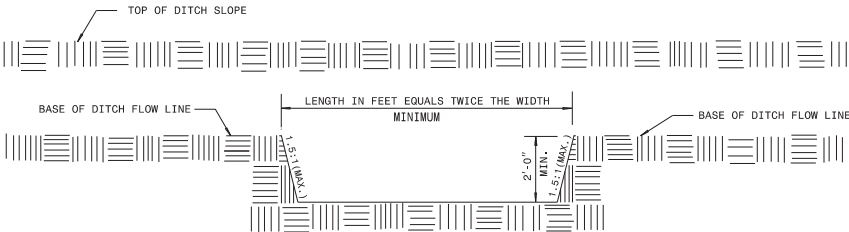


ELEVATION VIEW

SILT BASIN 'B' DETAIL



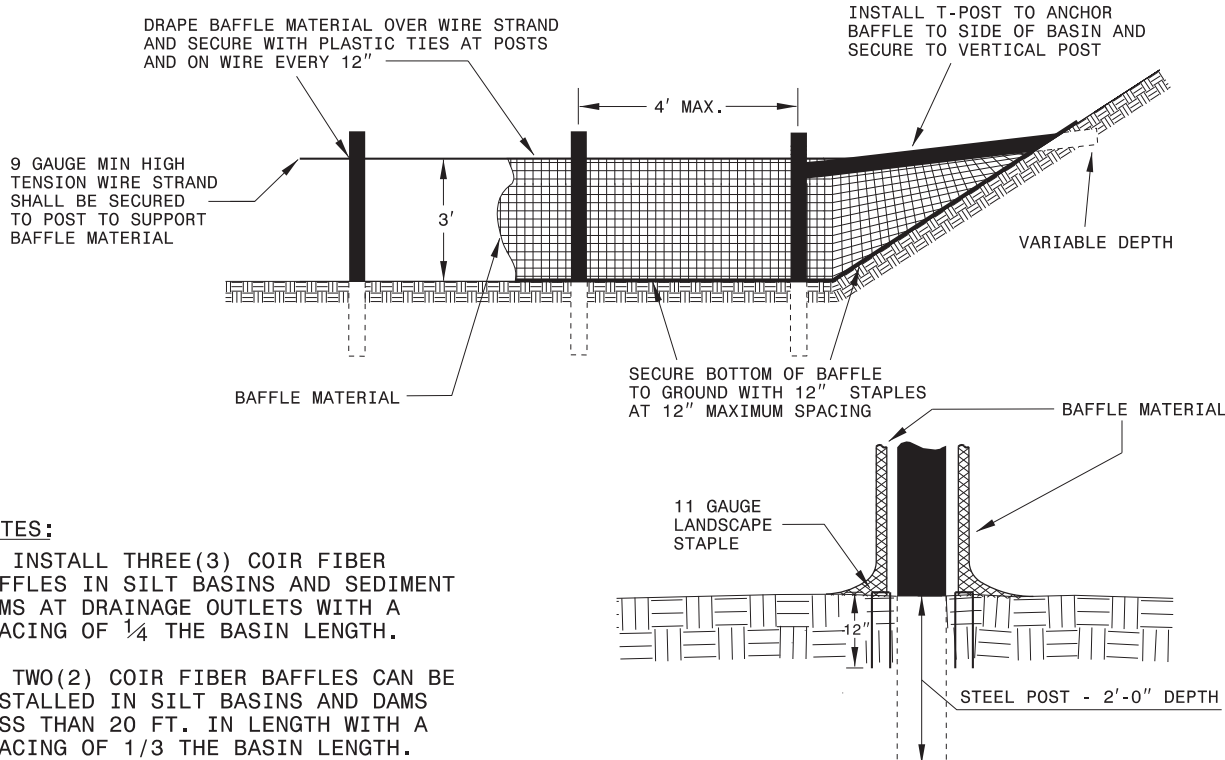
PLAN



ELEVATION

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.15	EC-2
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	02:59:32 PM 04/00' GMT
	29185
	AMEC LICENSE No.F-1253

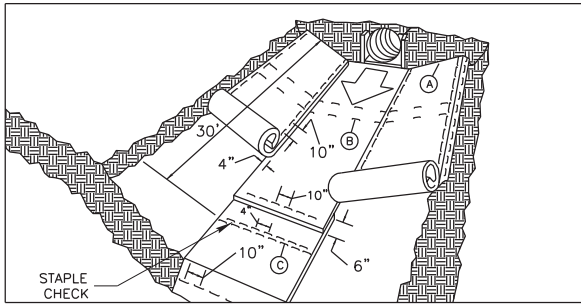
COIR FIBER BAFFLE DETAIL



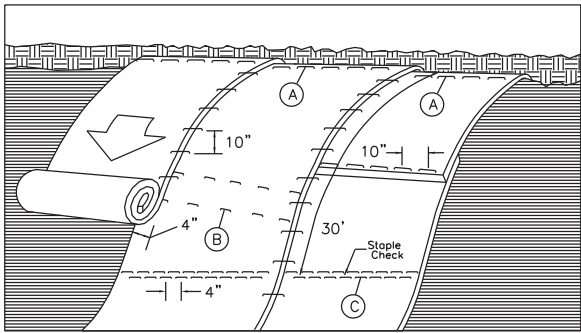
NOTES:
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH.
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

MATTING INSTALLATION DETAIL



MATTING IN DITCHES



MATTING ON SLOPES

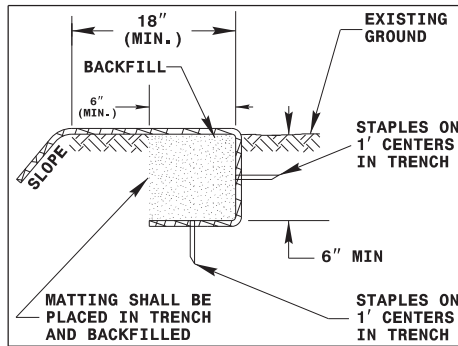


DIAGRAM (A)

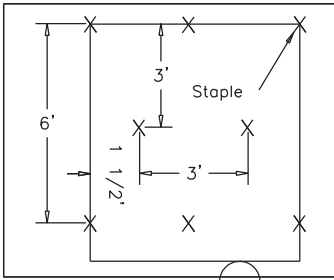


DIAGRAM B

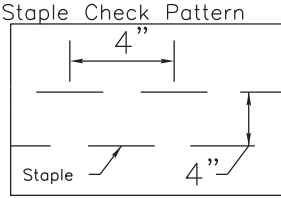


DIAGRAM (C)

NOTES:
THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.
STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.
17BPJ0.RJ5

SHEET NO.
EC-3

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

02:59:47 PM 04/01/2024

BEAL
29185
ENGINEER

RICHARD L. HINE

AMEC LICENSE No.F-1253

SOIL STABILIZATION SUMMARY SHEET

MATting FOR EROSION CONTROL
(FOR SLOPE STABILIZATION)

PERMANENT SOIL REINFORCEMENT MAT
(FOR TEMP. SILT DITCH STABILIZATION)

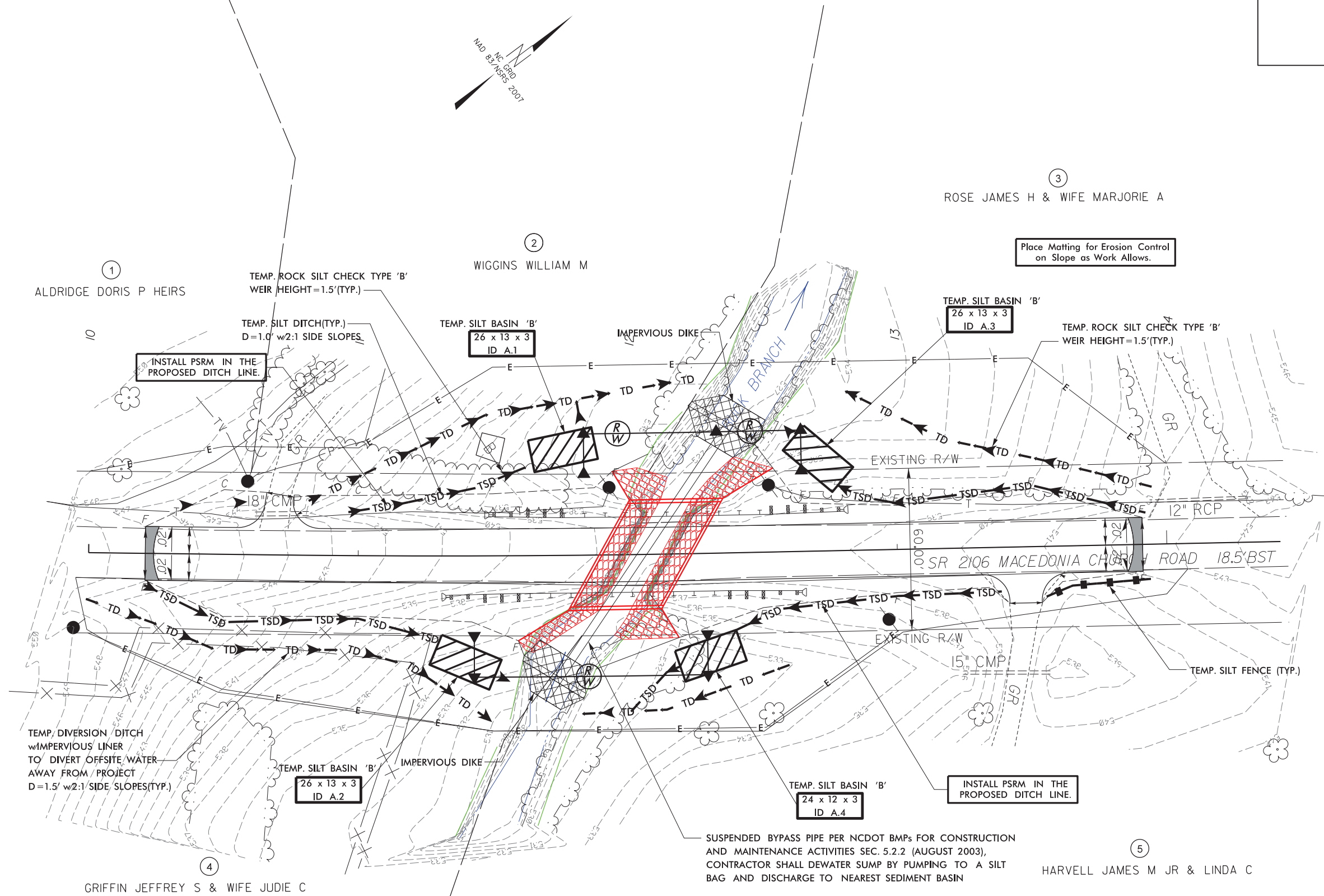
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+21	10+66	LT	45
4	-L-	10+76	12+01	LT	180
4	-L-	12+30	13+91	LT	160
4	-L-	10+21	11+84	RT	230
4	-L-	12+12	13+41	RT	140
4	-L-	13+53	13+91	RT	10
			SUBTOTAL		765
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				0
			TOTAL		765
			SAY		800
	IMPERVIOUS LINER (FOR TEMP. DIVERSION DITCHES)				
4	-L-	10+82	12+27	LT	135
4	-L-	12+78	13+95	LT	115
4	-L-	10+00	11+48	RT	145
4	-L-	11+83	12+61	RT	75
			SUBTOTAL		470
	MISCELLANEOUS LINER TO BE INSTALLED AS DIRECTED BY THE ENGINEER				0
			TOTAL		470
			SAY		500
	TEMPORARY SILT FENCE (FOR STOCK PILES)				
			SUBTOTAL		300
		ADDITIONAL FENCE TO BE INSTALLED			40
			TOTAL		340
			SAY		360
			TOTAL		1
	SILT BAG SPECIAL STILLING BASIN			TOTAL	1

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+96	11+65	LT	65
4	-L-	12+79	13+92	LT	105
4	-L-	10+21	11+30	RT	105
4	-L-	12+01	12+19	RT	25
4	-L-	12+40	13+38	RT	90
			SUBTOTAL		390
		ADDITIONAL PSRM TO BE INSTALLED			0
			TOTAL		390
			SAY		400
	COIR FIBER MATTING (STREAM BANK AT TEMP. DIKE)				
			SUBTOTAL		25
		ADDITIONAL MATTING TO BE INSTALLED			0
			TOTAL		25
			SAY		30
	CLASS II RIP RAP (WING WALLS AND CULVERT)				
			SUBTOTAL		106
		ADDITIONAL STONE TO BE INSTALLED			0
			TOTAL		106
			SAY		110 TON
	GEOTEXTILE (BANKS AND FLOODPLAIN BENCHES)				
			SUBTOTAL		1600
		ADDITIONAL GEOTEXTILE TO BE INSTALLED			0
			TOTAL		1600
			SAY		1600 SF

8/17/99

\$\$\$\$SYTIME\$\$\$\$
\$\$\$\$JUL2000\$\$\$\$
\$\$\$\$JUL2000\$\$\$\$

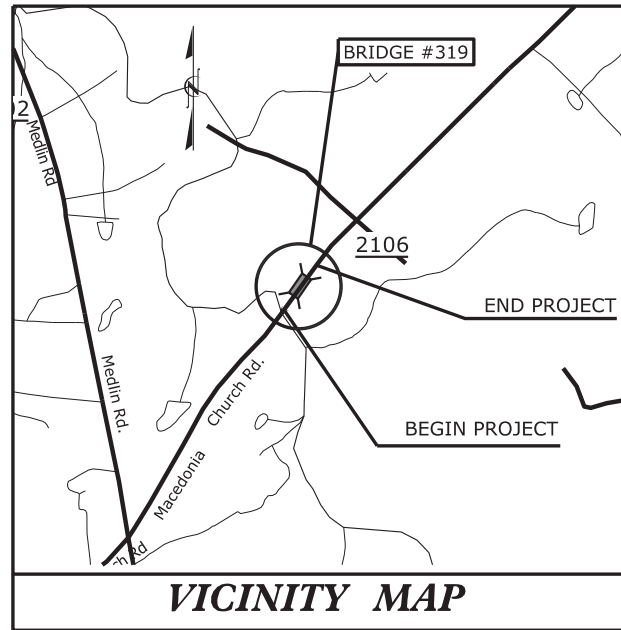
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	SEAL
	29185
	ENGINEER
	WILLIAM L. HINER
	AMEC LICENSE No.F-1253



09/08/99

PROJECT: WBS 17BP.10.R.15

CONTRACT:



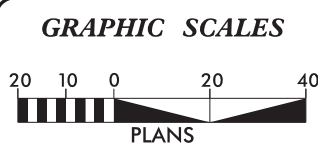
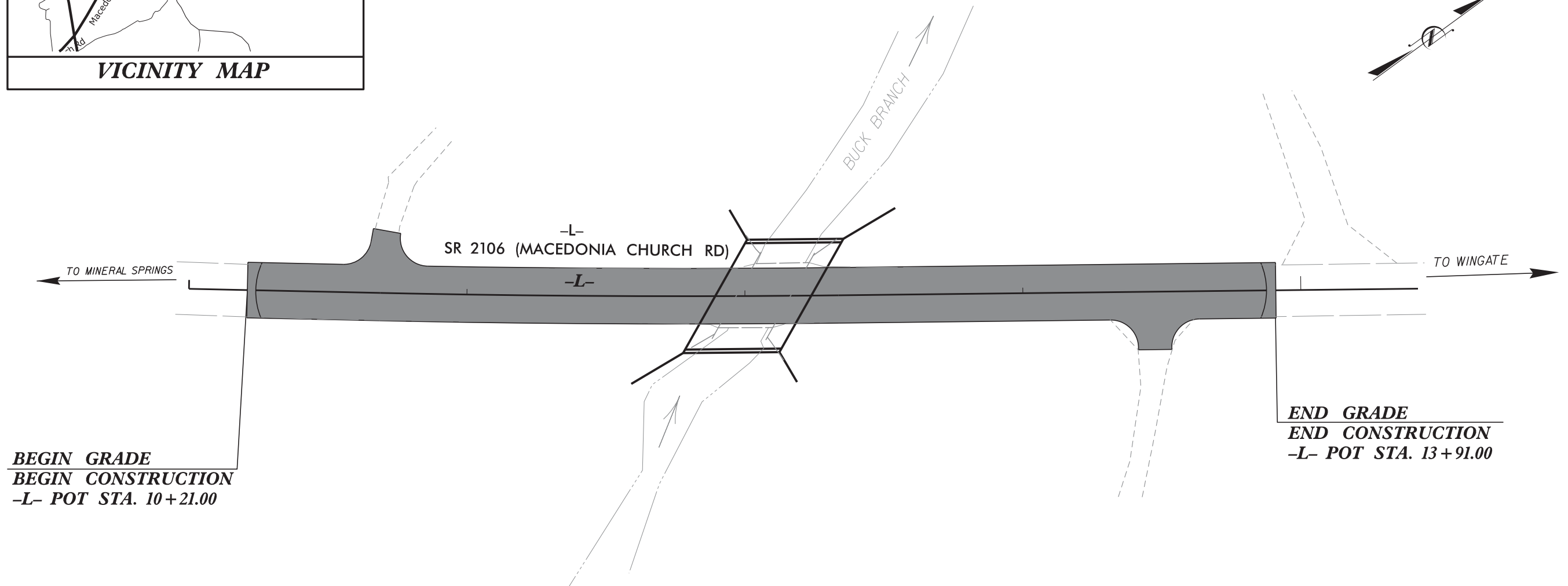
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
UNION COUNTY

LOCATION: BRIDGE NO. 319 ON SR 2106 (MACEDONIA CHURCH ROAD)
OVER BUCK BRANCH

TYPE OF WORK: AERIAL TELEPHONE & POWER

T.I.P. NO.	SHEET NO.
WBS 17BP.10.R.15	UO-1



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT	
(1) TELEPHONE - FRONTIER COMMUNICATIONS	
(2) POWER - DUKE ENERGY	

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
REECE M. SCHULER
26960
10/8/2012
V&M
Vaughn & McIlion
Consulting Engineers
3089-L Beam Road
Charlotte, NC 28217
704-357-0488

PREPARED FOR THE OFFICE OF:
**DIVISION OF HIGHWAYS
UTILITIES ENGINEERING
SECTION**

1591 MAIL SERVICES CENTER
RALEIGH, NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Xxxx Xxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Reece Schuler, PE UTILITIES PROJECT DESIGNER

V&M

Vaughn & Melton
Consulting Engineers

Charlotte,
■ North Carolina
704-357-0488

Asheville,
□ North Carolina
828-257-2796
Tri-Cities,
□ Tennessee
823-487-8461
Knoxville,
□ Tennessee
865-546-5800
Middlesboro,
□ Kentucky
606-248-5600
Spartanburg,
□ South Carolina
864-574-4175

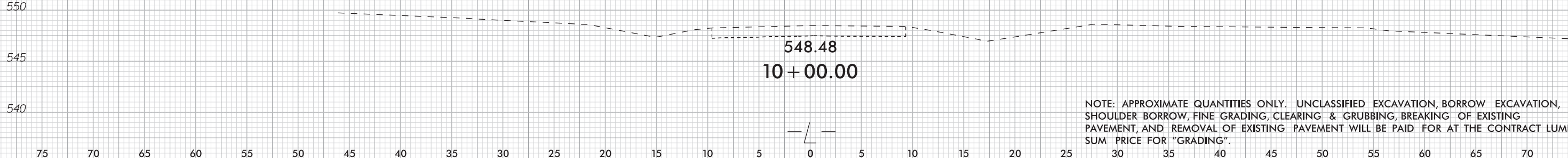
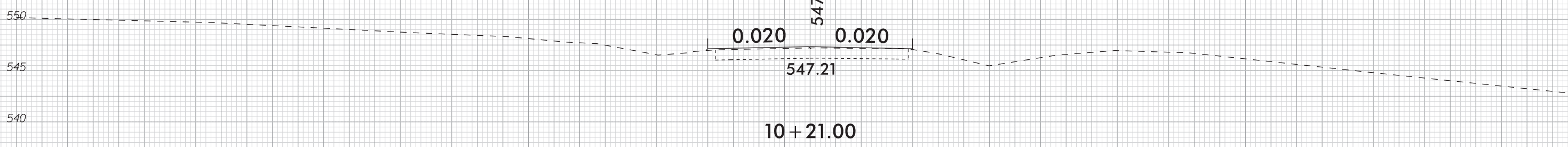
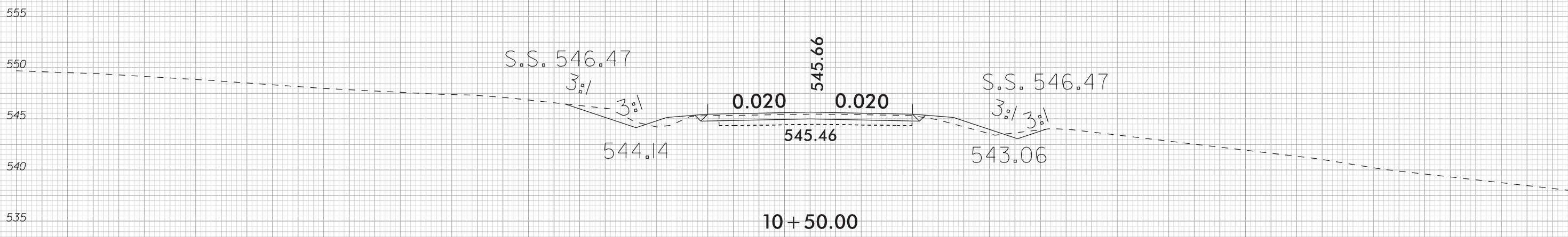
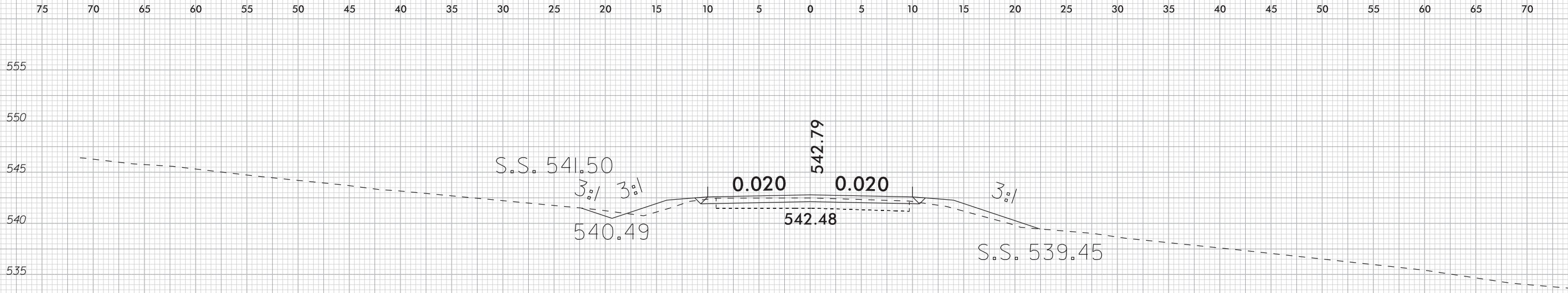
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THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCODT FOR MONUMENT "BL-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 433964.423(ft) EASTING: 1548242.145(ft)
 ELEVATION: 551.301(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"BL-1" TO -L- STA. 10+00.00 IS
N 31°12' 14" E 90.11 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.15	X-1



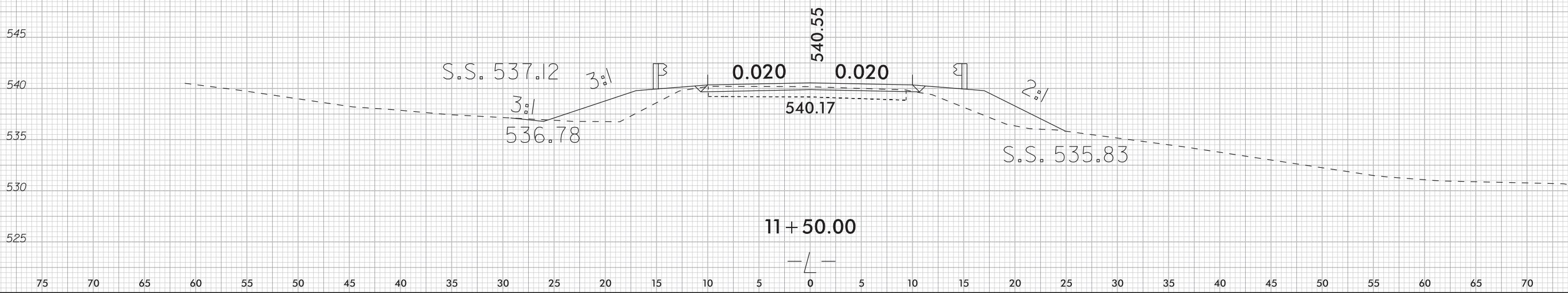
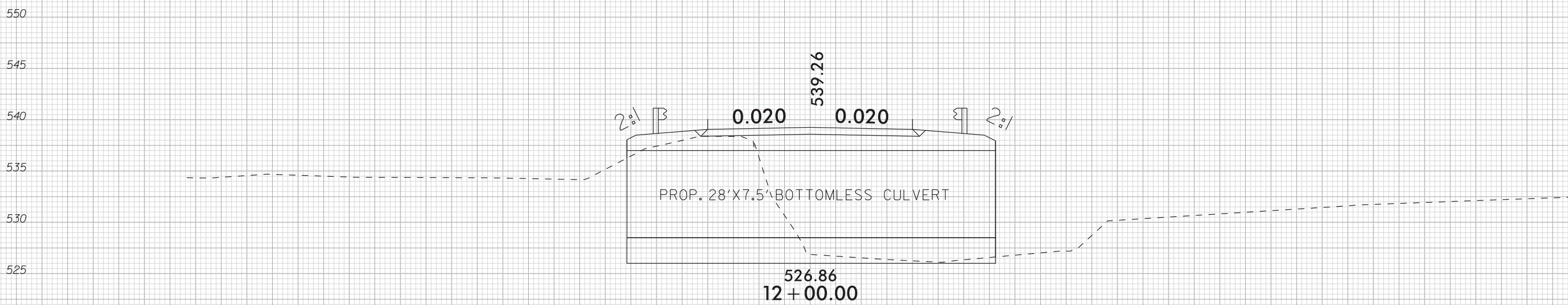
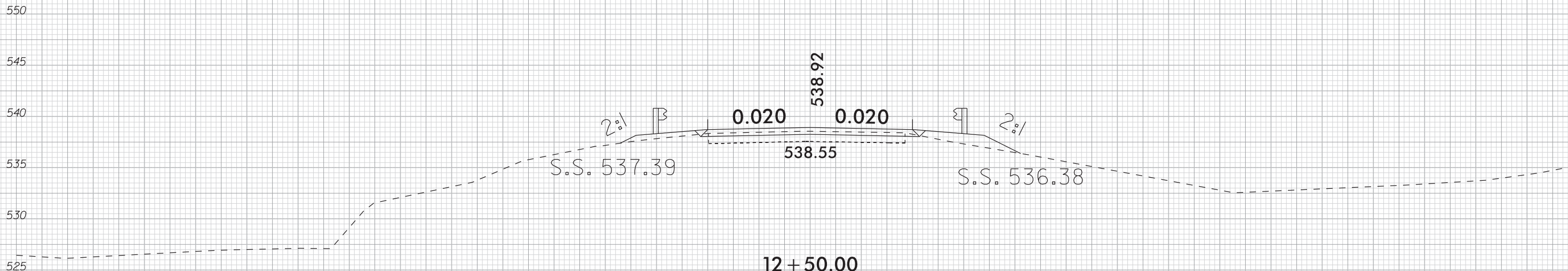
NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING & GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

3/14/2013
U:\Union319\Roadway\Xsc\UNION319_rdy_Xpl.L.dgn
raw\Items

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.15	X-2

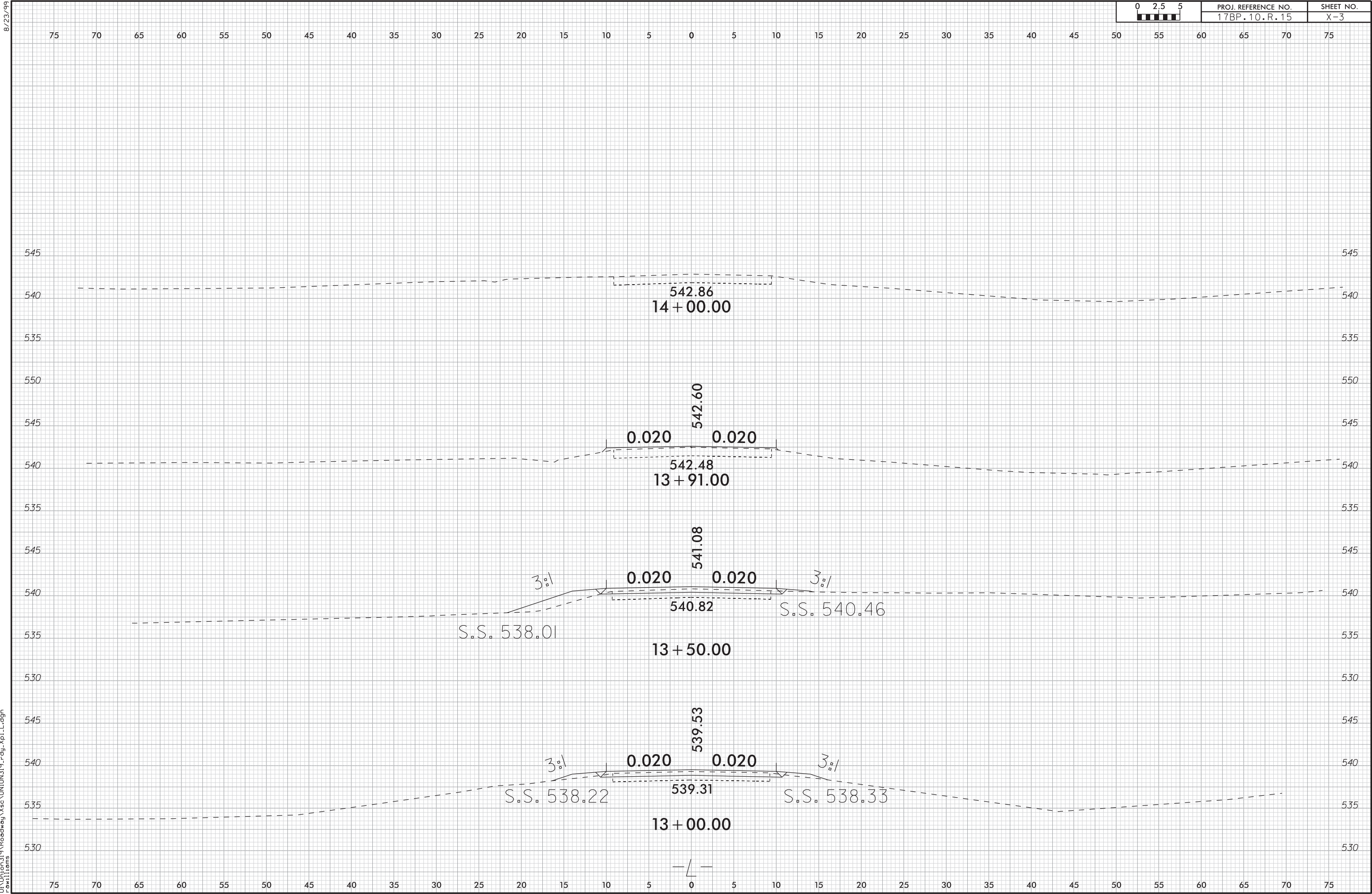
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3/14/2013
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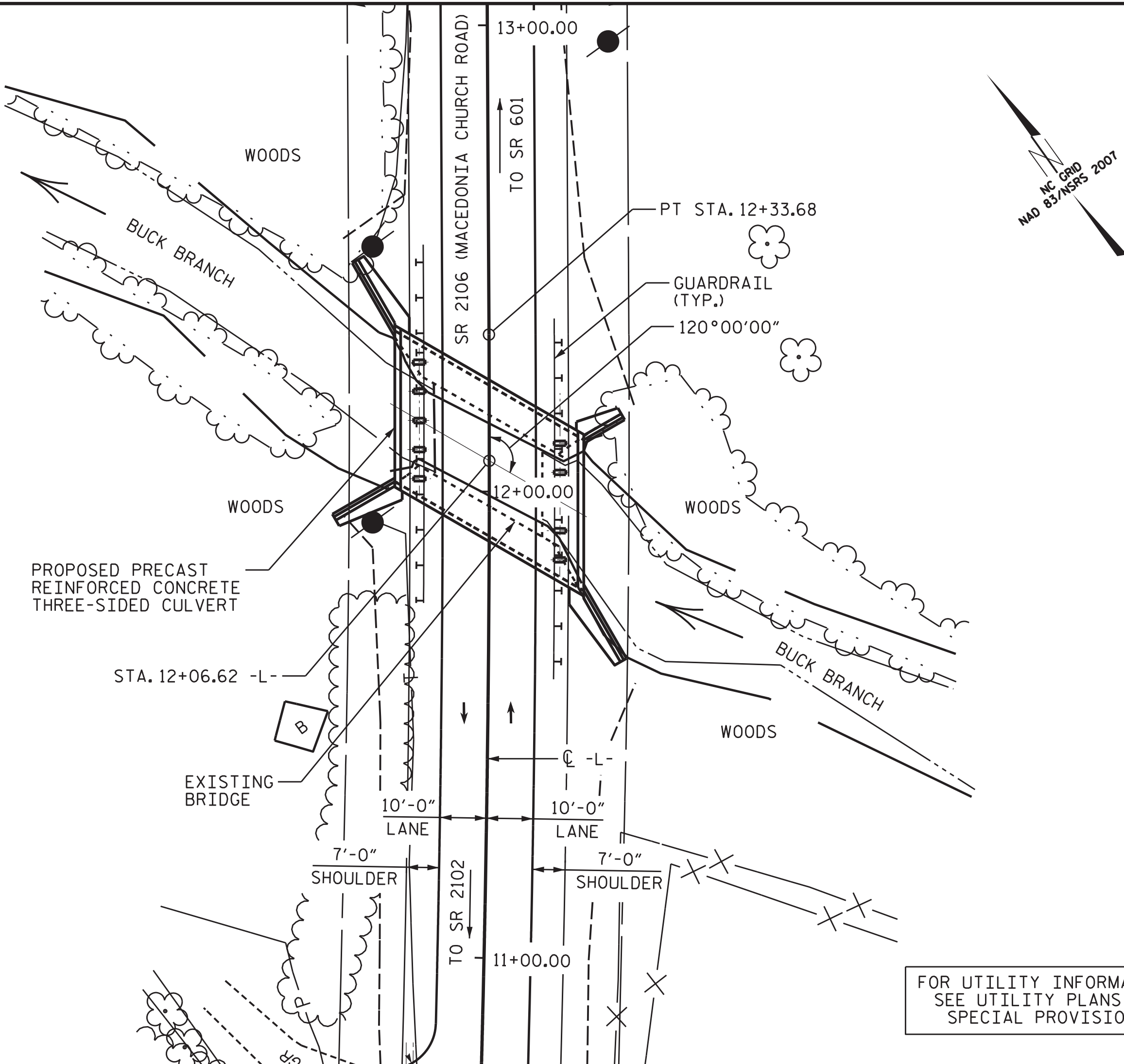
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.15	X-3

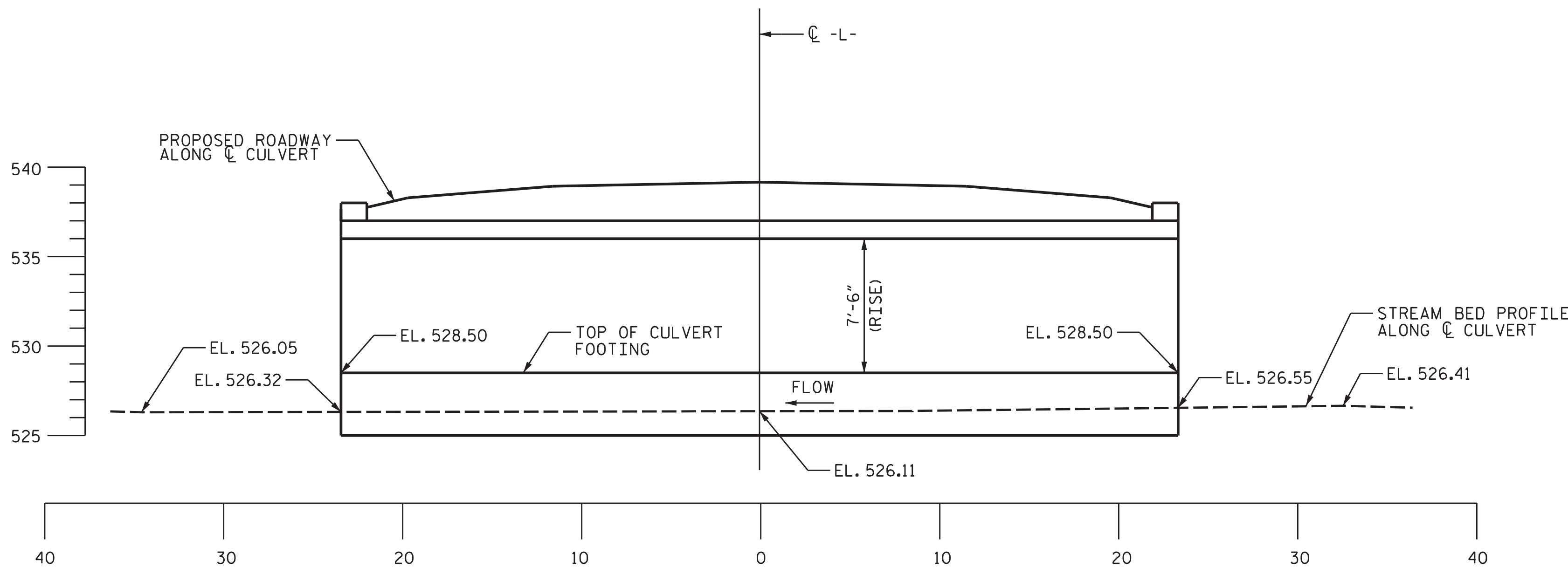


3/14/2013
U:\Union319\Roadway\Xsc\UNION319_rdy.Xpl.L.dgn
raw\Items

BM: MONUMENT AT STA. 12+47.59, 15.97' LT, EL. 551.30



LOCATION SKETCH



PROFILE ALONG CULVERT

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

HYDROGRAPHIC DATA

DESIGN DISCHARGE = 1,200 CFS
FREQUENCY OF DESIGN FLOOD = 25 YRS.
DESIGN HIGH WATER ELEVATION = 535.6
DRAINAGE AREA = 3.5 SQ. MI.
BASE DISCHARGE (0100) = 1,642 CFS
BASE HIGH WATER ELEVATION = 536.79

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 2,200 CFS
FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.
OVERTOPPING FLOOD ELEVATION = 539.0

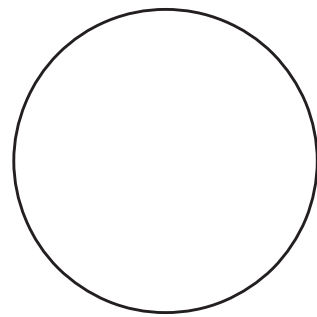
GRADE DATA

GRADE POINT ELEVATION = 539.16
@ STAN. 12+06.62 -L-

BED ELEVATION @ = 526.11
STA. 12+06.62 -L-

ROADWAY SLOPES = 2:1 MAX

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS



NOTES:

ASSUMED LIVE LOAD -----HL93 OR ALTERNATE LOADING.

MAXIMUM DESIGN FILL -----3.0'

MINIMUM DESIGN FILL -----0.5'

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 SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 3 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 7 TSF JUST BEFORE PLACING CONCRETE.

KEY IN SPREAD FOOTINGS AT LEAST 12 INCHES INTO WEATHERED ROCK OR NON-CRYSTALLINE ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, THE FOOTINGS SHALL NOT BE CONSTRUCTED AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

SCOUR PROTECTION SHALL BE REQUIRED. RIP RAP NOT TO BE PLACED ABOVE THE STREAMBED.

THE SCOUR CRITICAL ELEVATION IS THE BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE BOTTOM OF THE FOOTING ELEVATIONS MAY BE LOWERED IN ORDER TO SATISFY THE REQUIRED RESISTANCE AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".

FOR PRECAST REINFORCED CONCRETE THREE SIDED CULVERT, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF A 20'-1" LONG SINGLE SPAN, A 23'-2" CLEAR ROADWAY WIDTH WITH A STEEL I-BEAM AND CHANNEL SUPPORTED TIMBER DECK ON ABUTMENTS WITH TIMBER CAPS, POSTS, BULKHEADS AND CONCRETE SILLS AT THE PROPOSED STRUCTURE SITE, SHALL BE REMOVED.

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 SPECIFICATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

ALL REINFORCING STEEL FOR THE HEADWALLS AND GUARDRAIL PEDESTALS SHALL BE EPOXY COATED.

CONCRETE USED FOR THE HEADWALLS AND GUARDRAIL PEDESTALS SHALL MEET THE MINIMUM REQUIREMENTS OF CLASS AA CONCRETE.

NO PRECAST WING OR HEADWALL OPTION WILL BE ALLOWED.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+06.62."

THE PRECAST CULVERT SECTION SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

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.

RIP RAP CLASS II IS INCLUDED IN THE QUANTITY SHOWN ON THE DRAINAGE PLANS.

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 12+06.62 -L-	LUMP SUM
CLASS A CONCRETE	84.3 CU. YDS.
REINFORCING STEEL	1,570 LBS.

PROJECT NO. 17BP.10.R.15

UNION COUNTY

STATION: 12+06.62 -L-

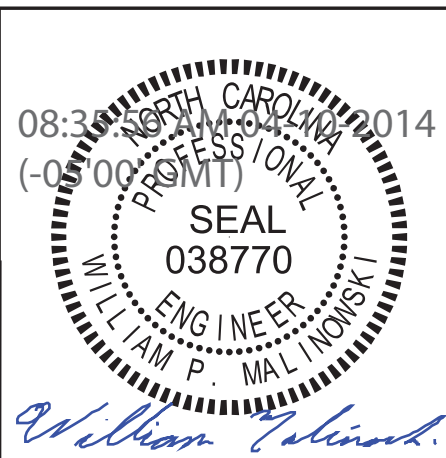
SHEET 1 OF 5 REPLACES BR. NO. 319

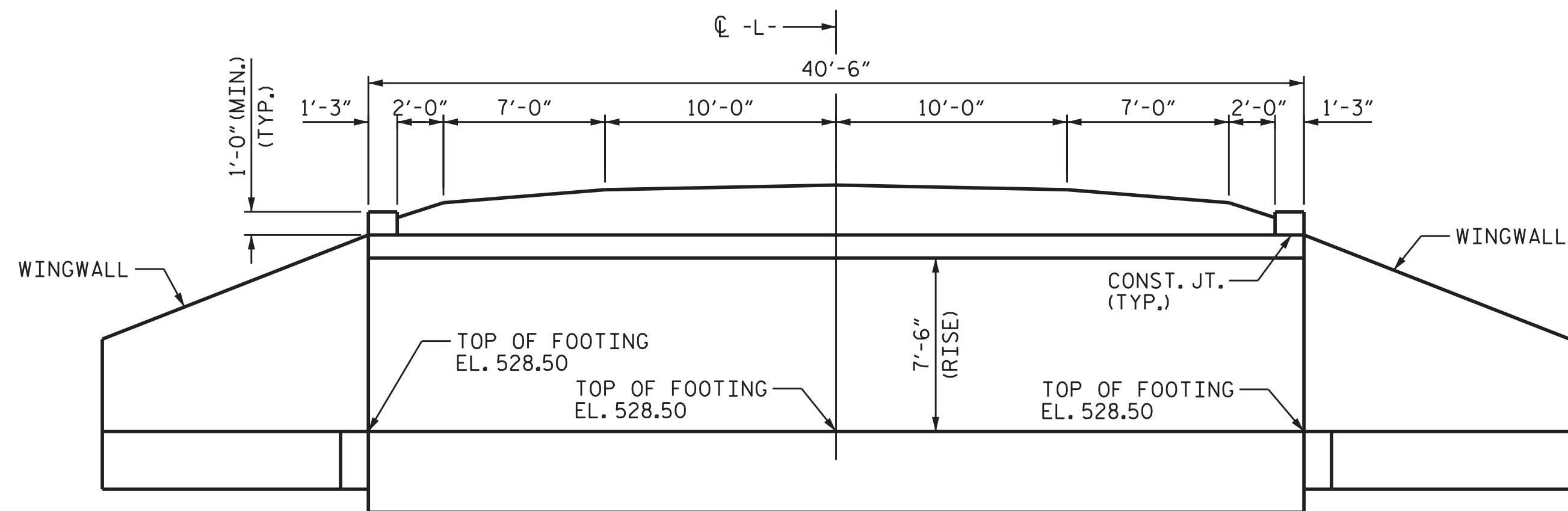
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2106 (MACEDONIA CHURCH RD)
OVER BUCK BRANCH
120° SKEW

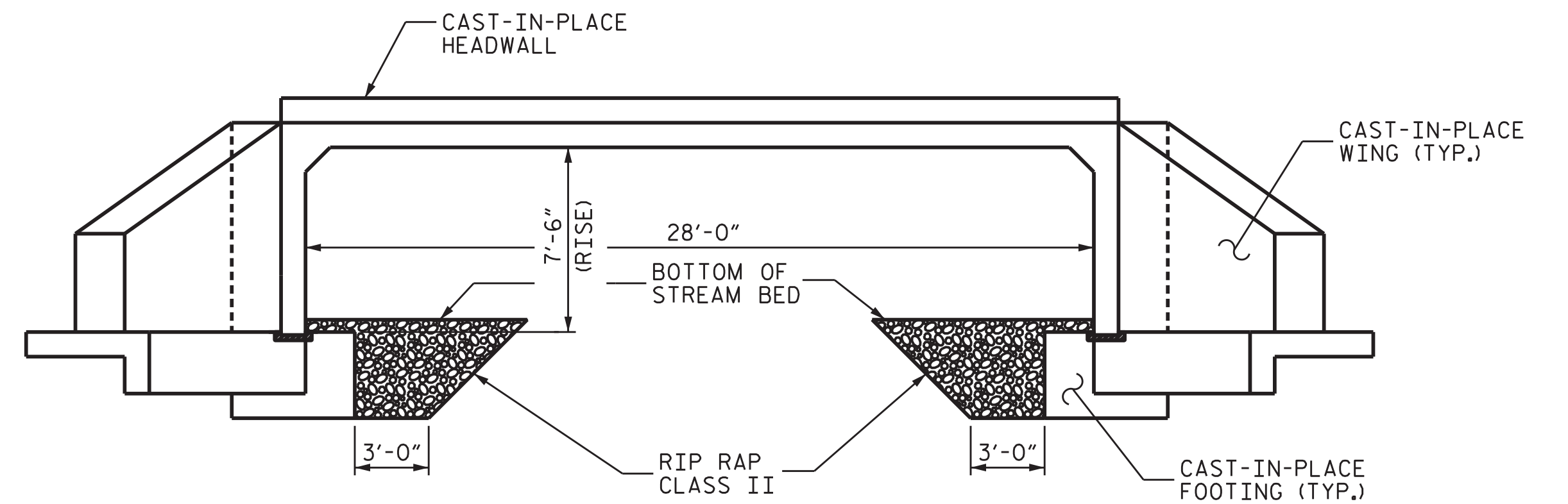
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-1
2			4			TOTAL SHEETS 5

PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stimup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
Fax. (919) 381-9901
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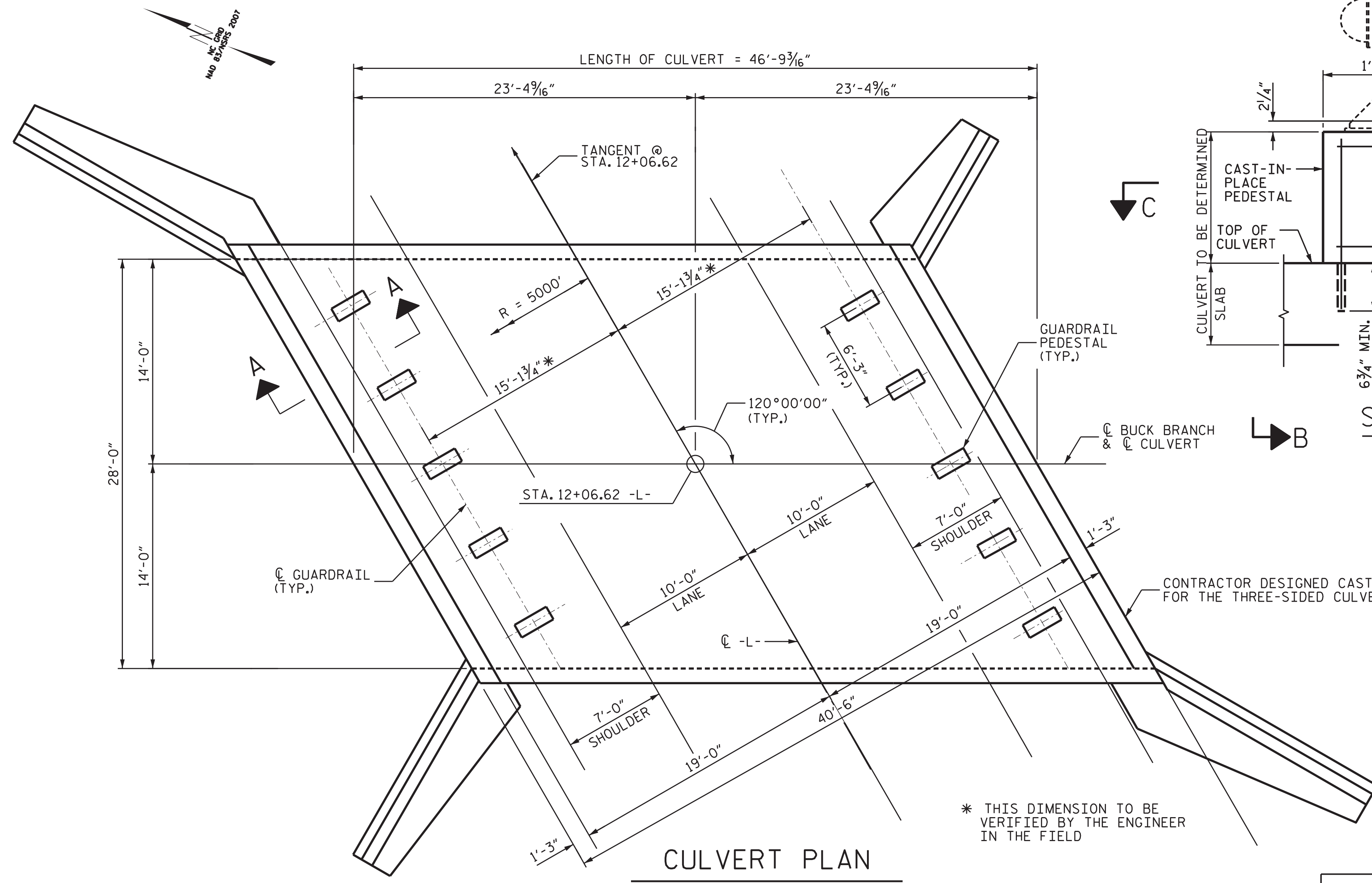




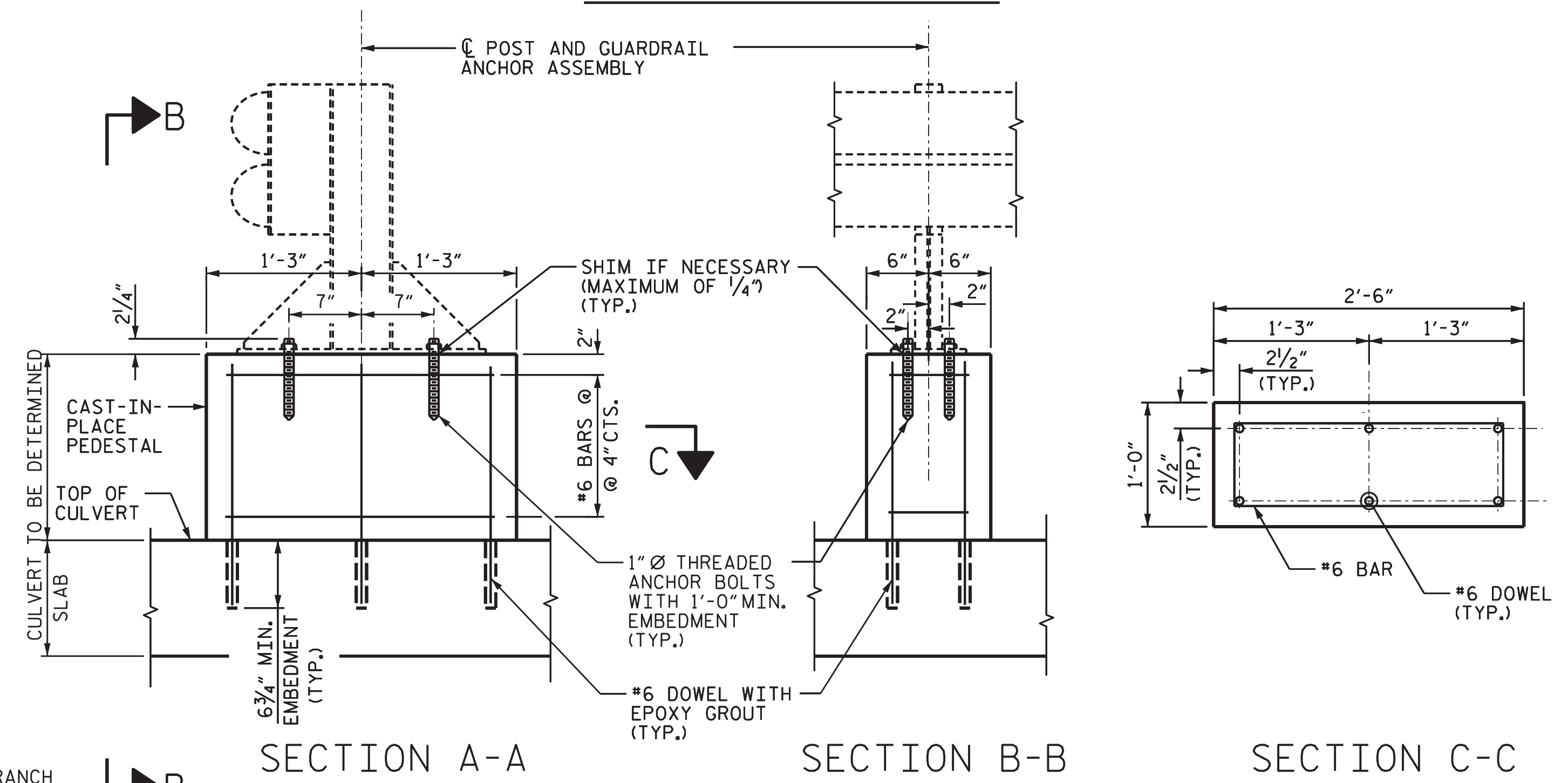
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



CULVERT PLAN



SECTION A-A

SECTION B-B

SECTION C-C

GUARDRAIL PEDESTAL DETAILS

SEE GUARDRAIL AND GUARDRAIL PEDESTAL NOTES ON SHEET 3 OF 5.

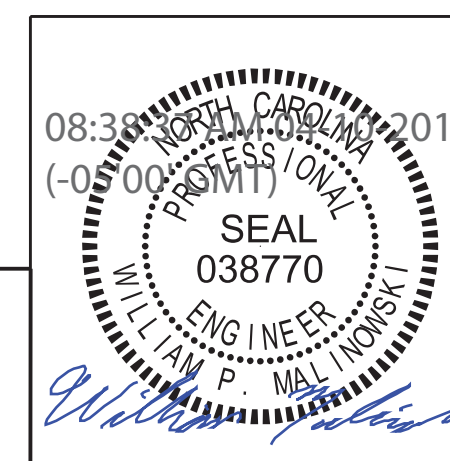
PROJECT NO. 17BP.10.R.15

UNION COUNTY

STATION: 12+06.62 -L-

SHEET 2 OF 5 REPLACES BR. NO. 319

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN, SECTION & ELEVATION
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR2106 (MACEDONIA CHURCH RD)
OVER BUCK BRANCH
120° SKEW

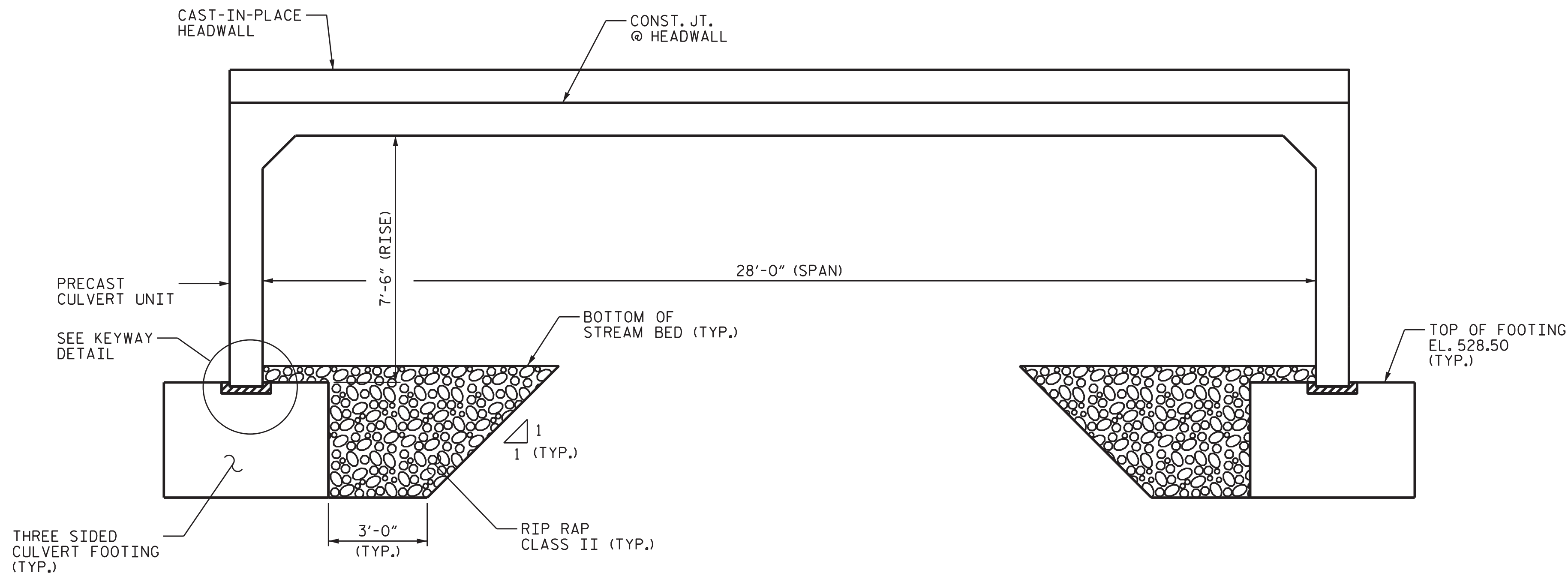


DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

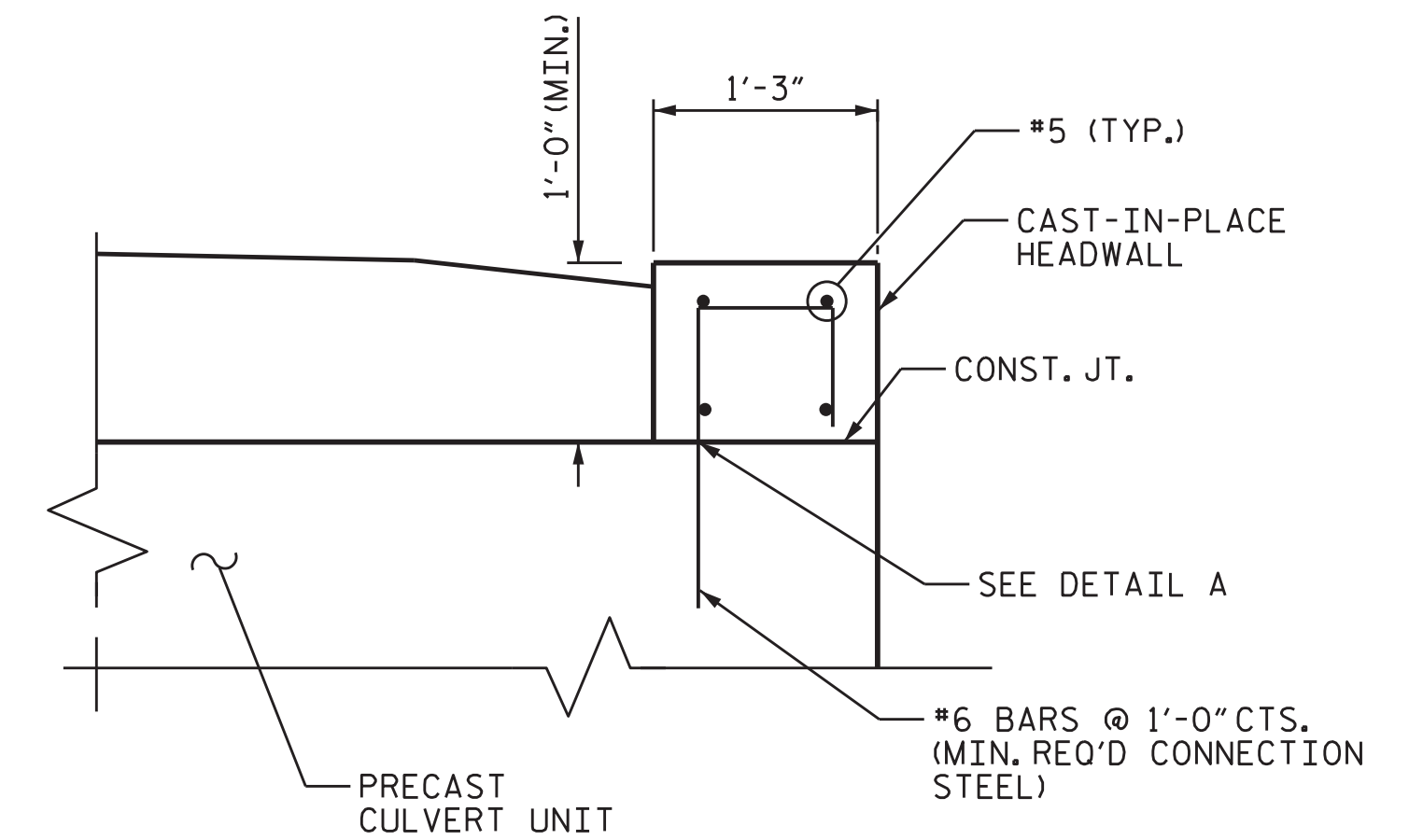
*****SYSTEM*****
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*****USER*****

PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stimup Creek Drive, Suite 100
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-2
2			4			TOTAL SHEETS 5



RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

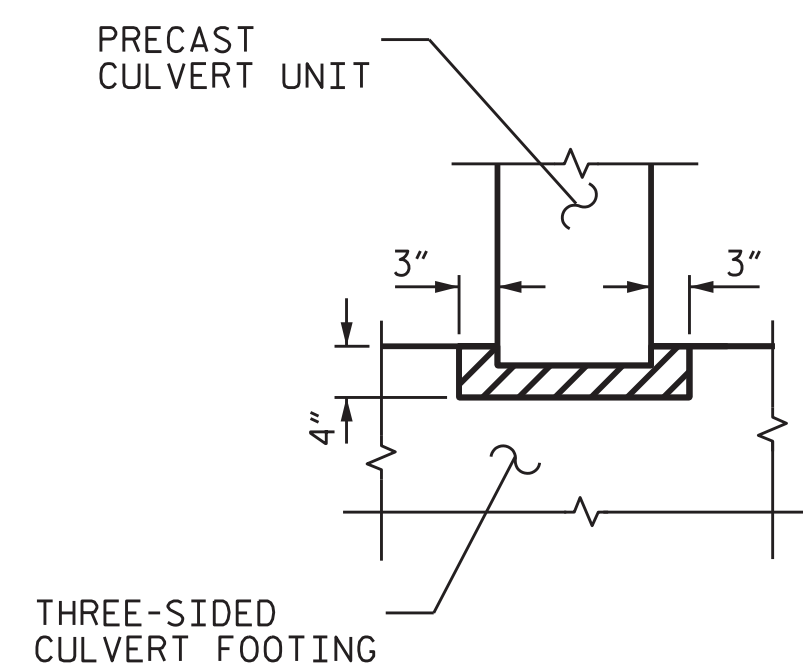


SECTION THRU HEADWALL

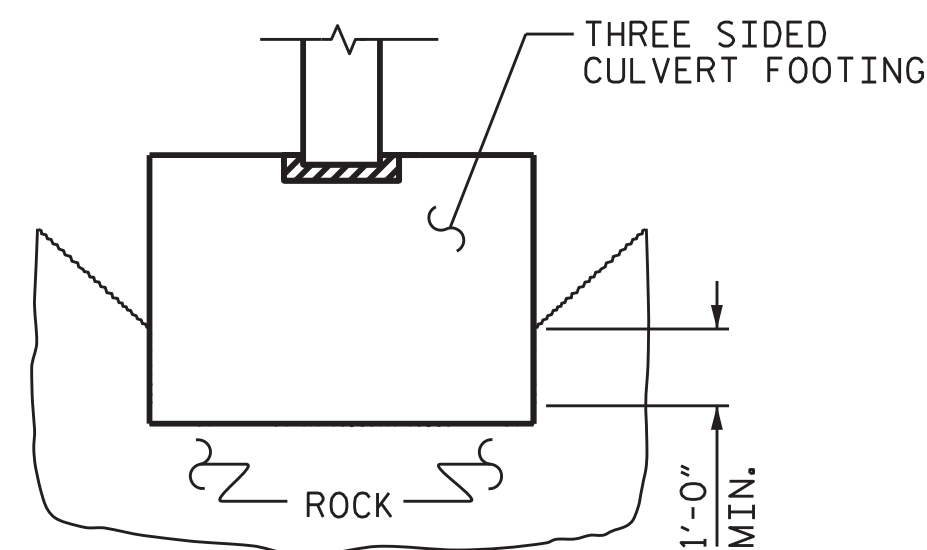


DETAIL A

APPROVED GALVANIZED CONCRETE INSERTS
HAVING A MINIMUM WORKING LOAD
TENSION CAPACITY OF 2.5 KIPS.
DIA. = 3/4"



KEYWAY DETAIL



KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN
CONTACT WITH UNDISTURBED MATERIAL
FOR MINIMUM DIMENSION SHOWN

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS, LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1"Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 1"Ø AND MEET THE REQUIREMENTS OF ASTM A307, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

GUARDRAIL PEDESTALS AND DOWELS MUST CLEAR ALL JOINTS OF PRECAST CONCRETE CULVERT UNITS.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

COST OF GUARDRAIL PEDESTALS AND HEADWALL IS INCLUDED IN THE LUMP SUM FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT.

THE DESIGN OF THE CAST-IN-PLACE FOUNDATION FOR THE THREE-SIDED CULVERT SHALL INCORPORATE THE FOUNDATION FOR THE WINGWALLS ON SHEETS C-4 AND C-5.

PROJECT NO. 17BP.10.R.15

UNION COUNTY

STATION: 12+06.62 -L-

SHEET 3 OF 5 REPLACES BR. NO. 319

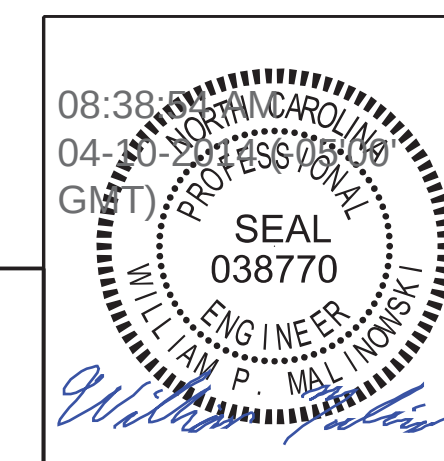
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DETAILS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR106 (MACEDONIA CHURCH RD)
OVER BUCK BRANCH
120° SKEW

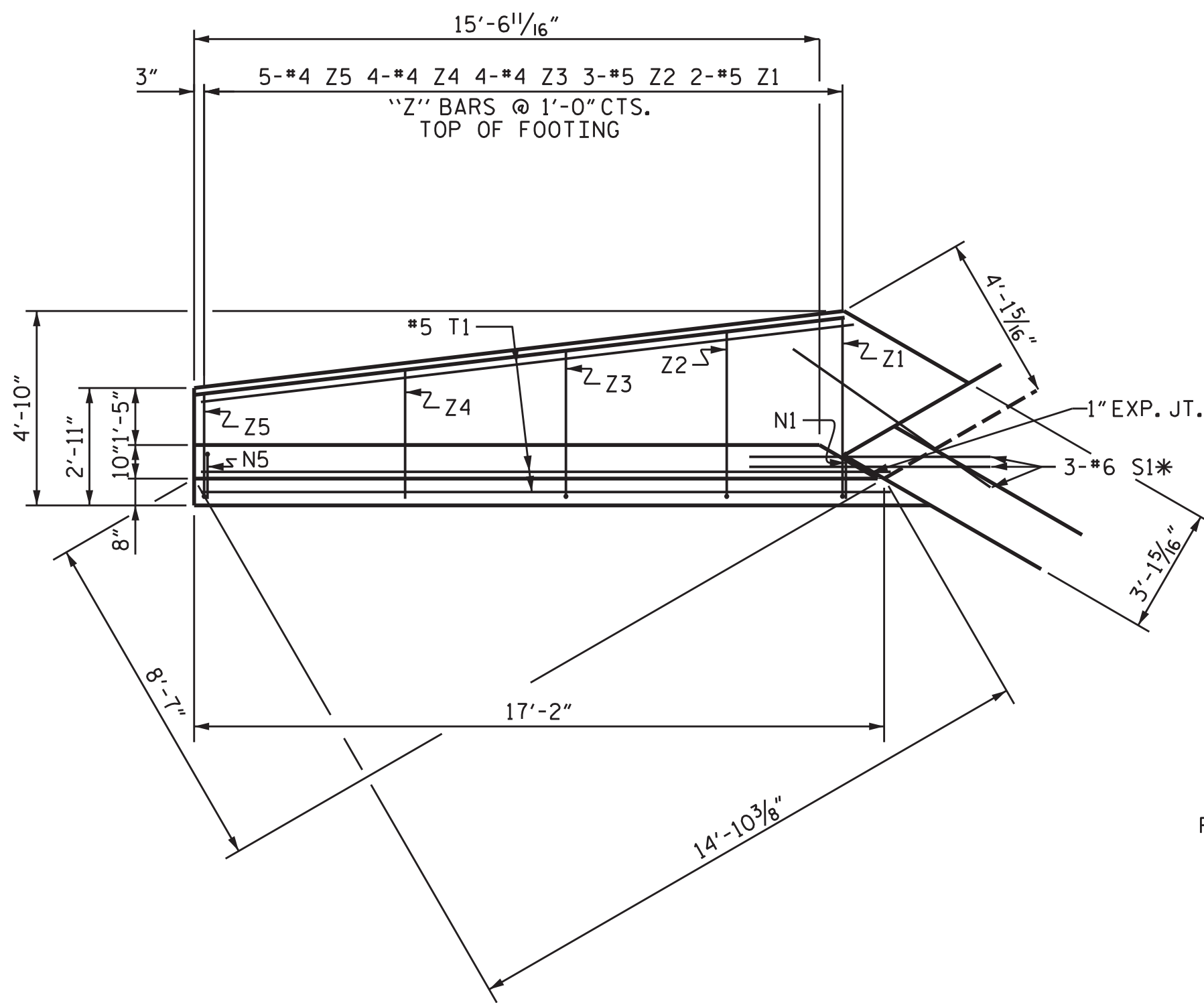
REVISIONS						SHEET NO. C-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

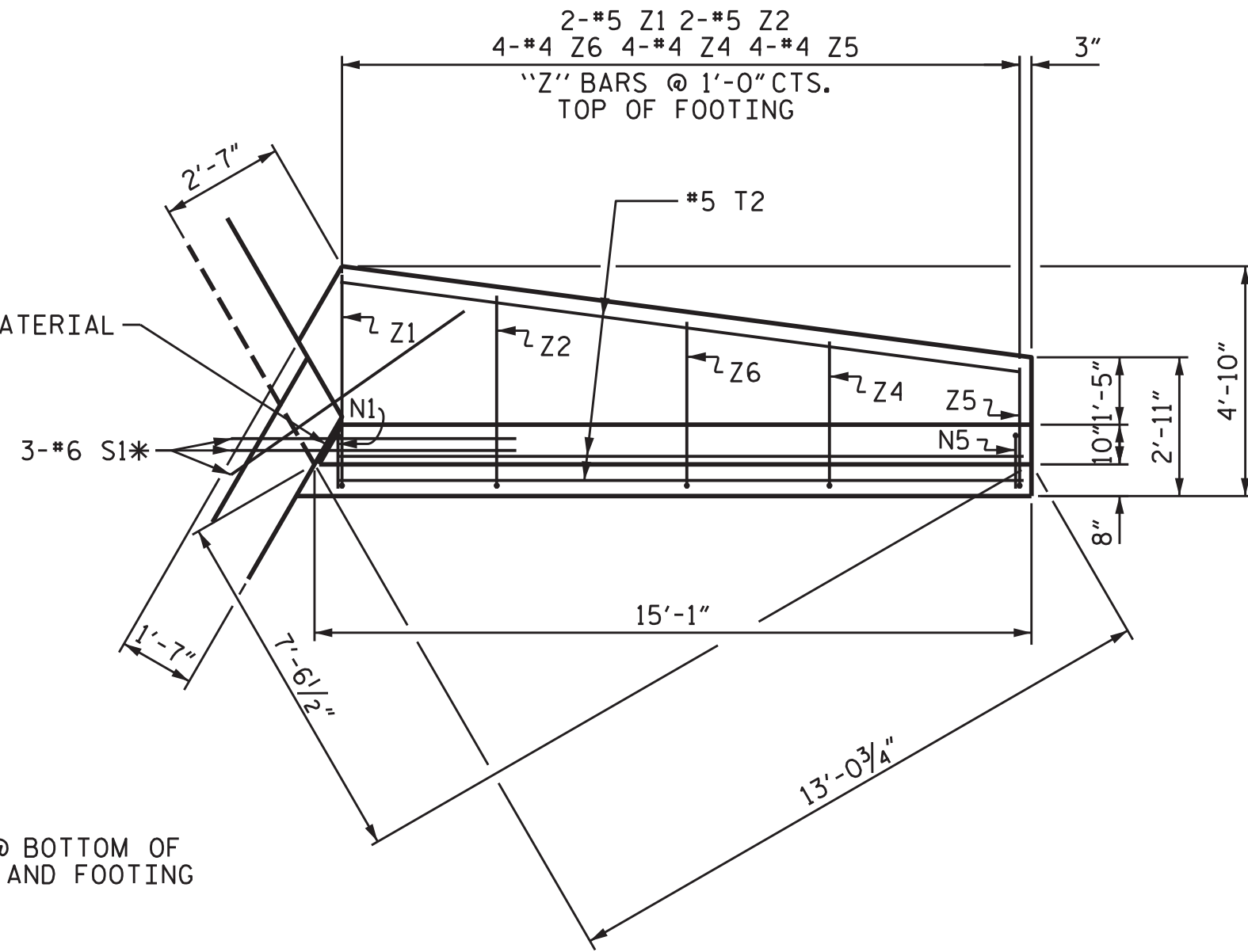
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*****DCN*****
*****USERNAME*****

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AMEC Environment & Infrastructure, Inc.
4021 Stimup Creek Drive, Suite 100
Durham, North Carolina 27703
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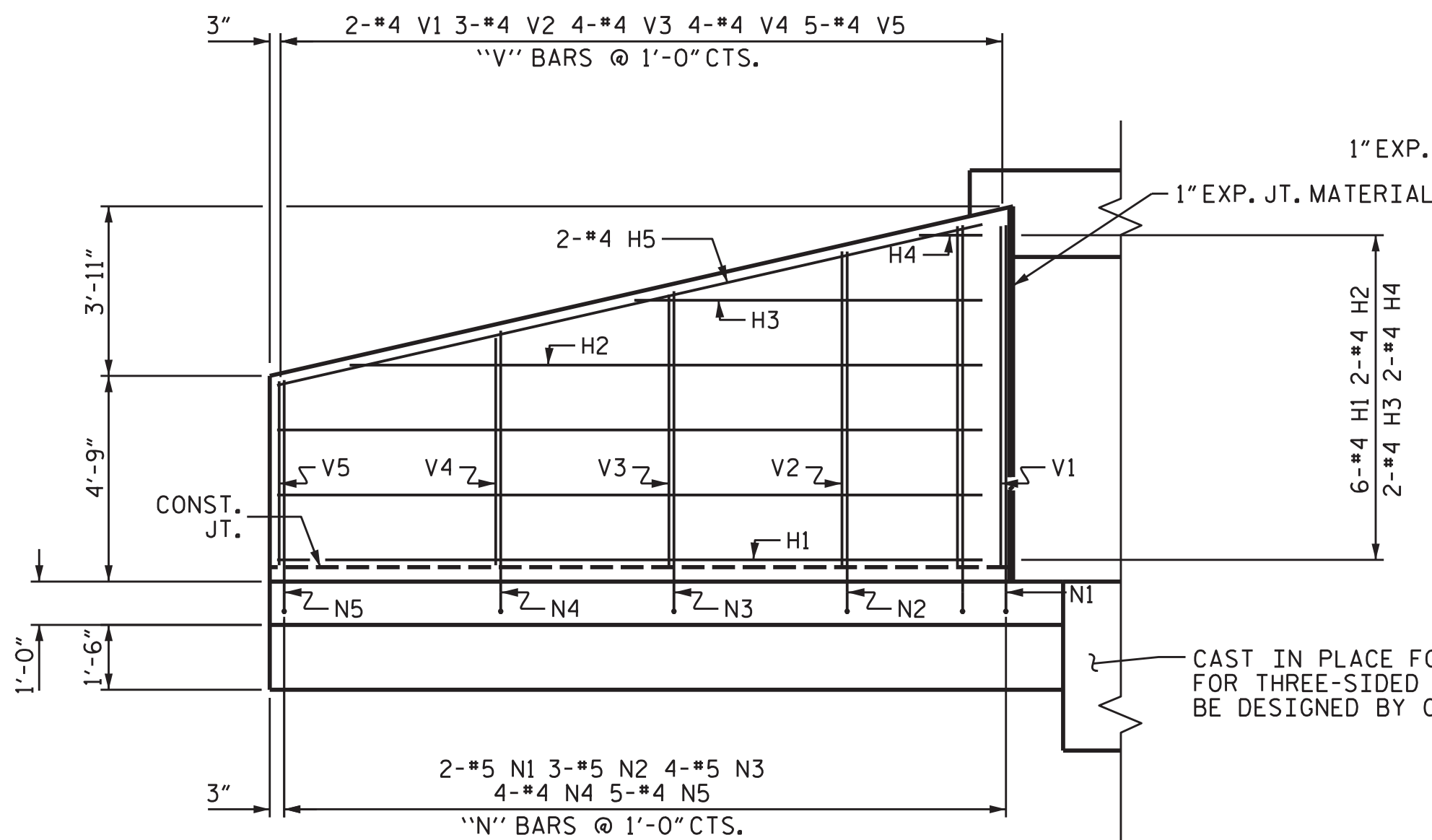
PLAN W1 & W4



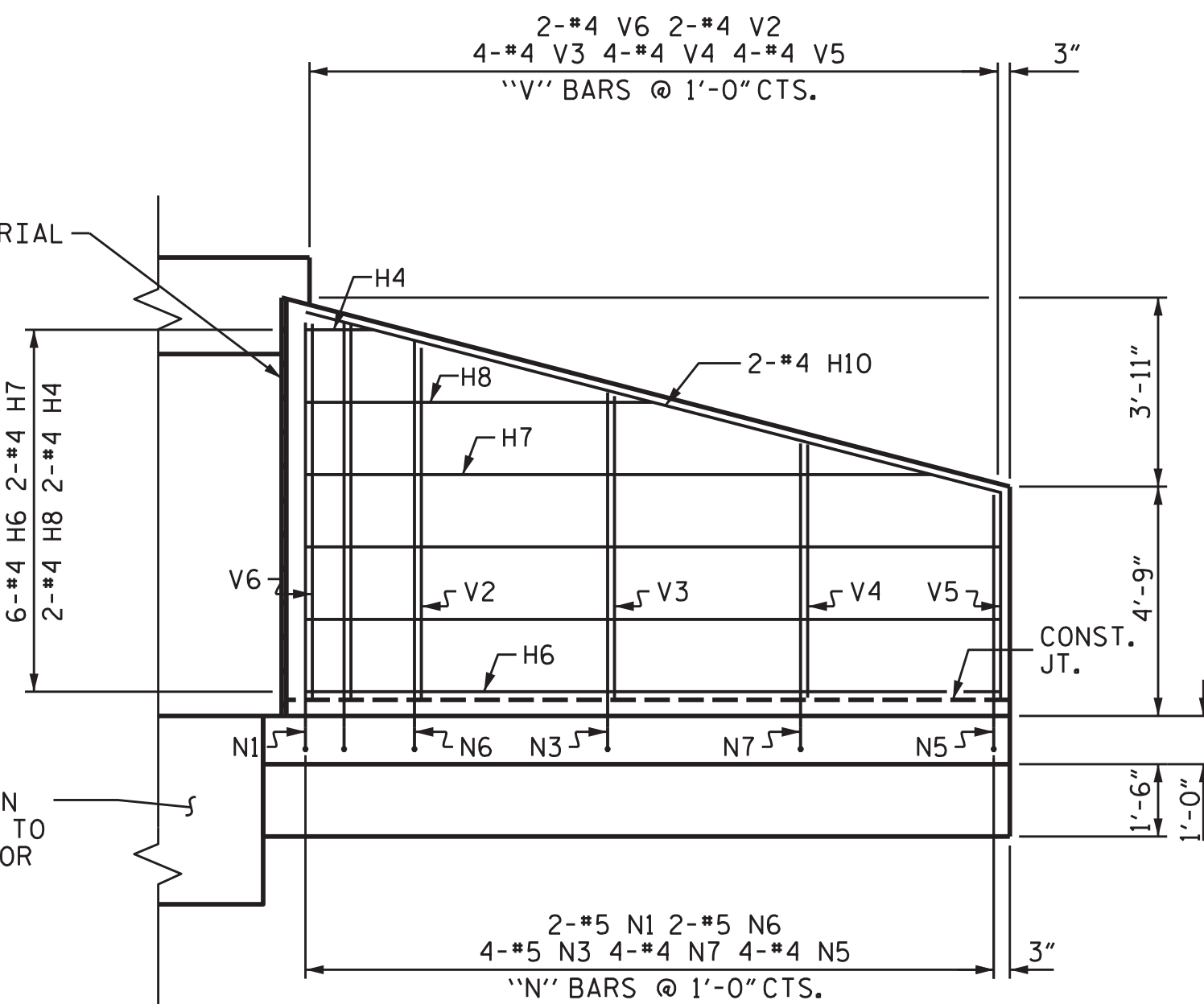
PLAN W3

NOTES:

1. CUT BARS IN FIELD TO FIT
2. EXTEND T1, T2, AND S1 BARS INTO FOUNDATION FOR THREE-SIDED CULVERT
3. THE DETAILS OF THE PRECAST THREE-SIDED CULVERT AND THE CONTRACTOR DESIGNED FOUNDATION FOR THE CULVERT ARE UNKNOWN. THE REINFORCING STEEL AND DIMENSIONS PROVIDED ON THIS SHEET CAN BE CONSIDERED THE MINIMUM THAT WILL BE ALLOWED, AS SUCH THE CONTRACTOR SHALL BE ALLOWED TO MAKE ADJUSTMENTS TO THIS WINGWALL AND FOUNDATION DESIGN SUBJECT TO THE APPROVAL OF THE ENGINEER TO FACILITATE ASSIMILATION OF THIS SHEET INTO THE CONTRACTORS DESIGN FOR THE THREE-SIDED CULVERT AND ITS CAST-IN-PLACE FOUNDATION.



ELEVATION W1 & W4



ELEVATION W3

PROJECT NO. 17BP.10.R.15
UNION COUNTY
STATION: 12+06.62 -L-

SHEET 4 OF 5 REPLACES BR. NO. 319

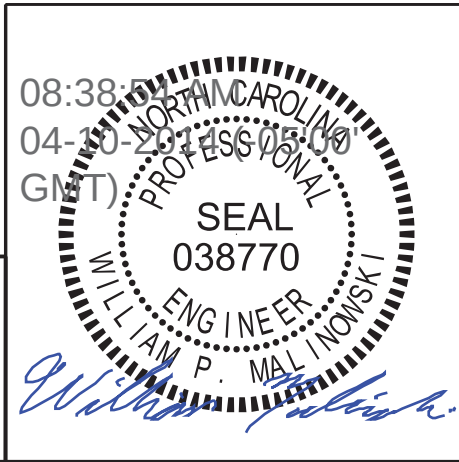
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR106 (MACEDONIA CHURCH RD)
OVER BUCK BRANCH
120° SKEW

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

DRAWN BY : CRS DATE : 02/25/14
CHECKED BY : WPM DATE : 02/28/14

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stimup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
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1. CUT BARS IN FIELD TO FIT
2. EXTEND T3 AND S1 BARS INTO FOUNDATION FOR THREE-SIDED CULVERT
3. THE DETAILS OF THE PRECAST THREE-SIDED CULVERT AND THE CONTRACTOR DESIGNED FOUNDATION FOR THE CULVERT ARE UNKNOWN. THE REINFORCING STEEL AND DIMENSIONS PROVIDED ON THIS SHEET CAN BE CONSIDERED THE MINIMUM THAT WILL BE ALLOWED. AS SUCH THE CONTRACTOR SHALL BE ALLOWED TO MAKE ADJUSTMENTS TO THIS WINGWALL AND FOUNDATION DESIGN SUBJECT TO THE APPROVAL OF THE ENGINEER TO FACILITATE ASSIMILATION OF THIS SHEET INTO THE CONTRACTORS DESIGN FOR THE THREE-SIDED CULVERT AND ITS CAST-IN-PLACE FOUNDATION.



REINFORCING STEEL	1570	LBS
FOR 4 WINGS		
CLASS A CONCRETE		
4 WINGS	12.3	CY
4 FOOTINGS	8.8	CY
2 END CURTAIN WALLS	2.4	CY
TOTAL	23.5	CY

SHEET 5 OF 5 REPLACES BR. NO. 319

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

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#####SYTIME#####
#####DGN#####
#####USERNAME###

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08:38 AM
04-11-2019
GMT

NORTH CAROLINA
PROFESSIONAL
SEAL
038770
ENGINEER
WILLIAM P. MALINOWSKI

William P. Malinowski

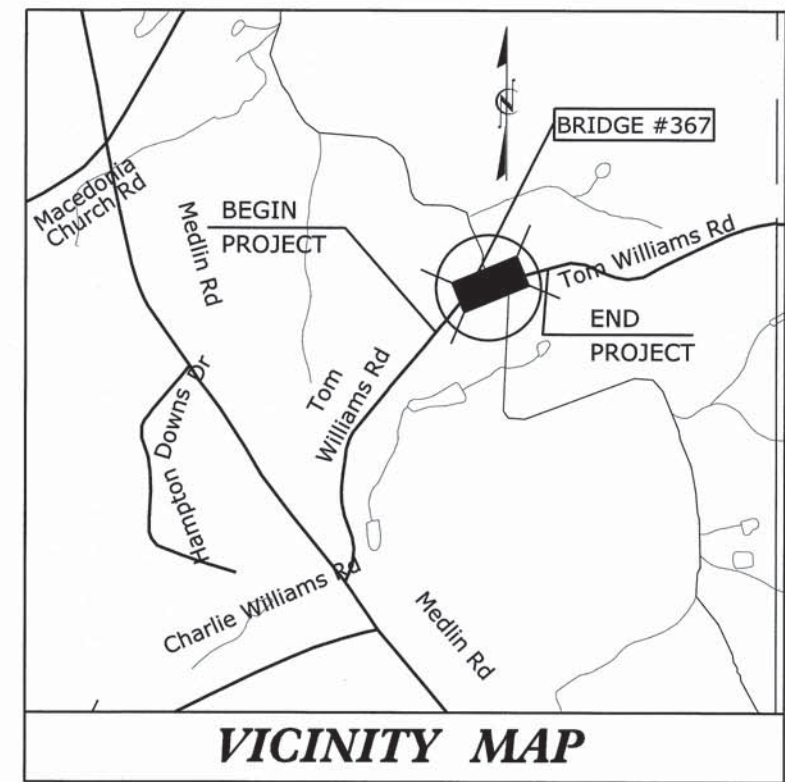
09/08/13

4/12/2013
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Fawilliams

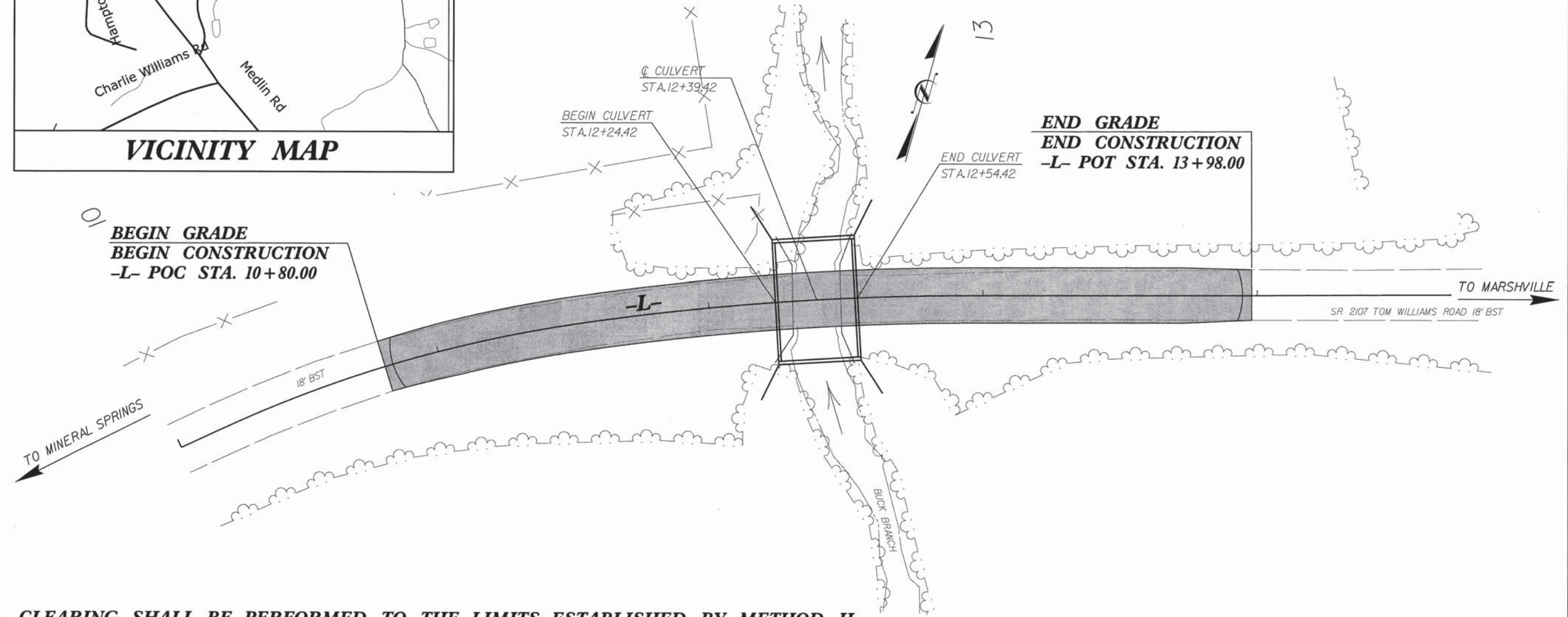
PROJECT: WBS 17BP.10.R.38

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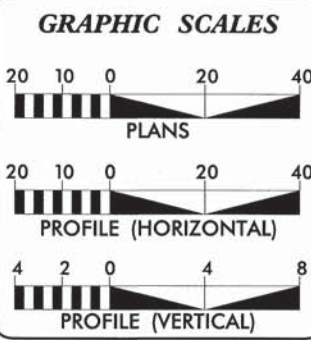
See Sheet 1-A For Index of Sheets



VICINITY MAP



- CLEARING SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.



DESIGN DATA	
ADT 2000 =	100
ADT 2020 =	164
DHV =	NA %
D =	NA %
T =	NA % *
V =	40 MPH
FUNC CLASS =	
LOCAL	
SUB-REGIONAL TIER	

PROJECT LENGTH	
LENGTH OF ROADWAY T.I.P. PROJECT 17BP.10.R.38	= 0.060 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT 17BP.10.R.38	= 0.000 MI.
TOTAL LENGTH OF T.I.P. PROJECT 17BP.10.R.38	= 0.060 MI.
NCDOT CONTACT: GARLAND HAYWOOD, PE BRIDGE PROGRAM MANAGER	

PREPARED IN THE OFFICE OF:
Stantec Consulting Inc.
801 Jones Franklin Road, Suite 300
Raleigh, NC, U.S.A.
27606
Tel: (919) 851-6866
Fax: (919) 851-1024
www.stantec.com
License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 19, 2013

LETTING DATE: JUNE 19, 2013
JULY 16, 2014

GARLAND HAYWOOD, PE
PROJECT ENGINEER

ROBERT WILLIAMS, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

02:42:57 PM 08-15-2013
29185
P.E.

SIGNATURE: [Signature]

ROADWAY DESIGN ENGINEER

02:42:57 PM 08-15-2013
30932
P.E.

SIGNATURE: [Signature]



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
UNION COUNTY

LOCATION: BRIDGE NO. 367 ON SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES AND
TRAFFIC CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.38	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.38		PE ROW/UTIL. CONST.	

PROJECT REFERENCE NO.
17BPJO.R.38

SHEET NO.
1-A

ROADWAY DESIGN
ENGINEER



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE & TYPICAL SECTIONS
3	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND DRAINAGE
4	PLAN/PROFILE SHEET
5	DRAINAGE SHEET
TMP-1 THRU TMP-3	TRAFFIC MAINTENANCE PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITY BY OTHER PLANS
X-1 THRU X-2	CROSS-SECTIONS
C-1 THRU C-3	CULVERT PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY AND FRONTIER COMMUNICATIONS. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.02	Granite Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BPJO.R.38	1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----x
Property Monument	□ ECM
Parcel/Sequence Number	123
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---MLB---
Proposed Wetland Boundary	---MLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Known Soil Contamination: Area or Site	☠☠
Potential Soil Contamination: Area or Site	☠☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□†
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⚡
Proposed Lateral, Tail, Head Ditch	← FLOW
False Sump	◇

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite R/W Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----
<i>VEGETATION:</i>	
Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Booth	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Satellite Dish	-----
TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole (S.U.E.*)	-----
Abandoned According to Utility Records	-----
End of Information	-----

5/14/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4.0"
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE. TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5"
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
Z	VARIABLE DEPTH MILLING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

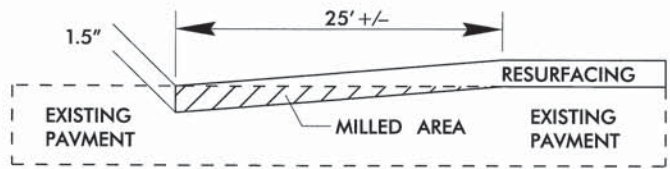
PROJECT REFERENCE NO.
17BPJ0.R.38

SHEET NO.
2

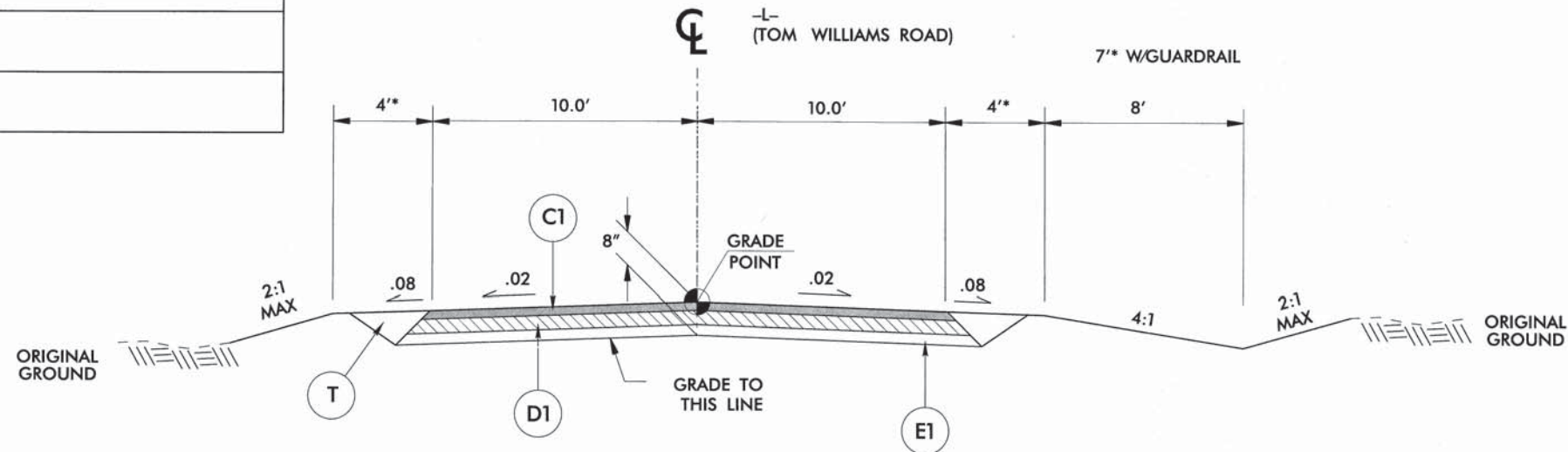
R/W SHEET NO.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL
30932
ROBERT A. WILLIAMS
4/15/13

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL
29185
RICHARD L. HINER
02:44:58 PM 04/15/2013 / 04:00' (GMT)

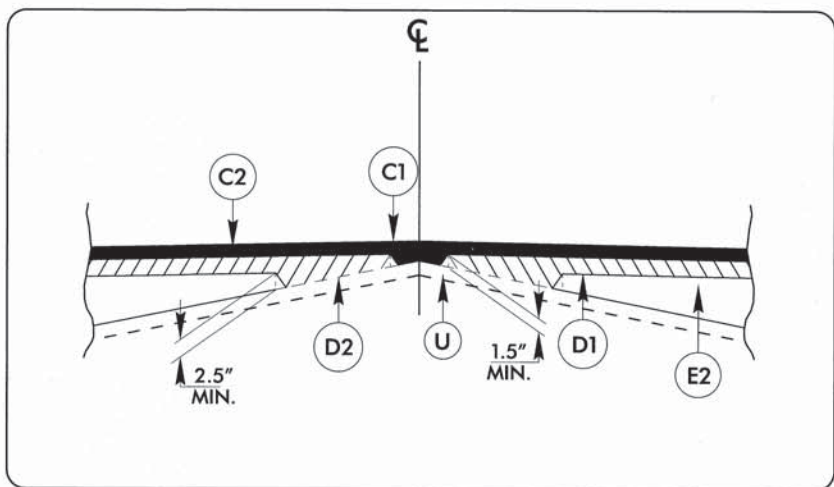


MILLING DETAIL



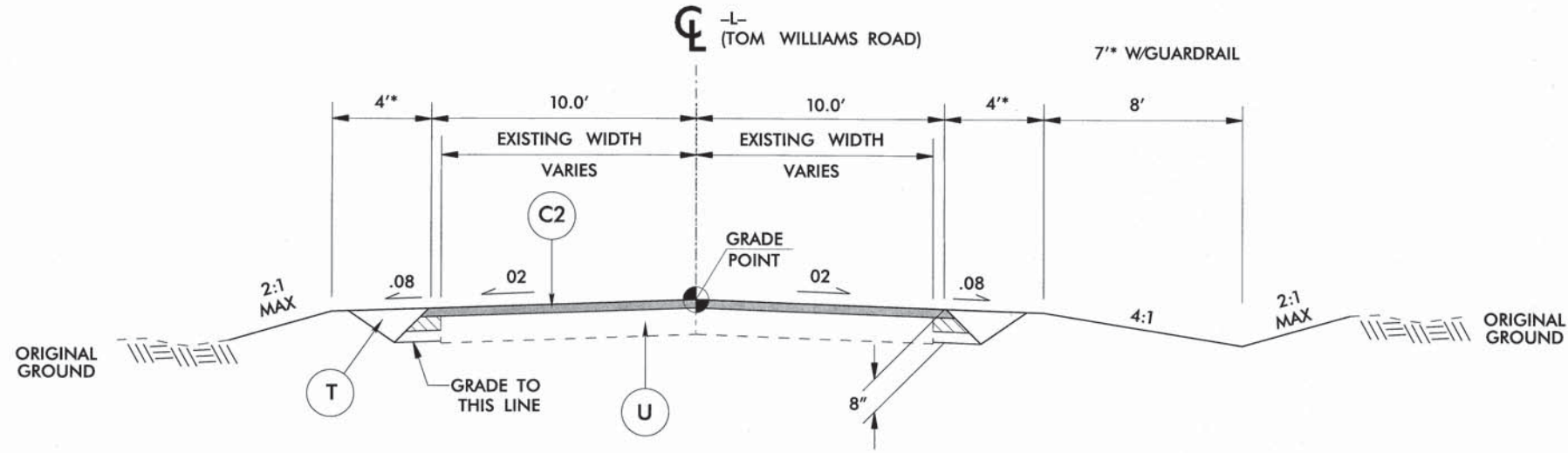
TYPICAL SECTION NO. 1

-L- STA. 10+80.00 TO STA. 13+98.00



WEDGING DETAIL

(AS NEEDED)



TYPICAL SECTION NO. 2

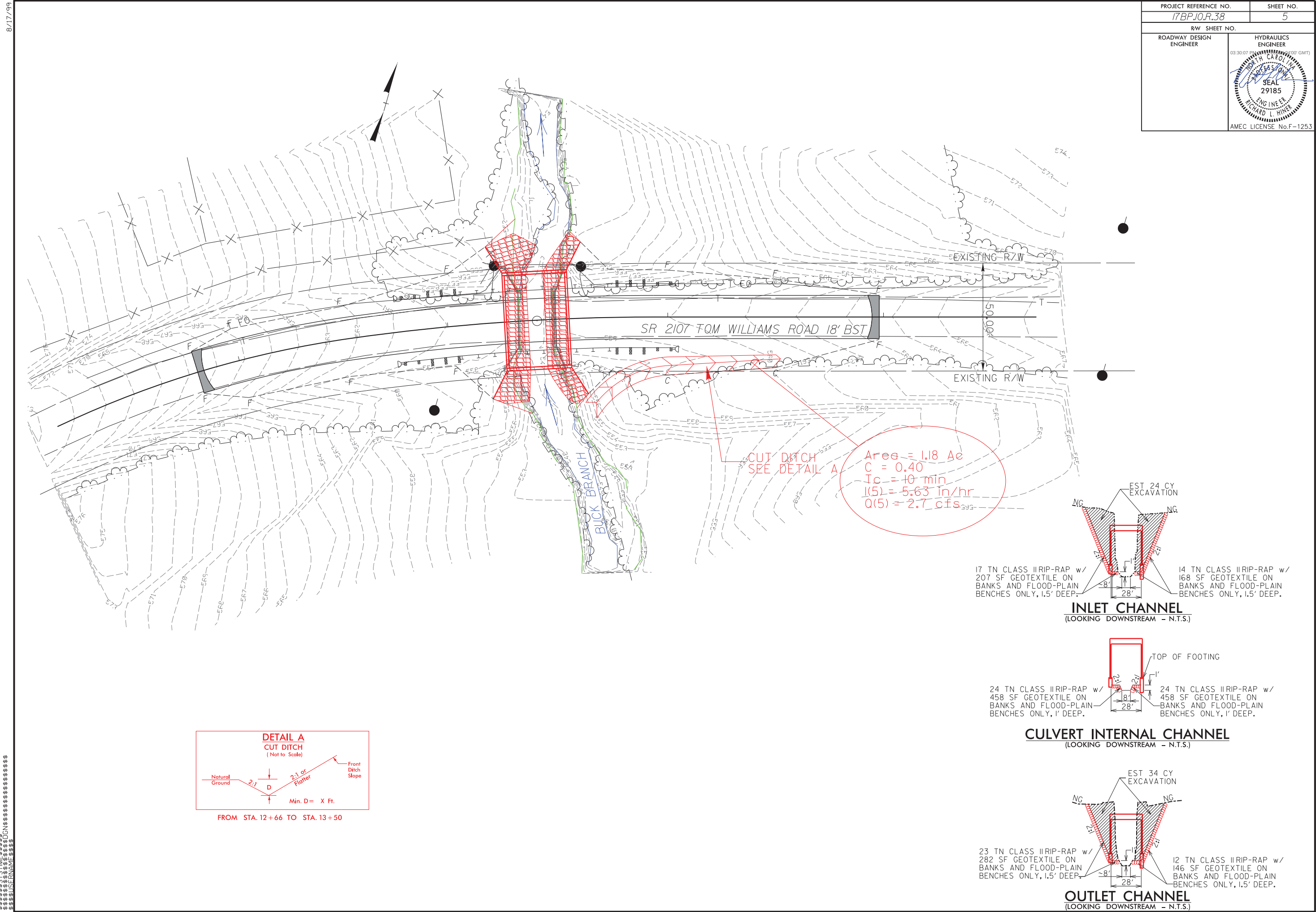
AS NEEDED

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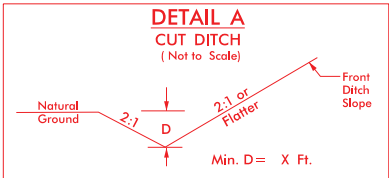
STRUCTURE HYDRAULIC DATA			
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	950	CFS
DESIGN HW ELEVATION	=	554.6	FT
100 YEAR DISCHARGE	=	1400	CFS
100 YEAR HW ELEVATION	=	555.8	FT
OVERTOPPING FREQUENCY	=	+500	YRS
OVERTOPPING DISCHARGE	=	+1900	CFS
OVERTOPPING ELEVATION	=	559.6	FT

8/17/99

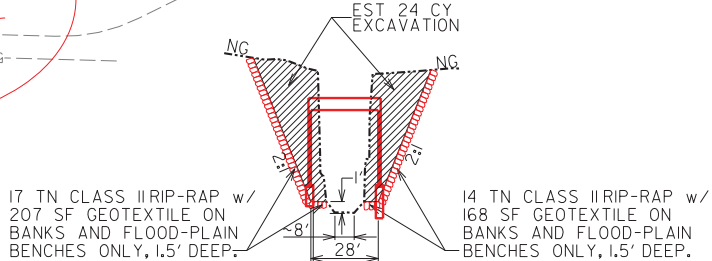
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\$\$\$\$\$USLENGH\$\$\$\$\$
\$\$\$\$\$DON\$\$\$\$\$



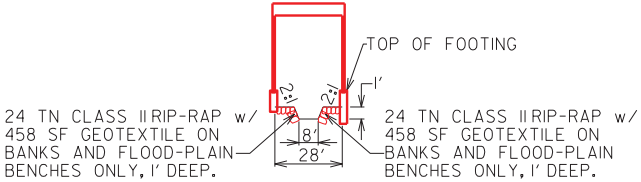
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17BP10.R.38	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	03/30/07 PM (EST. 2007 GMT)
	SEAL 29185
	ENGINEER RICHARD L. HINER
	AMEC LICENSE No.F-1253



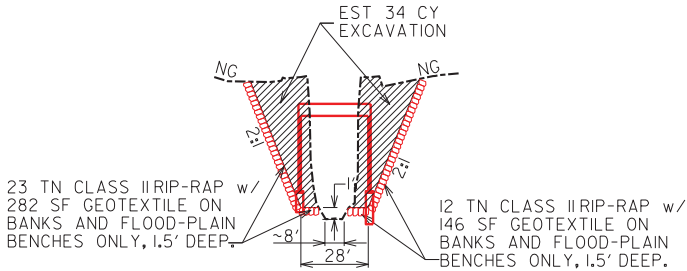
FROM STA. 12+66 TO STA. 13+50



INLET CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)



CULVERT INTERNAL CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)



OUTLET CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

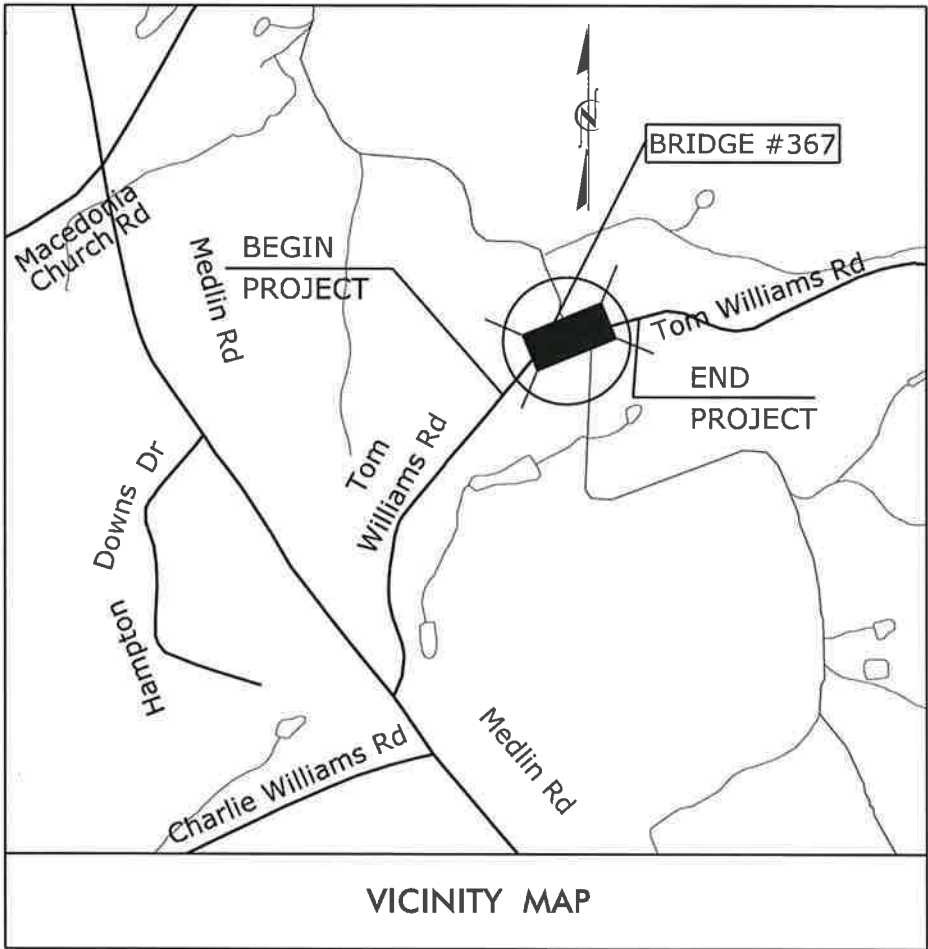
TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

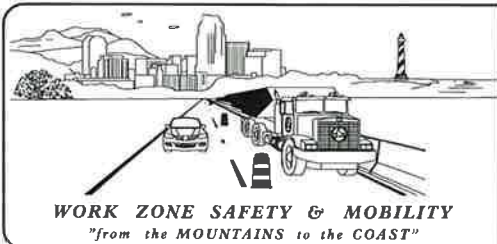
DIVISION 10



BRIDGE #367 – SR 2107 (TOM WILLIAMS ROAD) OVER BUCK CREEK



VICINITY MAP



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES AND PHASING
TMP-3	BRIDGE #367 - ROAD CLOSURE & DETOUR ROUTE

TRAFFIC MANAGEMENT STRATEGY

PROPOSED REPLACEMENT OF BRIDGE #367 WILL BE PERFORMED USING A ROAD CLOSURE WITH OFF-SITE DETOUR ROUTE. REFER TO SHEET TMP-2 FOR PHASING.

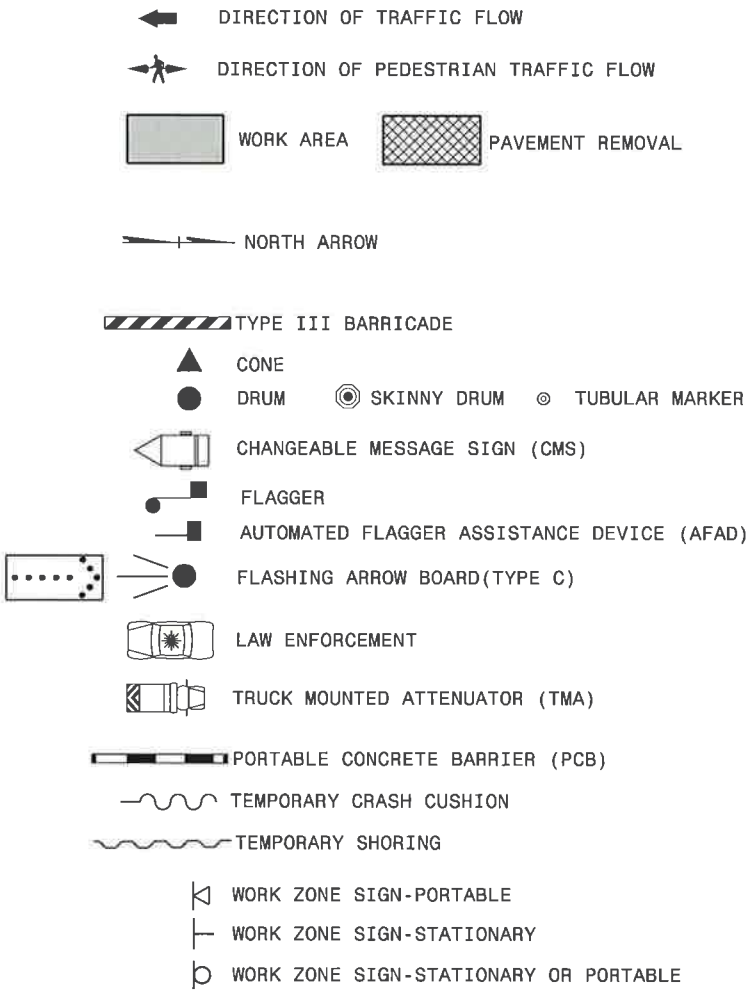


BETSY L. WATSON, P.E.
TRAFFIC ENGINEER
GEORGE KARAGEORGE
WORK ZONE TRANSPORTATION DESIGN MANAGER



WBS 17BP.10.R.38

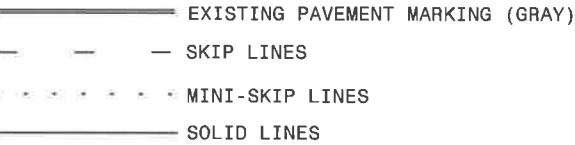
LEGEND



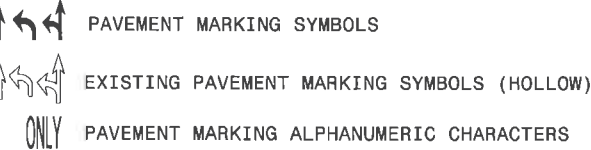
SIGNALS



PAVEMENT MARKINGS



PAVEMENT MARKING SYMBOLS



PAVEMENT MARKERS

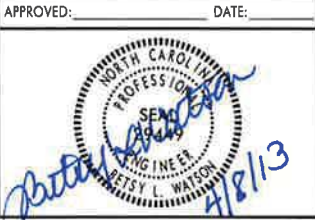


ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS

4/1/2013
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blaton



LEGEND
&
ROADWAY STANDARD DRAWINGS

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

ROAD CLOSURES

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY ROAD CLOSURE.
- B) FURNISH AND INSTALL SIGNING AND DEVICES FOR ROAD CLOSURES ACCORDING TO THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE ALL SIGNS AND DEVICES FOR ROAD CLOSURES WHEN NOT IN EFFECT.
- C) FURNISH AND INSTALL OFFSITE-DETOUR ROUTE SIGNING AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLAN. COVER OR REMOVE OFFSITE-DETOUR SIGNING WHEN THE DETOUR IS NOT IN OPERATION. ALL DETOUR ROUTES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTING.
- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- E) OTHER BRIDGE PROJECTS MAY BE ONGOING IN THE AREA. COORDINATE ALL DETOUR ROUTES WITH ENGINEER AND OTHER CONTRACTORS.

PAVEMENT MARKINGS AND MARKERS

- F) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME PATTERN ON THE NEW SURFACE.
 - G) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | <u>ROAD NAME</u> | <u>MARKING</u> | <u>PAVEMENT MARKER</u> |
|------------------|----------------|------------------------|
| SR 2107 | PAINT | NONE |
- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
 - I) REPLACE PAVEMENT MARKINGS BEFORE OPENING LANES TO TRAFFIC.

PHASING

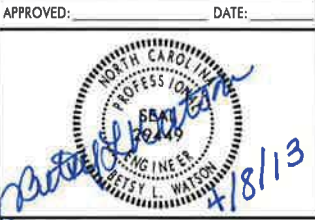
REFER TO SHEET TMP-3

- STEP 1:
- INSTALL DETOUR ROUTE SIGNS.
- STEP 2:
- CLOSE SR 2107 (TOM WILLIAMS RD.) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.03 SHEET 1 OF 9, TEMPORARY ROAD CLOSURES-CLOSURE BEYOND DETOUR POINT.
- STEP 3:
- WITH SR 2107 CLOSED TO TRAFFIC, REPLACE BRIDGE #204 AND COMPLETE ALL CONSTRUCTION OPERATIONS.
- STEP 4:
- INSTALL FINAL PAVEMENT MARKINGS.
- STEP 5:
- OPEN SR 2107 TO TRAFFIC.

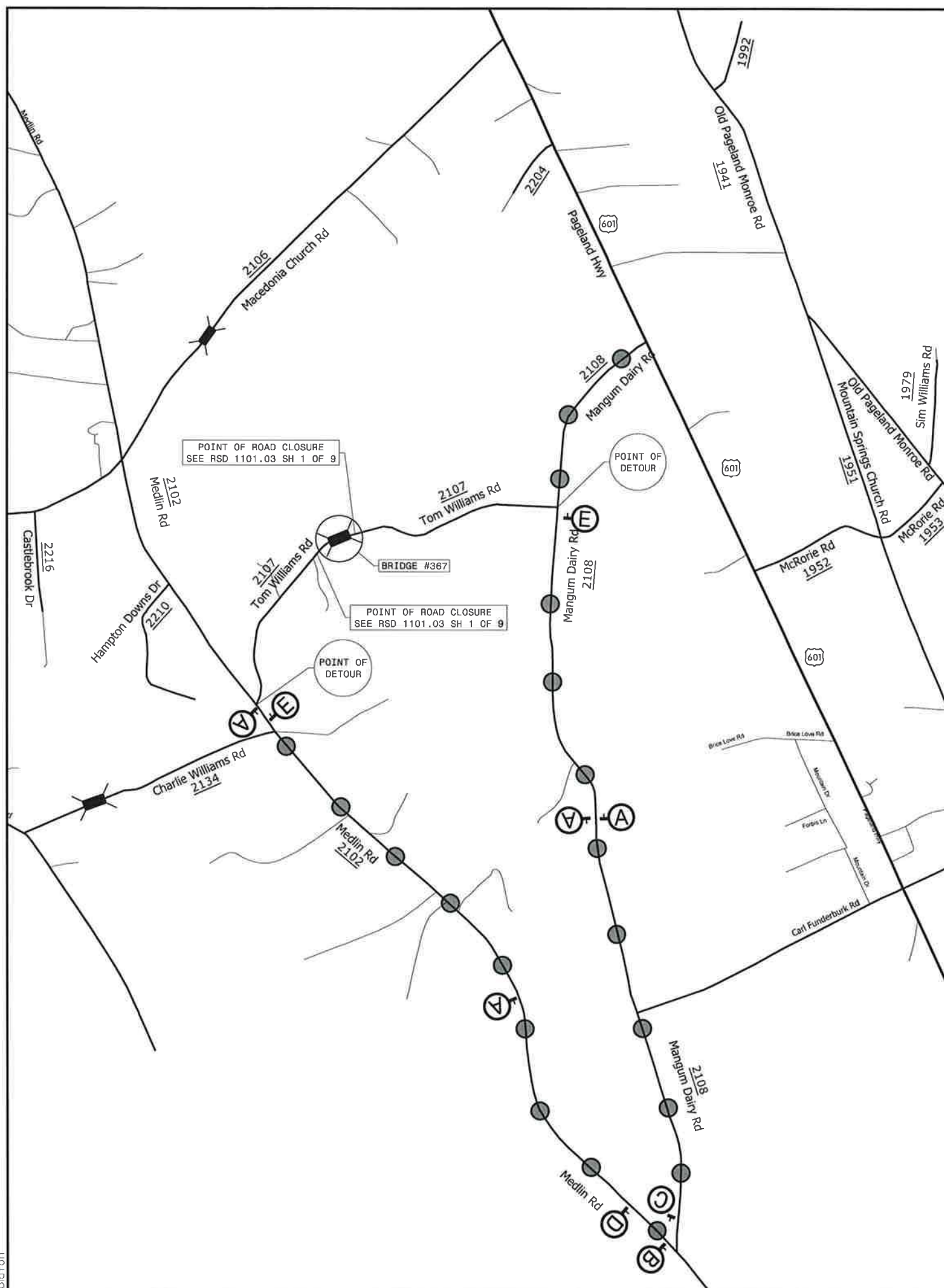
4/1/2013
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Bioton



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



GENERAL NOTES
AND PHASING

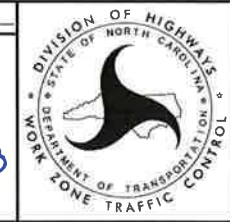


- A** DETOUR M4-8 24" X 12"
M6-3 21" X 15"
- B** DETOUR M4-8 24" X 12"
M6-1 L 21" X 15"
- C** DETOUR M4-8 24" X 12"
M6-1 21" X 15"
- D** DETOUR M4-8 24" X 12"
M5-1 21" X 15"
- E** END DETOUR M4-8 A 24" X 18"

4/1/2013
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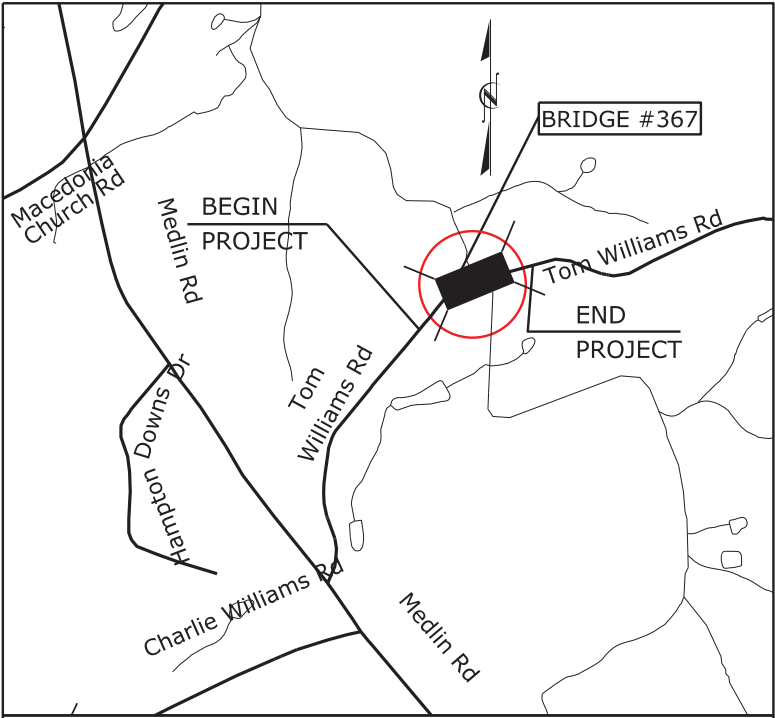


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Fax. (919) 851-7024
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UNION CO. BRIDGE #367
ROAD CLOSURE &
DETOUR ROUTE

TIP PROJECT: 17BP.10.R.38

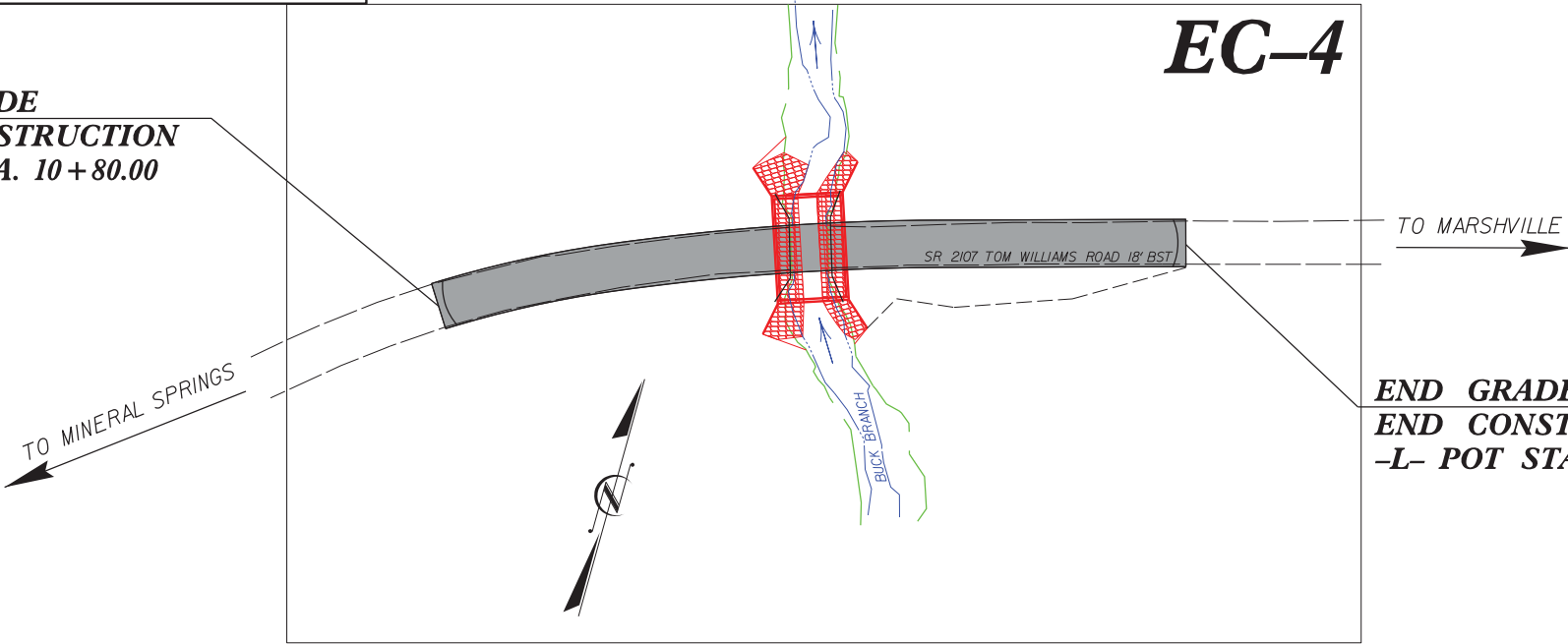


VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
UNION COUNTY

LOCATION:
BRIDGE NO. 367 ON SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH

BEGIN GRADE
BEGIN CONSTRUCTION
-L- POC STA. 10+80.00



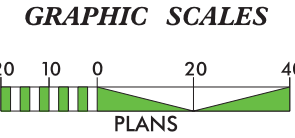
END GRADE
END CONSTRUCTION
-L- POT STA. 13+98.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.38	EC-1	4
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.38		PE	
		ROW/UTIL.	
		CONST.	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TD
1630.02	Silt Basin Type B	TD
1633.01	Temporary Rock Silt Check Type-A	TD
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	TD
1633.02	Temporary Rock Silt Check Type-B	TD
	Wattle / Coir Fiber Wattle	TD
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	TD
1634.01	Temporary Rock Sediment Dam Type-A	TD
1634.02	Temporary Rock Sediment Dam Type-B	TD
1635.01	Rock Pipe Inlet Sediment Trap Type-A	TD
1635.02	Rock Pipe Inlet Sediment Trap Type-B	TD
1630.04	Stilling Basin	TD
1630.06	Special Stilling Basin	TD
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	TD
	Tiered Skimmer Basin	TD
	Infiltration Basin	TD

THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

03:35:05 PM 03-08-2013 (-05'00' GMT)

SEAL
29185

ENGINEER
RICHARD L. HINER

AMEC LICENSE No.F-1253

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:

AMEC Environment & Infrastructure, Inc.
4021 Siltup Creek Drive, Suite 100
Durham, North Carolina, 27703
NC Eng. License #: F-1253

Tel. (919) 381-9900
Fax. (919) 381-9901
www.amec.com

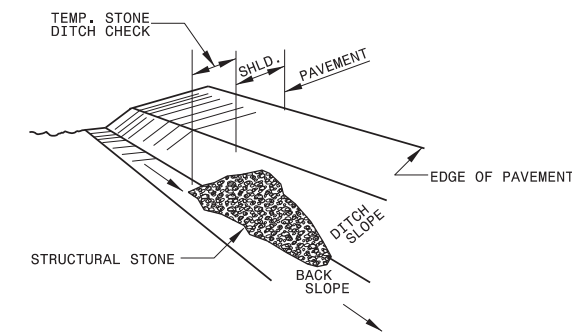
amec

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

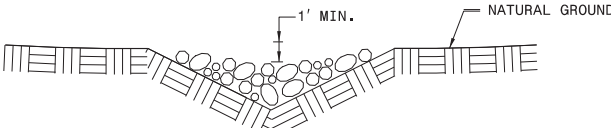
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings			
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.			
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

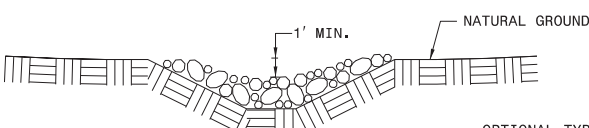
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW

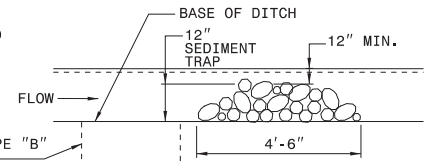


CROSS SECTION VEE DITCH



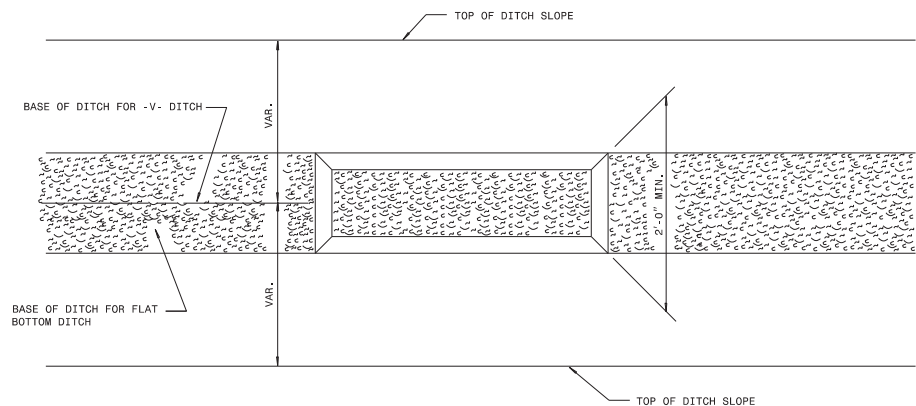
CROSS SECTION TRAPEZOIDAL DITCH

NOTES:
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

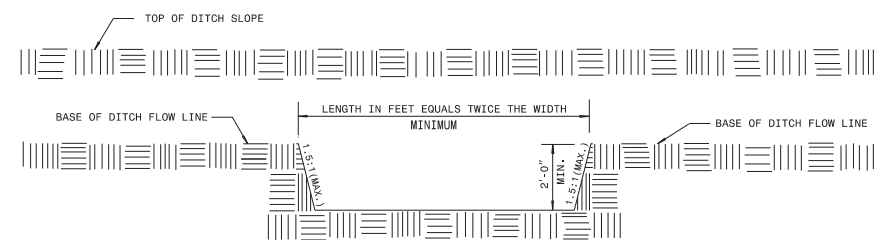


ELEVATION VIEW

SILT BASIN 'B' DETAIL



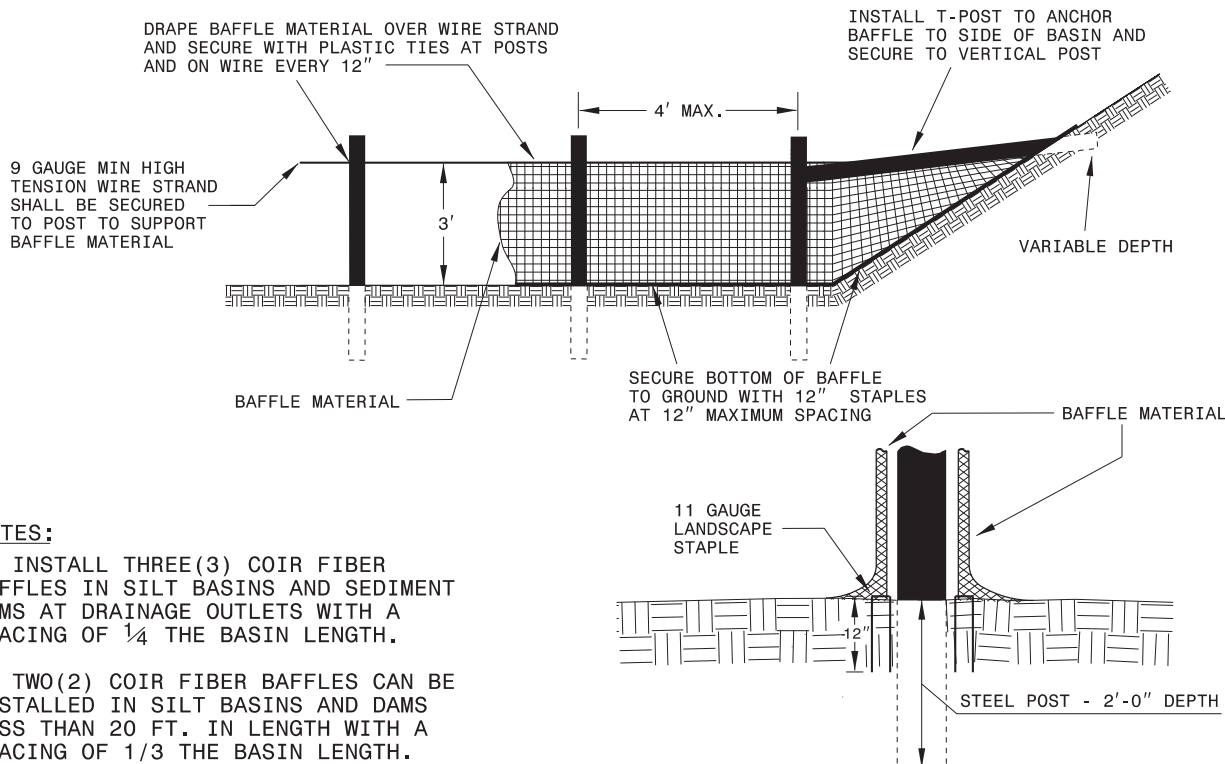
PLAN



ELEVATION

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.38	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	03:35:57 PM 03/05/2024 (GMT)
	NORTH CAROLINA PROFESSIONAL SEAL 29185 ENGINEER RICHARD L. HINES
	AMEC LICENSE No.F-1253

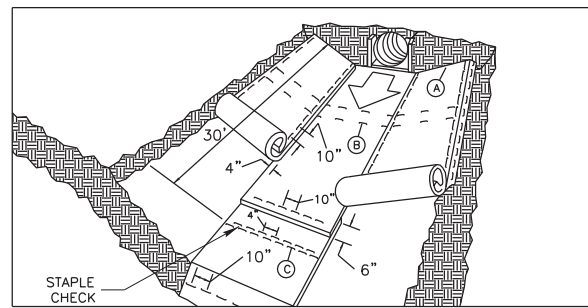
COIR FIBER BAFFLE DETAIL



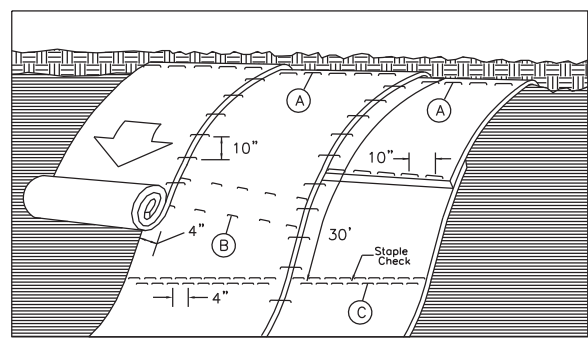
NOTES:
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH.
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

MATTING INSTALLATION DETAIL



MATTING IN DITCHES



MATTING ON SLOPES

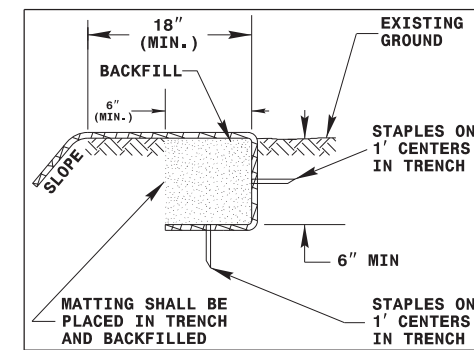


DIAGRAM A

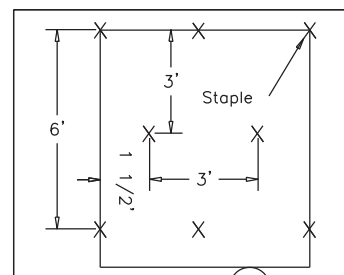


DIAGRAM B

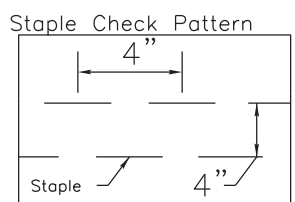


DIAGRAM C

NOTES:
THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.
STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

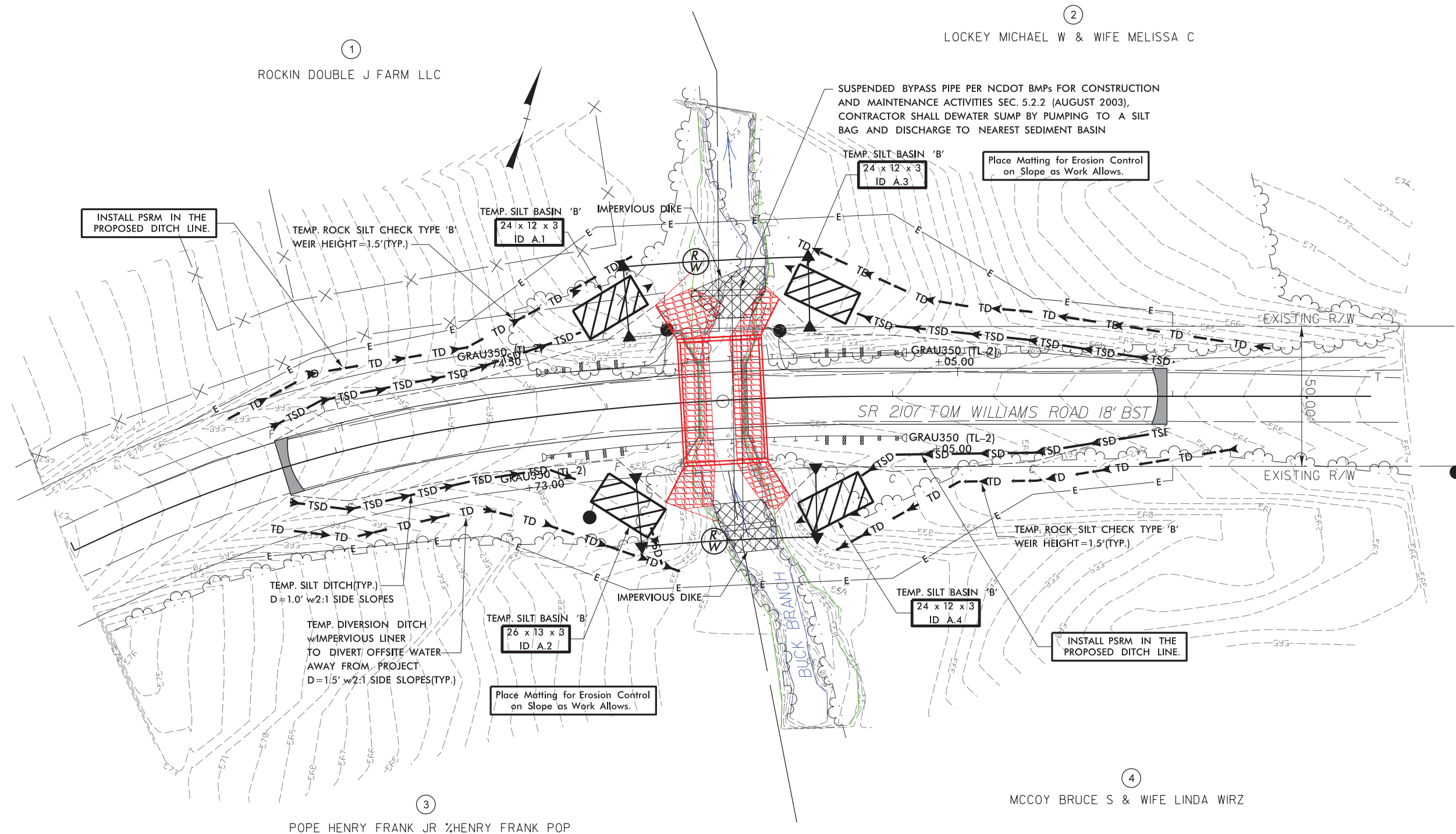
PROJECT REFERENCE NO.		SHEET NO.
17BP10.R.38		EC-3
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
		03/36/06 PM 00:00' GMT 
AMEC LICENSE No.F-1253		

SOIL STABILIZATION SUMMARY SHEET
MATting FOR EROSION CONTROL
(FOR SLOPE STABILIZATION)

PERMANENT SOIL REINFORCEMENT MAT
(FOR TEMP. SILT DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+80	12+25	LT	145
4	-L-	12+54	13+98	LT	160
4	-L-	10+80	12+24	RT	145
4	-L-	12+55	13+98	RT	215
			SUBTOTAL		665
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				0
			TOTAL		665
			SAY		700
IMPERVIOUS LINER (FOR TEMP. DIVERSION DITCHES)					
4	-L-	10+67	12+11	LT	140
4	-L-	12+64	14+35	LT	160
4	-L-	10+68	12+21	RT	140
4	-L-	12+77	14+24	RT	140
			SUBTOTAL		580
	MISCELLANEOUS LINER TO BE INSTALLED AS DIRECTED BY THE ENGINEER				0
			TOTAL		580
			SAY		600
TEMPORARY SILT FENCE (FOR STOCK PILES)					
			SUBTOTAL		300
	MISCELLANEOUS FENCE TO BE INSTALLED AS DIRECTED BY THE ENGINEER				0
			TOTAL		300
			SAY		300 LF
			TOTAL		1
			TOTAL		1

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+80	11+97	LT	105
4	-L-	12+87	14+01	LT	105
4	-L-	10+79	11+84	RT	100
4	-L-	12+10	12+13	RT	15
4	-L-	12+89	13+89	RT	100
			SUBTOTAL		425
		ADDITIONAL PRGM TO BE INSTALLED			0
			TOTAL		425
			SAY		450
COIR FIBER MATTING (STREAM BANK AT TEMP. DIKE)					
			SUBTOTAL		19
		ADDITIONAL MATTING TO BE INSTALLED			0
			TOTAL		19
			SAY		25
CLASS II RIP RAP (WING WALLS AND CULVERT)					
			SUBTOTAL		114
		ADDITIONAL STONE TO BE INSTALLED			0
			TOTAL		114
			SAY		120 TON
GEOTEXTILE (BANKS AND FLOODPLAIN BENCHES)					
			SUBTOTAL		1720
		ADDITIONAL GEOTEXTILE TO BE INSTALLED			0
			TOTAL		1720
			SAY		1800

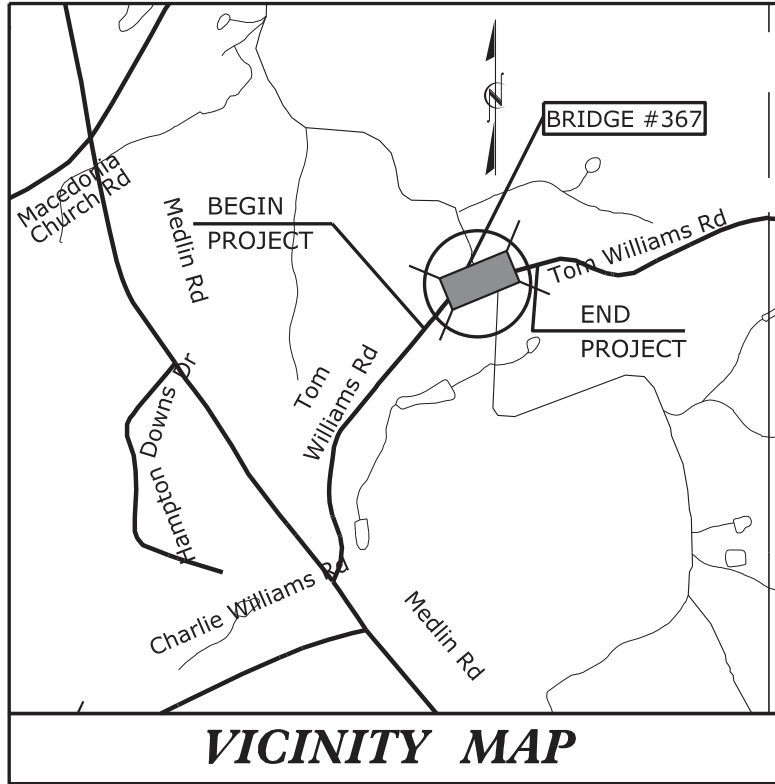
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09/08/99

PROJECT: WBS 17BP.10.R.38

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

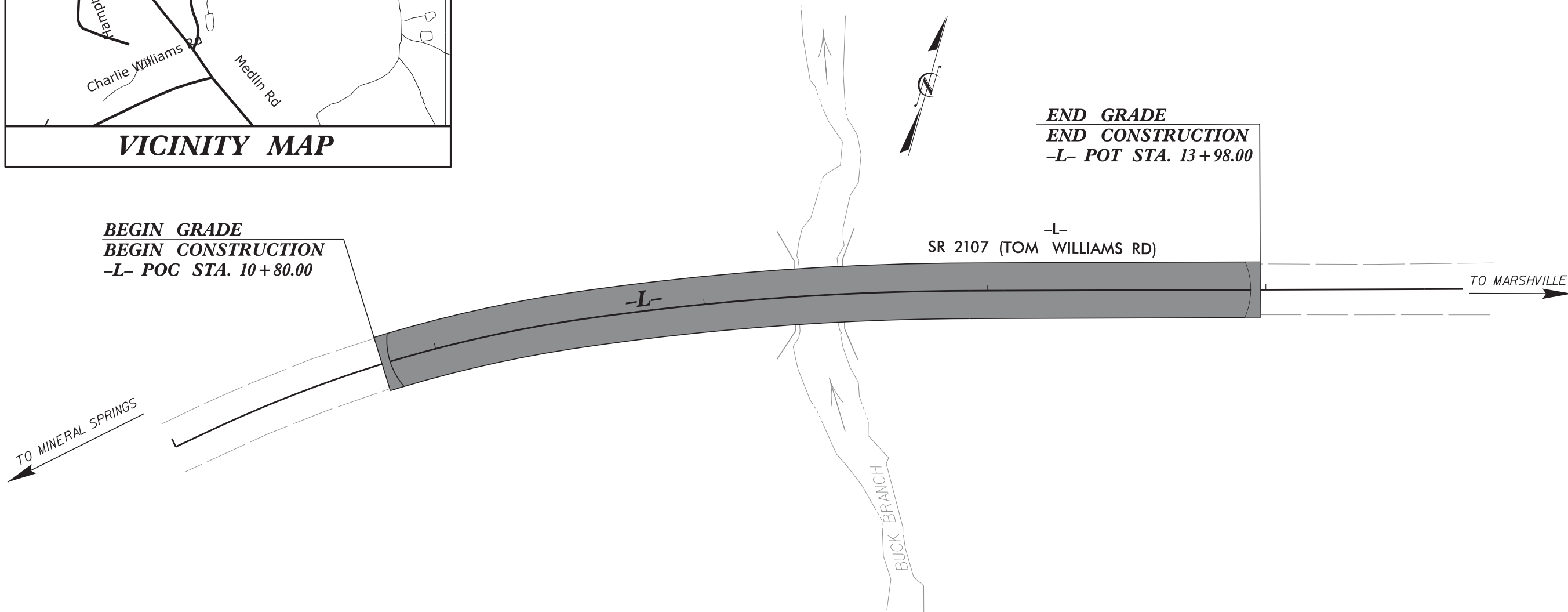
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
UNION COUNTY

LOCATION: BRIDGE NO. 367 ON SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH

TYPE OF WORK: AERIAL TELEPHONE

T.I.P. NO.	SHEET NO.
WBS 17BP.10.R.38	UO-1



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(1) TELEPHONE - FRONTIER COMMUNICATIONS



PREPARED FOR THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING
SECTION

1591 MAIL SERVICES CENTER
RALEIGH, NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E.	UTILITIES SECTION ENGINEER
Xxxx Xxxx, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Reece Schuler, PE	UTILITIES PROJECT DESIGNER

V&M
Vaughn & Melton
Consulting Engineers

Charlotte,
■ North Carolina
704-357-0488

Asheville,
North Carolina
828-253-2796

Tri-Cities,
Tennessee
423-467-8401

Knoxville,
Tennessee
865-546-5800

Middlesboro,
Kentucky
606-248-6600

Spartanburg,
South Carolina
864-574-4775

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8/17/99

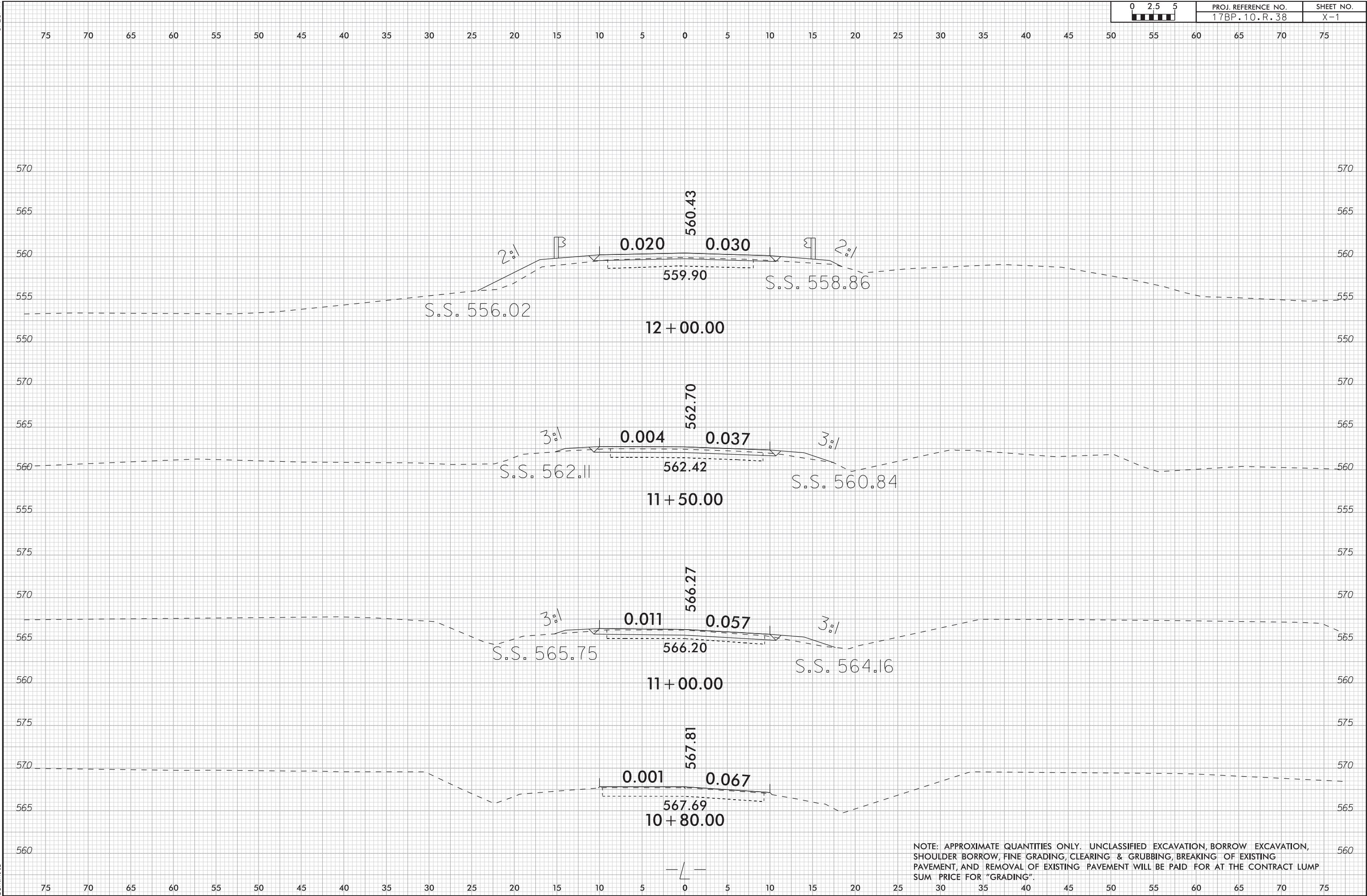
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8/23/99

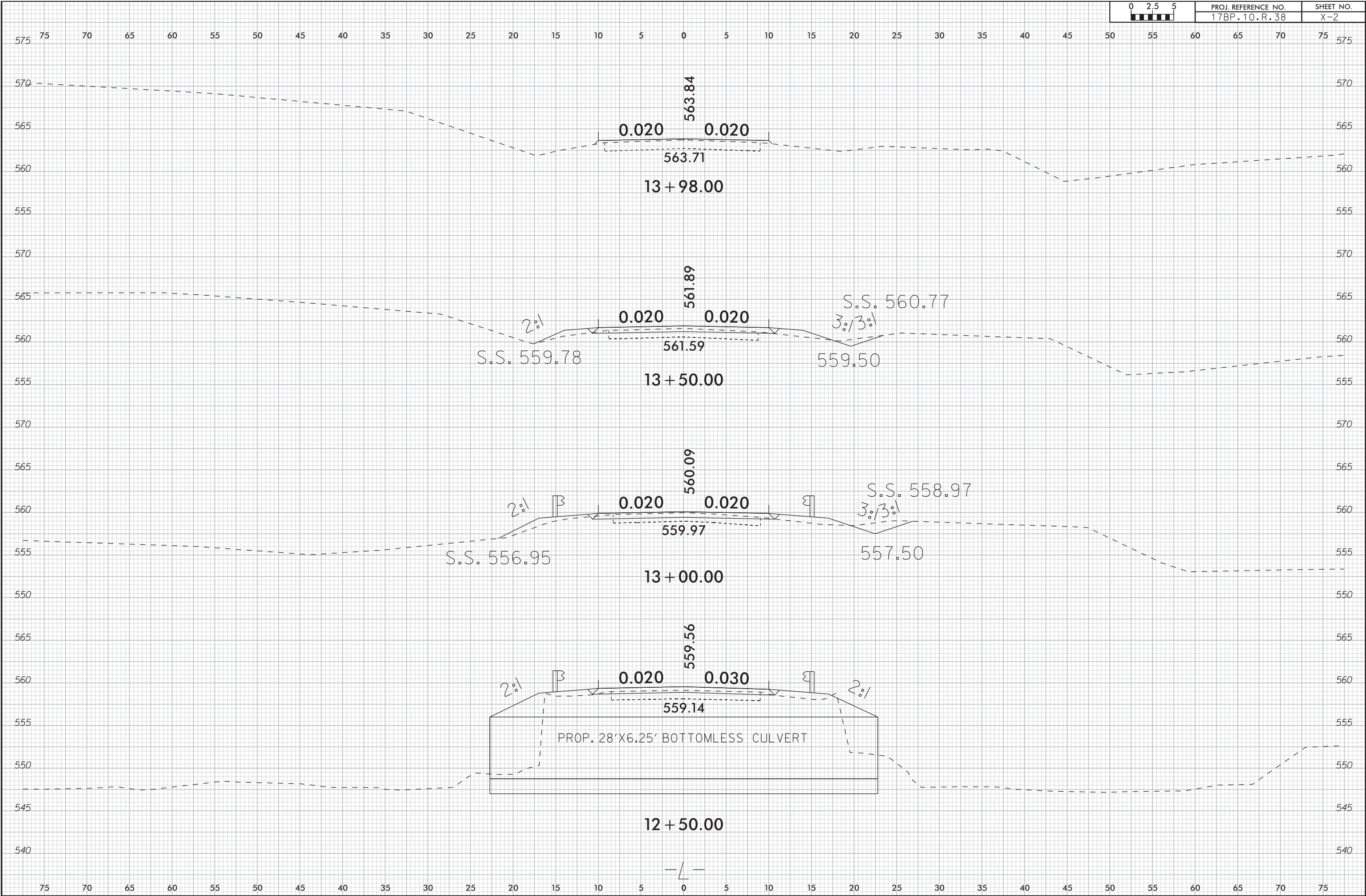
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	17BP.10.R.38	X-1

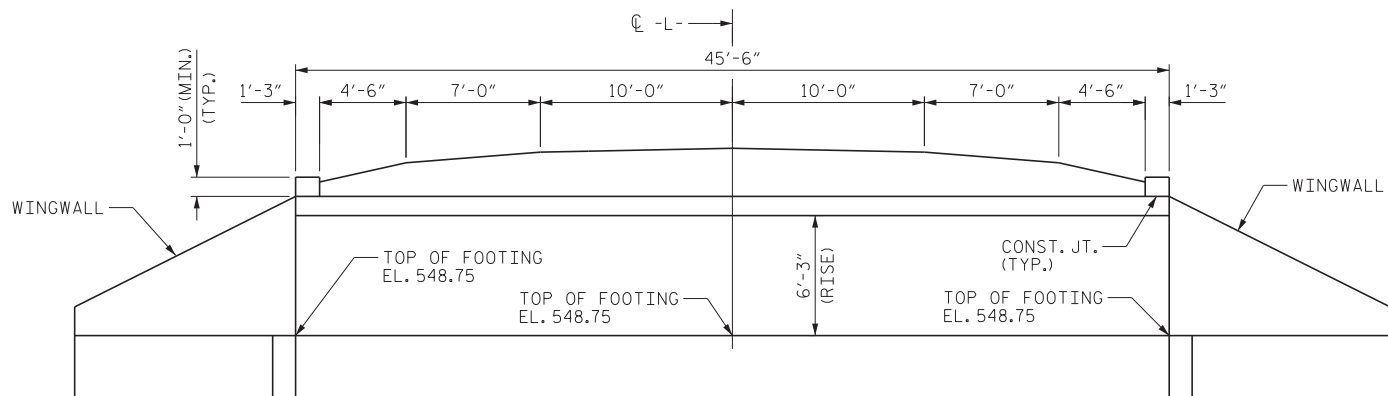


NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING & GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

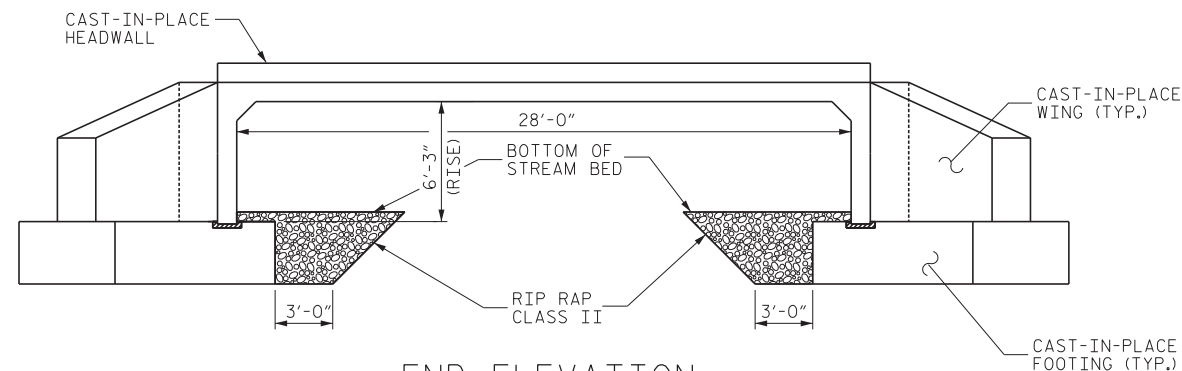
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benwhite

8/23/99

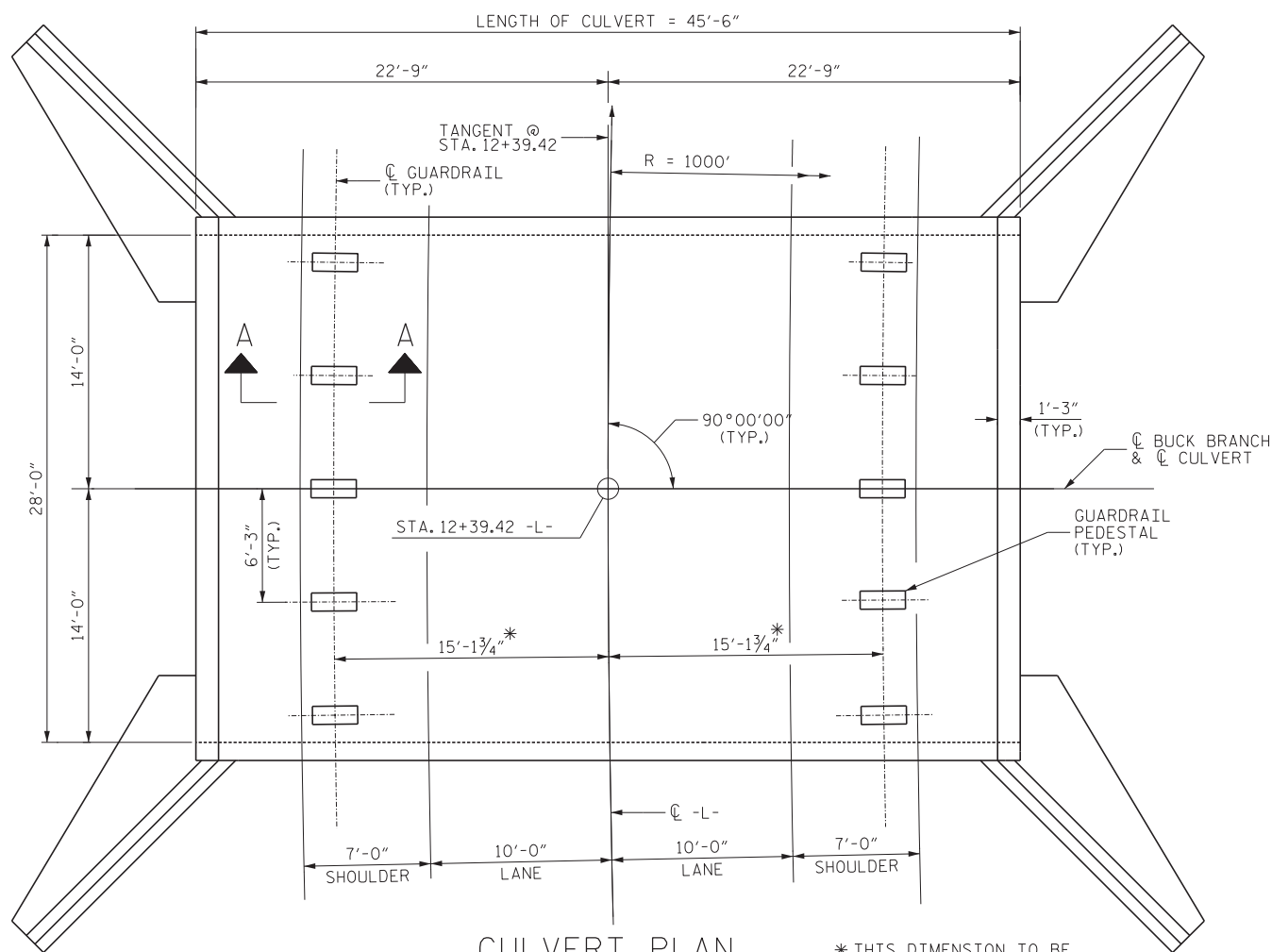
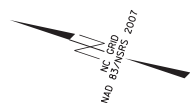




CULVERT SECTION NORMAL TO ROADWAY

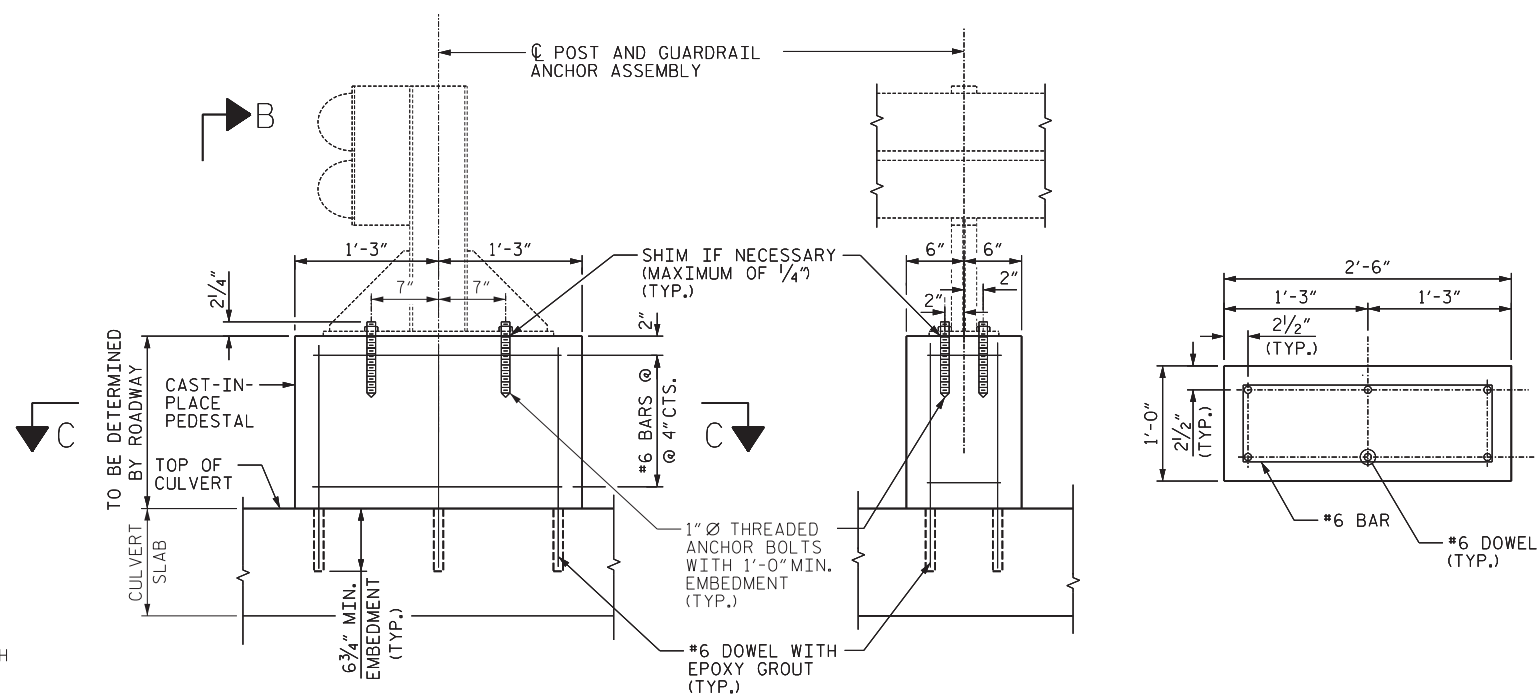


END ELEVATION



CULVERT PLAN

* THIS DIMENSION TO BE VERIFIED BY THE ENGINEER IN THE FIELD



SECTION A-A

SECTION B-B

SECTION C-C

GUARDRAIL PEDESTAL DETAILS

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS, LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 1" Ø AND MEET THE REQUIREMENTS OF ASTM A307, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

GUARDRAIL PEDESTALS AND DOWELS MUST CLEAR ALL JOINTS OF PRECAST CONCRETE CULVERT UNITS.

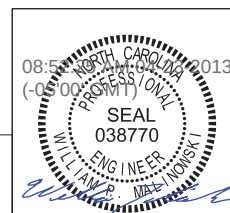
PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

COST OF GUARDRAIL PEDESTALS AND HEADWALLS IS INCLUDED IN THE LUMP SUM FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT.

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stirup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
Fax. (919) 381-9901
www.amec.com



PROJECT NO. 17BP.10.R.38

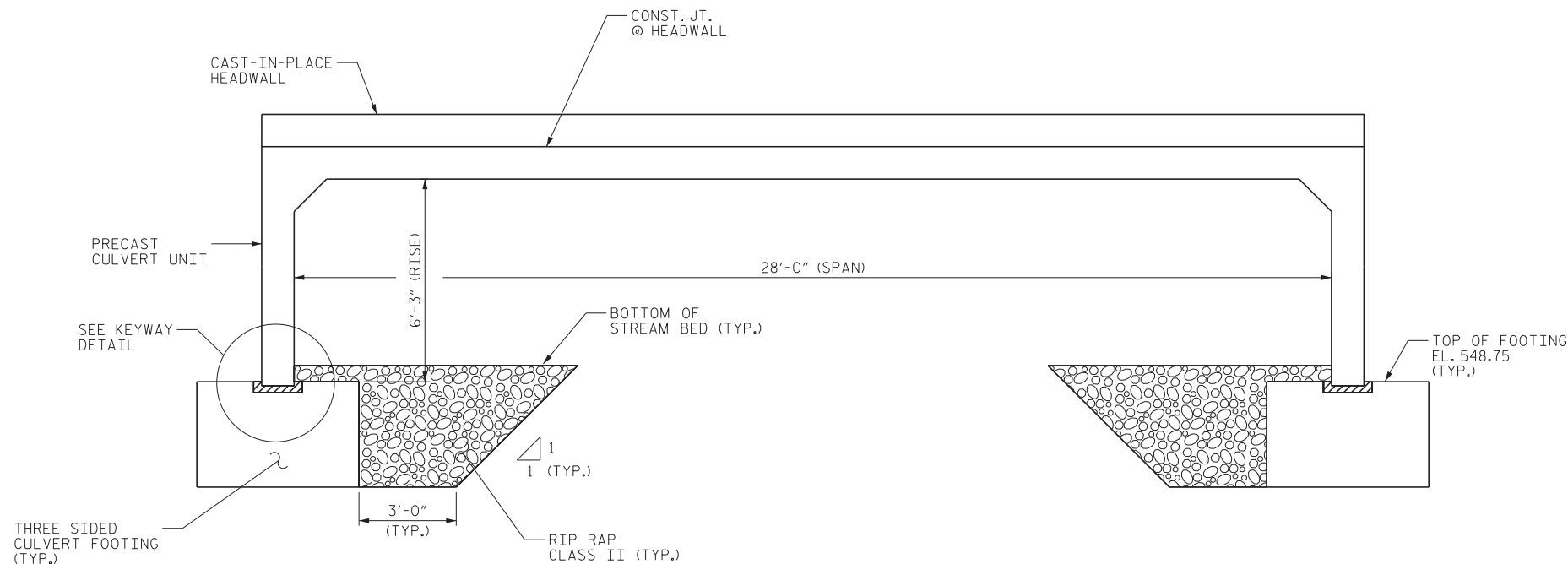
UNION COUNTY

STATION: 12+39.42 -L-

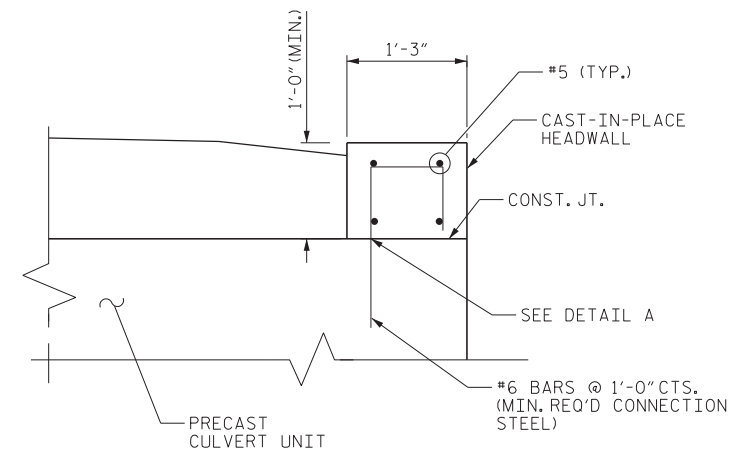
SHEET 2 OF 3 REPLACES BR. NO. 367

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN, SECTION & ELEVATION
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

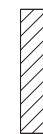
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-2
2			4			TOTAL SHEETS 3



RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

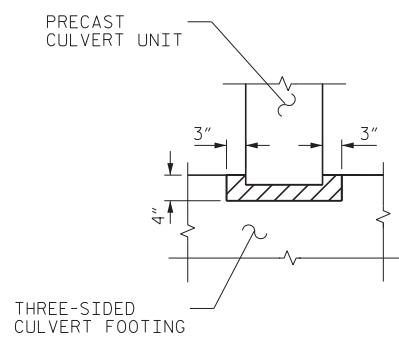


SECTION THRU HEADWALL

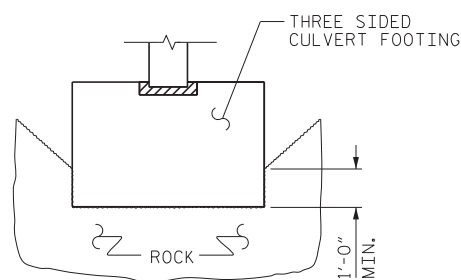


DETAIL A

APPROVED GALVANIZED CONCRETE INSERTS
HAVING A MINIMUM WORKING LOAD
TENSION CAPACITY OF 2.5 KIPS.
DIA. = 3/4"



KEYWAY DETAIL



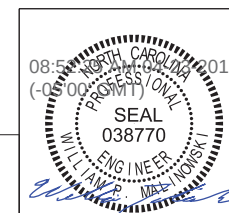
KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN
CONTACT WITH UNDISTURBED MATERIAL
FOR MINIMUM DIMENSION SHOWN

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

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AMEC Environment & Infrastructure, Inc.
4021 Stirrup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
Fax. (919) 381-9901
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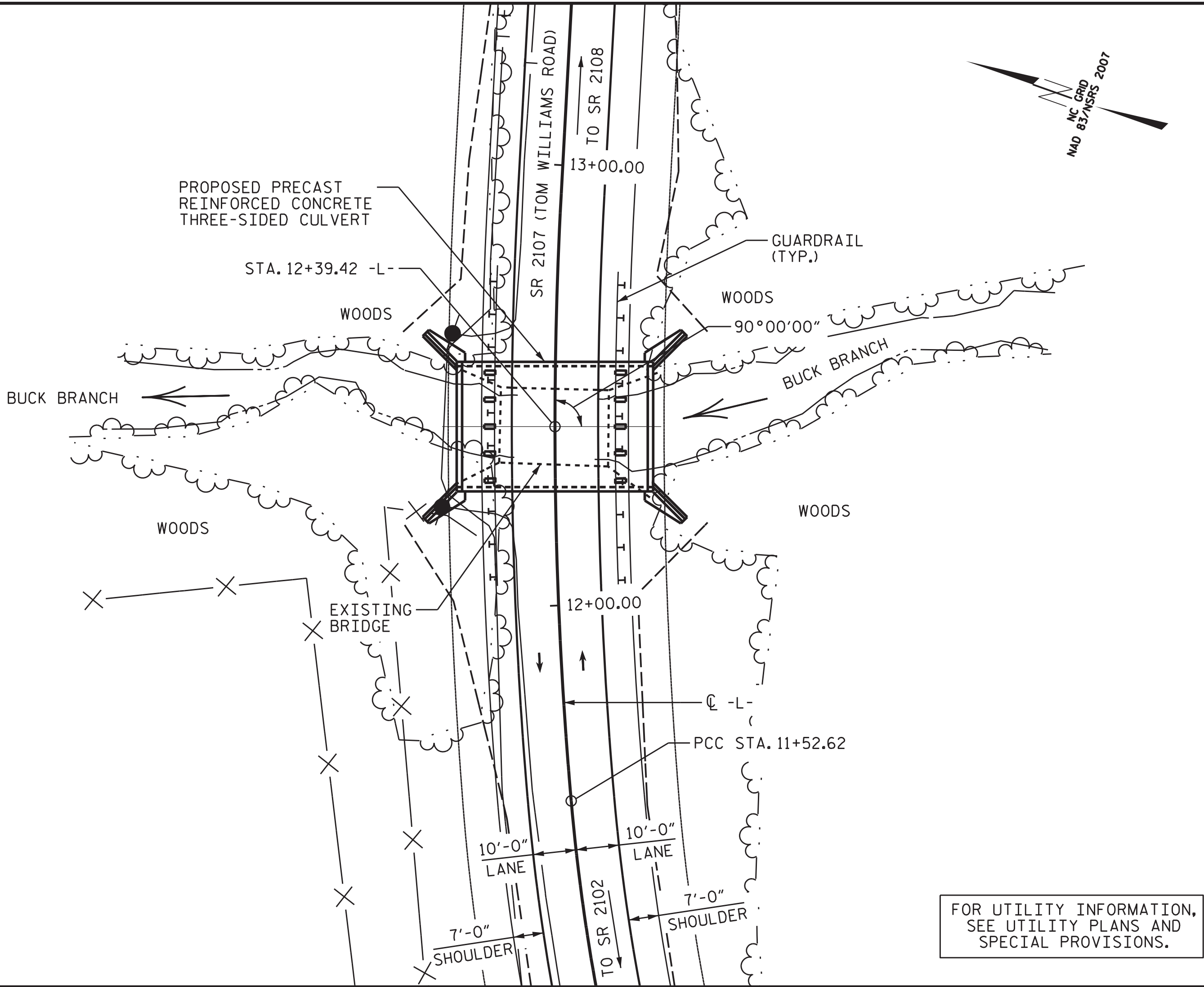
PROJECT NO. 17BP.10.R.38
UNION COUNTY
STATION: 12+39.42 -L-

SHEET 3 OF 3 REPLACES BR. NO. 367

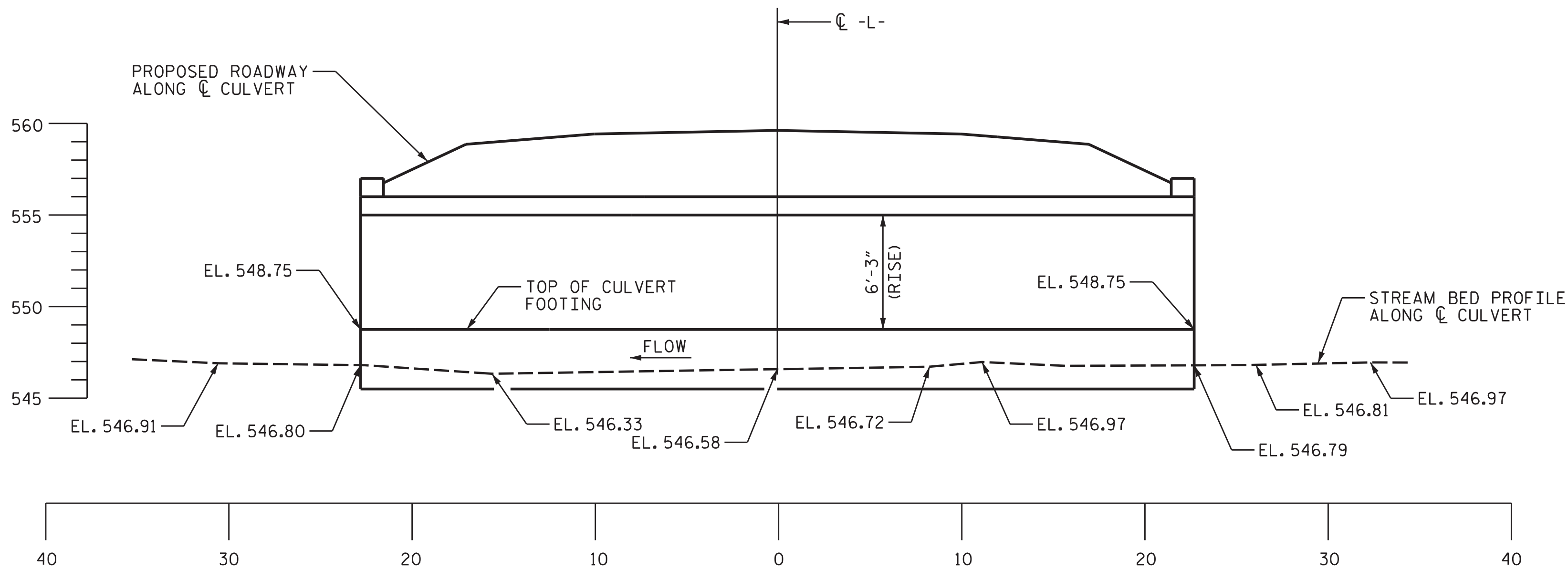
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DETAILS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

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

BM: MONUMENT AT STA. 12+68.25, 14.05' RT, EL. 572.95



LOCATION SKETCH



PROFILE ALONG CULVERT

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

*****SYSTEM*****
*****DCN*****
*****USER*****

HYDRAULIC DATA

DESIGN DISCHARGE = 950 CFS
FREQUENCY OF DESIGN FLOOD = 25 YRS.
DESIGN HIGH WATER ELEVATION = 554.6
DRAINAGE AREA = 2.6 SQ. MI.
BASE DISCHARGE (Q100) = 1,357 CFS
BASE HIGH WATER ELEVATION = 555.73

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 2,300 CFS
FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.
OVERTOPPING FLOOD ELEVATION = 559.55

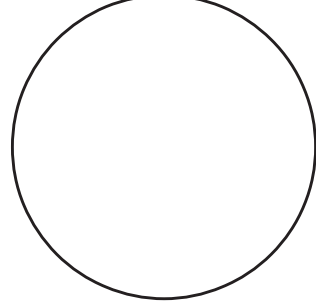
GRADE DATA

GRADE POINT ELEVATION @ STA. 12+39.42 -L- = 559.62

BED ELEVATION @ STA. 12+39.42 -L- = 546.58

ROADWAY SLOPES = 2:1 MAX

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS



NOTES:

ASSUMED LIVE LOAD -----HL93 OR ALTERNATE LOADING.

MAXIMUM DESIGN FILL -----3.0'

MINIMUM DESIGN FILL -----0.5'

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 SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 3 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 7 TSP JUST BEFORE PLACING CONCRETE.

KEY IN SPREAD FOOTINGS AT LEAST 12 INCHES INTO WEATHERED ROCK OR NON-CRYSTALLINE ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, THE FOOTINGS SHALL NOT BE CONSTRUCTED AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

SCOUR PROTECTION SHALL BE REQUIRED. RIP RAP NOT TO BE PLACED ABOVE THE STREAMBED.

THE SCOUR CRITICAL ELEVATION IS THE BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE BOTTOM OF THE FOOTING ELEVATIONS MAY BE LOWERED IN ORDER TO SATISFY THE REQUIRED RESISTANCE AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".

FOR PRECAST REINFORCED CONCRETE THREE SIDED CULVERT, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF A 17'-8" LONG SINGLE SPAN, A 19'-2" CLEAR ROADWAY WIDTH WITH A STEEL I-BEAM SUPPORTED TIMBER DECK ON ABUTMENTS WITH TIMBER CAPS AND POSTS, CONCRETE SILLS, AND STEEL BULKHEADS AT THE PROPOSED STRUCTURE SITE, SHALL BE REMOVED.

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 SPECIFICATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

ALL REINFORCING STEEL FOR THE HEADWALLS AND GUARDRAIL PEDESTALS SHALL BE EPOXY COATED.

CONCRETE USED FOR THE HEADWALLS AND GUARDRAIL PEDESTALS SHALL MEET THE MINIMUM REQUIREMENTS OF CLASS AA CONCRETE.

NO PRECAST WING OR HEADWALL OPTION WILL BE ALLOWED.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM THE COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+39.42."

THE PRECAST CULVERT SECTION SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FT.

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.

RIP RAP CLASS II IS INCLUDED IN THE QUANTITY SHOWN ON THE DRAINAGE PLANS.

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE LUMP SUM

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 12+39.42 -L- LUMP SUM

CLASS A CONCRETE 69.6 CU. YDS.

REINFORCING STEEL 950 LBS.

PROJECT NO. 17BP.10.R.38

UNION COUNTY

STATION: 12+39.42 -L-

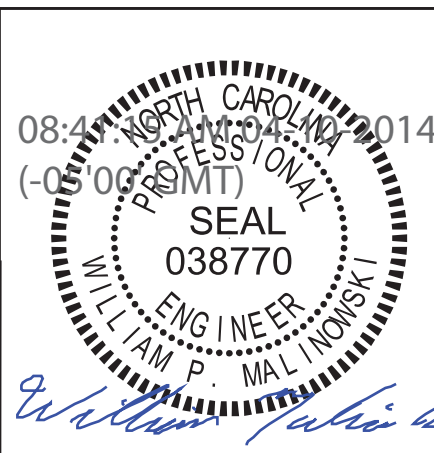
SHEET 1 OF 4 REPLACES BR. NO. 367

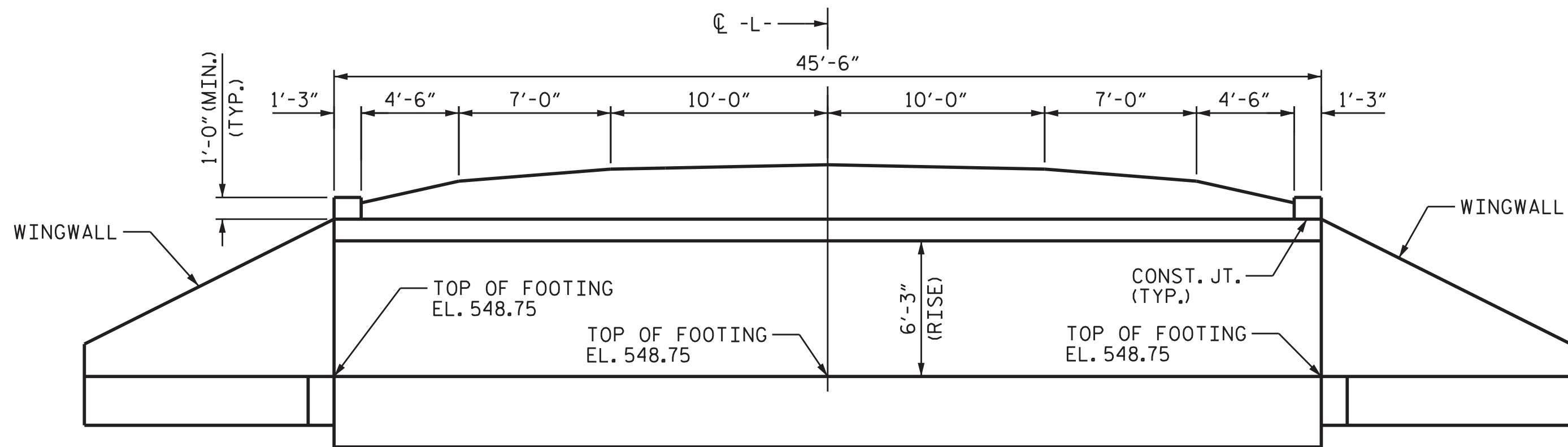
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

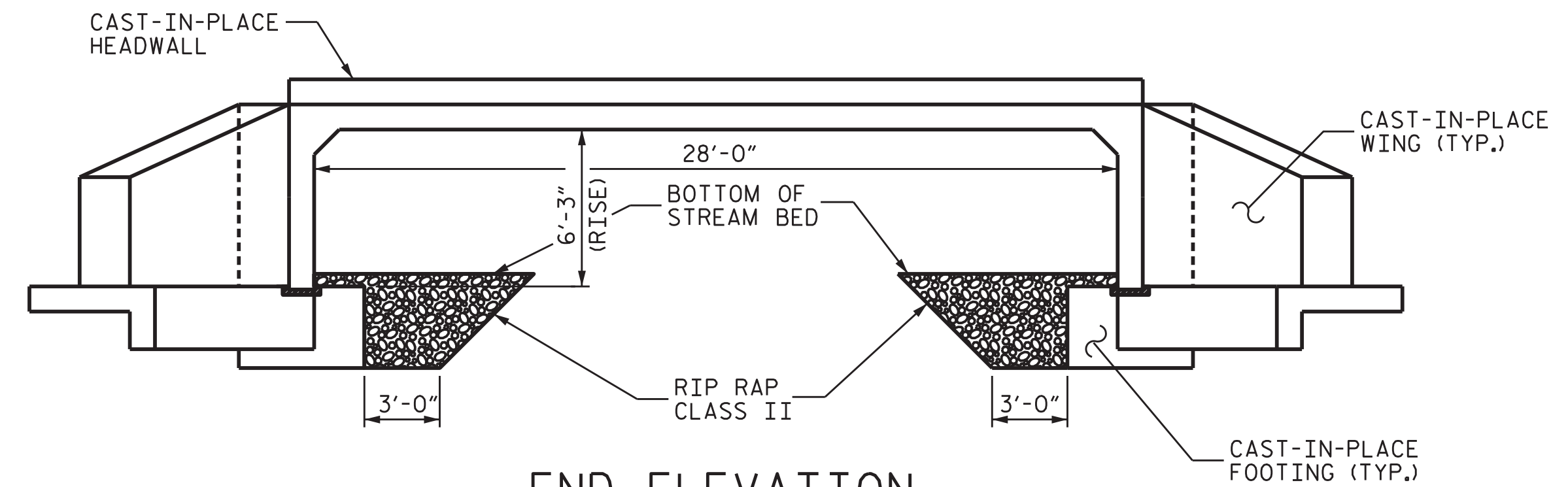
REVISIONS						SHEET NO. C-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 4
2			4			

PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stirrup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
Fax. (919) 381-9901
www.amec.com
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FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

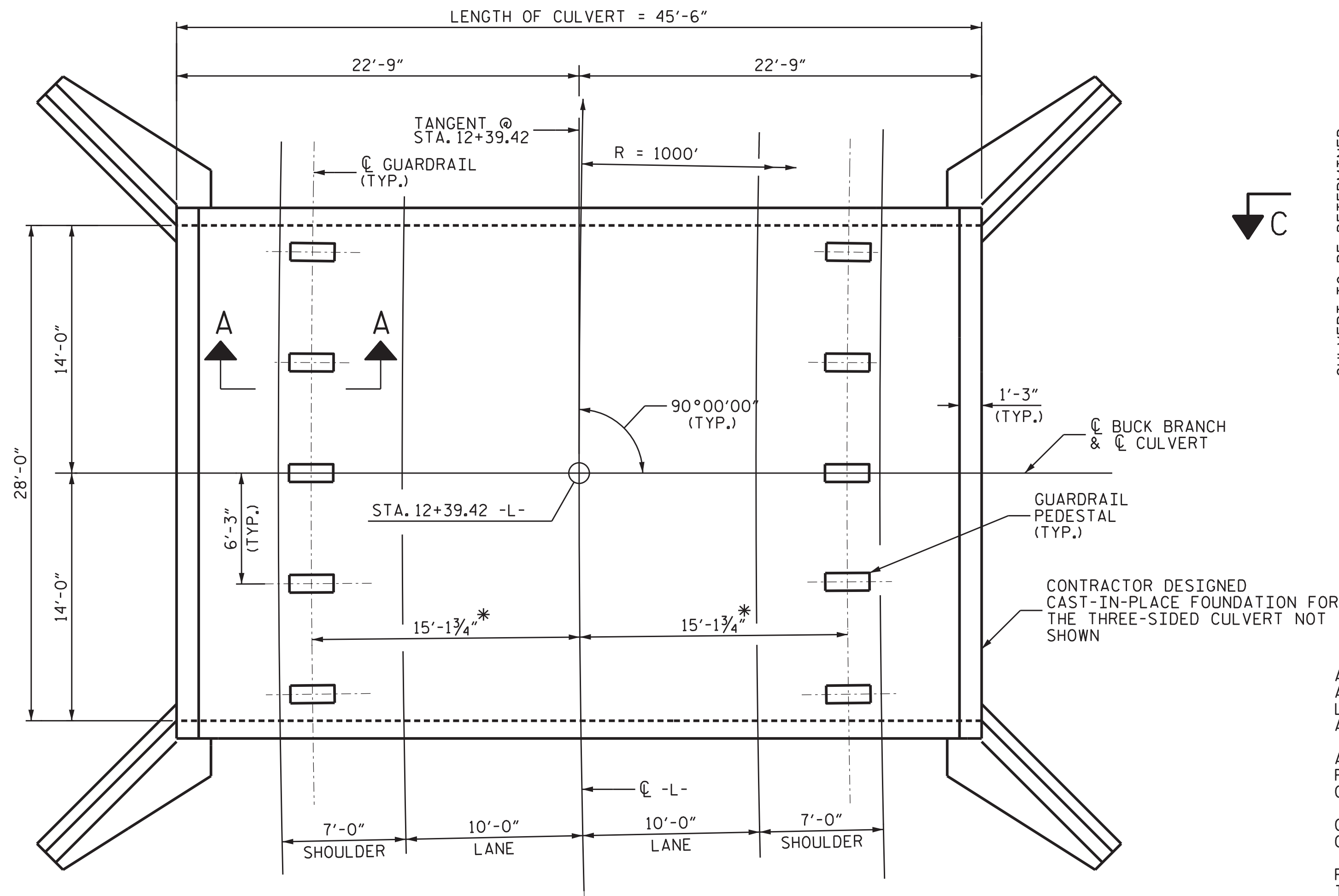
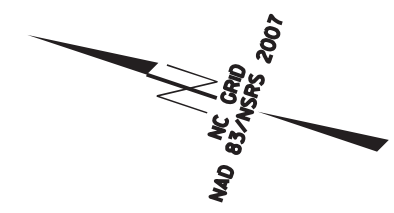




CULVERT SECTION NORMAL TO ROADWAY

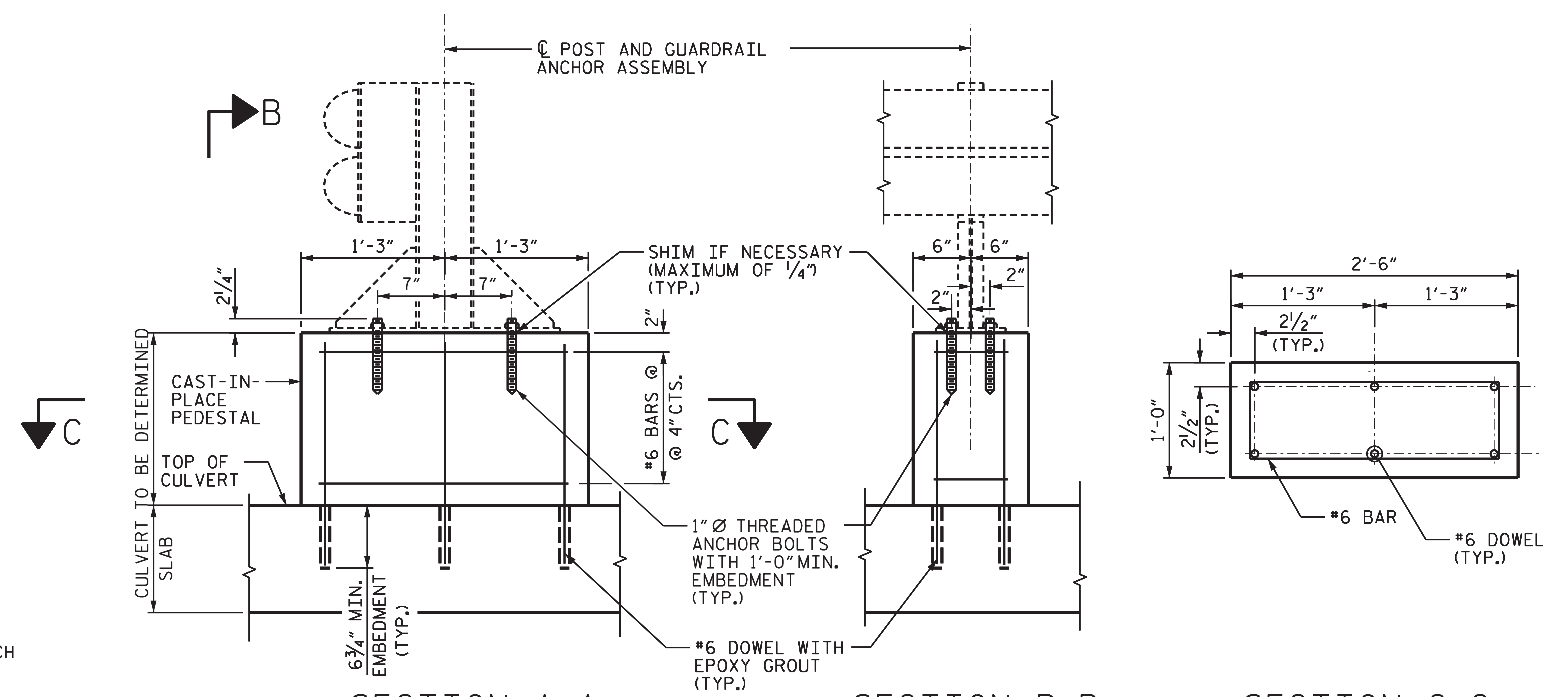


END ELEVATION



CULVERT PLAN

* THIS DIMENSION TO BE VERIFIED BY THE ENGINEER IN THE FIELD



GUARDRAIL PEDESTAL DETAILS

NOTES

- ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS, LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.
- ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 1" Ø AND MEET THE REQUIREMENTS OF ASTM A307, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.
- GUARDRAIL PEDESTALS AND DOWELS MUST CLEAR ALL JOINTS OF PRECAST CONCRETE CULVERT UNITS.
- PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.
- COST OF GUARDRAIL PEDESTALS AND HEADWALLS IS INCLUDED IN THE LUMP SUM FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT.

PROJECT NO. 17BP.10.R.38
UNION COUNTY
STATION: 12+39.42 -L-

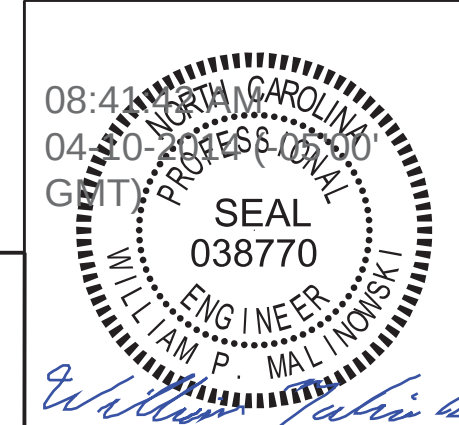
SHEET 2 OF 4 REPLACES BR. NO. 367

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN, SECTION & ELEVATION
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

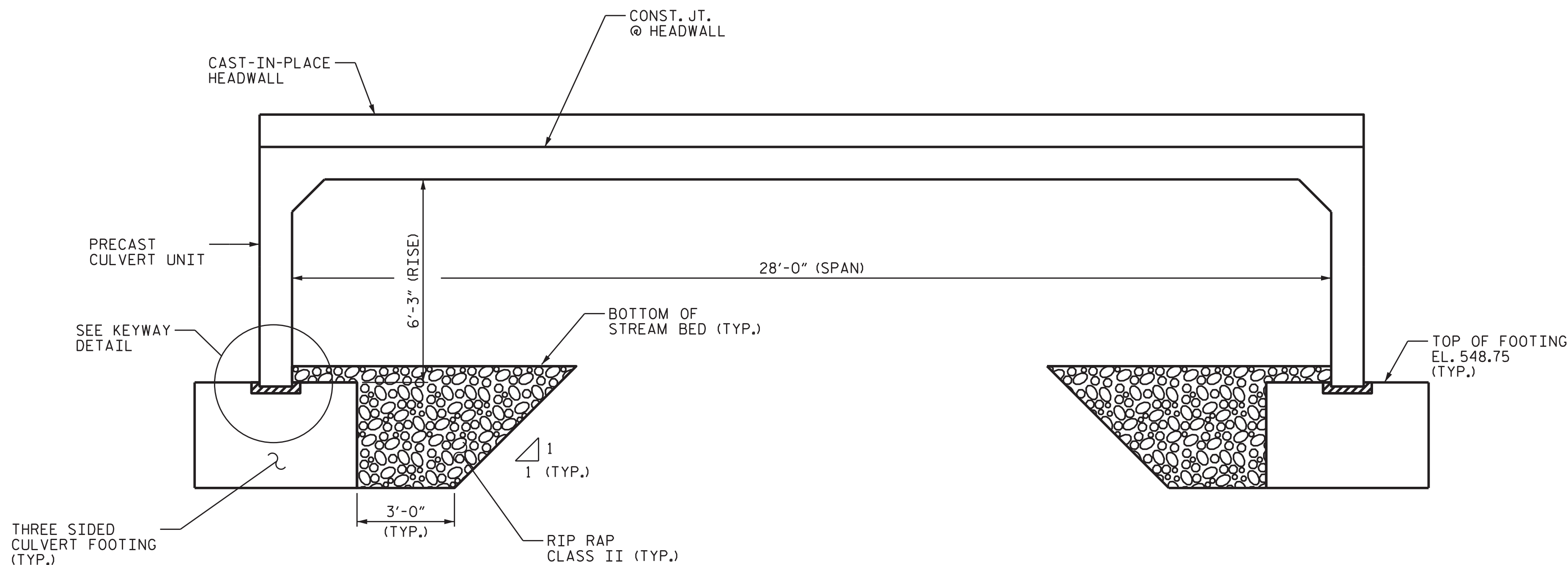
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CHECKED BY : WPM DATE : 06/27/12

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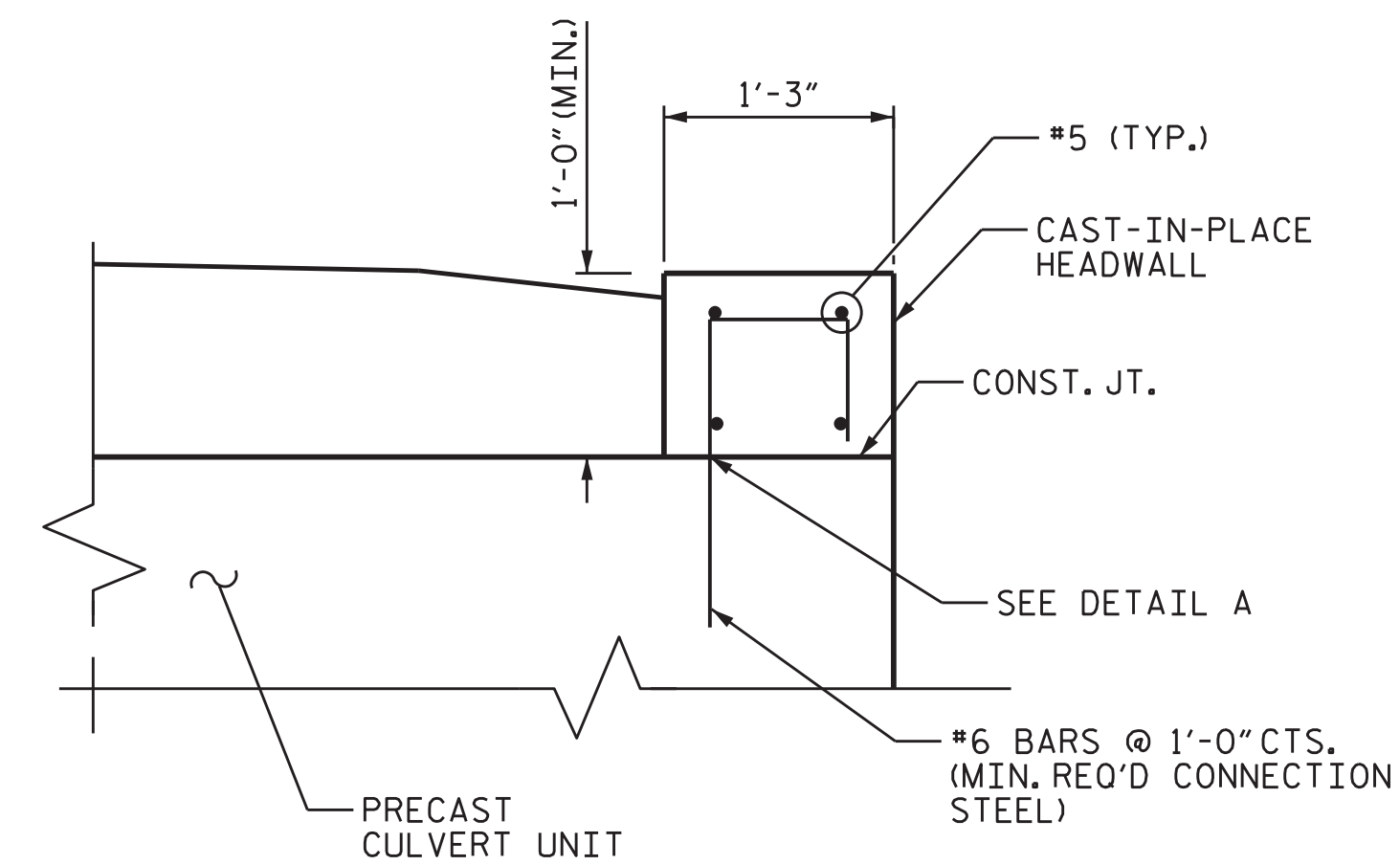
PREPARED IN THE OFFICE OF:
AMEC Environment & Infrastructure, Inc.
4021 Stirrup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
Tel. (919) 381-9900
Fax. (919) 381-9901
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-2
2			4			



RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

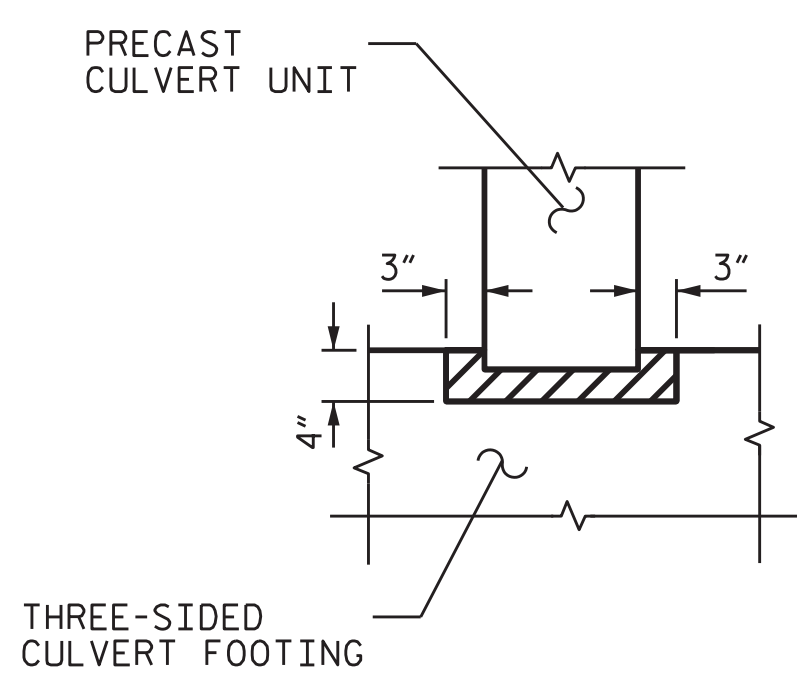


SECTION THRU HEADWALL

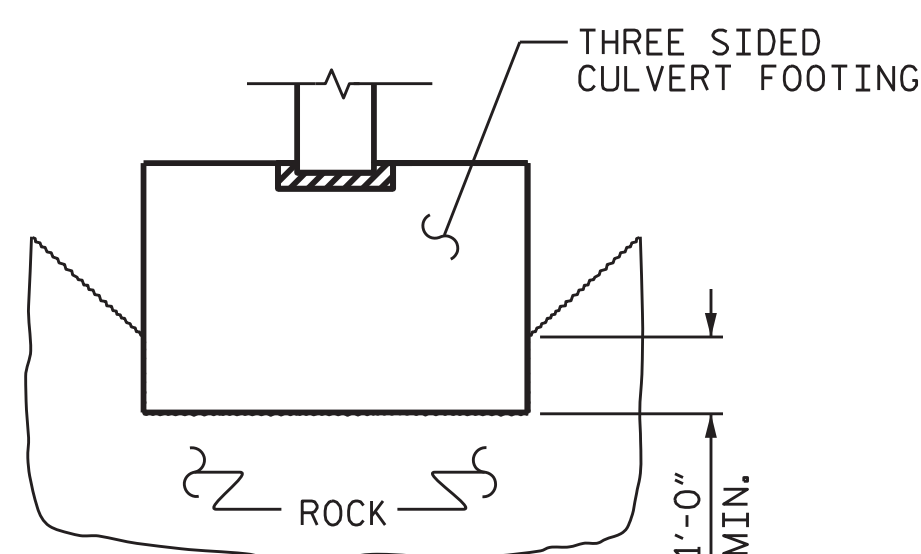


DETAIL A

APPROVED GALVANIZED CONCRETE INSERTS
HAVING A MINIMUM WORKING LOAD
TENSION CAPACITY OF 2.5 KIPS.
DIA. = 3/4"



KEYWAY DETAIL



KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN
CONTACT WITH UNDISTURBED MATERIAL
FOR MINIMUM DIMENSION SHOWN

NOTE:

THE DESIGN OF THE CAST-IN-PLACE FOUNDATION FOR
THE THREE-SIDED CULVERT SHALL INCORPORATE THE
FOUNDATION FOR THE WINGWALL ON SHEET C-4.

PROJECT NO. 17BP.10.R.38

UNION COUNTY

STATION: 12+39.42 -L-

SHEET 3 OF 4 REPLACES BR. NO. 367

STATE OF NORTH CAROLINA
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RALEIGH

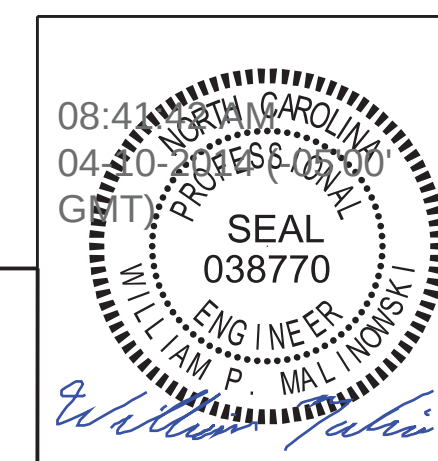
DETAILS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
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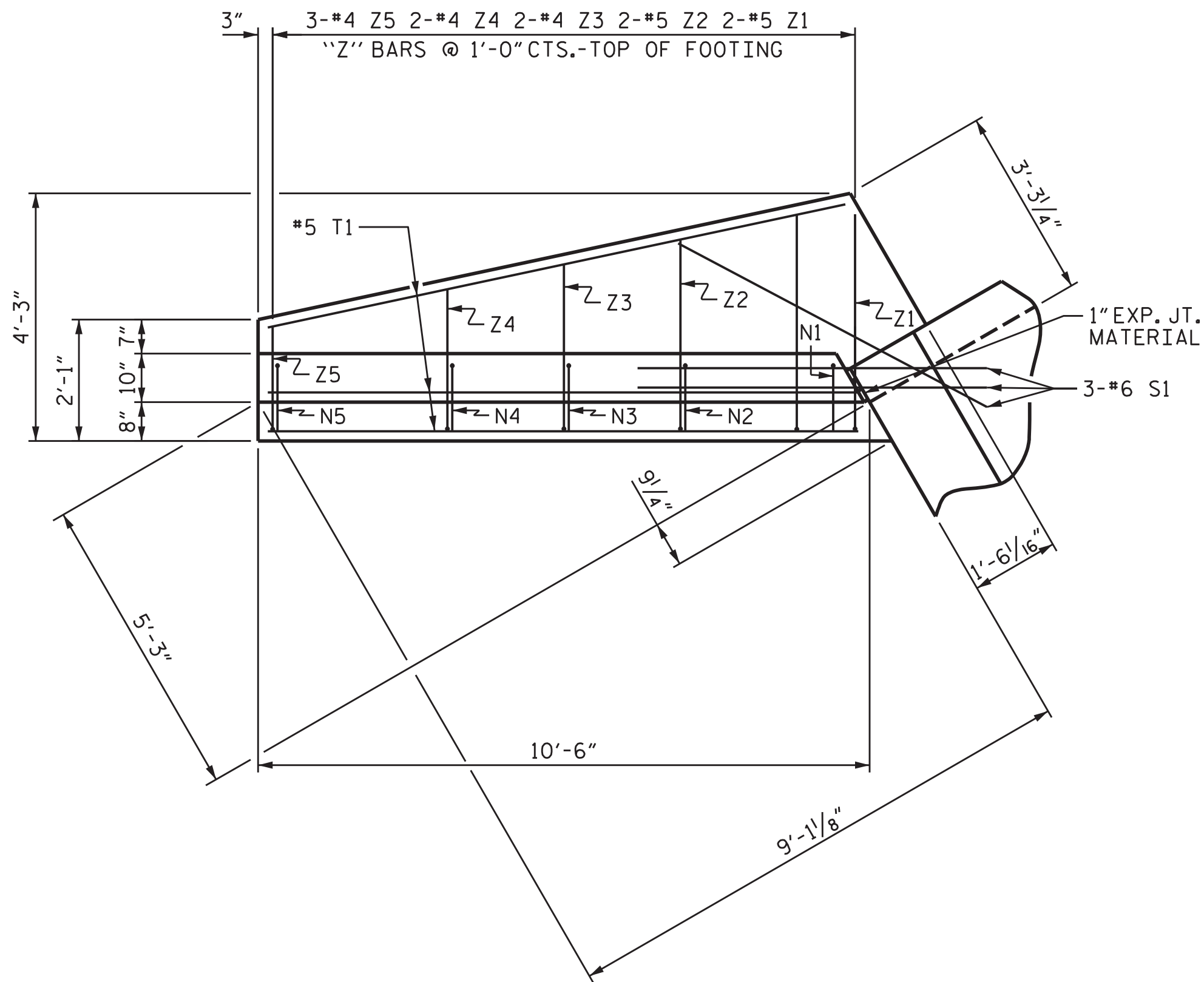
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			C-3
2			4			TOTAL SHEETS 4

DRAWN BY : JY DATE : 06/22/12
CHECKED BY : WPM DATE : 06/27/12

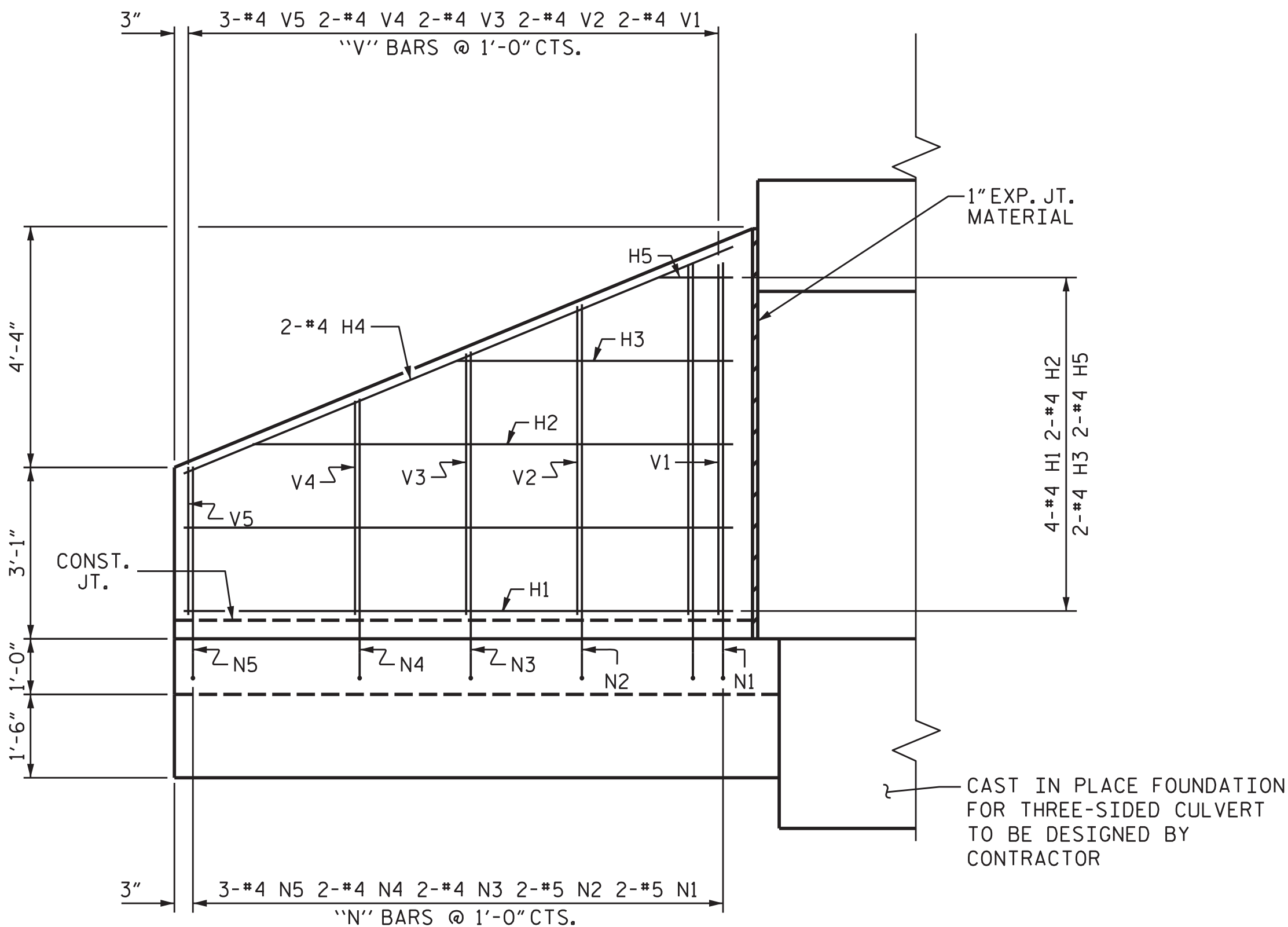
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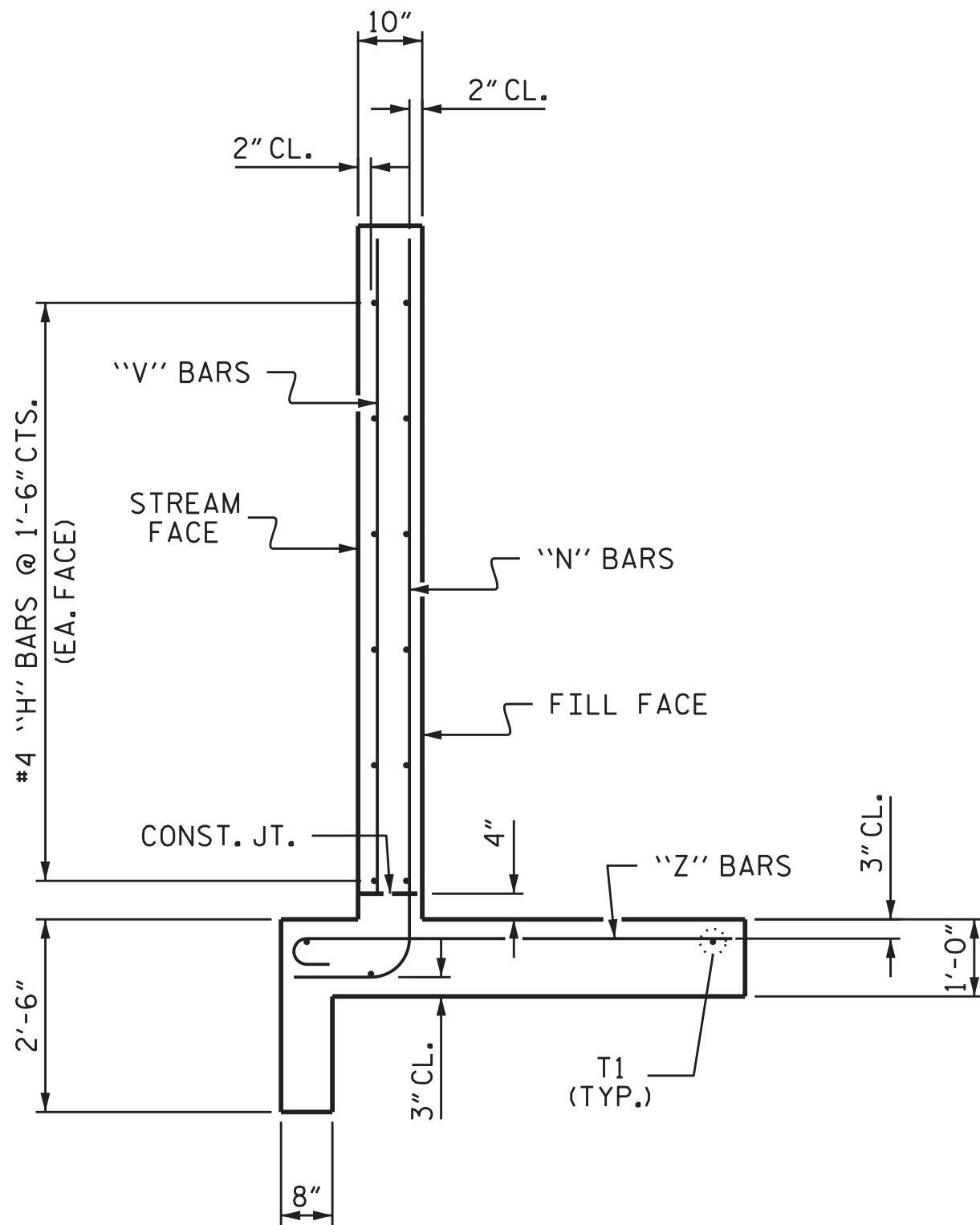




PLAN



ELEVATION

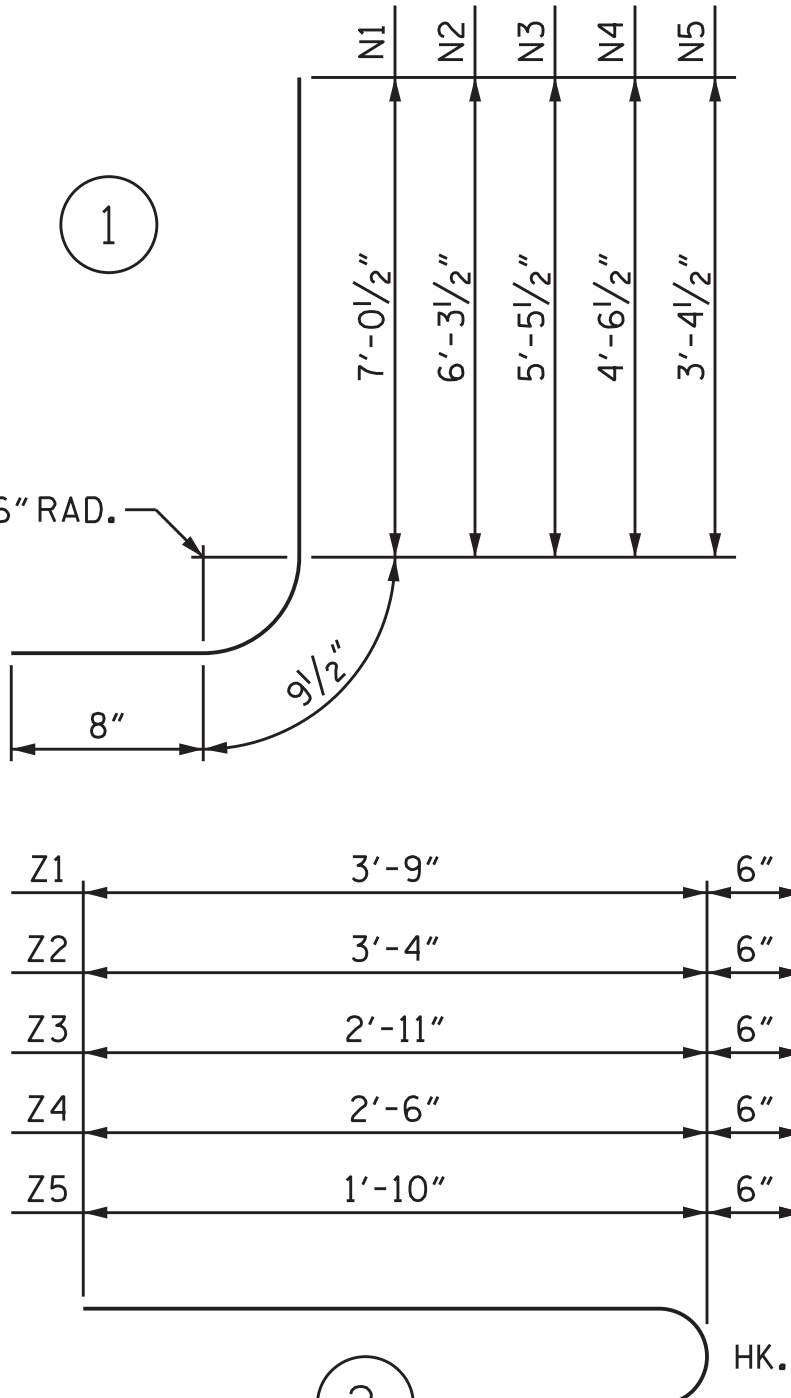


TYPICAL WING SECTION

- NOTES:
- CUT BARS IN FIELD TO FIT
 - EXTEND T1 AND S1 BARS INTO FOUNDATION FOR THREE-SIDED CULVERT
 - THE DETAILS OF THE PRECAST THREE-SIDED CULVERT AND THE CONTRACTOR DESIGNED FOUNDATION FOR THE CULVERT ARE UNKNOWN. THE REINFORCING STEEL AND DIMENSIONS PROVIDED ON THIS SHEET CAN BE CONSIDERED THE MINIMUM THAT WILL BE ALLOWED. AS SUCH THE CONTRACTOR SHALL BE ALLOWED TO MAKE ADJUSTMENTS TO THIS WINGWALL AND FOUNDATION DESIGN SUBJECT TO THE APPROVAL OF THE ENGINEER TO FACILITATE ASSIMILATION OF THIS SHEET INTO THE CONTRACTORS DESIGN FOR THE THREE-SIDED CULVERT AND ITS CAST-IN-PLACE FOUNDATION.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	9'-11"	106
H2	8	#4	STR	8'-8"	46
H3	8	#4	STR	5'-0"	27
H4	8	#4	STR	10'-8"	57
H5	8	#4	STR	1'-4"	7
N1	8	#5	1	8'-6"	71
N2	8	#5	1	7'-9"	65
N3	8	#4	1	6'-11"	37
N4	8	#4	1	6'-0"	32
N5	12	#4	1	4'-10"	39
S1	12	#6	STR	6'-0"	108
T1	12	#5	STR	10'-2"	127
V1	8	#4	STR	6'-4"	34
V2	8	#4	STR	5'-6"	29
V3	8	#4	STR	4'-9"	25
V4	8	#4	STR	3'-10"	20
V5	12	#4	STR	2'-8"	21
Z1	8	#4	2	4'-3"	23
Z2	8	#4	2	3'-10"	20
Z3	8	#4	2	3'-5"	18
Z4	8	#4	2	3'-0"	16
Z5	12	#4	2	2'-4"	19

REINFORCING STEEL FOR 4 WINGS				950	LBS
CLASS A CONCRETE					
4 WINGS				6.8	CY
4 FOOTINGS				5.2	CY
4 END CURTAIN WALLS				2.8	CY
TOTAL				14.8	CY

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SHEET 4 OF 4 REPLACES BR. NO. 367

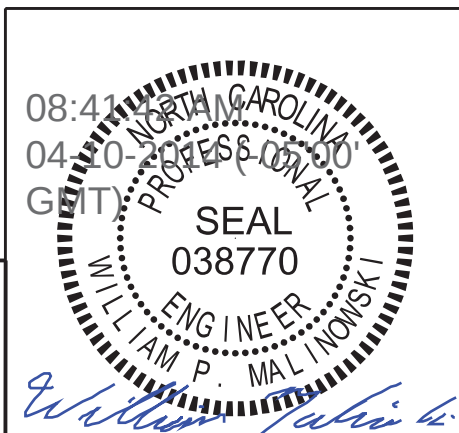
STATE OF NORTH CAROLINA
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WINGWALLS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

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

DRAWN BY : CRS DATE : 02/25/14
CHECKED BY : WPM DATE : 02/28/14

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4021 Stimup Creek Drive, Suite 100
Durham, North Carolina 27703
NC Eng. License #: F-1253
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