

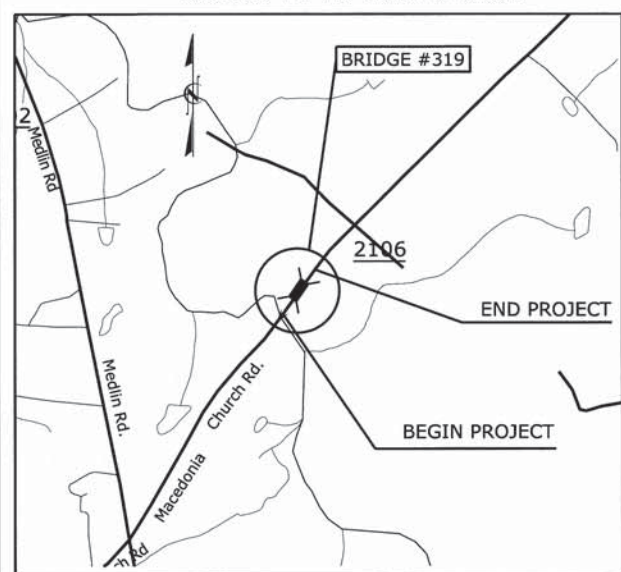
09/08/13

4/12/2013
 U:\Union319_Roadway\Proj\UNION319_rdy_TSH.dgn
 Rwilliams

PROJECT: WBS 17BP.10.R.15

CONTRACT:

See Sheet 1-A For Index of Sheets



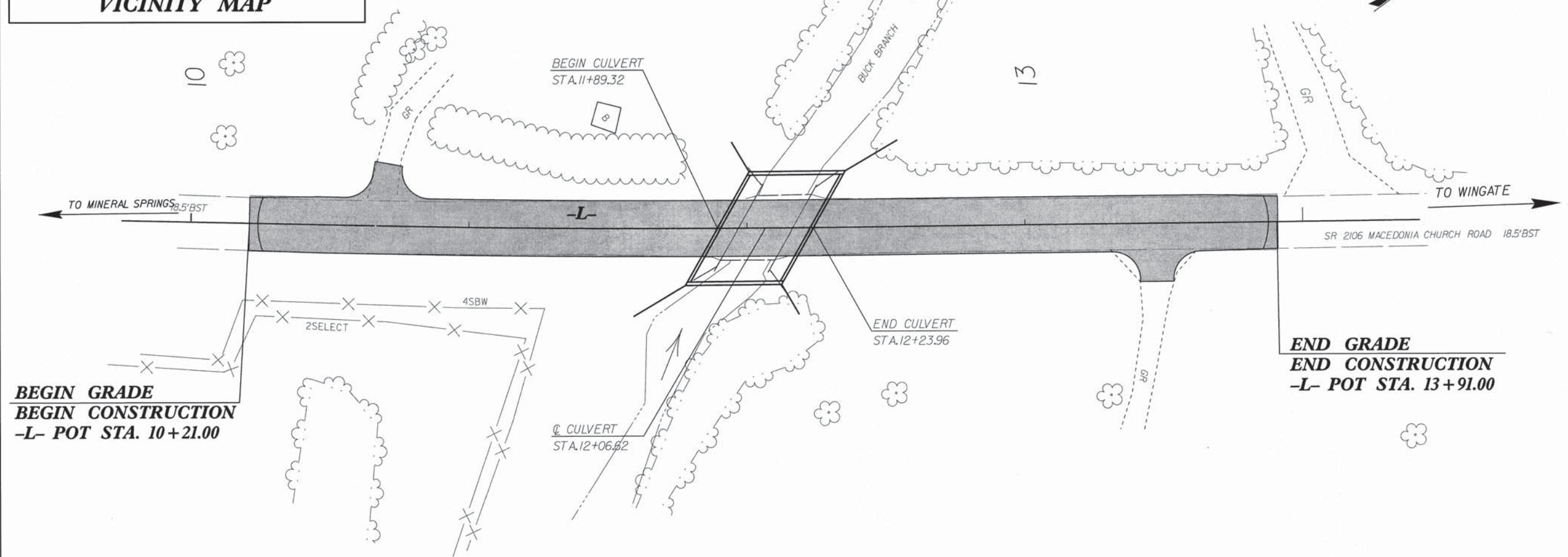
VICINITY MAP

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
UNION COUNTY

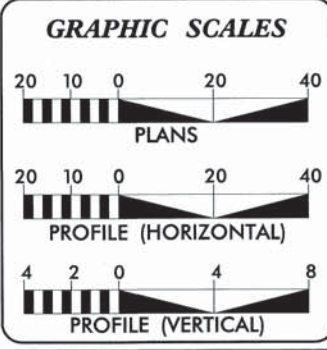
**LOCATION: BRIDGE NO. 319 ON SR 2106 (MACEDONIA CHURCH ROAD)
 OVER BUCK BRANCH**

**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:

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 2012 STANDARD SPECIFICATIONS

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

LETTING DATE: **JUNE 19, 2013**
JUNE 4, 2014

GARLAND HAYWOOD, PE
 PROJECT ENGINEER

ROBERT WILLIAMS, PE
 PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

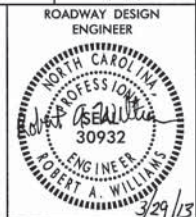
SEAL 30932

ROADWAY DESIGN ENGINEER

SEAL 30932

Robert Williams
 SIGNATURE: P.E. 4/15/13





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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

04/16/11

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
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	-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	-----
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 RW 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	⊗
VEGETATION:	
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	□ CB
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	AATUR
End of Information	E.O.I.

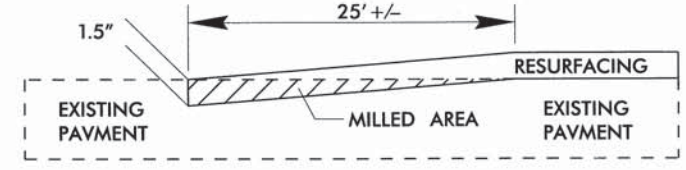
5/14/99

PAVEMENT SCHEDULE

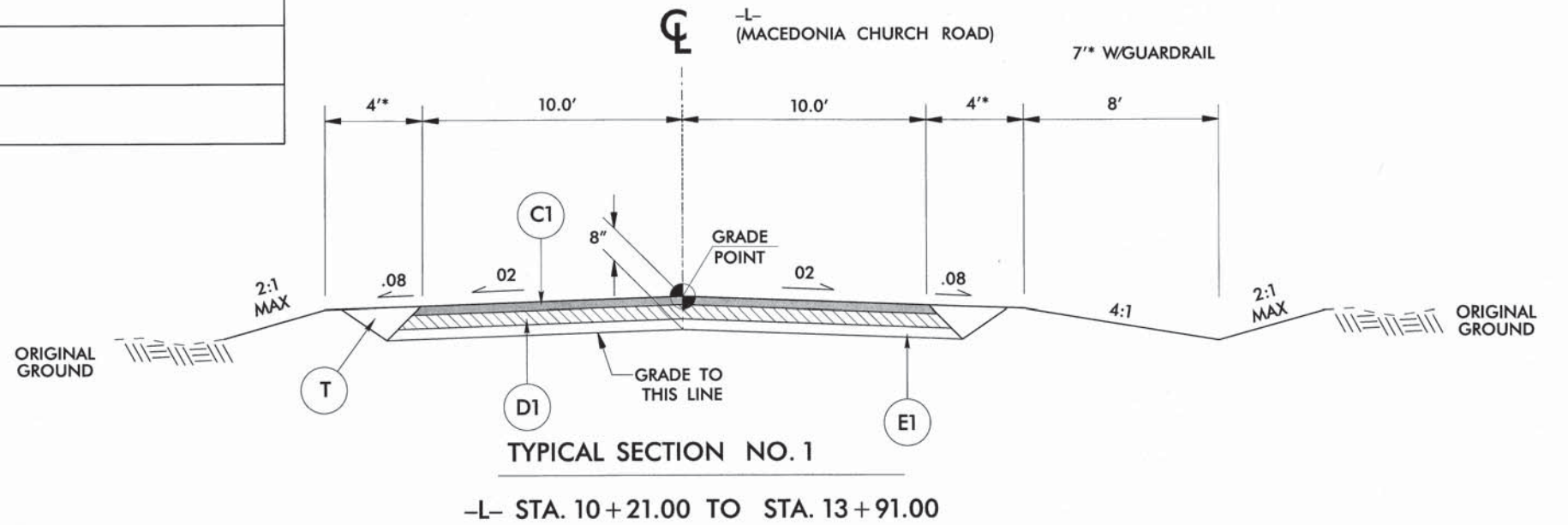
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
D1	PROP. 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.RJ5	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER

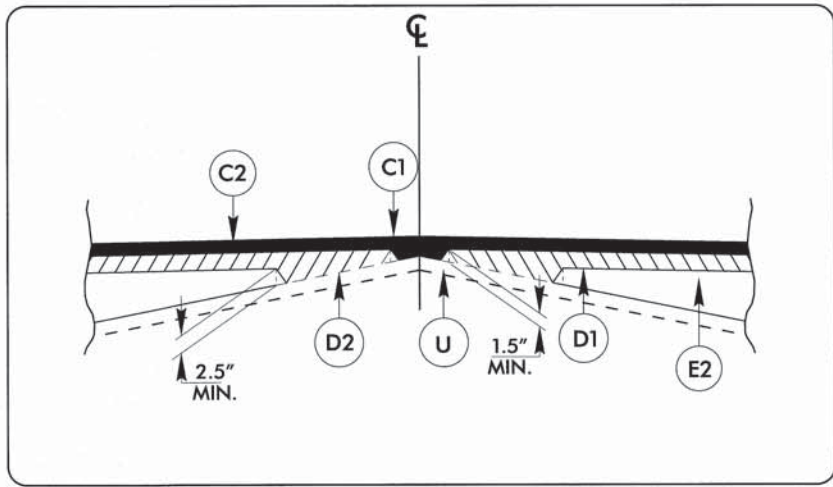


MILLING DETAIL



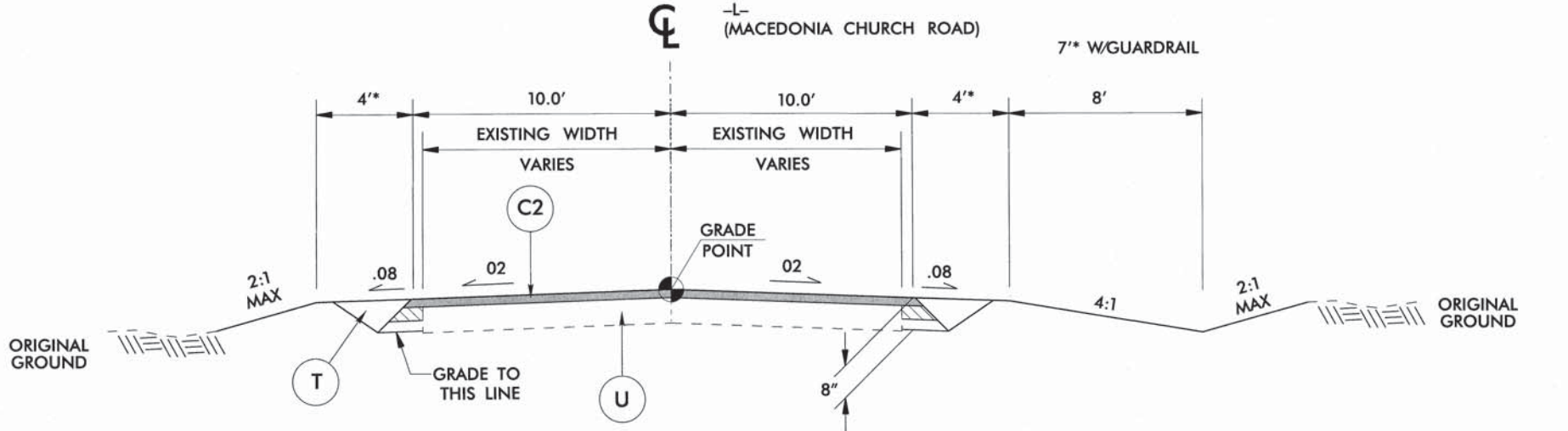
TYPICAL SECTION NO. 1

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



WEDGING DETAIL

(AS NEEDED)



TYPICAL SECTION NO. 2

AS NEEDED

U:\Union3\316\4\2013\Roadway\Pro\UNION319_r.dwg - TYP.dgn
 5/14/99

6/21/08

COMPUTED BY: RAW DATE: AUGUST 2012
CHECKED BY: JIG DATE: AUGUST 2012

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 17BP10.R15
SHEET NO. 3

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)

Table with columns: LOCATION, UNCLASSIFIED EXCAVATION, UNDERCUT, EMBT + %, BORROW, WASTE. Rows include: -L- STA. 10+21.00 TO STA. 13+91.00, SUBTOTAL SUMMARY, SUMMARY, LOSS DUE TO CLEARING & GRUBBING, PROJECT TOTAL, WASTE IN LIEU OF BORROW, ESTIMATE 5% FOR TOPSOIL ON BORROW PITS, GRAND TOTAL, SAY.

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

Table with columns: LINE, STATION, STATION, LOCATION, SY. Rows include: -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)

Large table listing pipe and endwall details. Columns include: STATION, LOCATION (LT, RT, OR CL), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE (UNLESS NOTED OTHERWISE), CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED), ENDWALLS (STD. 838.01, STD. 838.11 OR STD. 838.80), QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71, PIPE REMOVAL LIN.FT., ABBREVIATIONS (C.B., N.D.I., D.I., G.D.I., G.D.I. (N.S.), J.B., M.H., T.B.D.I., T.B.J.B.), REMARKS.

"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

Table summarizing guardrail data. Columns include: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (XI MOD, XI, GRAU 350 (TL-2), M-350, XIII, CAT-1, VI MOD, BIC, AT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

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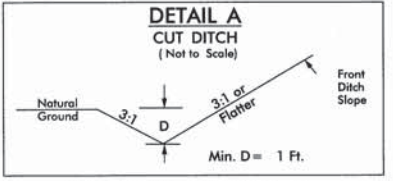
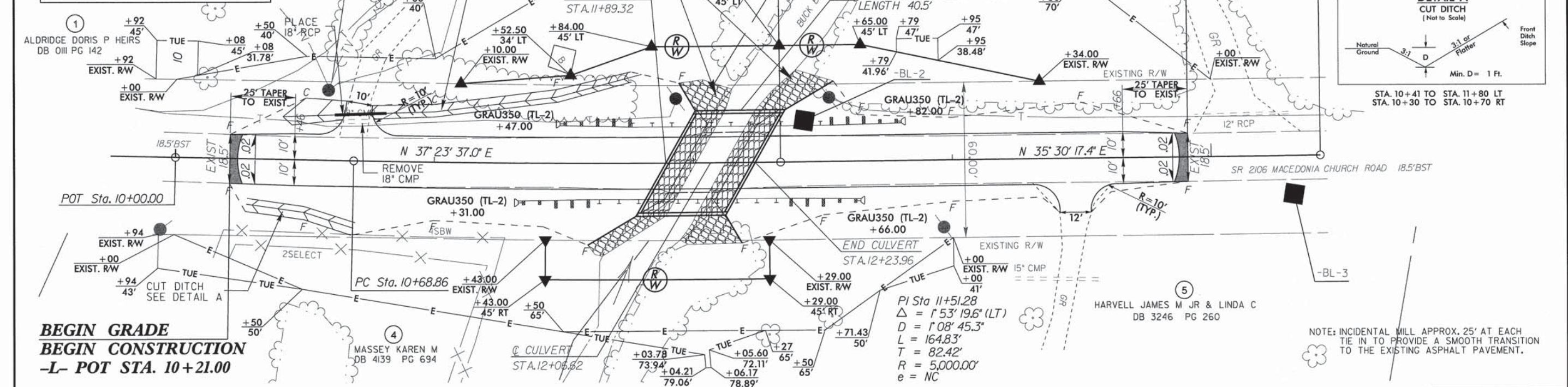
8/17/99

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+36.57	14.82 RT

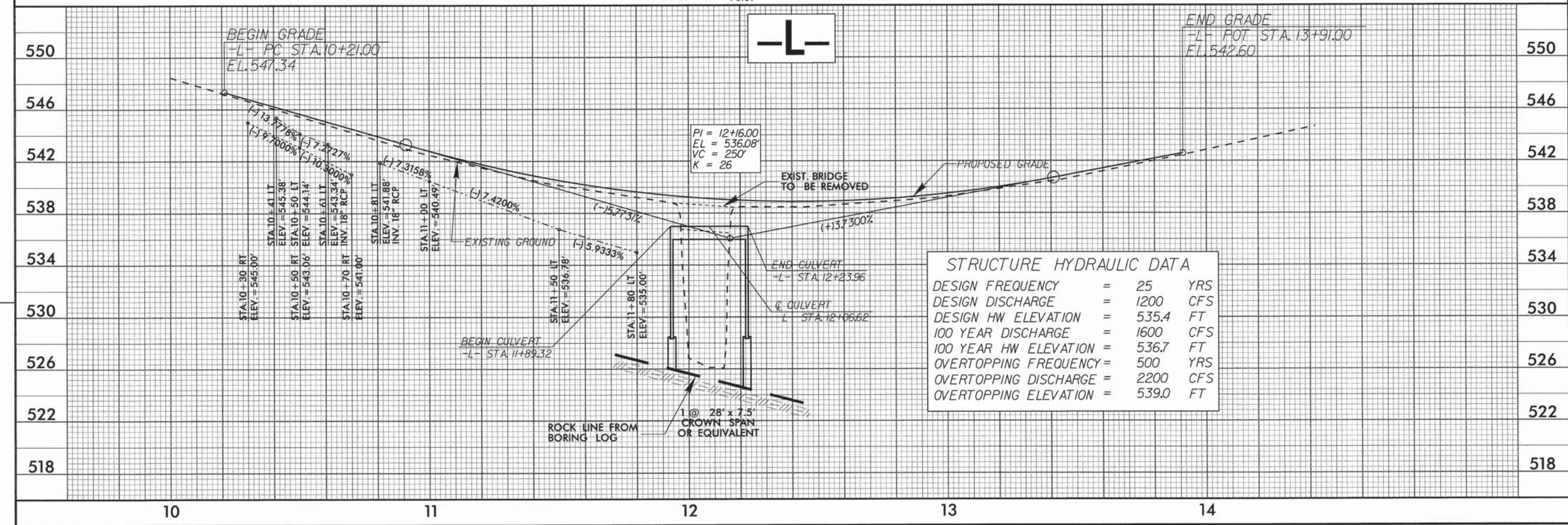
ROSE JAMES H & WIFE MARJORIE A
 DB 4125 PG 489

PROJECT REFERENCE NO. 17BPJ0R15 SHEET NO. 4
 RW SHEET NO.
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 30932
 NORTH CAROLINA PROFESSIONAL SEAL 29185
 4/15/13



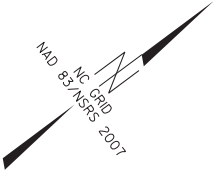
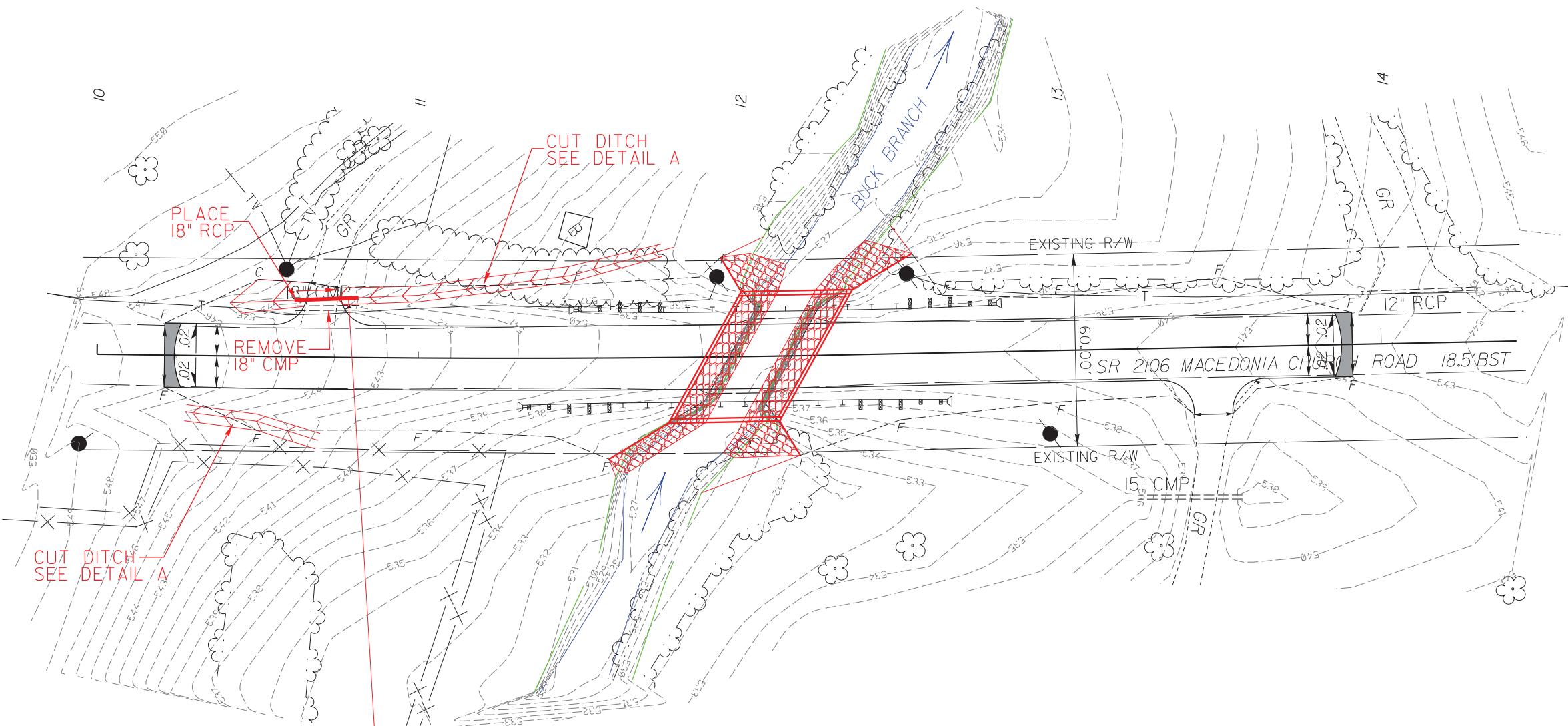
STA. 10+41 TO STA. 11+80 LT
 STA. 10+30 TO STA. 10+70 RT

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



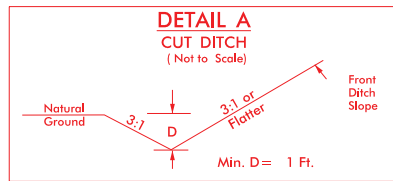
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PROJECT REFERENCE NO. 17BPJO.R.15	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

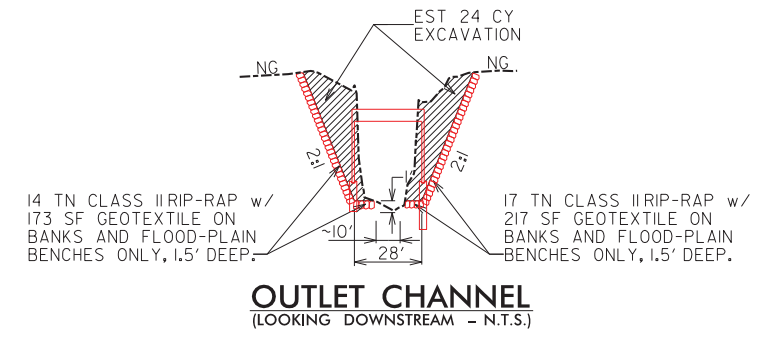
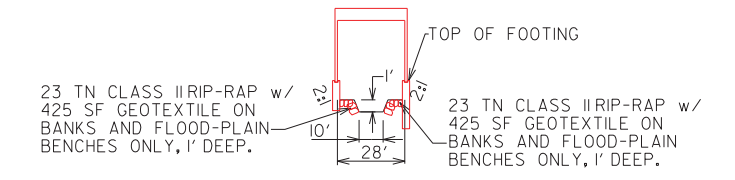
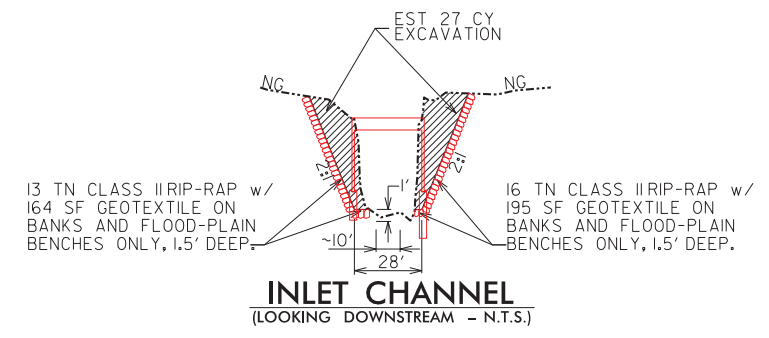


Inv. In = 543.34
Inv. Out = 541.88

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



\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$USE ENAME\$\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

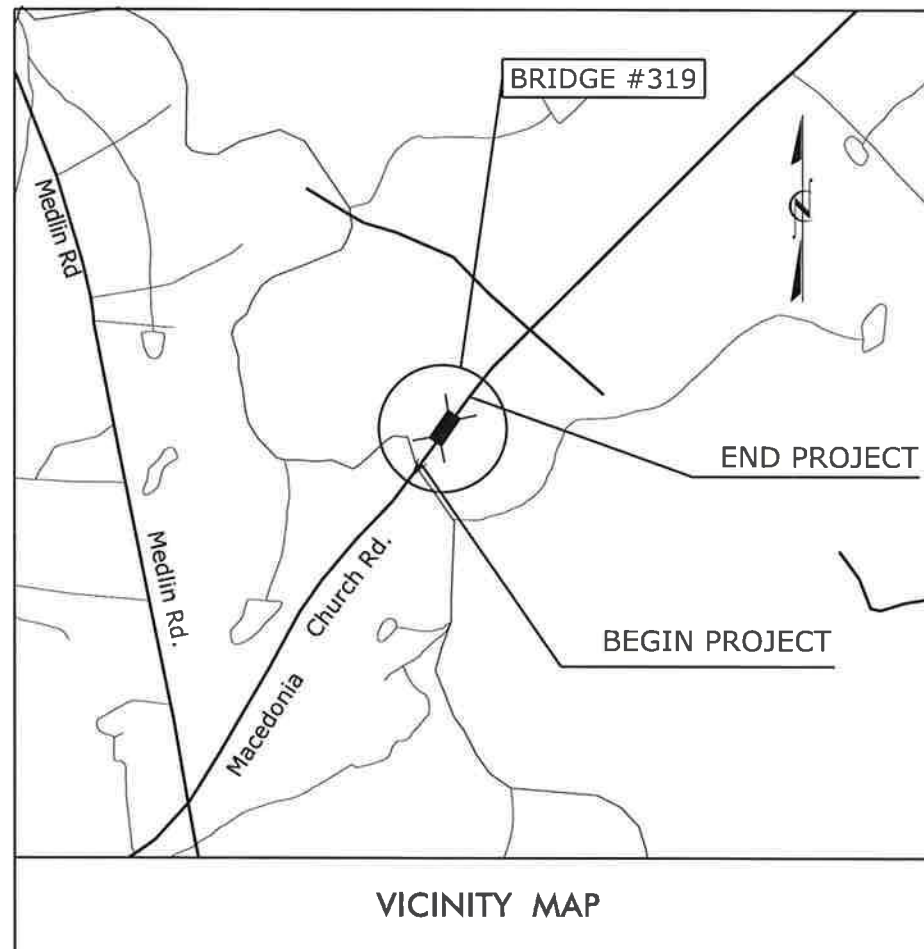
TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

DIVISION 10



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



INDEX OF SHEETS

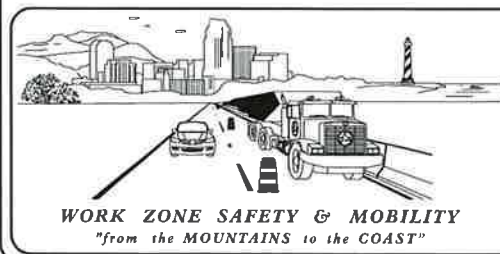
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES
TMP-3	BRIDGE #319 - ROAD CLOSURE & DETOUR ROUTE

SHEET NO.
TMP-1

WBS 17BP.10.R.15

TRAFFIC MANAGEMENT STRATEGY

PROPOSED REPLACEMENT OF BRIDGE #319 WILL BE PERFORMED USING A ROAD CLOSURE WITH OFF-SITE DETOUR ROUTE. REFER TO SHEET TMP-2 FOR PHASING.







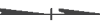





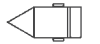
























Stantec
 PLAN PREPARED BY:
 Stantec Consulting Services Inc.
 801 Jones Franklin Road-Suite 300
 Raleigh, NC 27606
 Tel: 919.851.6866
 Fax: 919.851.7024
 www.stantec.com

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

APPROVED: *Betsy L. Watson*
 DATE: 4/10/13

4/1/2013 U:\Union319\TrafficControl\TCPlan\Drawings\17BP.10.R.15.TC_TMP_01_TITLE.dgn

LEGEND

-  DIRECTION OF TRAFFIC FLOW
 -  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
 -  WORK AREA
 -  PAVEMENT REMOVAL
 -  NORTH ARROW
 -  TYPE III BARRICADE
 -  CONE
 -  DRUM
 -  SKINNY DRUM
 -  TUBULAR MARKER
 -  CHANGEABLE MESSAGE SIGN (CMS)
 -  FLAGGER
 -  AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
 -  FLASHING ARROW BOARD (TYPE C)
 -  LAW ENFORCEMENT
 -  TRUCK MOUNTED ATTENUATOR (TMA)
 -  PORTABLE CONCRETE BARRIER (PCB)
 -  TEMPORARY CRASH CUSHION
 -  TEMPORARY SHORING
 -  WORK ZONE SIGN-PORTABLE
 -  WORK ZONE SIGN-STATIONARY
 -  WORK ZONE SIGN-STATIONARY OR PORTABLE
- SIGNALS**
-  EXISTING
 -  PROPOSED
 -  TEMPORARY
- PAVEMENT MARKINGS**
-  EXISTING PAVEMENT MARKING (GRAY)
 -  SKIP LINES
 -  MINI-SKIP LINES
 -  SOLID LINES
- PAVEMENT MARKING SYMBOLS**
-  PAVEMENT MARKING SYMBOLS
 -  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
 -  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS
- PAVEMENT MARKERS**
-  CRYSTAL/CRYSTAL
 -  CRYSTAL/RED
 -  YELLOW/YELLOW

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:


<u>STD. NO.</u>	<u>TITLE</u>
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 U:\Union3191\TrafficControl\TCP\Plansheets\17BP.10.R.15.TC.TMP.01A.RDWYSTDSLEEND.dgn bitan

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APPROVED: _____ DATE: _____





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.

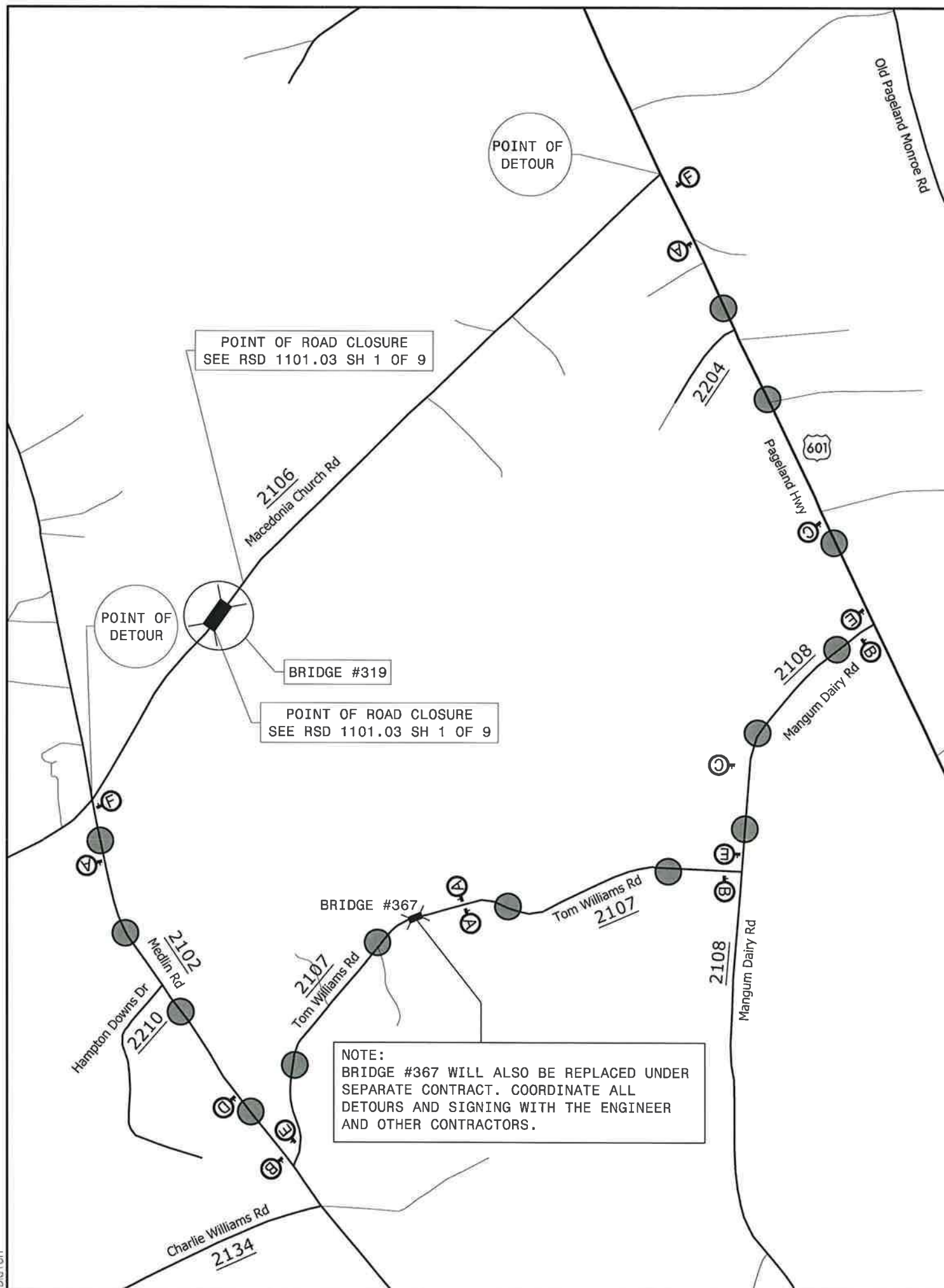
STEP 5:

OPEN SR 1206 TO TRAFFIC.

4/1/2013
Us:\Union319\TrafficControl\TCP\Plansheet\17BP.10.R.15.TC_TMP_02 - GENERAL NOTES.dgn
Blaton

 <p>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</p>	<p>APPROVED: _____ DATE: _____</p> 		<p>GENERAL NOTES AND PHASING</p>
--	--	---	---

4/1/2013
D:\Union319\Tran\FicControl\TCP\Plansheets\17BP.10.R.15_TC_TMP_03_DETOUT ROUTE SHEET.dgn
blaton



- (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"

↗ M5-1 R 21" X 15"
- (D) **DETOUR** M4-8 24" X 12"

↖ M5-1 21" X 15"
- (E) **DETOUR** M4-8 24" X 12"

→ M6-1 21" X 15"
- (F) **END DETOUR** M4-8 A 24" X 18"

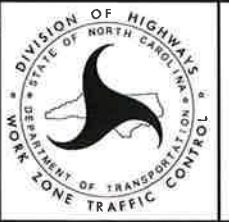


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Fax. (919) 851-7024
www.stantec.com
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APPROVED: _____ DATE: _____

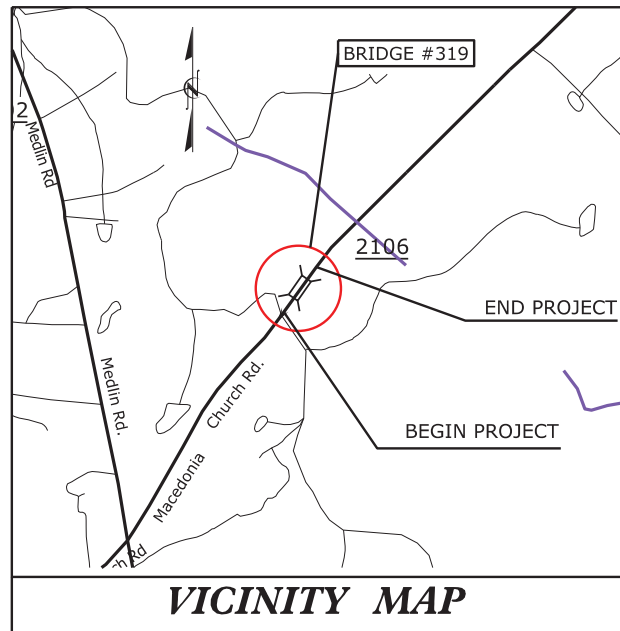
Robert Watson

 4/8/13



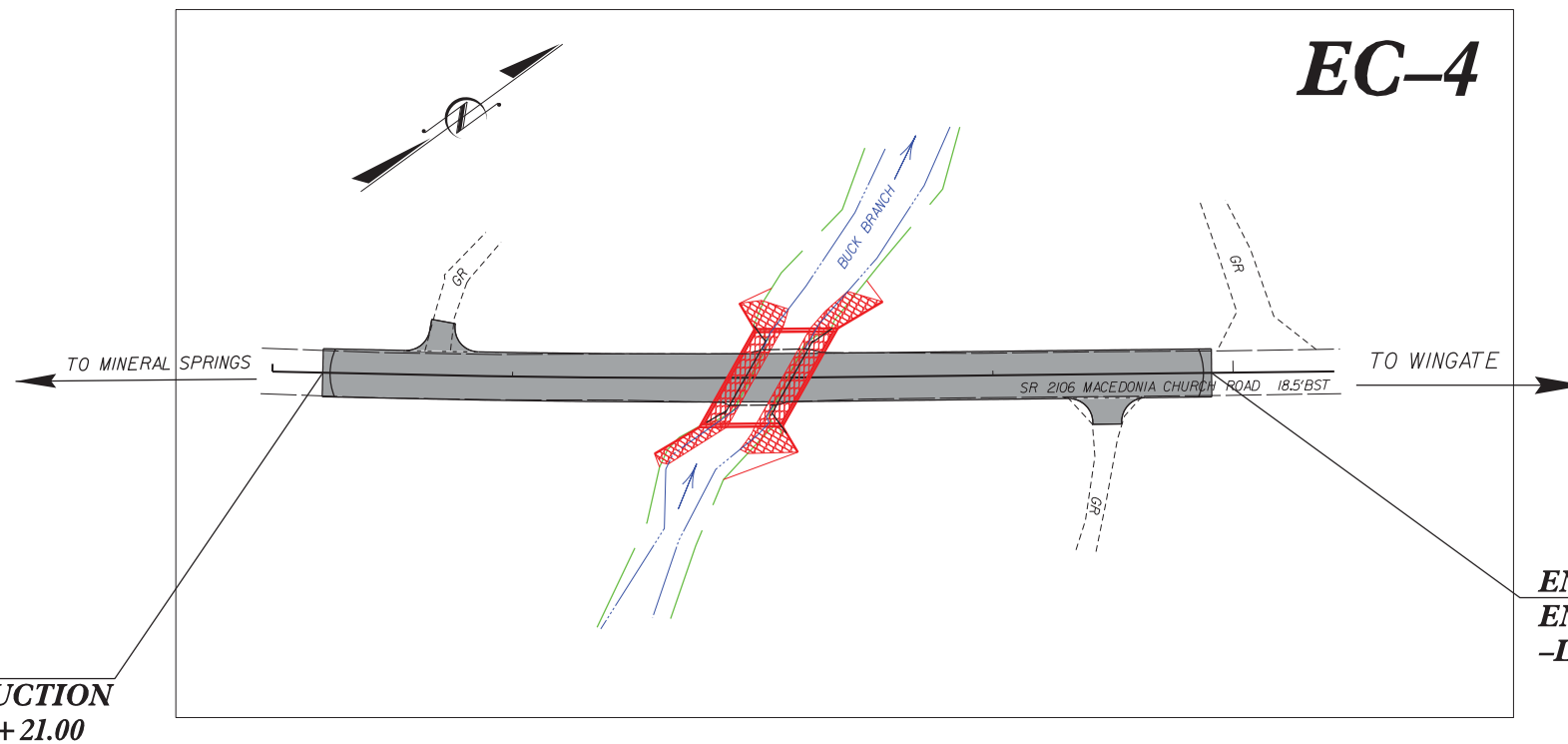
UNION CO. BRIDGE #319
ROAD CLOSURE & DETOUR ROUTE

TIP PROJECT: 17BP.10.R.15



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**

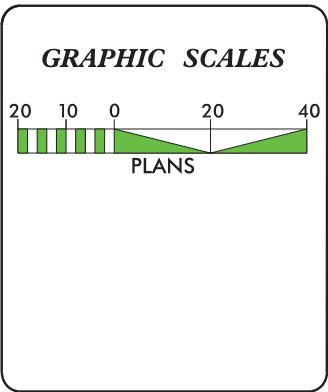


EC-4

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	△△△△△
1622.01	Temporary Berms and Slope Drains	—
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle / Coir Fiber Wattle	⌒
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
1634.01	Temporary Rock Sediment Dam Type-A	⊠
1634.02	Temporary Rock Sediment Dam Type-B	⊠
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊓
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊓
1630.04	Stilling Basin	⊠
1630.06	Special Stilling Basin	⊠
	Rock Inlet Sediment Trap:	
1632.01	Type A	A ⊠
1632.02	Type B	B ⊠
1632.03	Type C	C ⊠
	Skimmer Basin	⊠
	Tiered Skimmer Basin	⊠
	Infiltration Basin	⊠

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



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

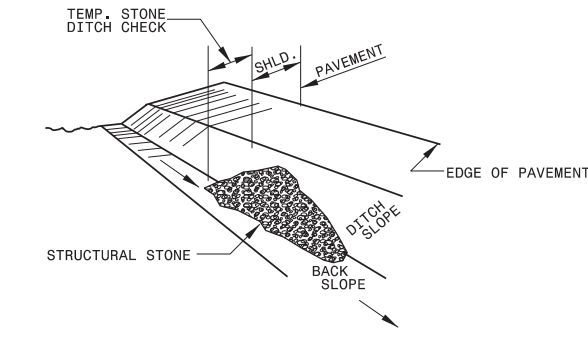
Tel. (919) 381-9900
Fax. (919) 381-9901
www.amec.com
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

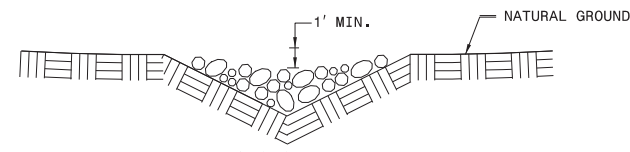
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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 Dam 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	

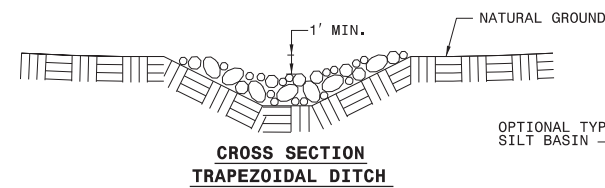
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH

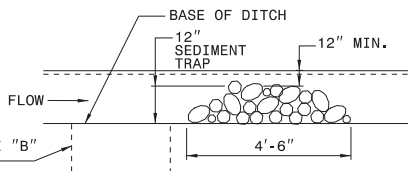


CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

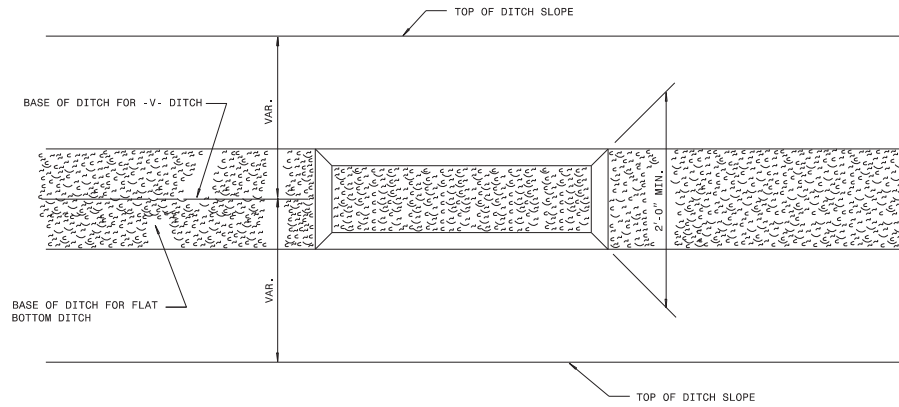
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

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%.

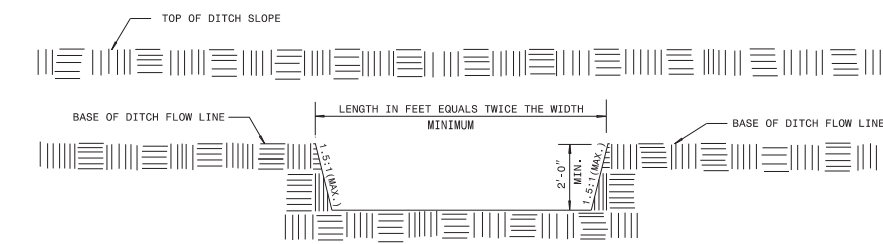


ELEVATION VIEW

SILT BASIN 'B' DETAIL



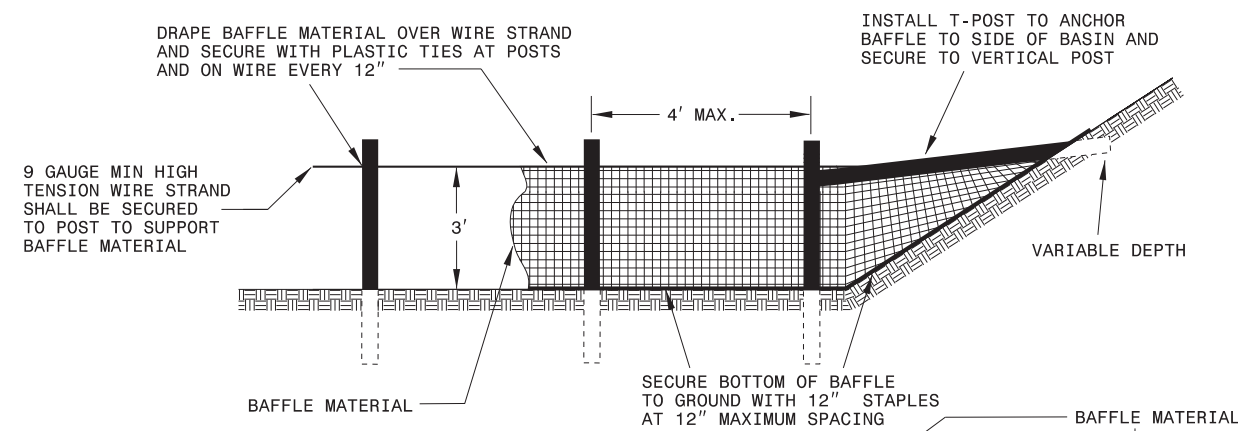
PLAN



ELEVATION

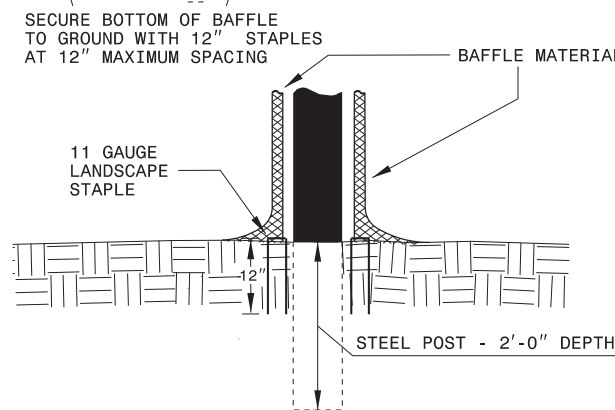
PROJECT REFERENCE NO. 17BP.10.R.15	SHEET NO. EC-2
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER 29185 P. L. HINES
AMEC LICENSE No.F-1253	

COIR FIBER BAFFLE DETAIL



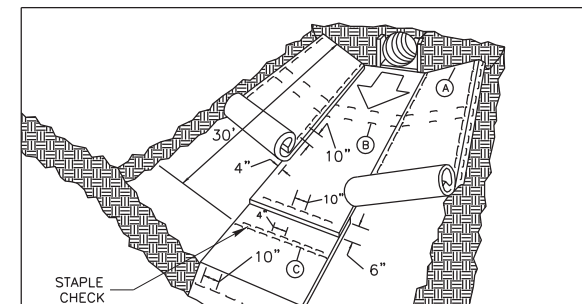
NOTES:

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.

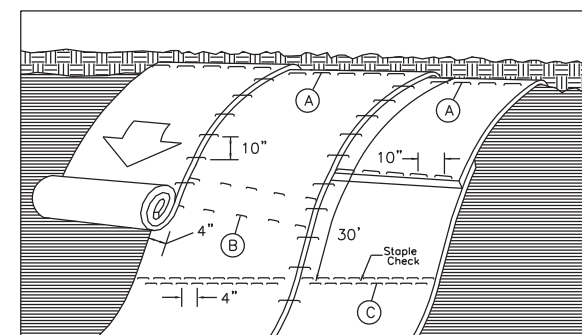


BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12\"/>

MATTING INSTALLATION DETAIL



MATTING IN DITCHES



MATTING ON SLOPES

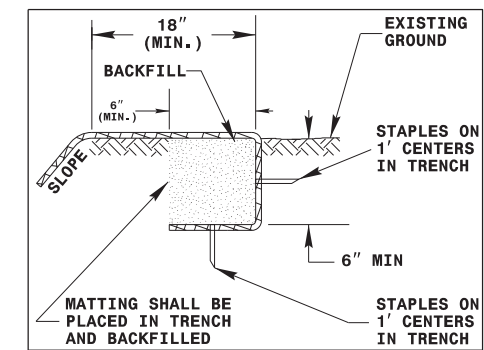


DIAGRAM (A)

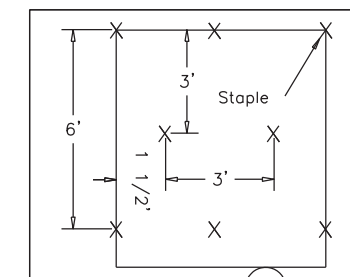


DIAGRAM (B)

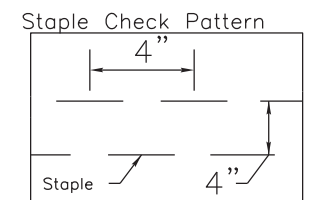


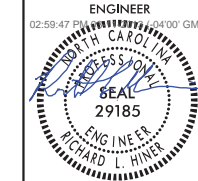
DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSTOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION. STAPLES SHALL BE NO. 11 GAUGE STEEL 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. 17BP10.R15	SHEET NO. EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

SOIL STABILIZATION SUMMARY SHEET

**MATTING FOR EROSION CONTROL
(FOR SLOPE STABILIZATION)**

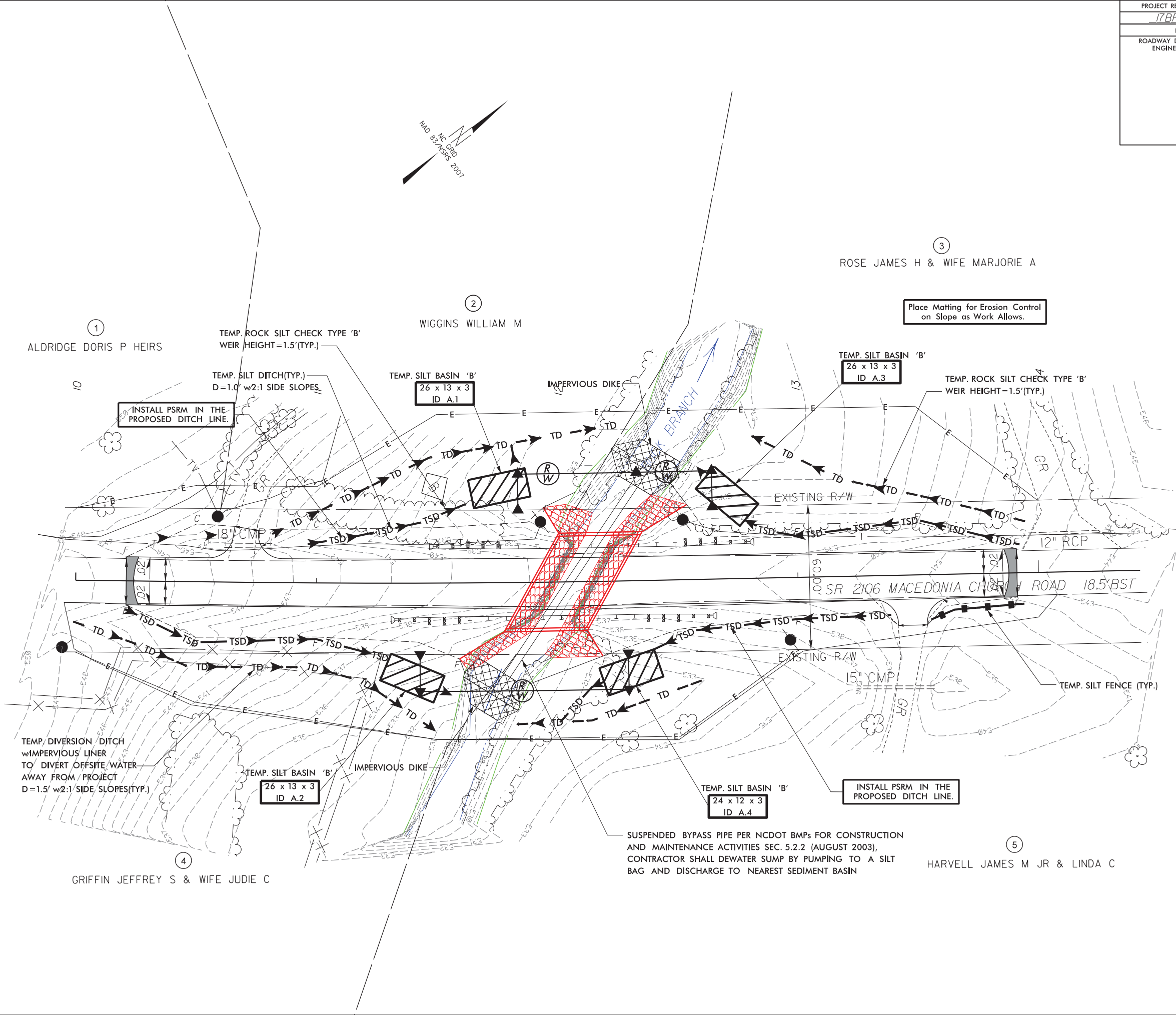
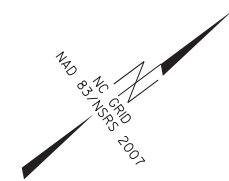
**PERMANENT SOIL REINFORCEMENT MAT
(FOR TEMP. SILT DITCH STABILIZATION)**

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
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 PRGM 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

PROJECT REFERENCE NO. 17BP10.R.15	SHEET NO. EC-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



1 ALDRIDGE DORIS P HEIRS

2 WIGGINS WILLIAM M

3 ROSE JAMES H & WIFE MARJORIE A

TEMP. DIVERSION DITCH w/ IMPERVIOUS LINER TO DIVERT OFFSITE WATER AWAY FROM PROJECT D=1.5' w/2:1 SIDE SLOPES (TYP.)

4 GRIFFIN JEFFREY S & WIFE JUDIE C

5 HARVELL JAMES M JR & LINDA C

INSTALL PSRM IN THE PROPOSED DITCH LINE.

Place Matting for Erosion Control on Slope as Work Allows.

TEMP. SILT BASIN 'B' 26 x 13 x 3 ID A.3

TEMP. SILT BASIN 'B' 26 x 13 x 3 ID A.2

TEMP. SILT BASIN 'B' 24 x 12 x 3 ID A.4

SUSPENDED BYPASS PIPE PER NCDOT BMPs FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES SEC. 5.2.2 (AUGUST 2003), CONTRACTOR SHALL DEWATER SUMP BY PUMPING TO A SILT BAG AND DISCHARGE TO NEAREST SEDIMENT BASIN

SYSTEM TIME 8/17/99 10:00 AM

09/08/99

PROJECT: WBS 17BP.10.R.15

CONTRACT:

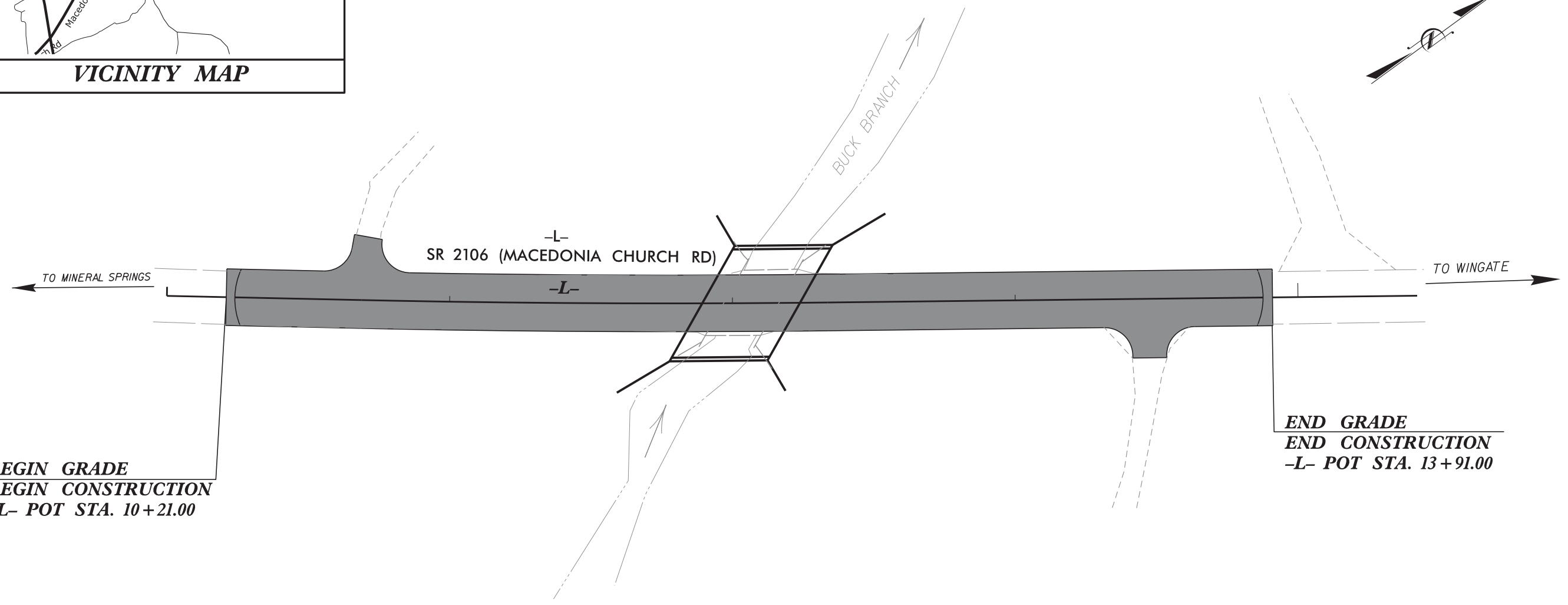
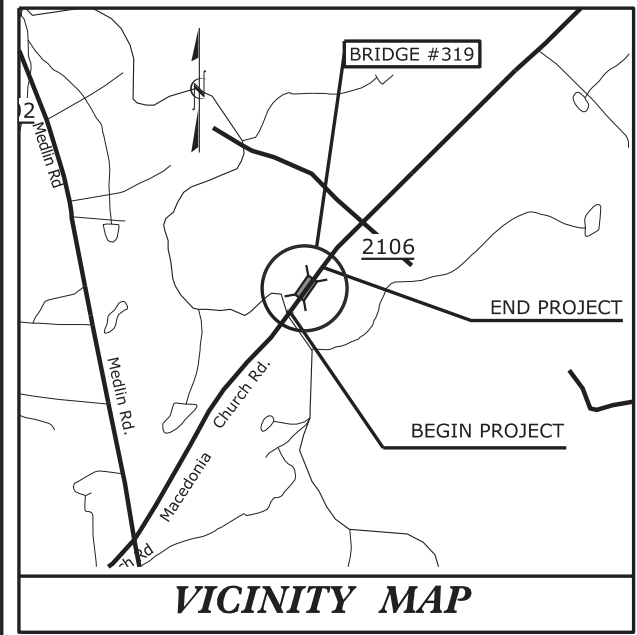
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

UTILITIES BY OTHERS PLANS UNION COUNTY

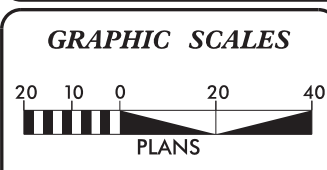
LOCATION: BRIDGE NO. 319 ON SR 2106 (MACEDONIA CHURCH ROAD)
OVER BUCK BRANCH

TYPE OF WORK: AERIAL TELEPHONE & POWER



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

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



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
7/08/2012

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

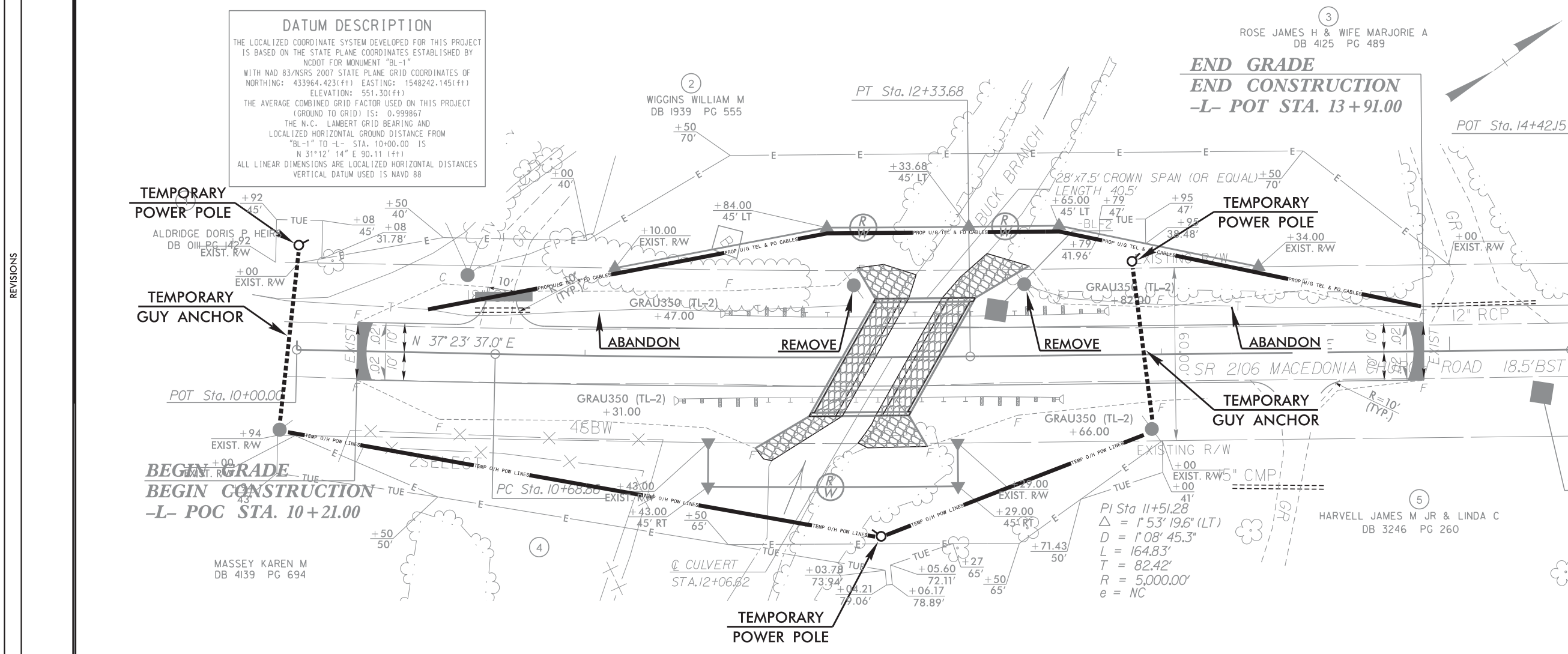
\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DDN \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$

UTILITIES BY OTHERS

NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

V&M Vaughn & Melton Consulting Engineers logo and office addresses in Asheville, Knoxville, Middleboro, and Spartanburg.

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: 433964.4231(fft) EASTING: 1548242.145(fft) ELEVATION: 551.30(fft) 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 (fft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



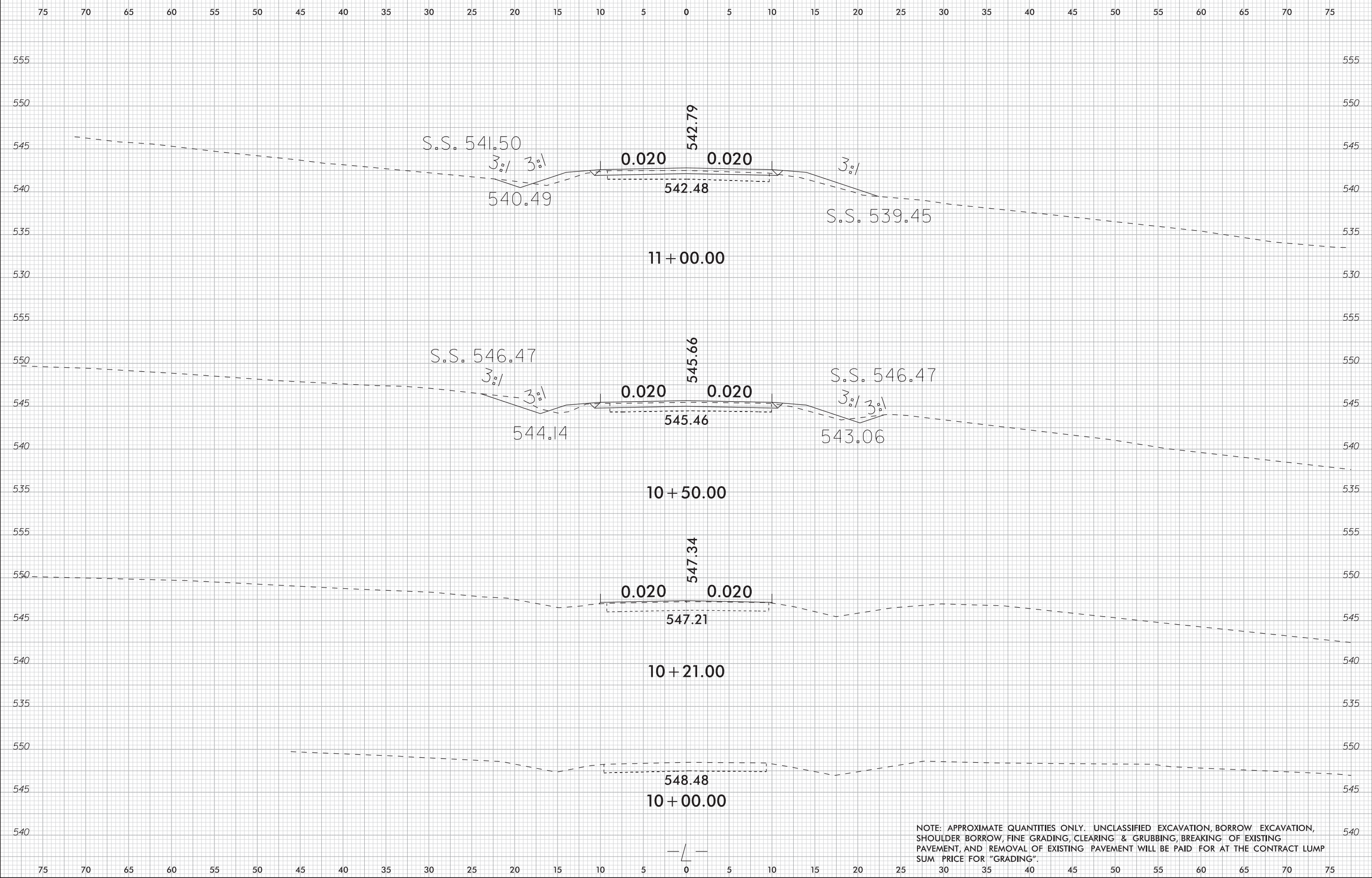
ROSE JAMES H & WIFE MARJORIE A DB 4125 PG 489

MASSEY KAREN M DB 4139 PG 694

HARVELL JAMES M JR & LINDA C DB 3246 PG 260

REVISIONS

Vertical list of revision numbers on the left margin.



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".

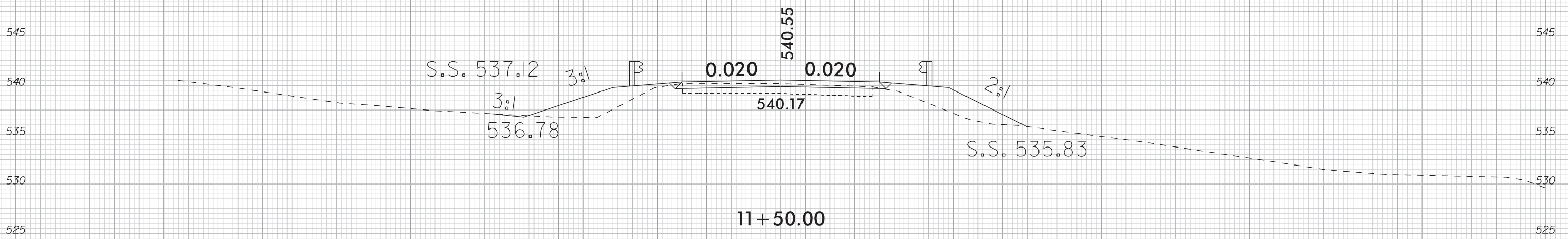
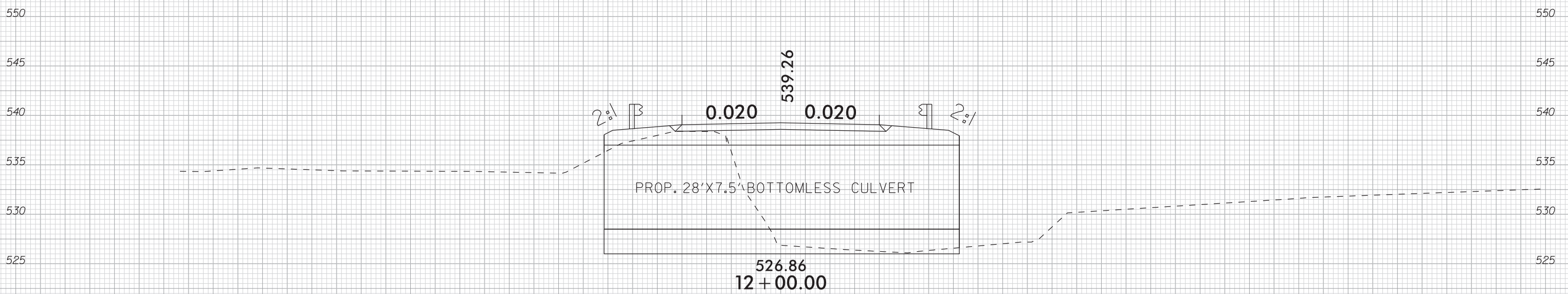
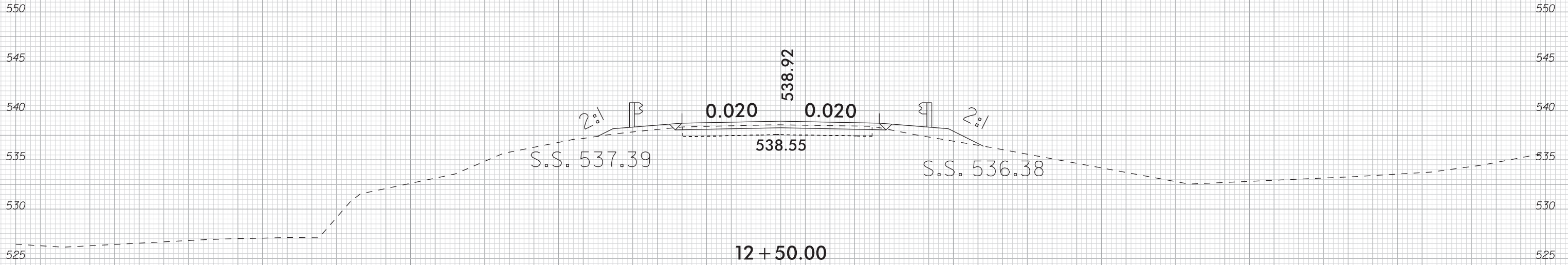
8/23/99



PROJ. REFERENCE NO.
17BP.10.R.15

SHEET NO.
X-2

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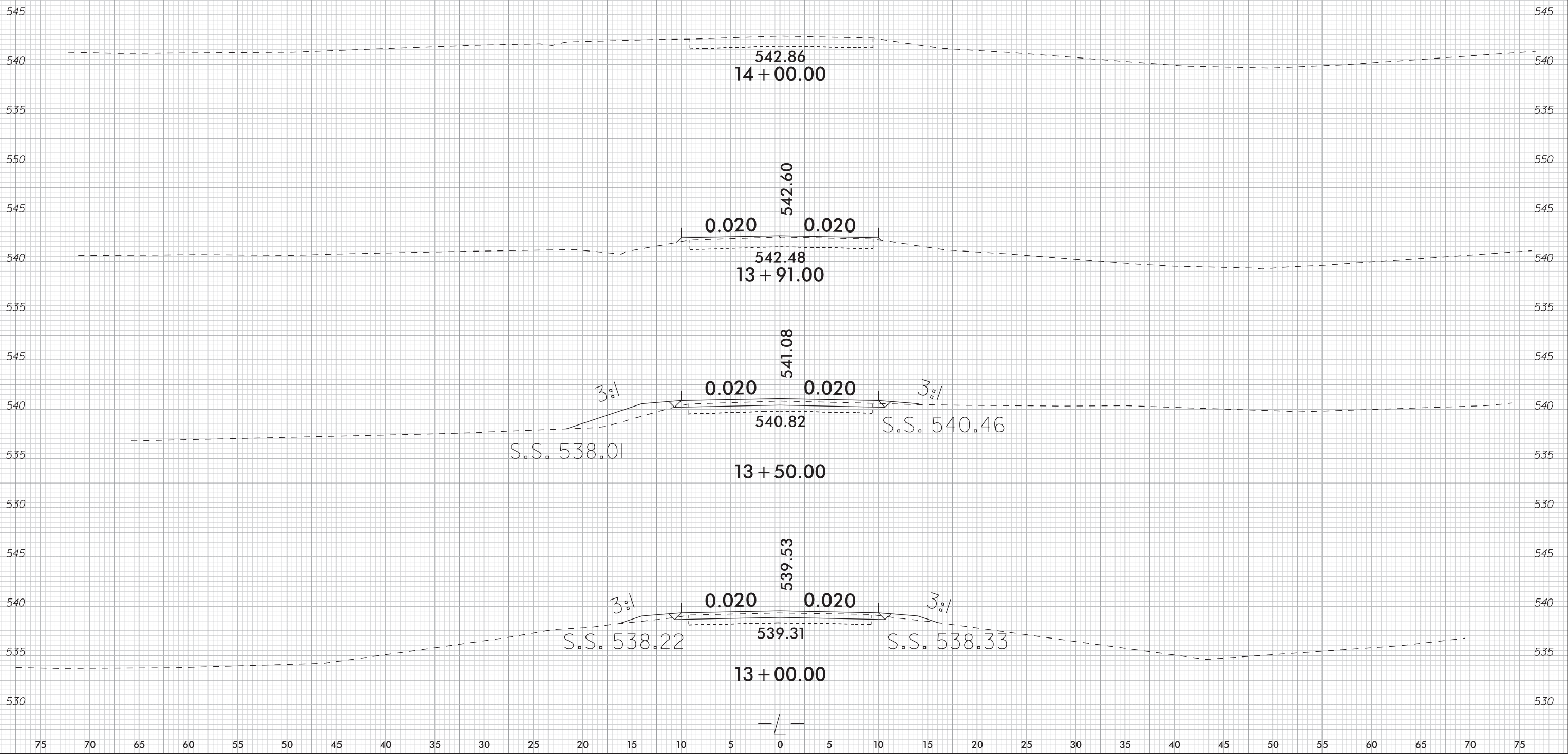


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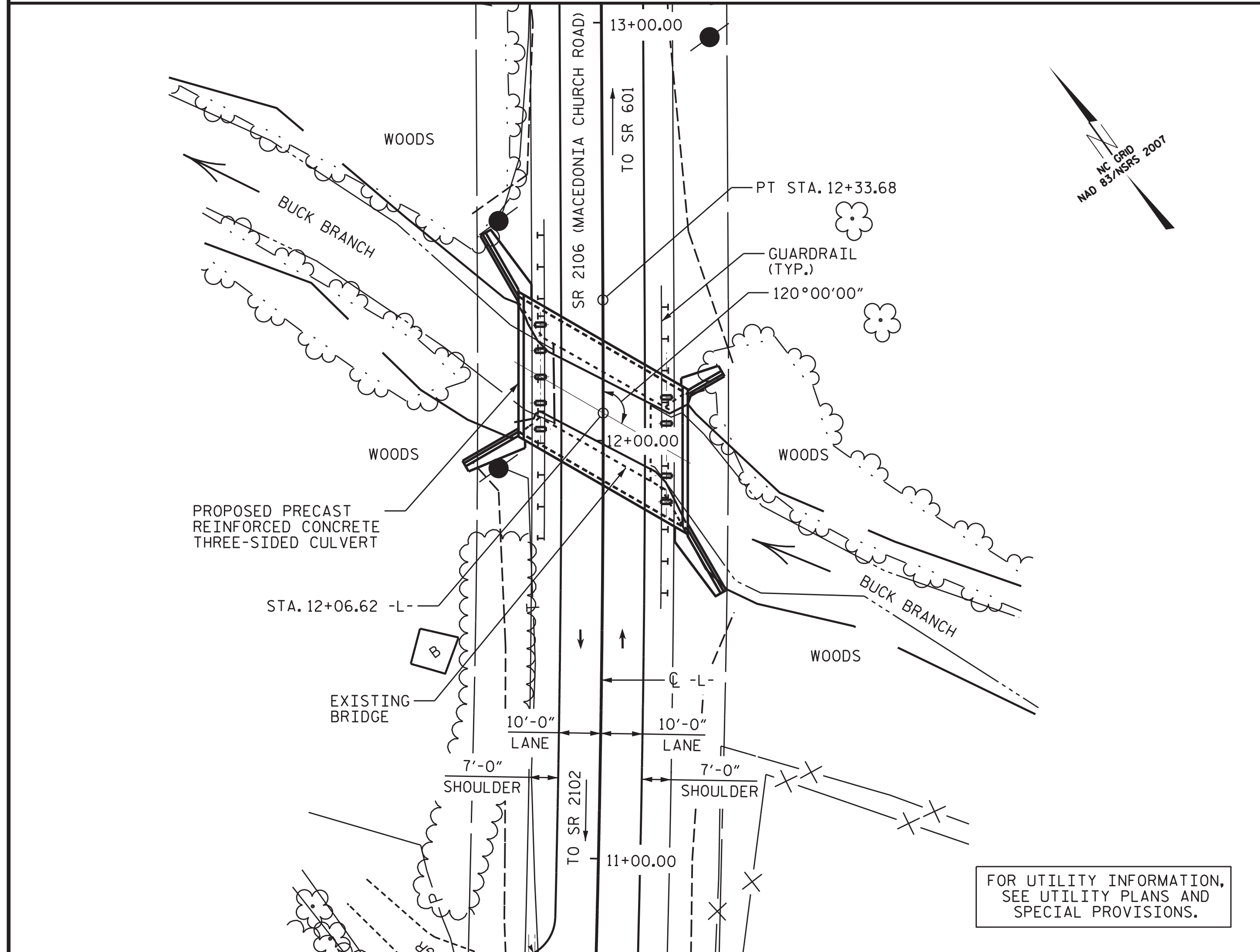
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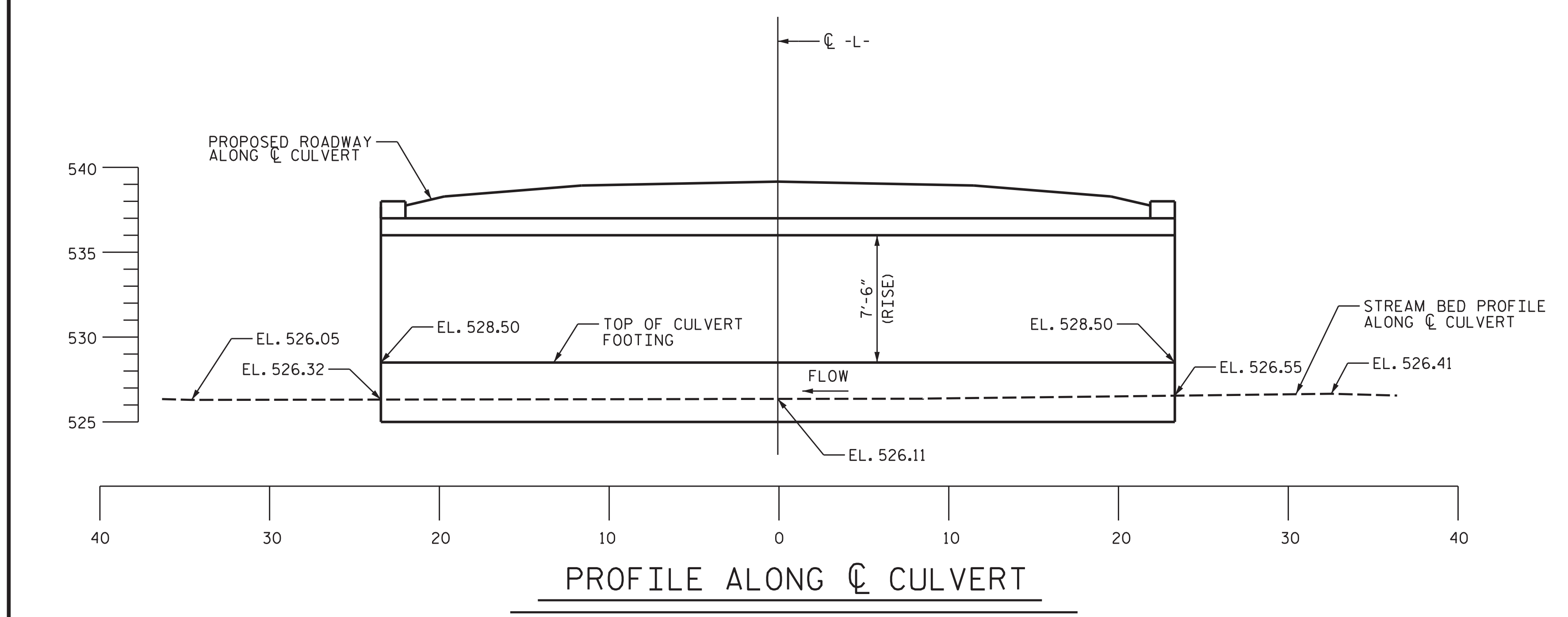
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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



LOCATION SKETCH



PROFILE ALONG Q CULVERT

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 @ STA. 12+06.62 -L- = 539.16
 BED ELEVATION @ STA. 12+06.62 -L- = 526.11
 ROADWAY SLOPES = 2:1 MAX

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NOTES:

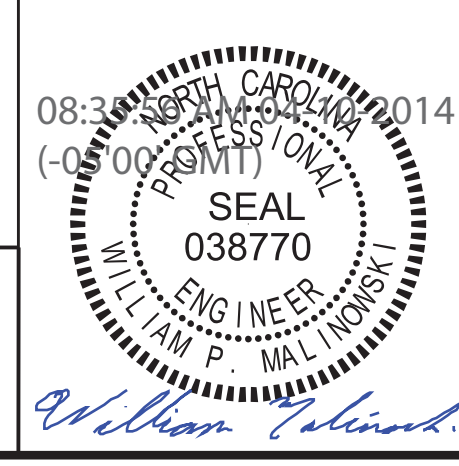
- ASSUMED LIVE LOAD -----HL93 OR ALTERNATE LOADING.
- MAXIMUM DESIGN FILL -----3.0'
- MINIMUM DESIGN FILL -----0.5'
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE 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

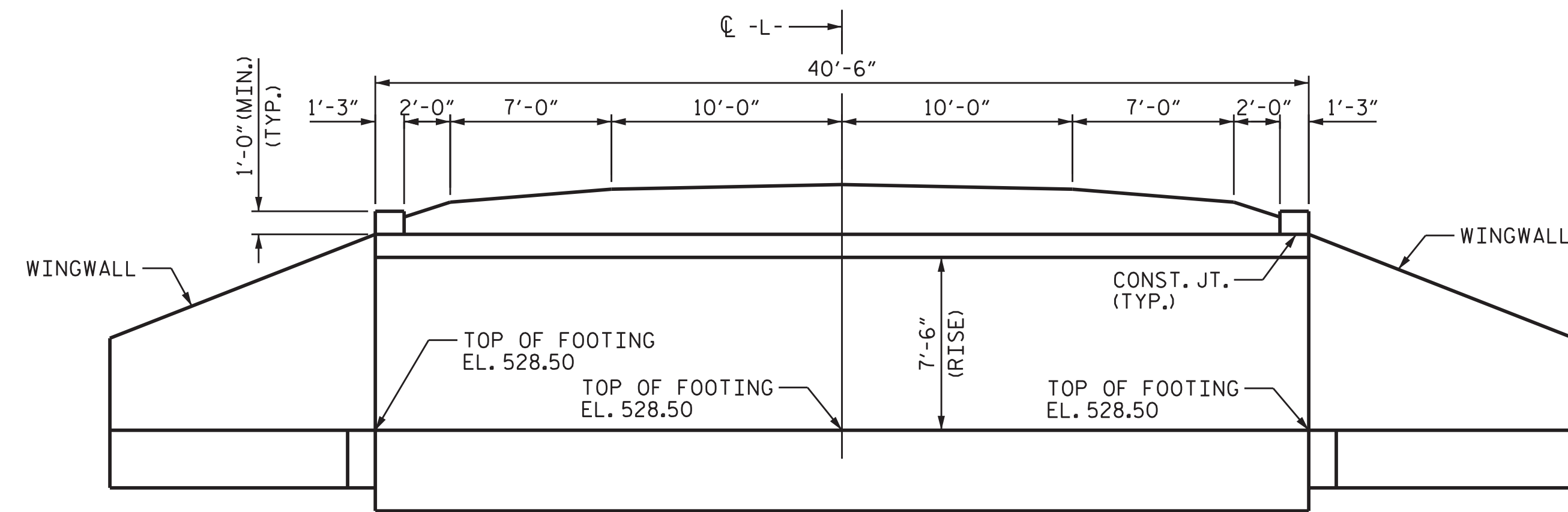


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			5

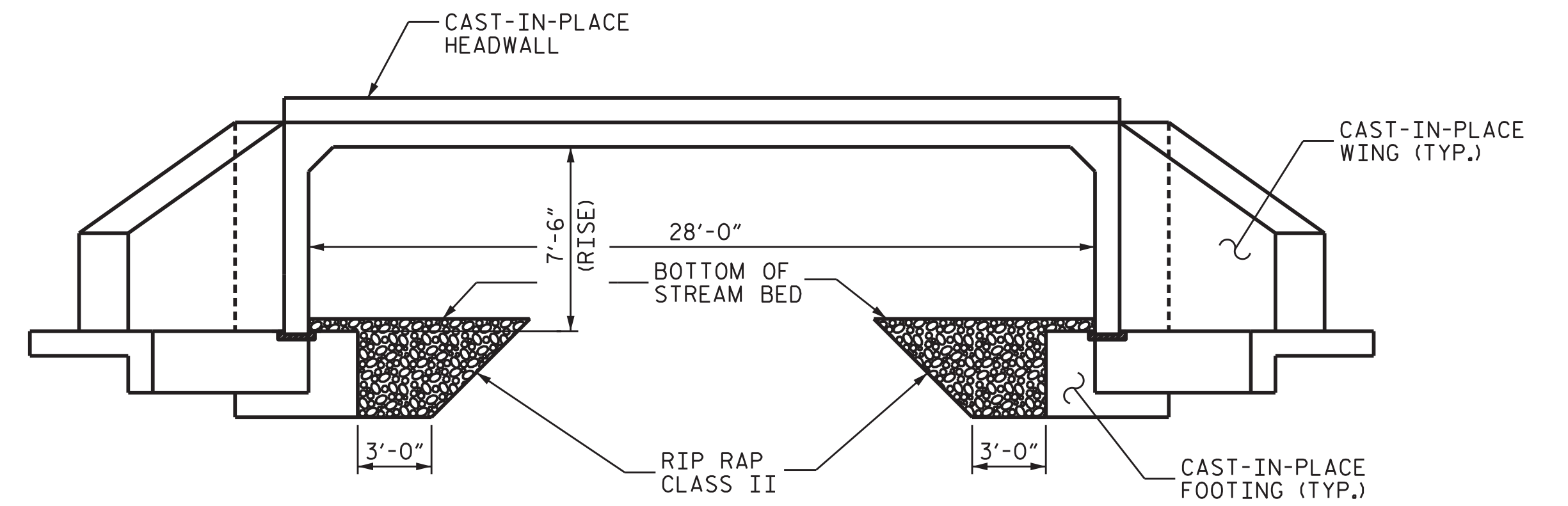
DRAWN BY : JY DATE : 06/22/12
 CHECKED BY : WPM DATE : 06/27/12

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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
 www.amec.com

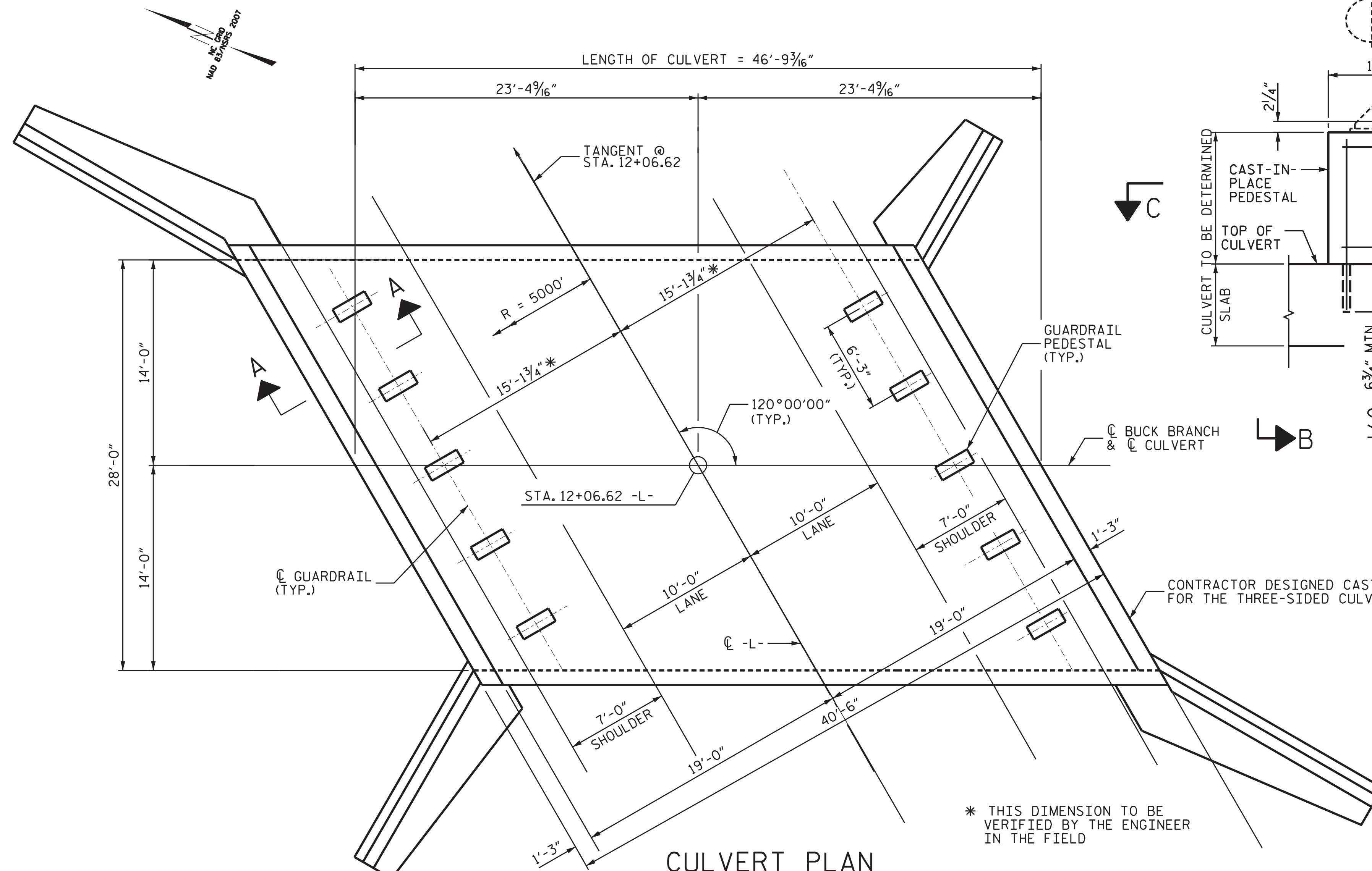
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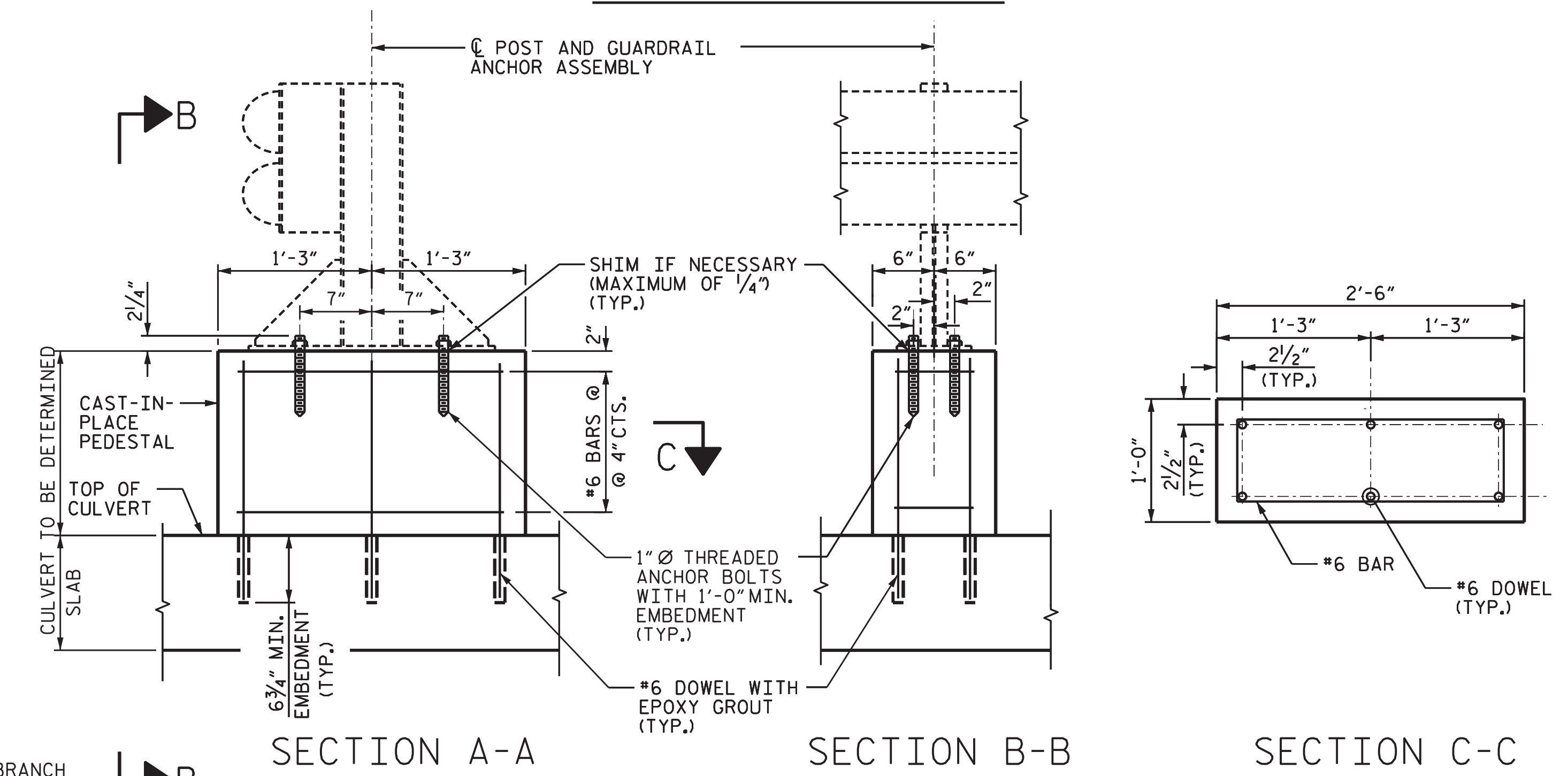
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



CULVERT PLAN



GUARDRAIL PEDESTAL DETAILS

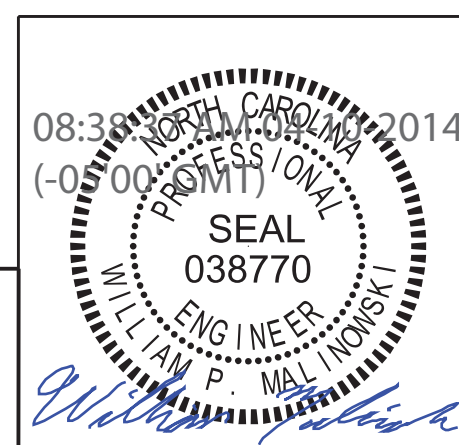
SEE GUARDRAIL AND GUARDRAIL PEDESTAL NOTES ON SHEET 3 OF 5.

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

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 CHECKED BY : WPM DATE : 06/27/12

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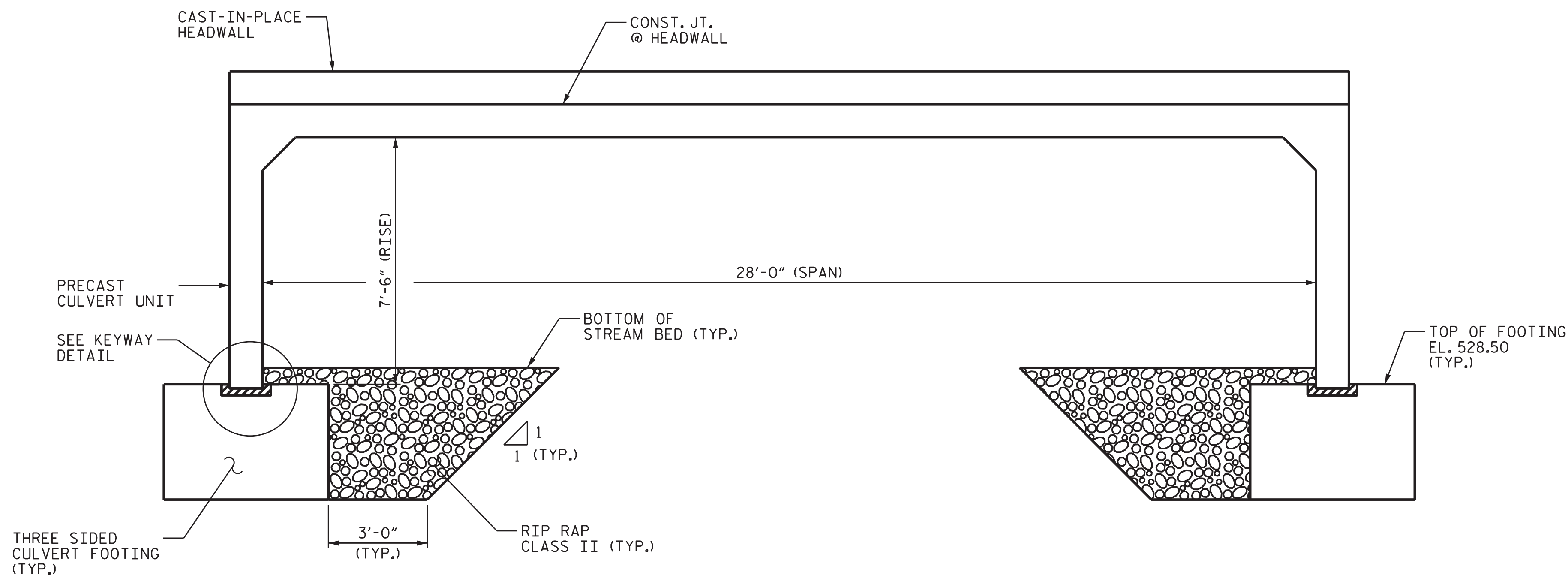


PROJECT NO. 17BP.10.R.15
 UNION COUNTY
 STATION: 12+06.62 -L-

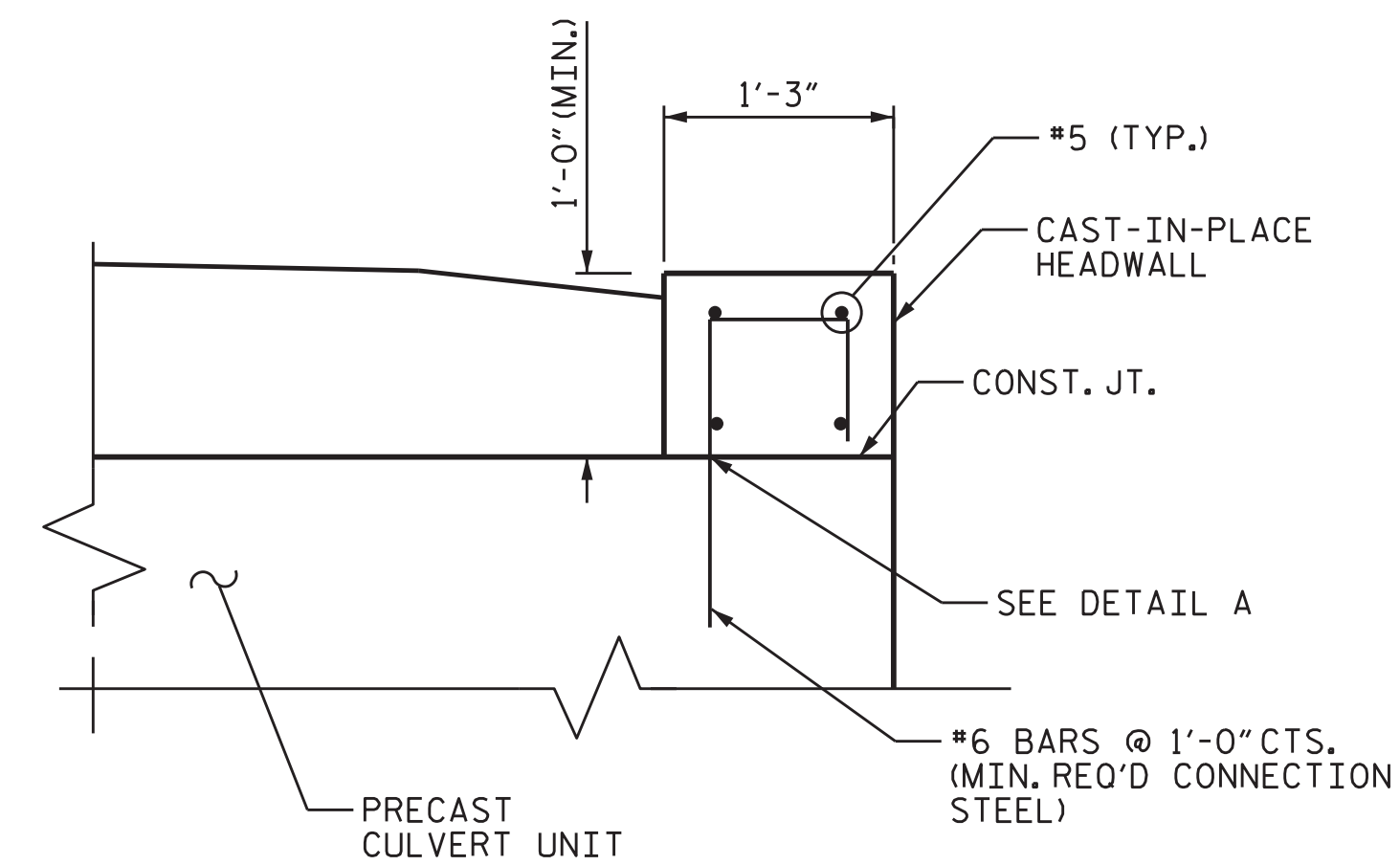
SHEET 2 OF 5 REPLACES BR. NO. 319

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

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



RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

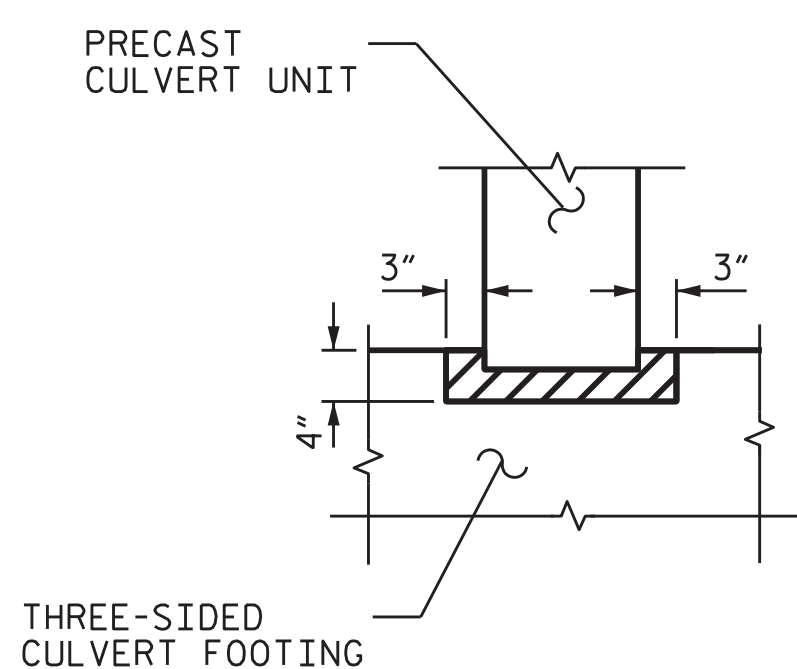


SECTION THRU HEADWALL

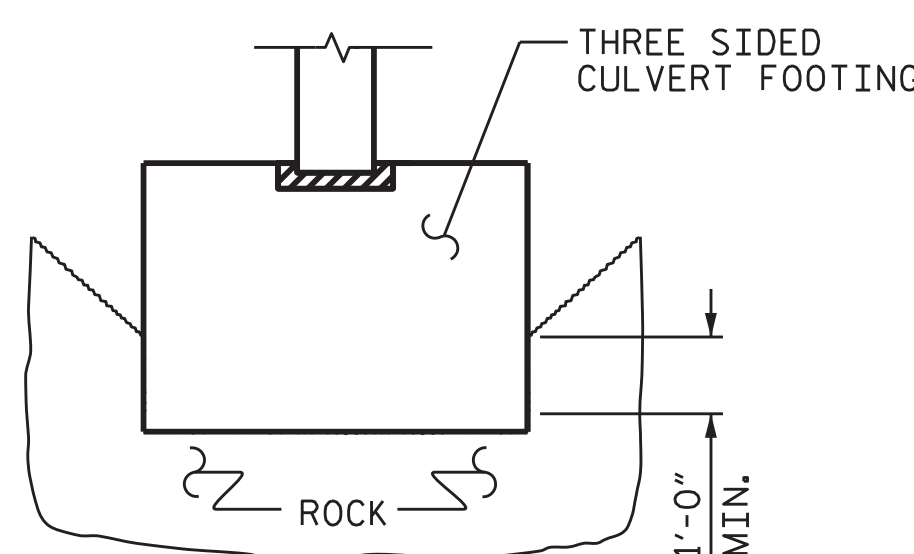


DETAIL A

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.

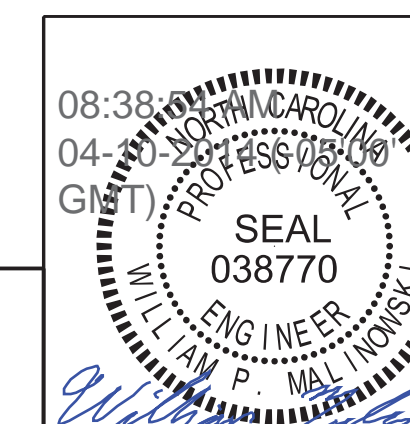
COST OF GUARDRAIL PEDESTALS AND HEADWALL IS INCLUDED IN THE LUMP SUM FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT.

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

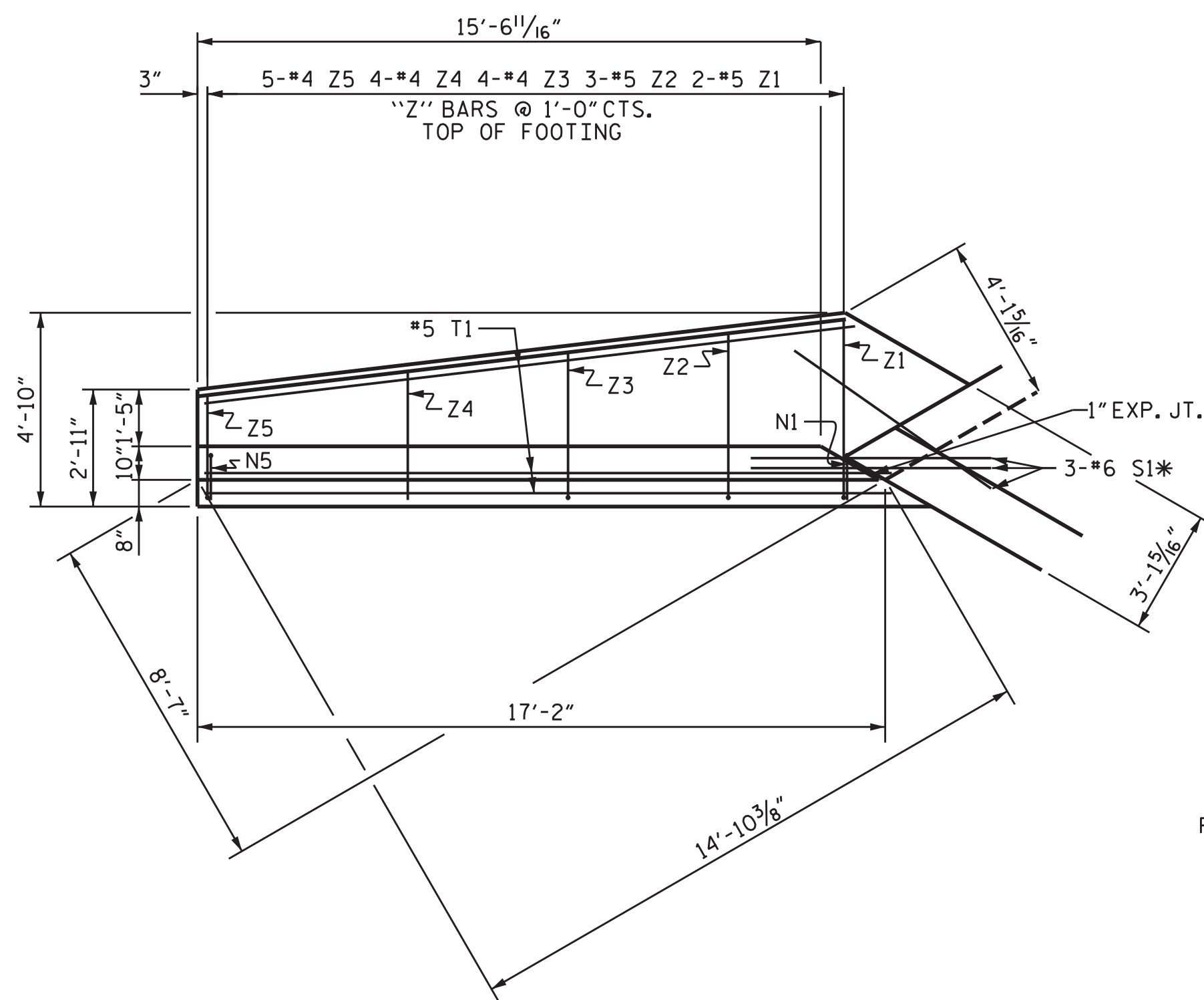


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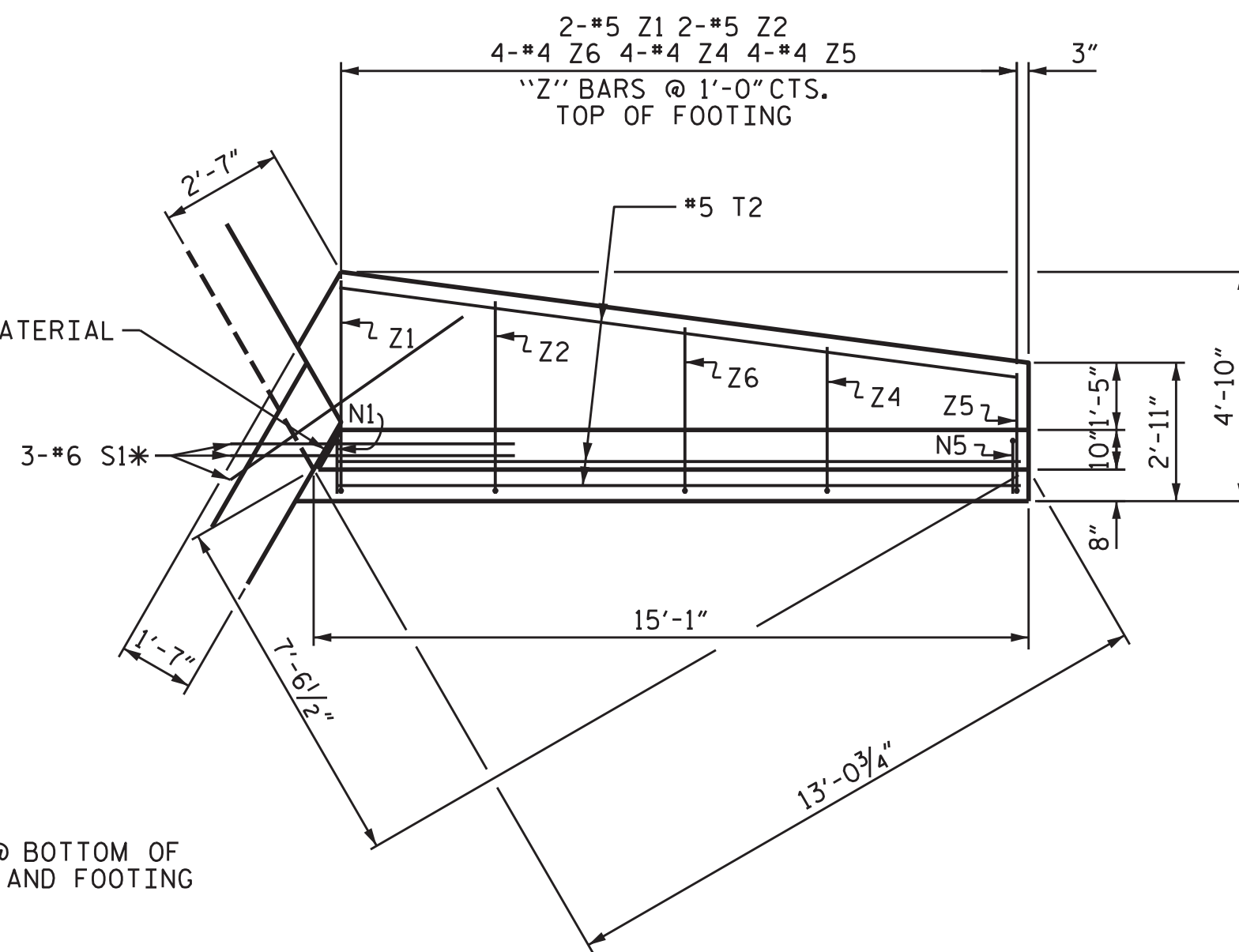
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*****USERNAME*****

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



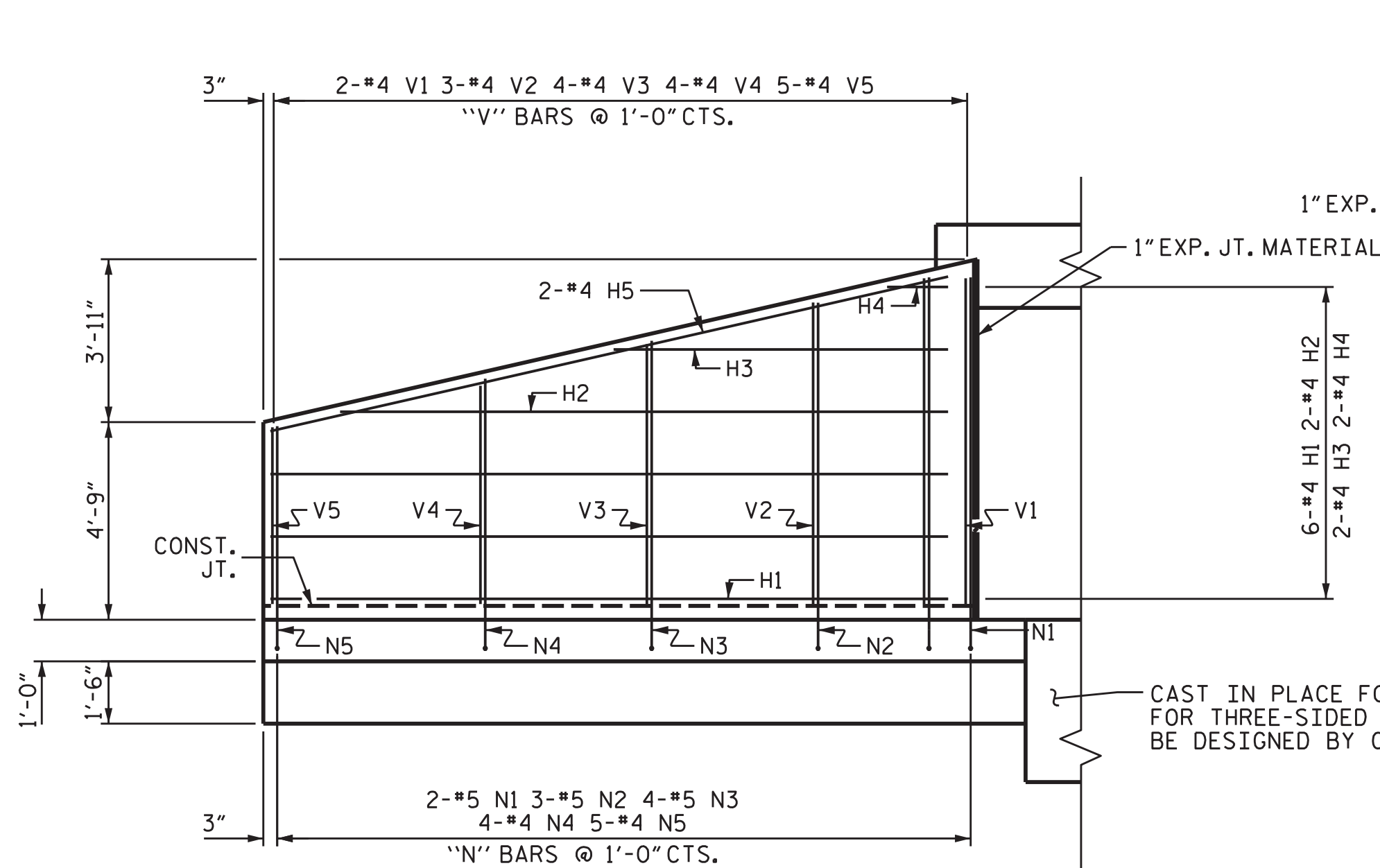
PLAN W1 & W4



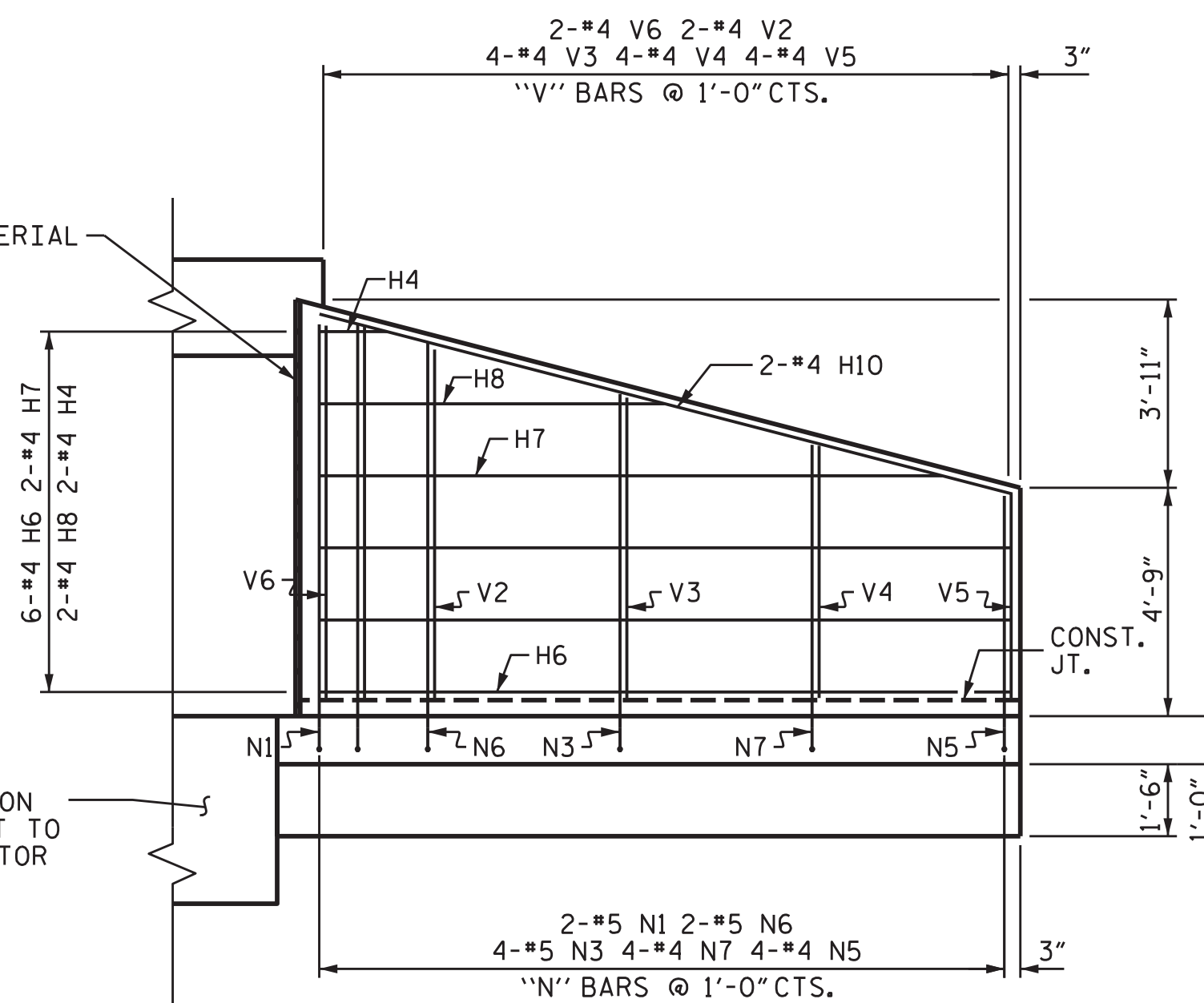
PLAN W3

NOTES:

- CUT BARS IN FIELD TO FIT
- EXTEND T1, T2, 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.



ELEVATION W1 & W4

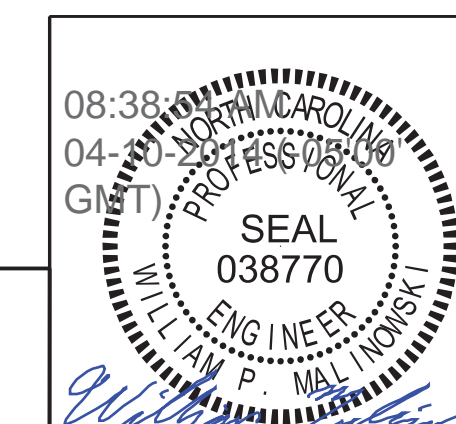


ELEVATION W3

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

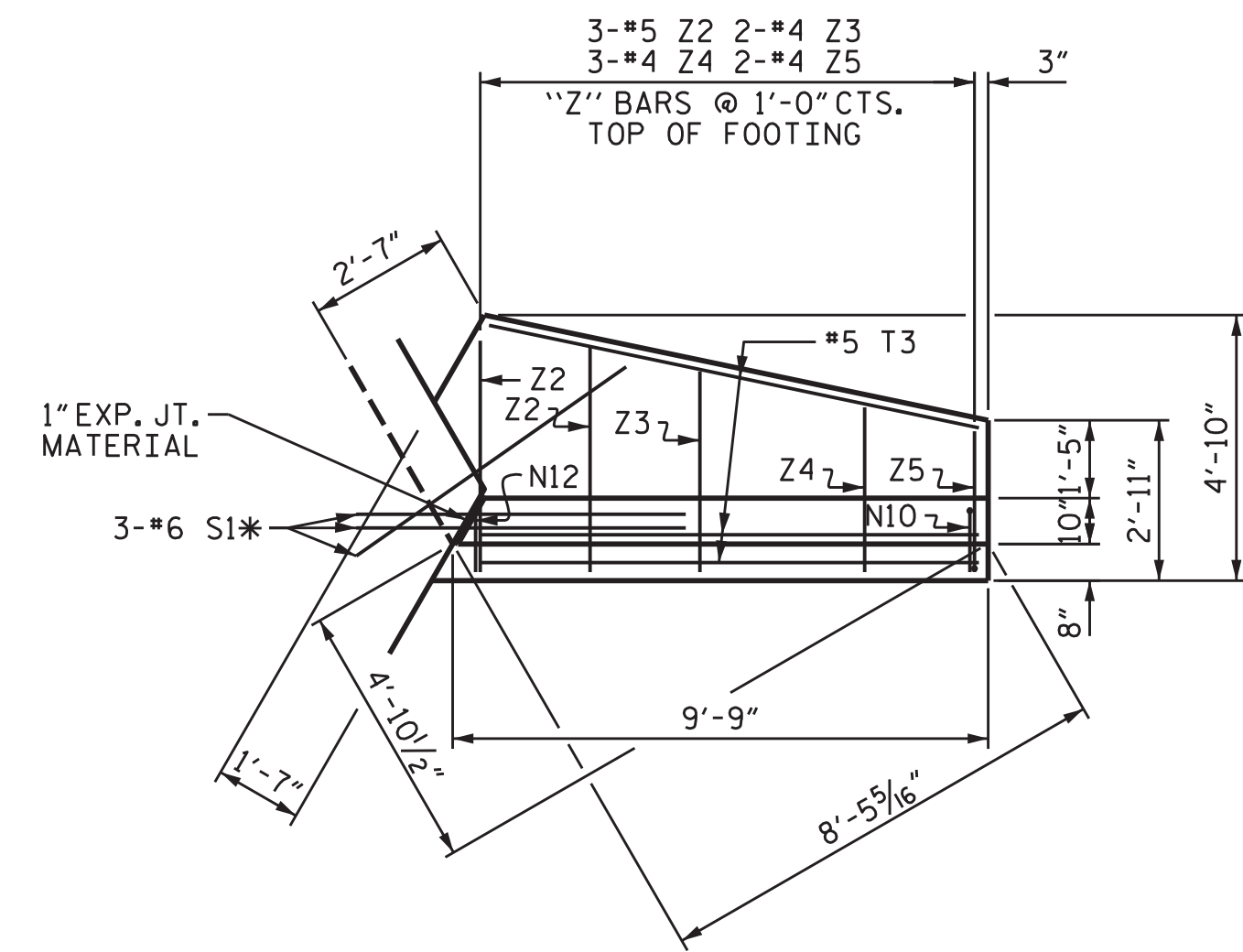


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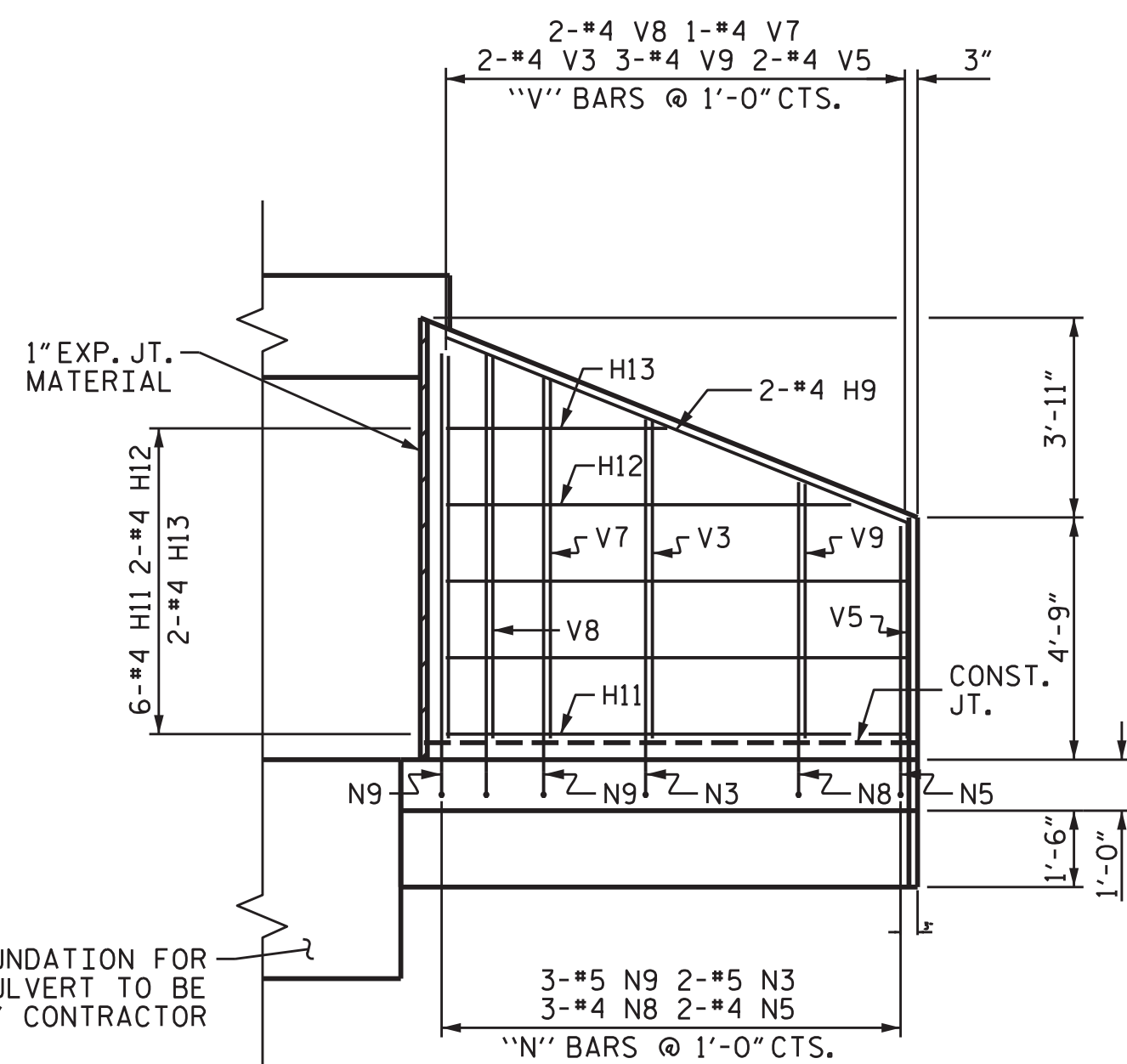
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4	
1			3			TOTAL SHEETS	
2			4			5	

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



* S1 BARS @ BOTTOM OF FLOOR SLAB AND FOOTING

PLAN W2

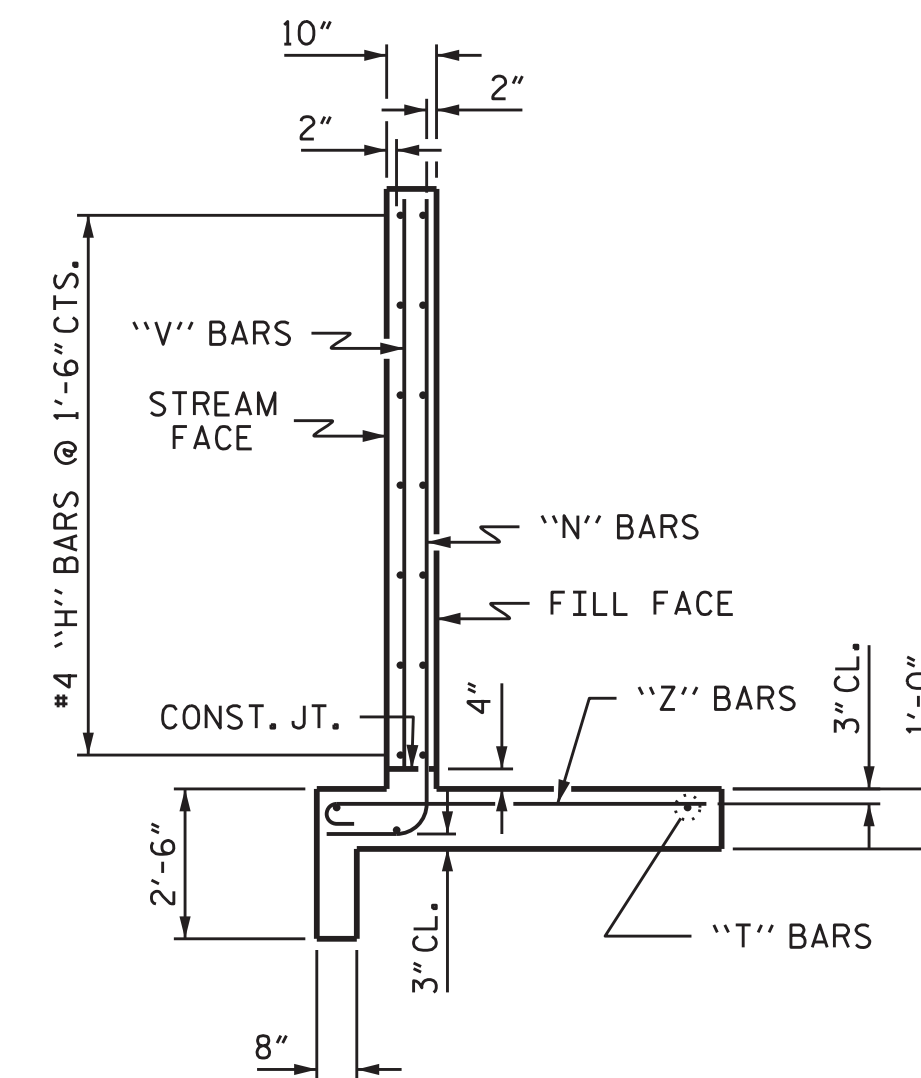


CAST IN PLACE FOUNDATION FOR THREE-SIDED CULVERT TO BE DESIGNED BY CONTRACTOR

ELEVATION W2

NOTES:

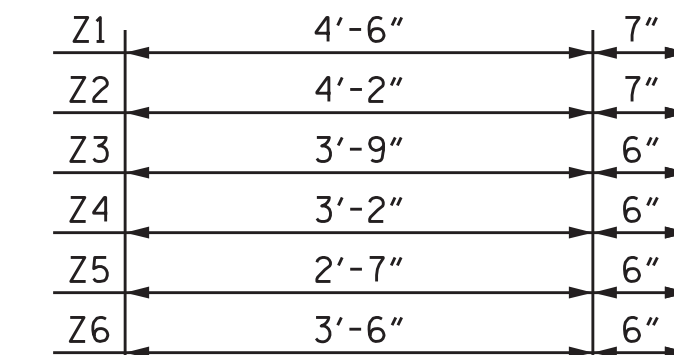
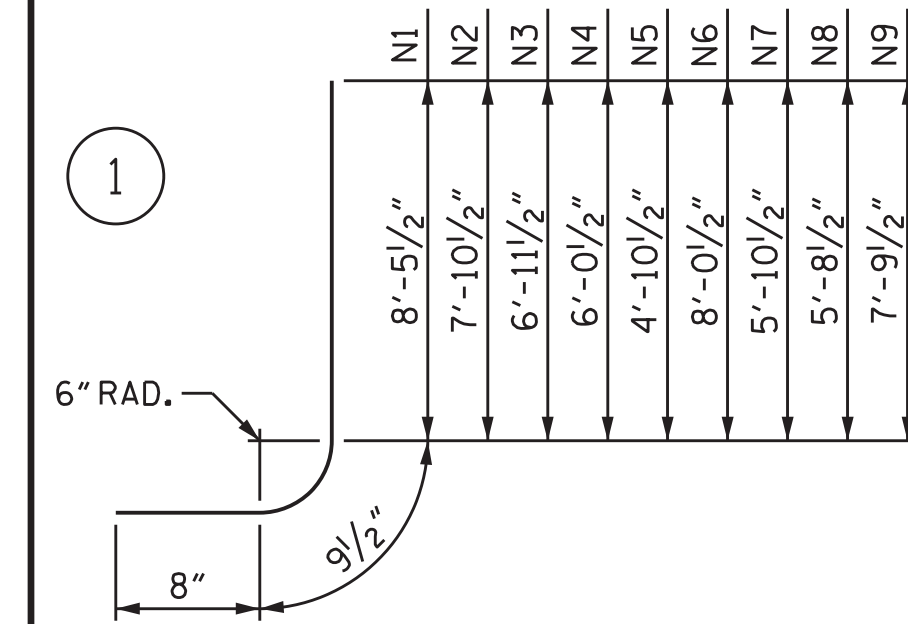
- CUT BARS IN FIELD TO FIT
- EXTEND T3 AND S1 BARS INTO FOUNDATION FOR THREE-SIDED CULVERT
- THE DETAILS OF THE PRECAST THREE-SIDED CULVERT AND THE CONTRACTOR DESIGNED FOUNDATION FOR THE CULVERT ARE UNKNOWN. THE REINFORCING STEEL AND DIMENSIONS PROVIDED ON THIS SHEET CAN BE CONSIDERED THE MINIMUM THAT 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.



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	16'-4"	131
H2	4	#4	STR	14'-8"	39
H3	4	#4	STR	8'-1"	22
H4	6	#4	STR	1'-5"	6
H5	4	#4	STR	16'-8"	45
H6	6	#4	STR	14'-5"	58
H7	2	#4	STR	13'-0"	17
H8	2	#4	STR	16'-8"	10
H9	2	#4	STR	9'-10"	13
H10	2	#4	STR	14'-11"	20
H11	6	#4	STR	9'-1"	36
H12	2	#4	STR	8'-0"	11
H13	2	#4	STR	4'-4"	6
N1	6	#5	1	9'-11"	62
N2	6	#5	1	9'-4"	58
N3	14	#5	1	8'-5"	123
N4	8	#4	1	7'-6"	40
N5	16	#4	1	6'-4"	68
N6	2	#5	1	9'-6"	20
N7	4	#4	1	7'-4"	20
N8	3	#4	1	7'-2"	14
N9	3	#5	1	9'-3"	29
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	17'-2"	107
T2	3	#5	STR	14'-5"	45
T3	3	#5	STR	9'-1"	28
V1	4	#4	STR	7'-10"	21
V2	8	#4	STR	7'-3"	39
V3	14	#4	STR	6'-3"	58
V4	12	#4	STR	5'-3"	42
V5	16	#4	STR	4'-3"	45
V6	2	#4	STR	7'-9"	10
V7	1	#4	STR	7'-1"	5
V8	2	#4	STR	7'-6"	10
V9	3	#4	STR	5'-0"	10
Z1	6	#5	2	5'-1"	32
Z2	11	#5	2	4'-9"	54
Z3	10	#4	2	4'-3"	28
Z4	15	#4	2	3'-8"	37
Z5	16	#4	2	3'-1"	33
Z6	4	#4	2	4'-0"	11
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	

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

SHEET 5 OF 5 REPLACES BR. NO. 319

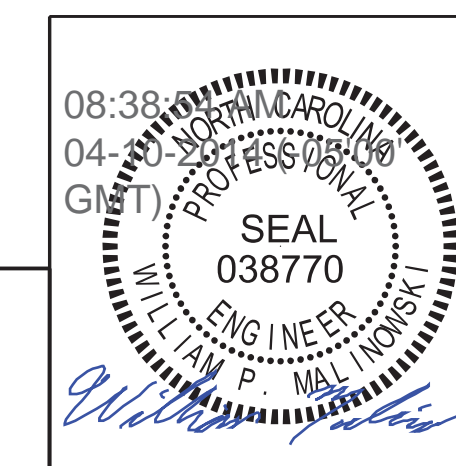
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 WINGS
 PRECAST REINFORCED CONCRETE
 THREE-SIDED CULVERT
 SR106 (MACEDONIA CHURCH RD)
 OVER BUCK BRANCH
 120° SKEW

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

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

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

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



FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

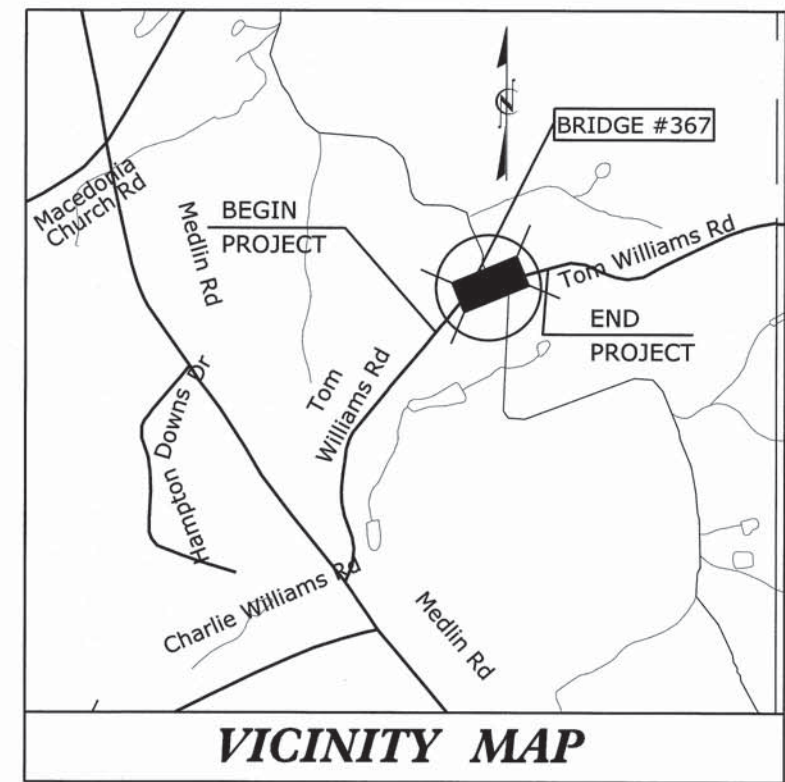
09/28/13

4/12/2013
U:\Union367\Roadway\Proj\890367_rdy_tsh.dgn
RWilliams

PROJECT: WBS 17BP.10.R.38

CONTRACT:

See Sheet 1-A For Index of Sheets



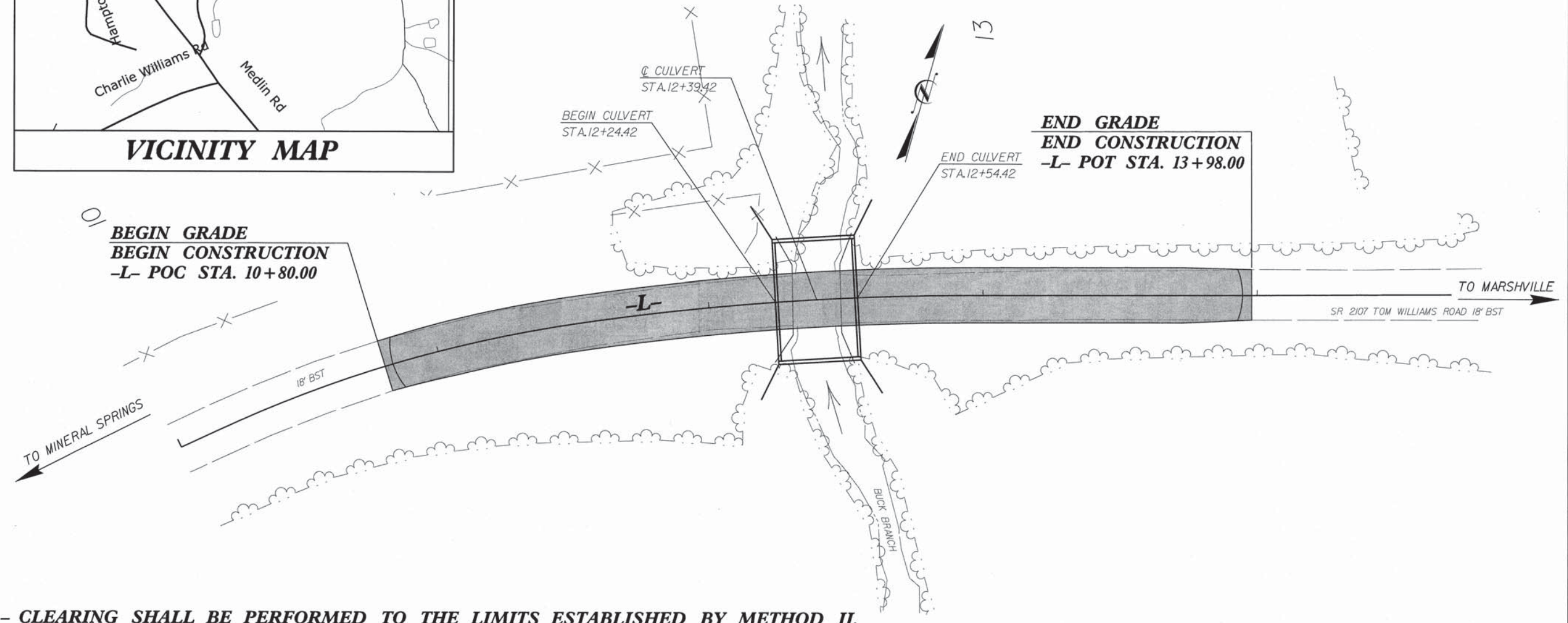
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
UNION COUNTY

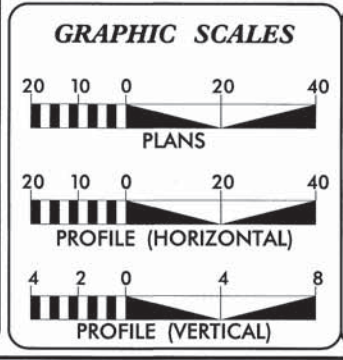
**LOCATION: BRIDGE NO. 367 ON SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH**

**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.	



- 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
801 Jones Franklin Road, Suite 300
Raleigh, NC U.S.A. 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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**
~~JUNE 4, 2014~~

GARLAND HAYWOOD, PE
PROJECT ENGINEER

ROBERT WILLIAMS, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

02:42:57 PM 08-15-2013
SEAL
29185
ENGINEER
KARL L. HINES
P.E.

SIGNATURE: *[Signature]*

ROADWAY DESIGN ENGINEER

SEAL
30932
ENGINEER
ROBERT A. WILLIAMS
P.E.

SIGNATURE: *[Signature]* P.E. 4/15/13





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-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 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.

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 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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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 R/W 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	-----
Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

VEGETATION:

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	⊕
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	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
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	⊕
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	□
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	-----TUUL
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.

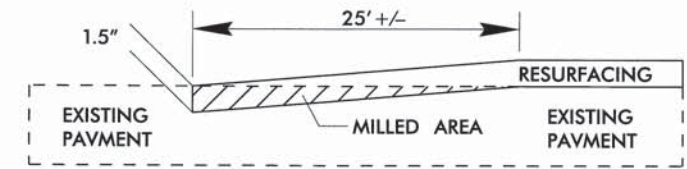
5/14/99

PAVEMENT SCHEDULE

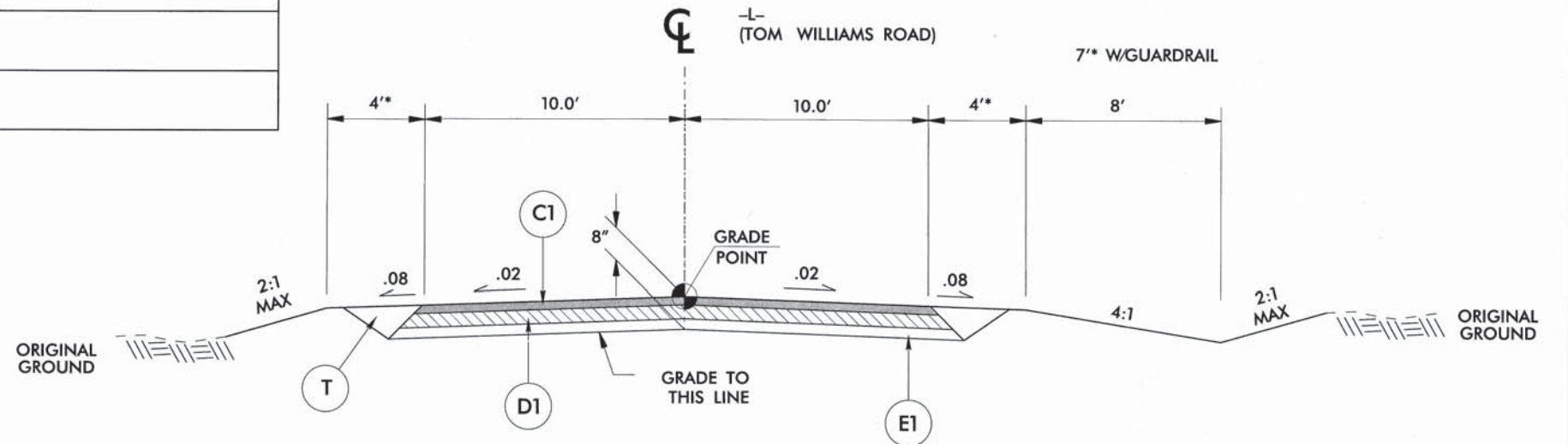
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
D1	PROP. 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.

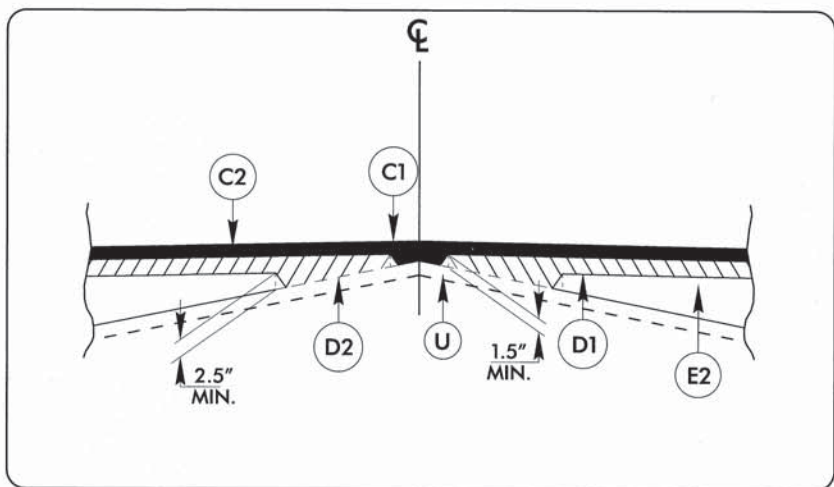
PROJECT REFERENCE NO. 17BPJ0R.38	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER ROBERT A. WILLIAMS 30932 4/15/13	HYDRAULICS ENGINEER RICHARD L. HINER 29185



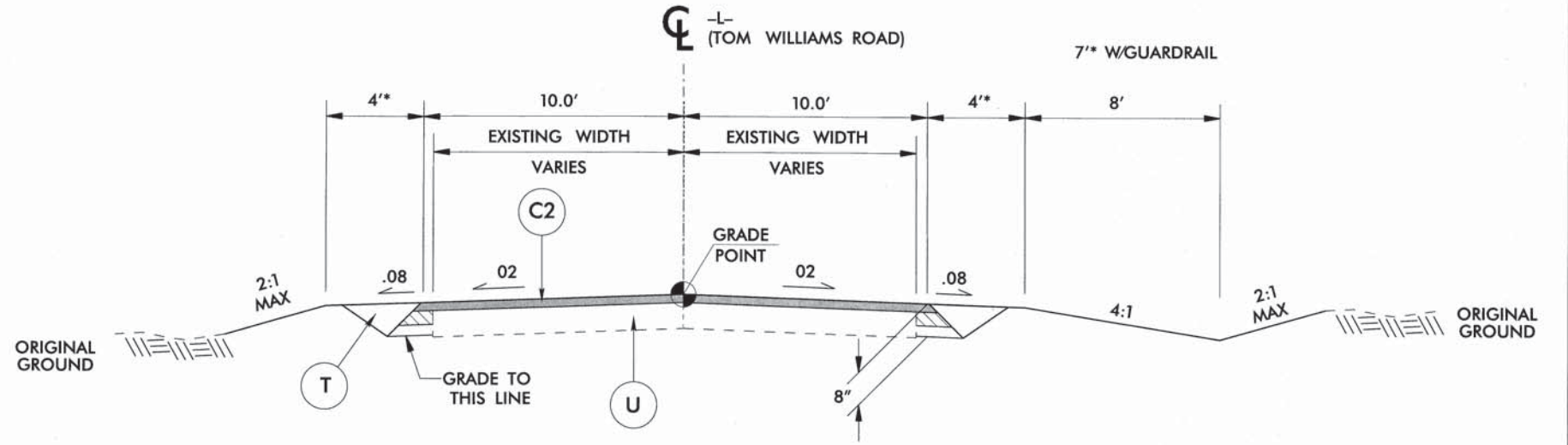
MILLING DETAIL



TYPICAL SECTION NO. 1
-L- STA. 10+80.00 TO STA. 13+98.00



WEDGING DETAIL
(AS NEEDED)



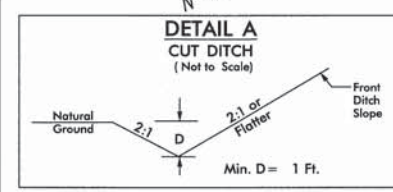
TYPICAL SECTION NO. 2
AS NEEDED

4/15/2013 10:56:56 AM J:\Projects\17BPJ0R\17BPJ0R.dwg TYP.dgn

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: 431048.7191(ft) EASTING: 1550175.3761(ft) ELEVATION: 572.95(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 S 41°23'15" E 16.33 (ft)
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**BEGIN GRADE
 -L- POT STA. 10+80.00**

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



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

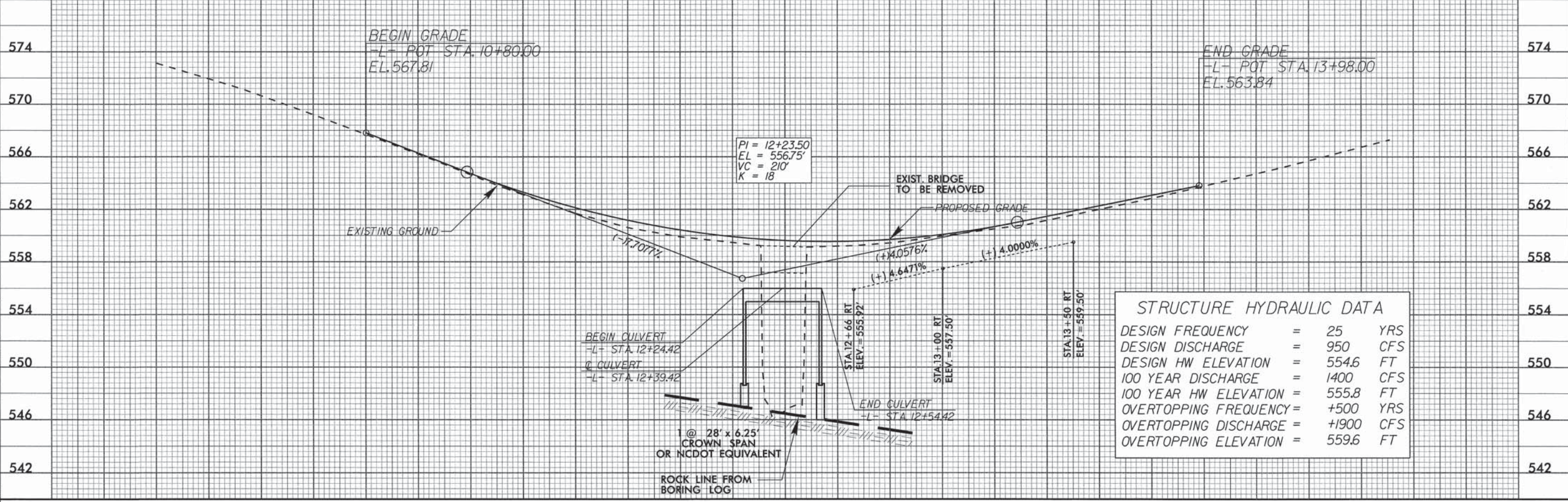
PI Sta 10+84.01
 $\Delta = 16' 51" 01.7" (RT)$
 $D = 12' 11" 26.1"$
 $L = 138.23'$
 $T = 69.62'$
 $R = 470.00'$
 $e = 0.04$

PI Sta 12+23.14
 $\Delta = 8' 04" 02.1" (RT)$
 $D = 5' 43" 46.5"$
 $L = 140.80'$
 $T = 70.52'$
 $R = 1,000.00'$
 $e = 0.03$

BL POINT	DESC.	NORTH	EAST
1	BL-1	431048.7190	1550175.3760
2	BL-2	431145.8130	1550414.7270
3	BL-3	431250.9730	1550665.7830

BL POINT	DESC.	ELEVATION	EL STATION	OFFSET
1	BL-1	572.95	10+10.79	16.32 LT
2	BL-2	558.42	12+68.25	14.05 RT
3	BL-3	569.20	15+39.37	14.73 LT

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



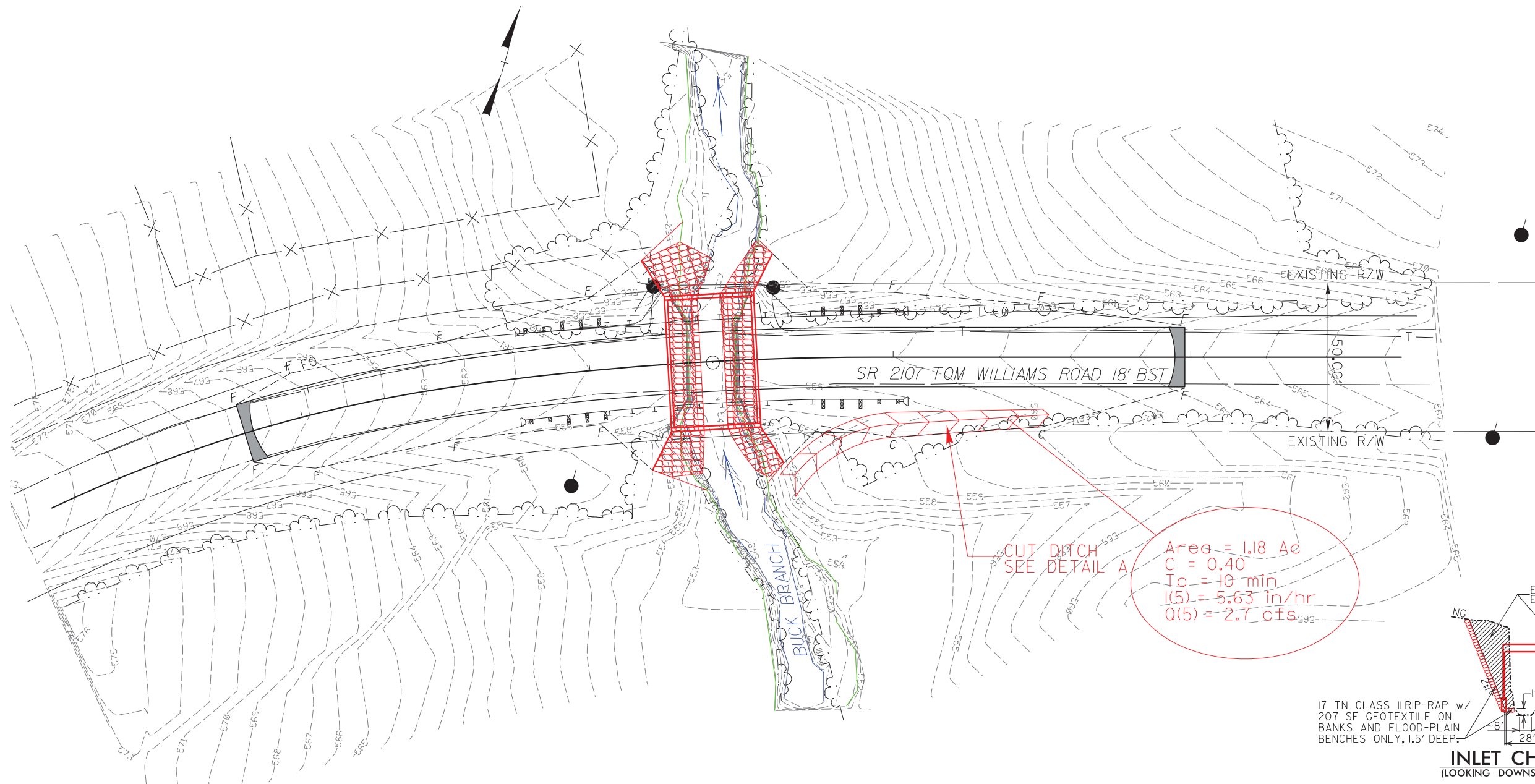
STRUCTURE HYDRAULIC DATA

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

B/17/99
 REVISIONS
 4/1/2013
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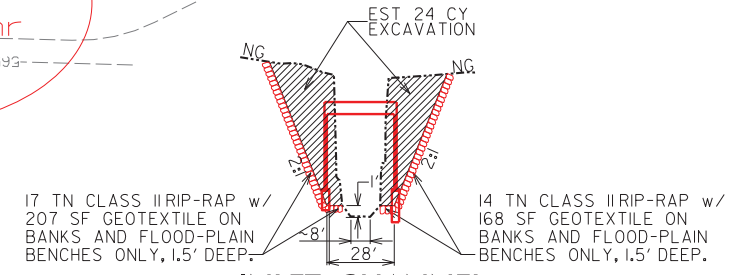
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PROJECT REFERENCE NO. 17BP10.R.38	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

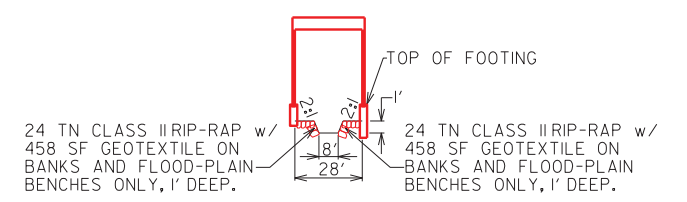


CUT DITCH
SEE DETAIL A

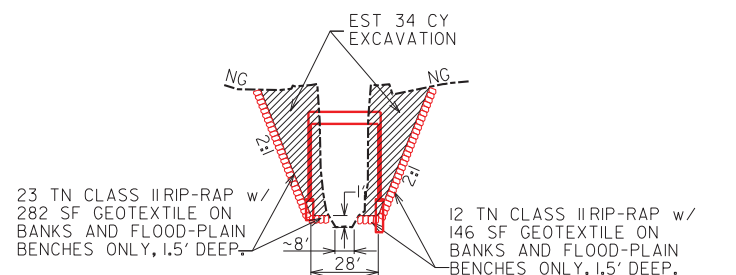
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C = 0.40
Tc = 10 min
I(5) = 5.63 in/hr
Q(5) = 2.7 cfs



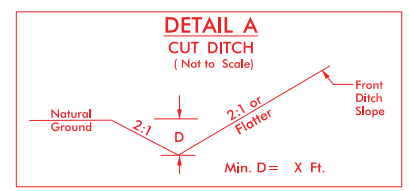
INLET CHANNEL
(LOOKING DOWNSTREAM - N.T.S.)



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



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



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

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$ENR\$\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

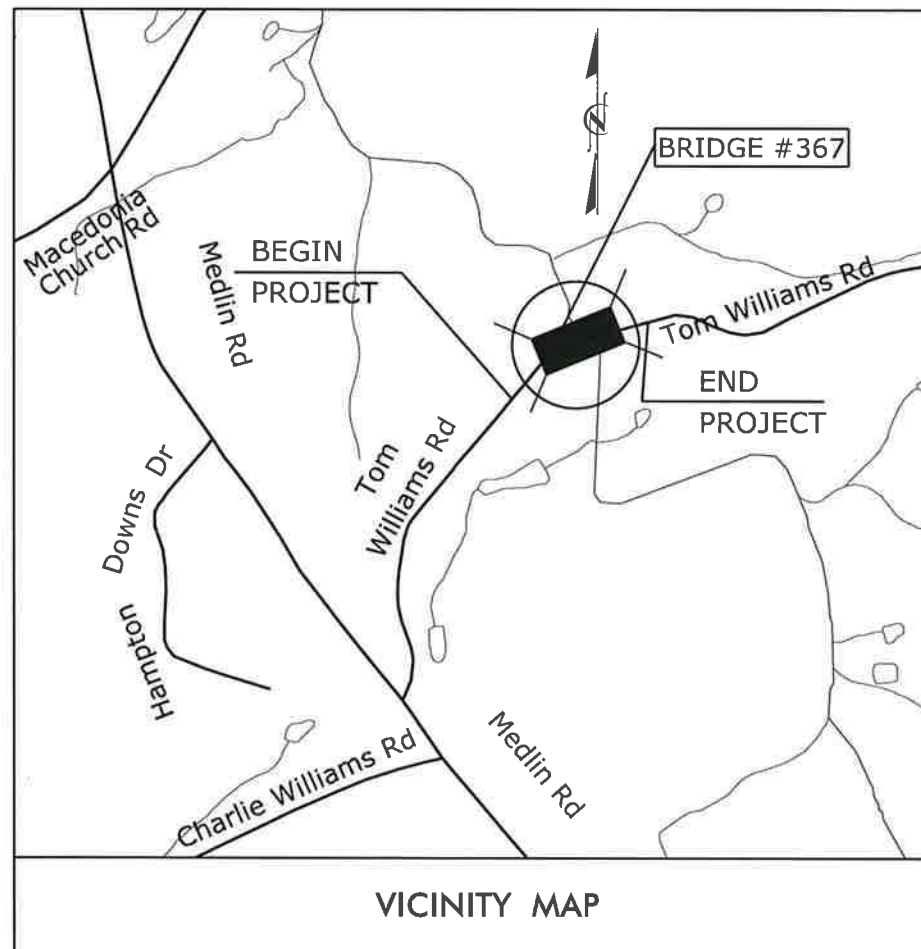
TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

DIVISION 10



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



INDEX OF SHEETS

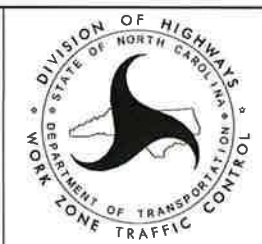
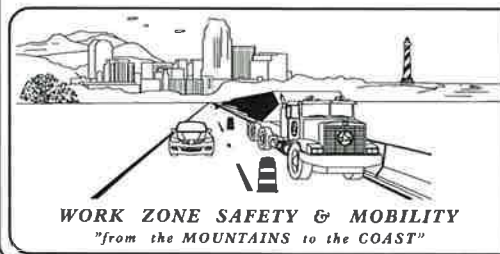
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES AND PHASING
TMP-3	BRIDGE #367 - ROAD CLOSURE & DETOUR ROUTE

SHEET NO.
TMP-1

WBS 17BP.10.R.38

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.






































Stantec
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

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

APPROVED: *Betsy L. Watson*
DATE: *April 8, 2013*

4/1/2013
U:\Union367\TrafficControl\CP\Plansheets\17BP.10.R.38-TC.TMP-01.TITLE.dgn
Barton

LEGEND

-  DIRECTION OF TRAFFIC FLOW
 -  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
 -  WORK AREA
 -  PAVEMENT REMOVAL
 -  NORTH ARROW
 -  TYPE III BARRICADE
 -  CONE
 -  DRUM
 -  SKINNY DRUM
 -  TUBULAR MARKER
 -  CHANGEABLE MESSAGE SIGN (CMS)
 -  FLAGGER
 -  AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
 -  FLASHING ARROW BOARD (TYPE C)
 -  LAW ENFORCEMENT
 -  TRUCK MOUNTED ATTENUATOR (TMA)
 -  PORTABLE CONCRETE BARRIER (PCB)
 -  TEMPORARY CRASH CUSHION
 -  TEMPORARY SHORING
 -  WORK ZONE SIGN-PORTABLE
 -  WORK ZONE SIGN-STATIONARY
 -  WORK ZONE SIGN-STATIONARY OR PORTABLE
- SIGNALS**
-  EXISTING
 -  PROPOSED
 -  TEMPORARY
- PAVEMENT MARKINGS**
-  EXISTING PAVEMENT MARKING (GRAY)
 -  SKIP LINES
 -  MINI-SKIP LINES
 -  SOLID LINES
- PAVEMENT MARKING SYMBOLS**
-  PAVEMENT MARKING SYMBOLS
 -  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
 -  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS
- PAVEMENT MARKERS**
-  CRYSTAL/CRYSTAL
 -  CRYSTAL/RED
 -  YELLOW/YELLOW

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 U:\Union361\TrafficControl\Plansheets\17BP.10.R.38.TC.TMP.OIA.RDWAYSTDLEGEND.dgn blaton



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

APPROVED: _____ DATE: _____




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.

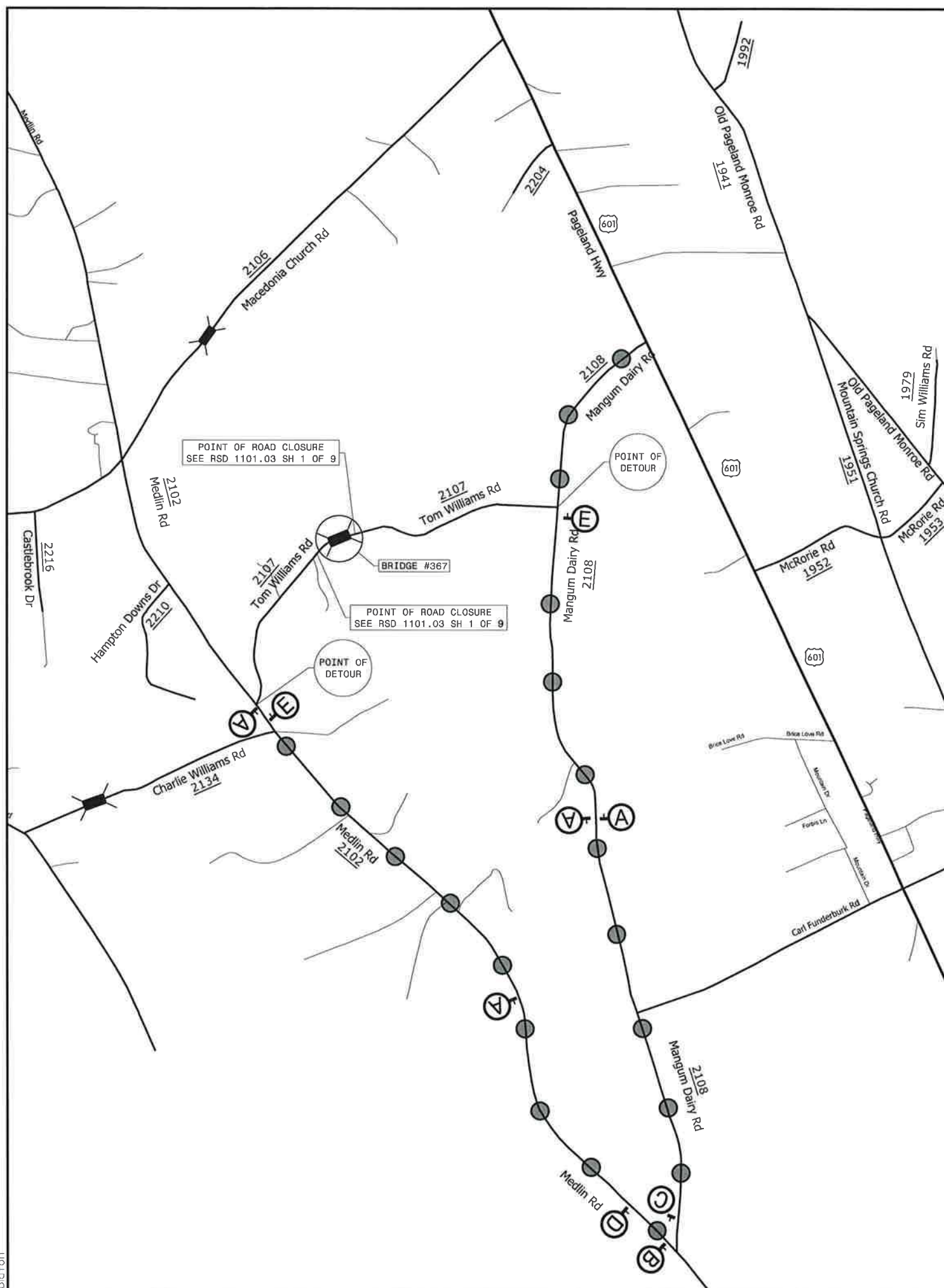
STEP 5:

OPEN SR 2107 TO TRAFFIC.

4/1/2013 U:\Union3671\TrafficControl\PlanSheets\17BP.10.R.38_TC_TMP_02_GENERALNOTES.dgn Bicton

 <p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	<p>APPROVED: _____ DATE: _____</p> <div style="text-align: center;">  <p>4/8/13</p> </div>	 <p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>GENERAL NOTES AND PHASING</p>
--	---	--	--------------------------------------

4/1/2013
 U:\Union367\TrafficControl\Plnsheets\17BP.10.R.38.TC.TMP.03.DETOUR ROUTE SHEET.dgn
 BIGTON



- (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"

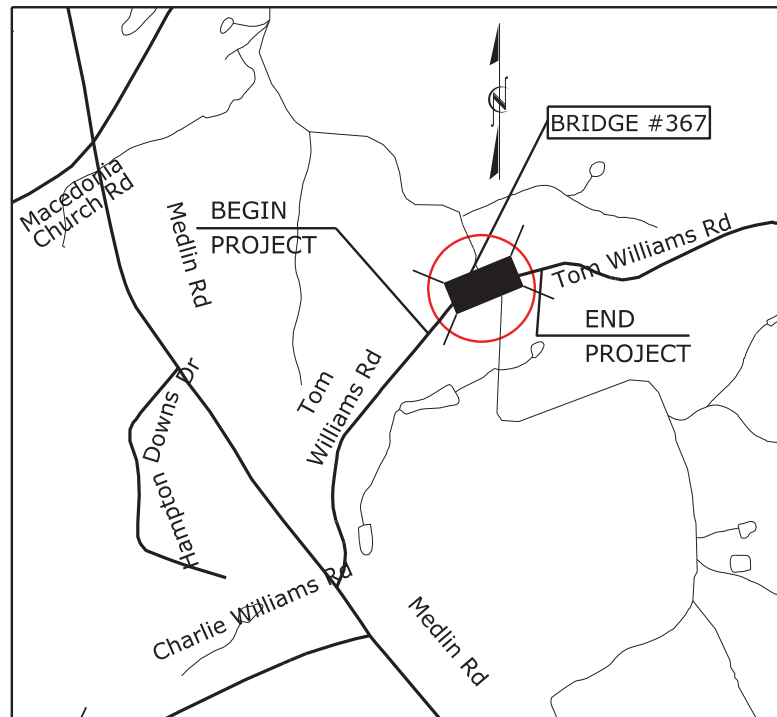
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 License No. F-0672

APPROVED: _____ DATE: _____



UNION CO. BRIDGE #367
 ROAD CLOSURE &
 DETOUR ROUTE

TIP PROJECT: 17BP.10.R.38

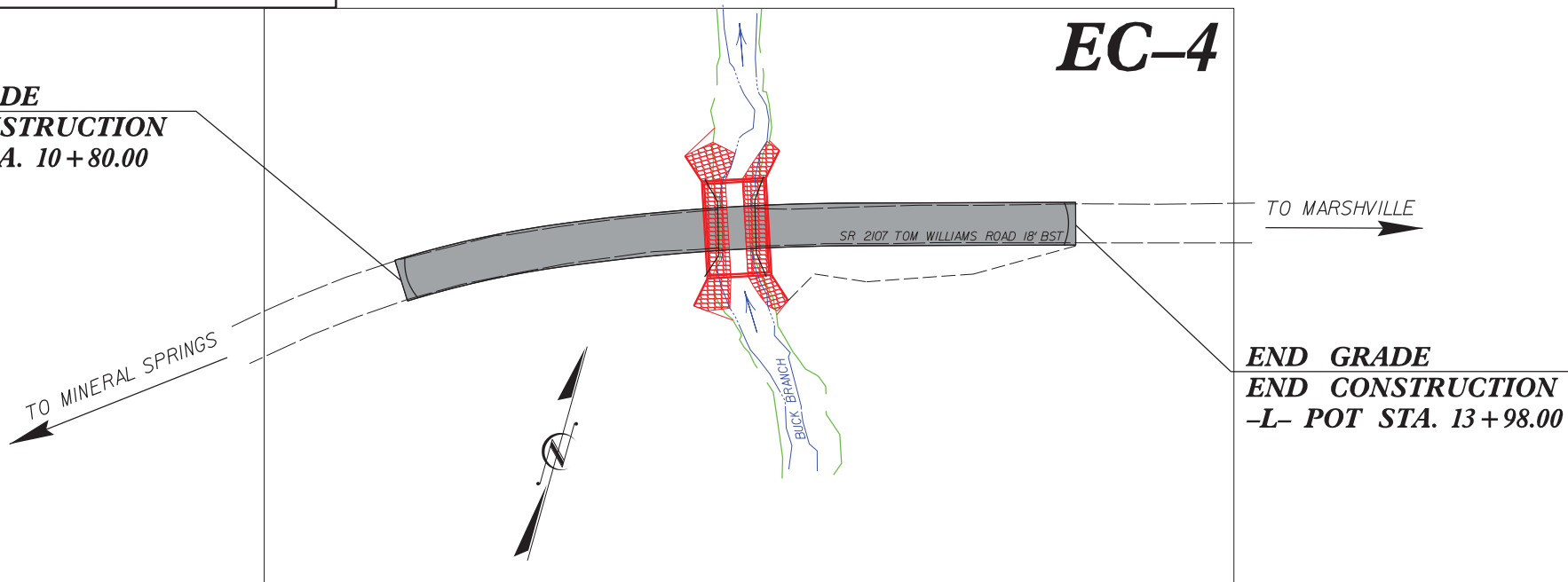


VICINITY MAP

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**



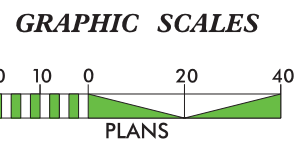
EC-4

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	Symbol
1633.01	Temporary Rock Silt Check Type-A	Symbol
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	Symbol
1633.02	Temporary Rock Silt Check Type-B	Symbol
	Wattle / Coir Fiber Wattle	Symbol
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	Symbol
1634.01	Temporary Rock Sediment Dam Type-A	Symbol
1634.02	Temporary Rock Sediment Dam Type-B	Symbol
1635.01	Rock Pipe Inlet Sediment Trap Type-A	Symbol
1635.02	Rock Pipe Inlet Sediment Trap Type-B	Symbol
1630.04	Stilling Basin	Symbol
1630.06	Special Stilling Basin	Symbol
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	Symbol
	Tiered Skimmer Basin	Symbol
	Infiltration Basin	Symbol

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)

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

amec

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

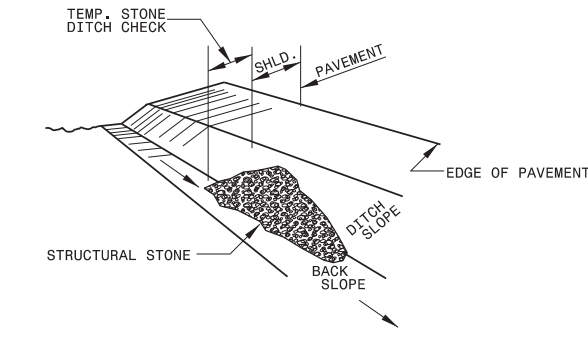
Tel. (919) 381-9900
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Roadway Standard Drawings

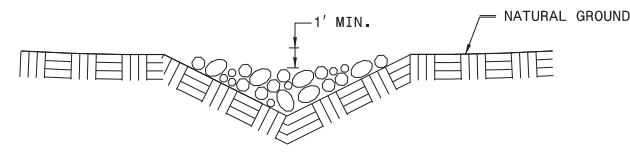
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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	

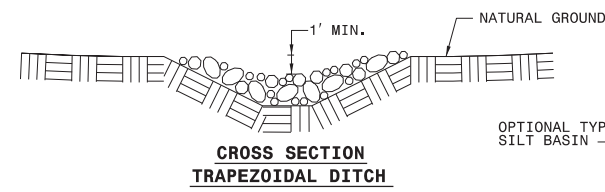
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH

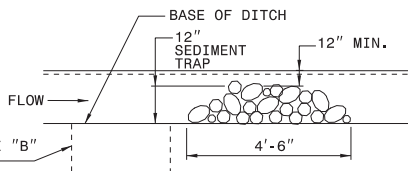


CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

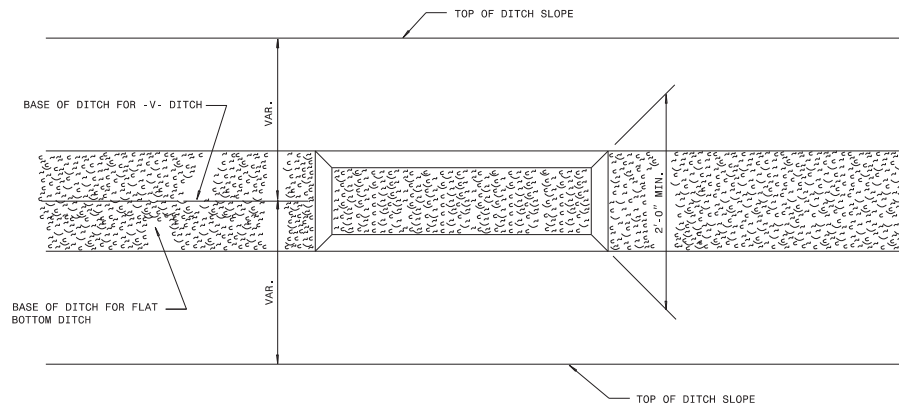
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

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%.

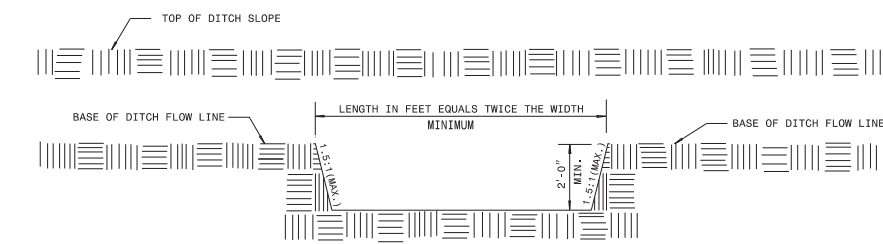


ELEVATION VIEW

SILT BASIN 'B' DETAIL



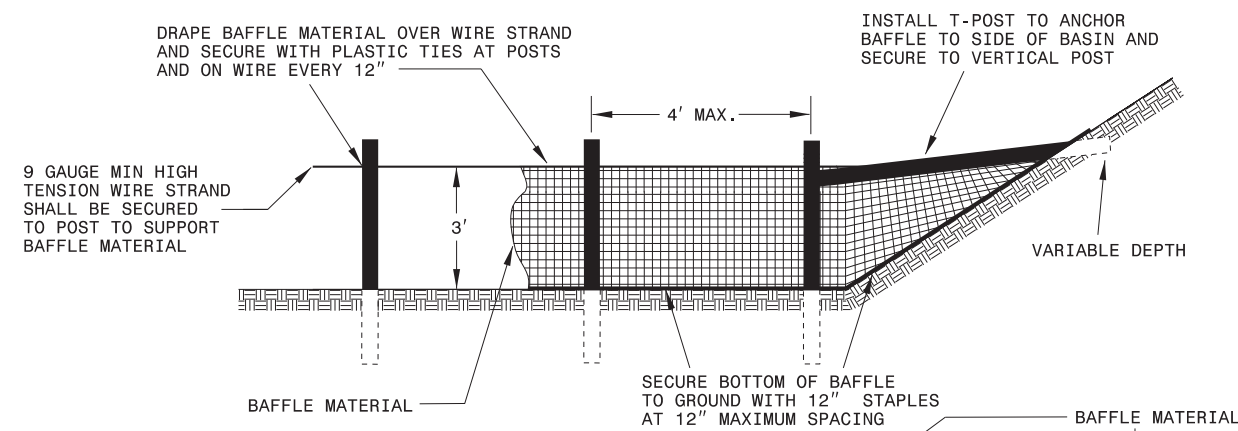
PLAN



ELEVATION

PROJECT REFERENCE NO. 17BP.JO.P.38	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
AMEC LICENSE No.F-1253	

COIR FIBER BAFFLE DETAIL

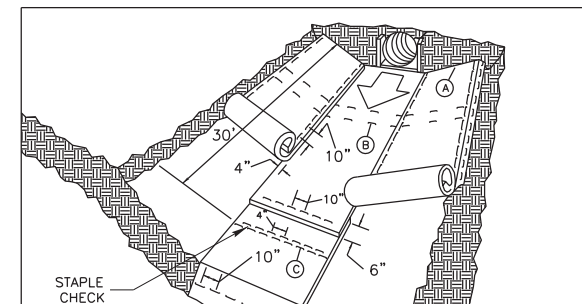


NOTES:

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

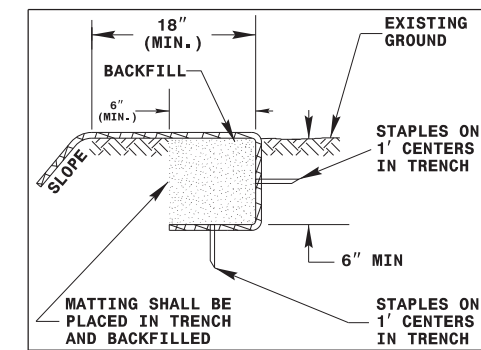
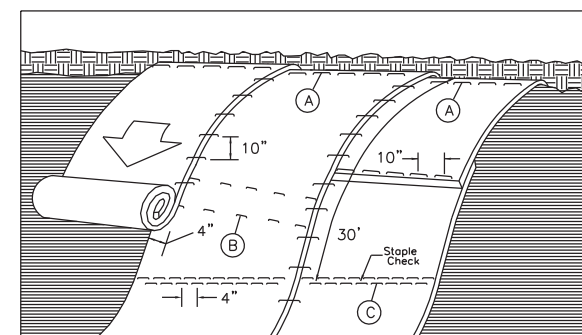


DIAGRAM (A)



MATTING ON SLOPES

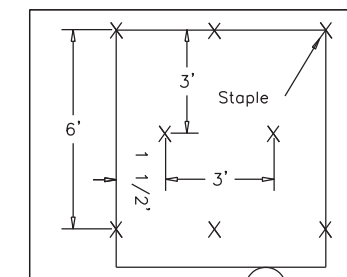


DIAGRAM B

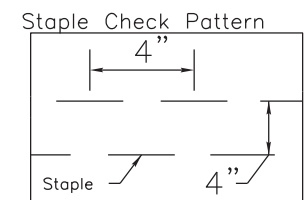


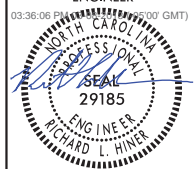
DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSTOR, 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. 17BP.JO.R.38	SHEET NO. EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

SOIL STABILIZATION SUMMARY SHEET

**MATTING FOR EROSION CONTROL
(FOR SLOPE 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

SILT BAG

TOTAL					1
-------	--	--	--	--	---

SPECIAL STILLING BASIN

TOTAL					1
-------	--	--	--	--	---

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

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 PERM 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

8/17/99

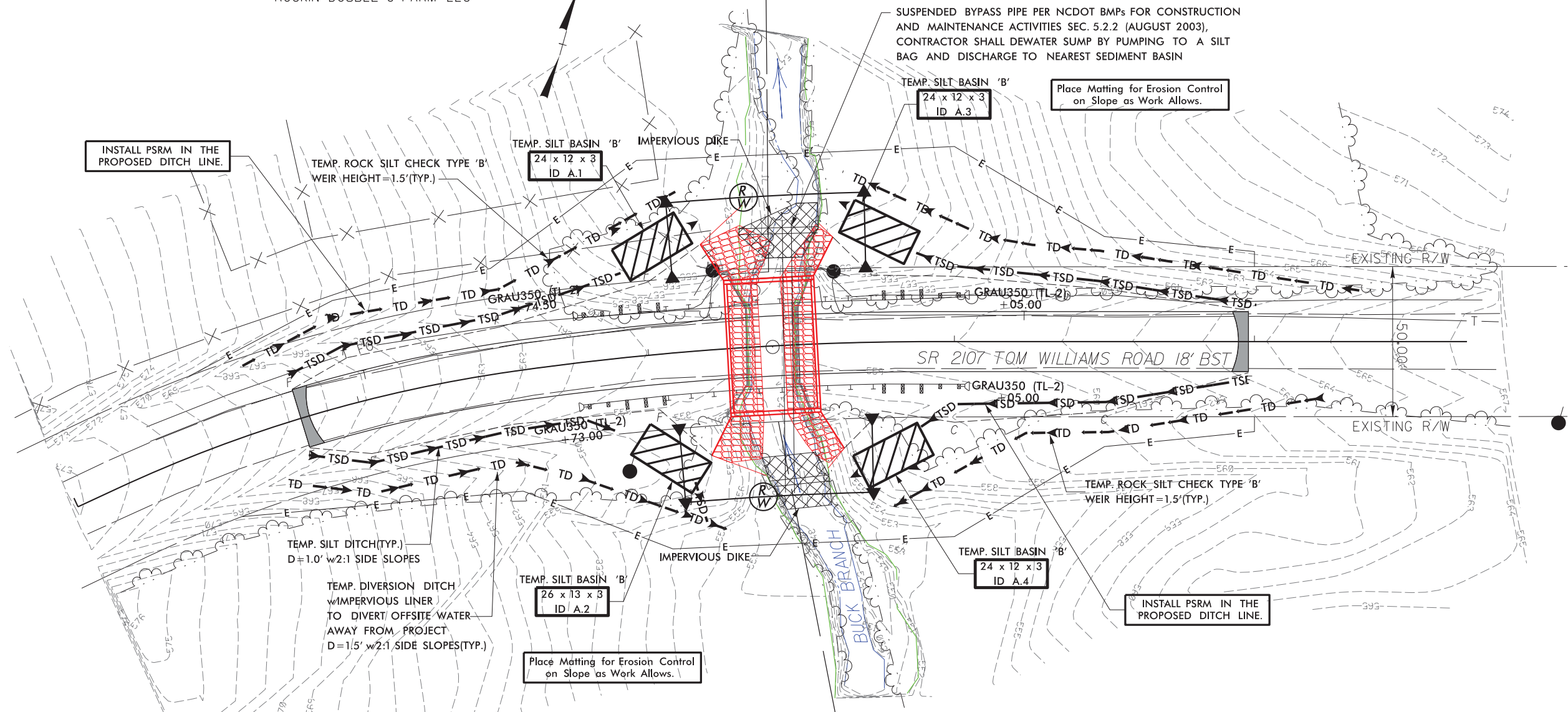
PROJECT REFERENCE NO. 17BP10.R.38	SHEET NO. EC-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
AMEC LICENSE No.F-1253	

①
ROCKIN DOUBLE J FARM LLC

②
LOCKEY MICHAEL W & WIFE MELISSA C

③
POPE HENRY FRANK JR %HENRY FRANK POP

④
MCCOY BRUCE S & WIFE LINDA WIRZ



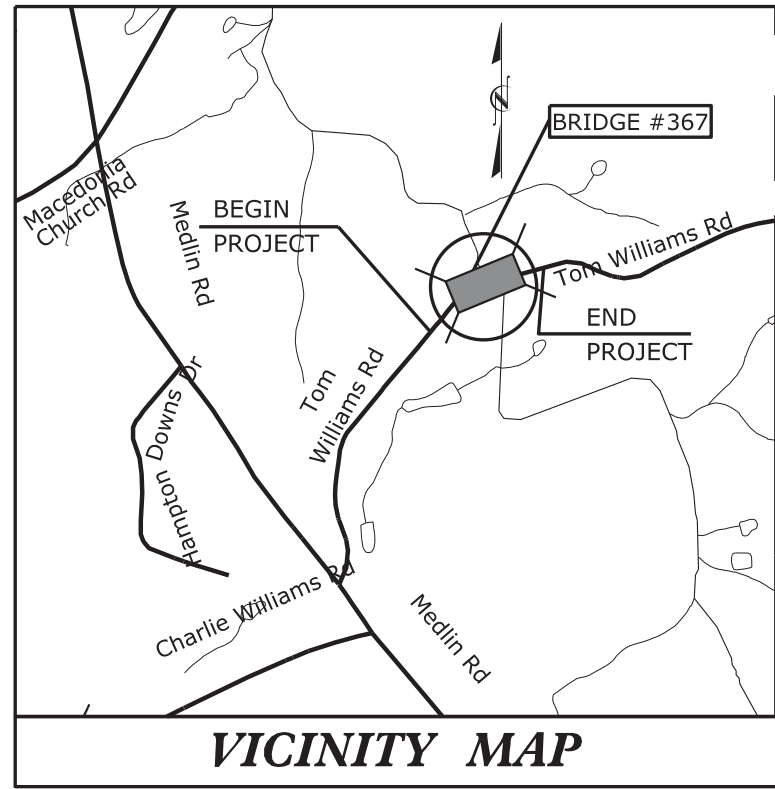
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\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$ENR\$\$\$\$\$

09/28/99

PROJECT: WBS 17BP.10.R.38

CONTRACT:

See Sheet 1-A For Index of Sheets



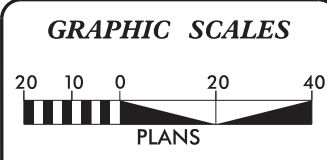
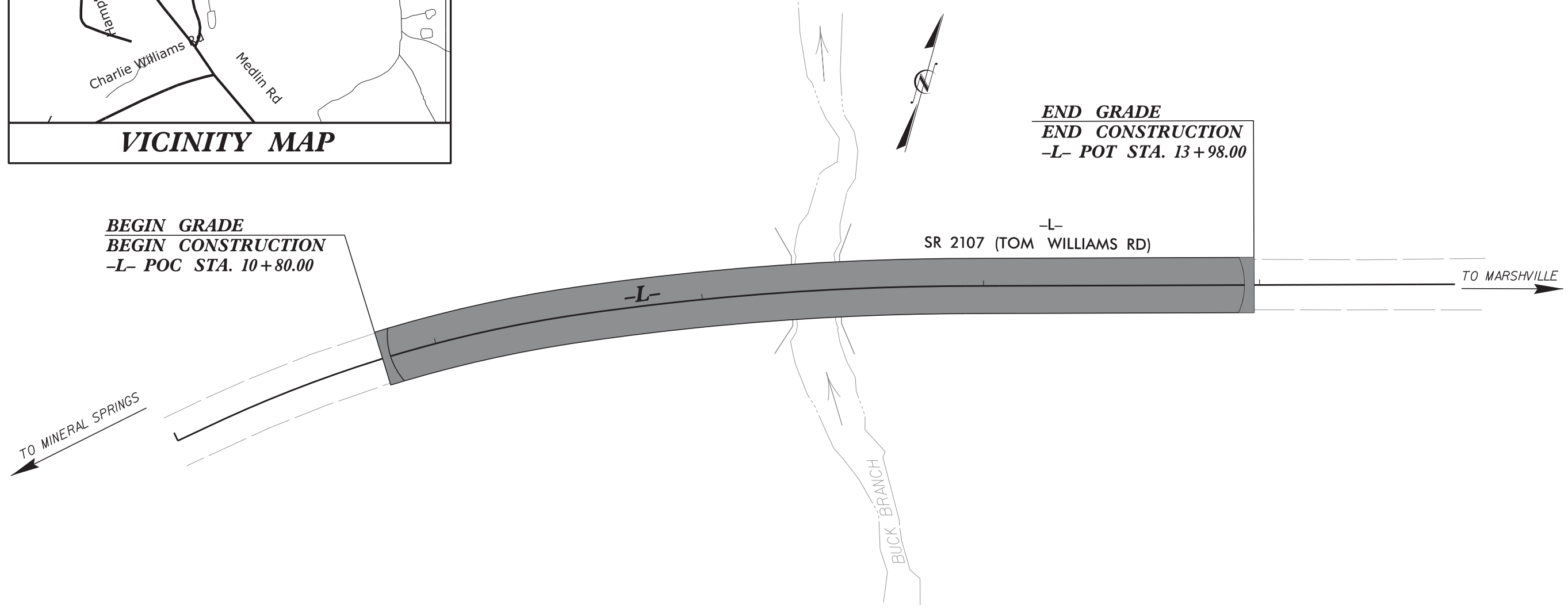
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
UNION COUNTY**

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

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

TYPE OF WORK: AERIAL TELEPHONE



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

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER REECE SCHULER 26960 10/8/2012

V&M
Vaughn & Melton
Consulting Engineers
3089-L Beam Road
Charlotte, NC 28217
704-357-0488

DEPARTMENT OF TRANSPORTATION

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
Xxxxx Xxxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Reece Schuler, PE UTILITIES PROJECT DESIGNER

\$\$\$\$\$ SYSTEMS\$\$\$\$\$
\$\$\$\$\$ DDN\$\$\$\$\$
\$\$\$\$\$ USERNAME\$\$\$\$\$

UTILITIES BY OTHERS

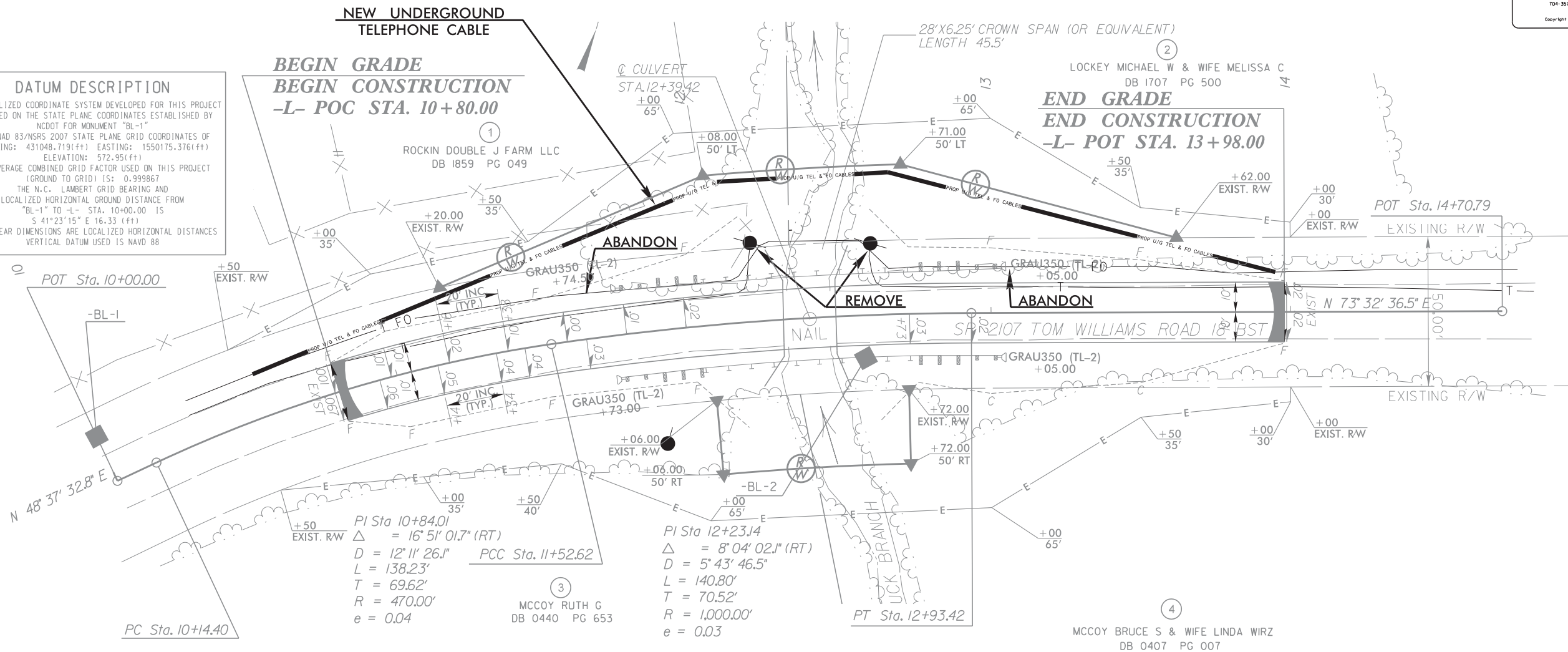
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCOOT FOR MONUMENT "BL-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 431048.719(ft) EASTING: 1550175.376(ft) ELEVATION: 572.95(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-1" STA. 10+00.00 IS S 41°23'15" E 16.33 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NEW UNDERGROUND TELEPHONE CABLE
BEGIN GRADE
BEGIN CONSTRUCTION
-L- POC STA. 10+80.00

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



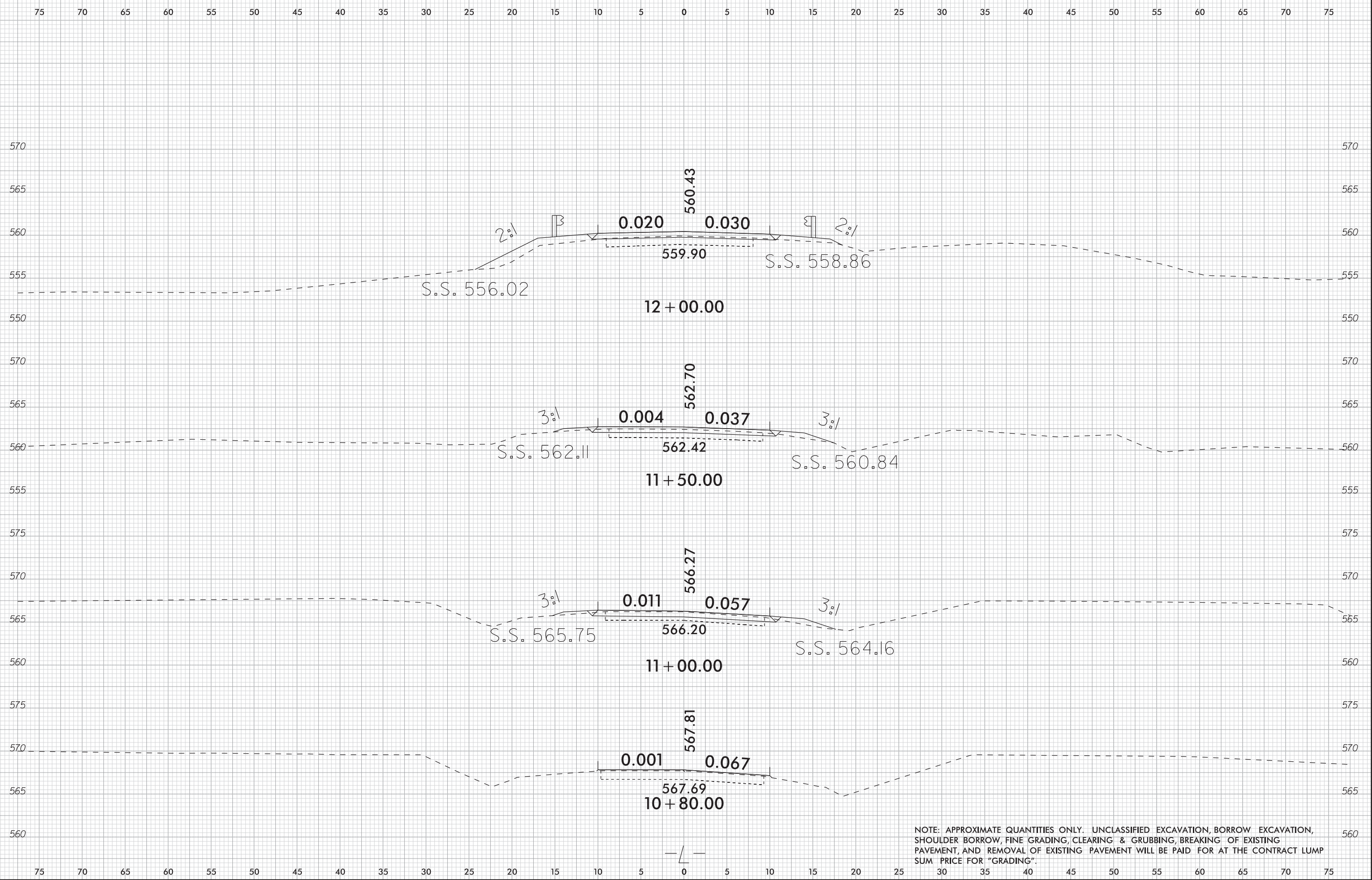
PI Sta 10+84.01
Δ = 16° 51' 01.7" (RT)
D = 12' 11" 26.1"
L = 138.23'
T = 69.62'
R = 470.00'
e = 0.04
MCCOY RUTH G
DB 0440 PG 653

PI Sta 12+23.14
Δ = 8° 04' 02.1" (RT)
D = 5' 43' 46.5"
L = 140.80'
T = 70.52'
R = 1,000.00'
e = 0.03
PT Sta. 12+93.42

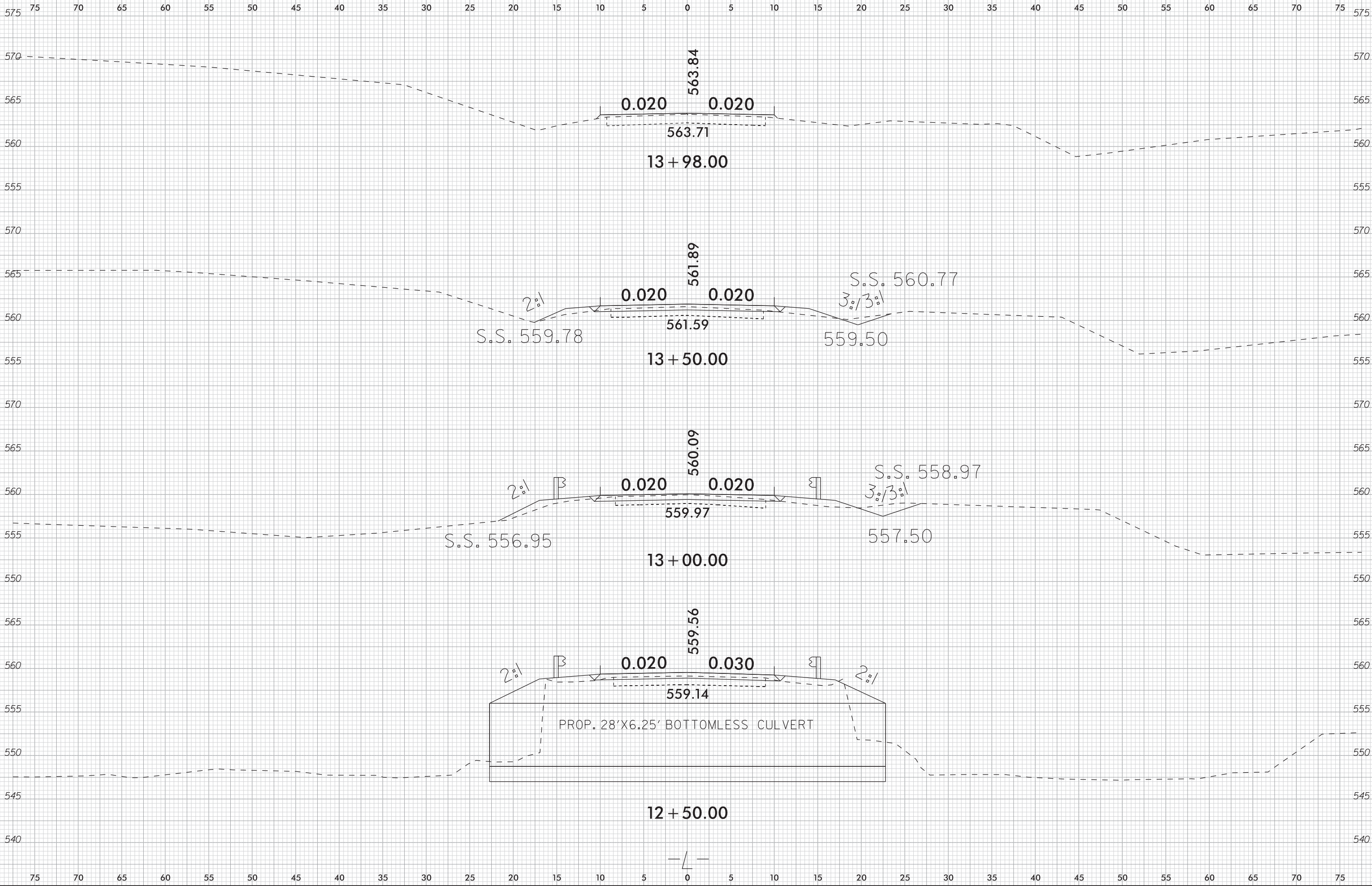
MCCOY BRUCE S & WIFE LINDA WIRZ
DB 0407 PG 007

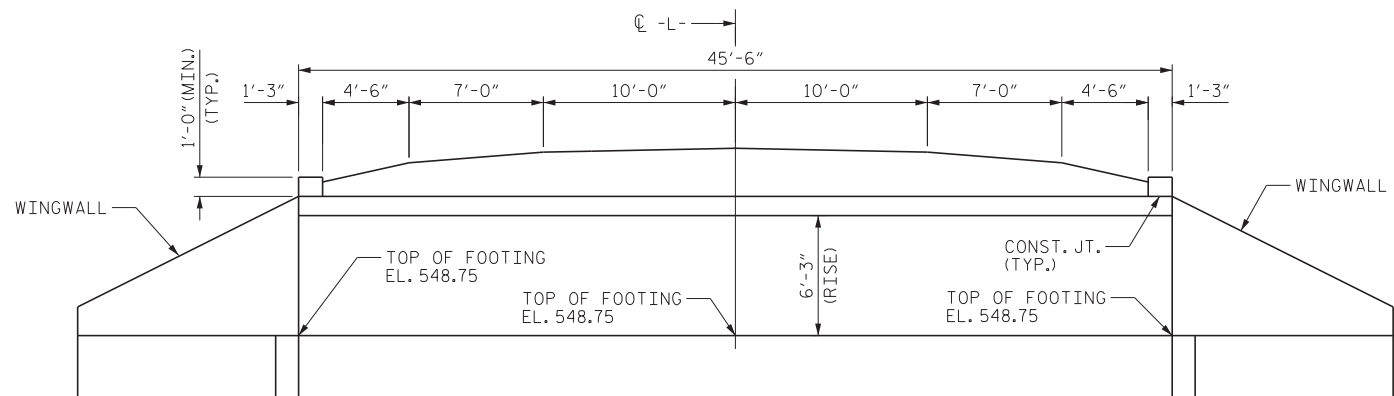
REVISIONS

8/17/99

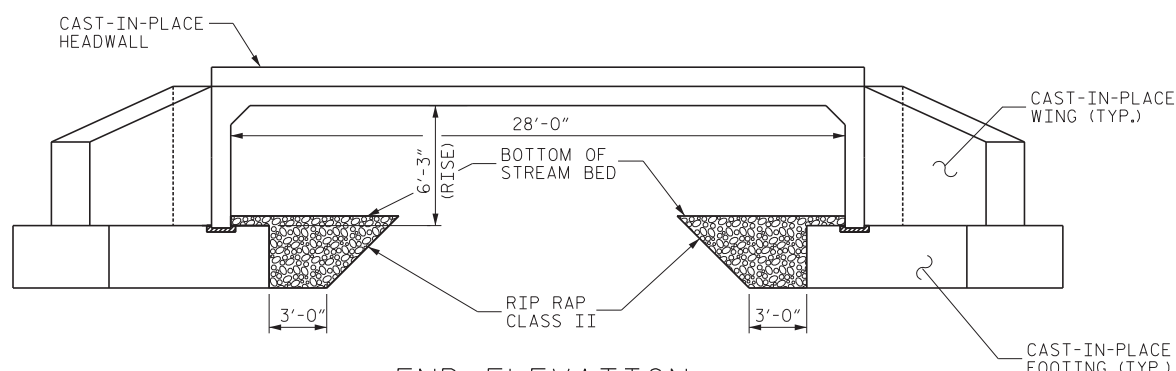


NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING & GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

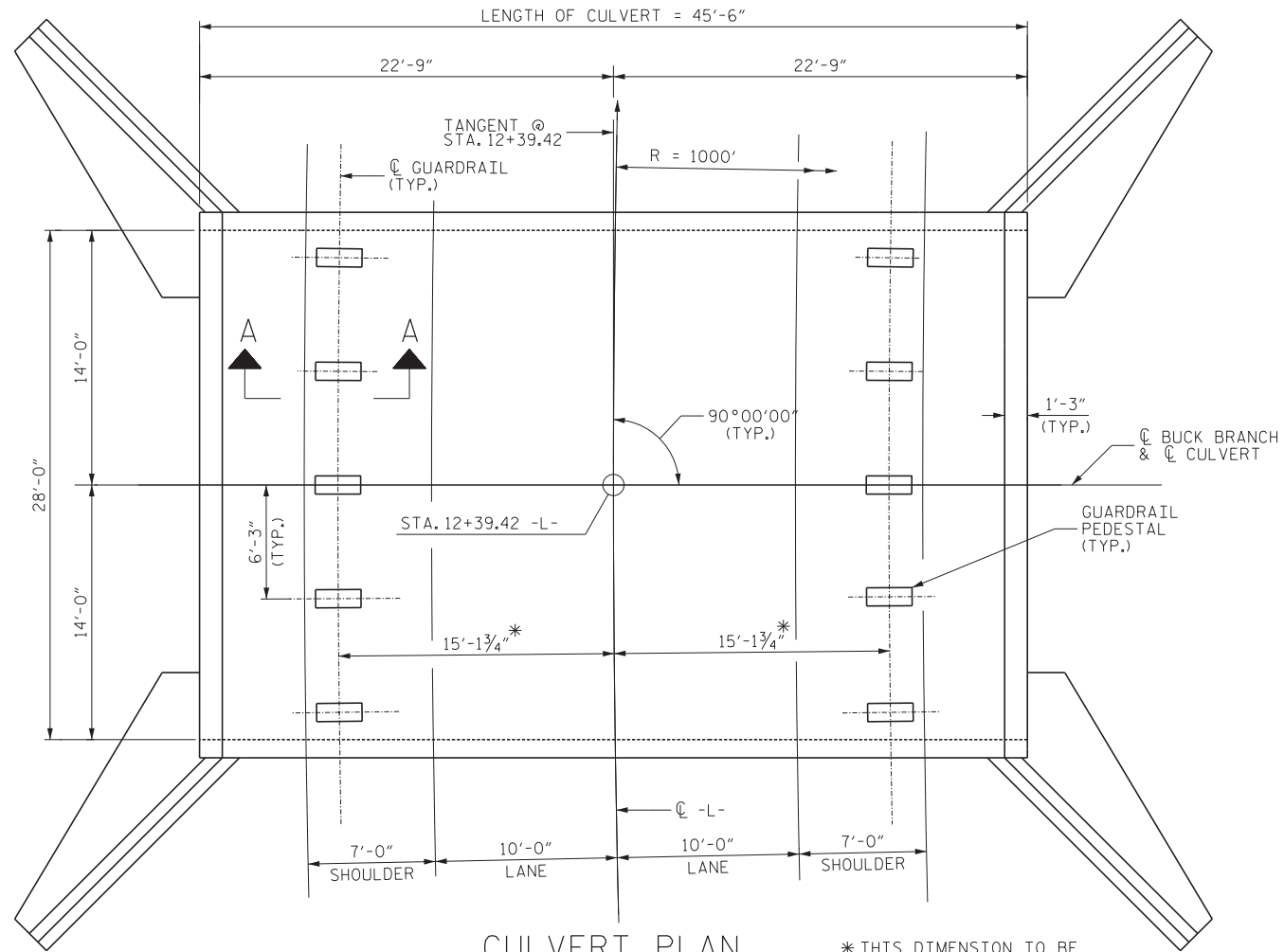
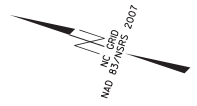




CULVERT SECTION NORMAL TO ROADWAY

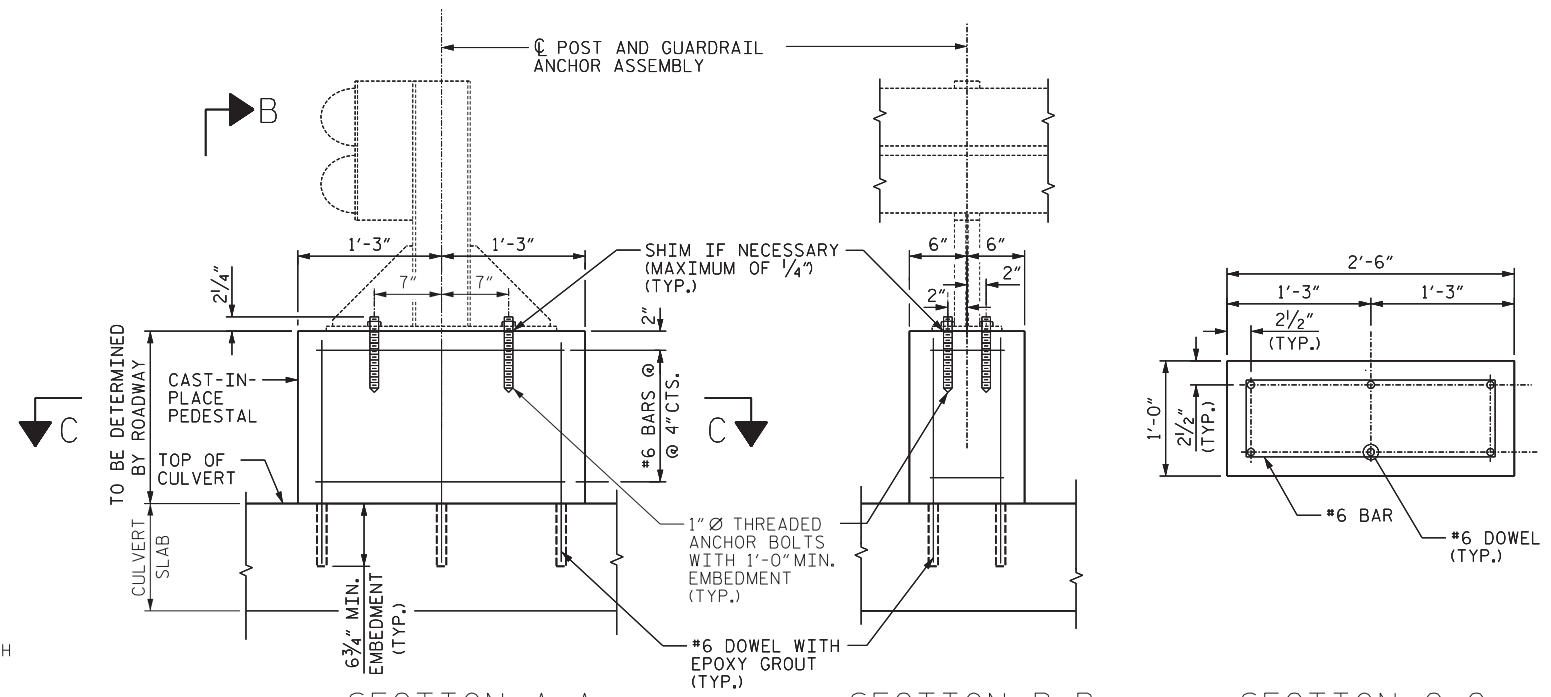


END ELEVATION



CULVERT PLAN

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



GUARDRAIL PEDESTAL DETAILS

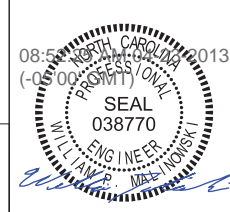
NOTES

- 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 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

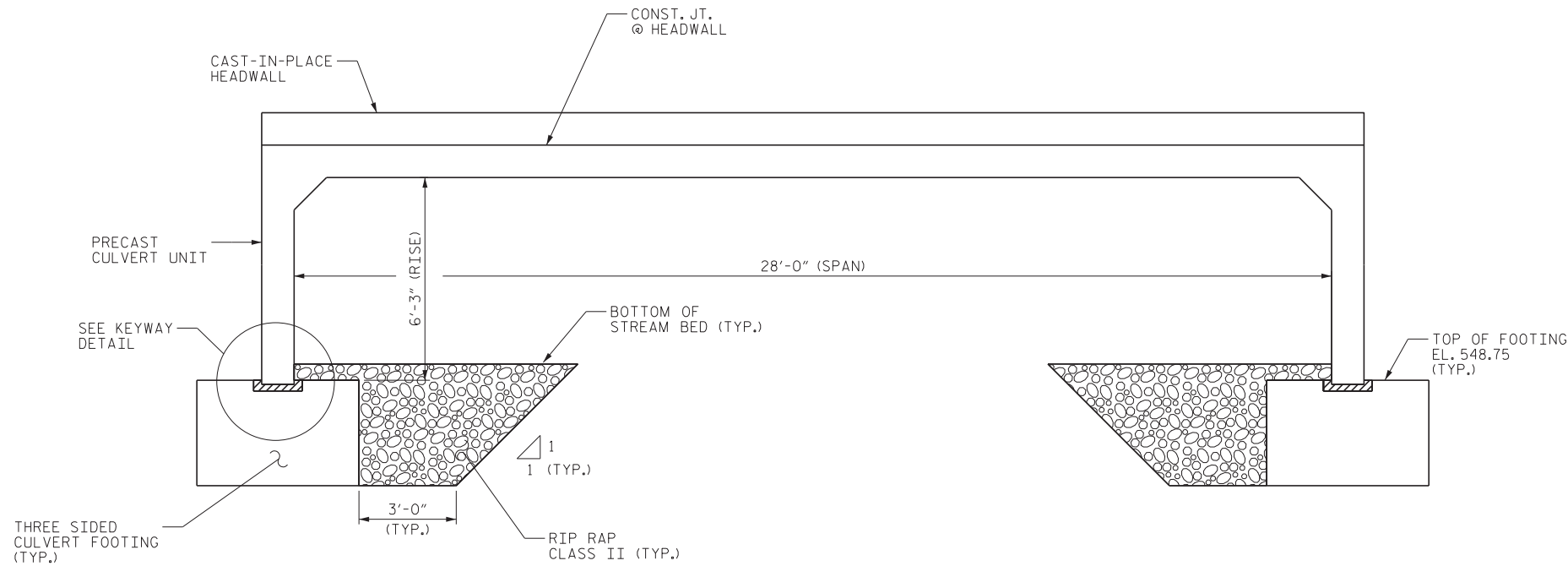


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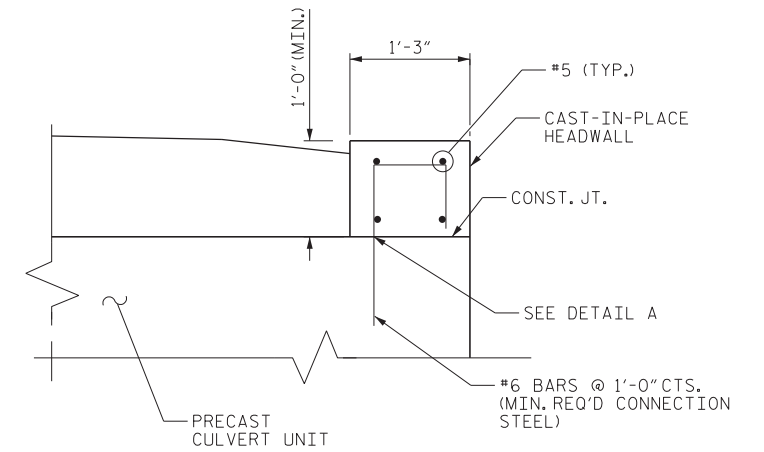
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 CHECKED BY : WPM DATE : 06/27/12

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

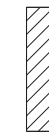
*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****



RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

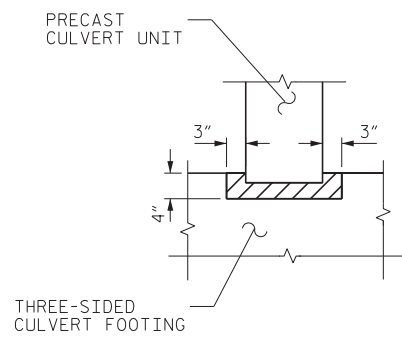


SECTION THRU HEADWALL

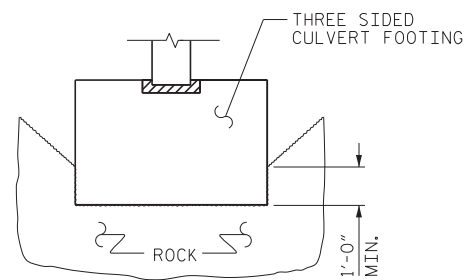


DETAIL A

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



KEYWAY DETAIL



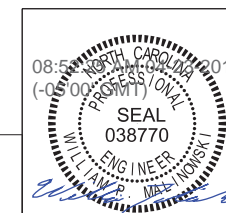
KEYED FOOTING DETAIL

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

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

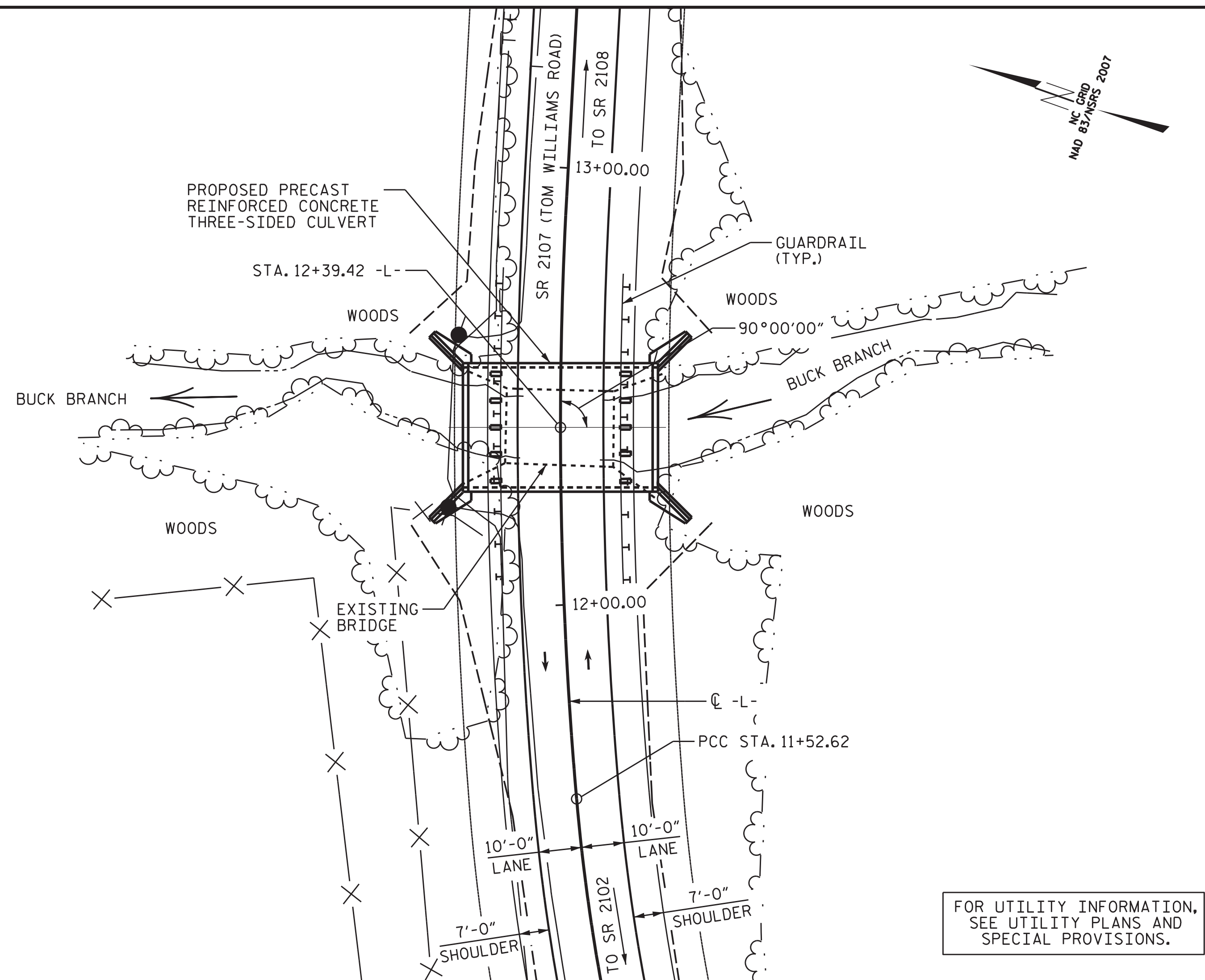


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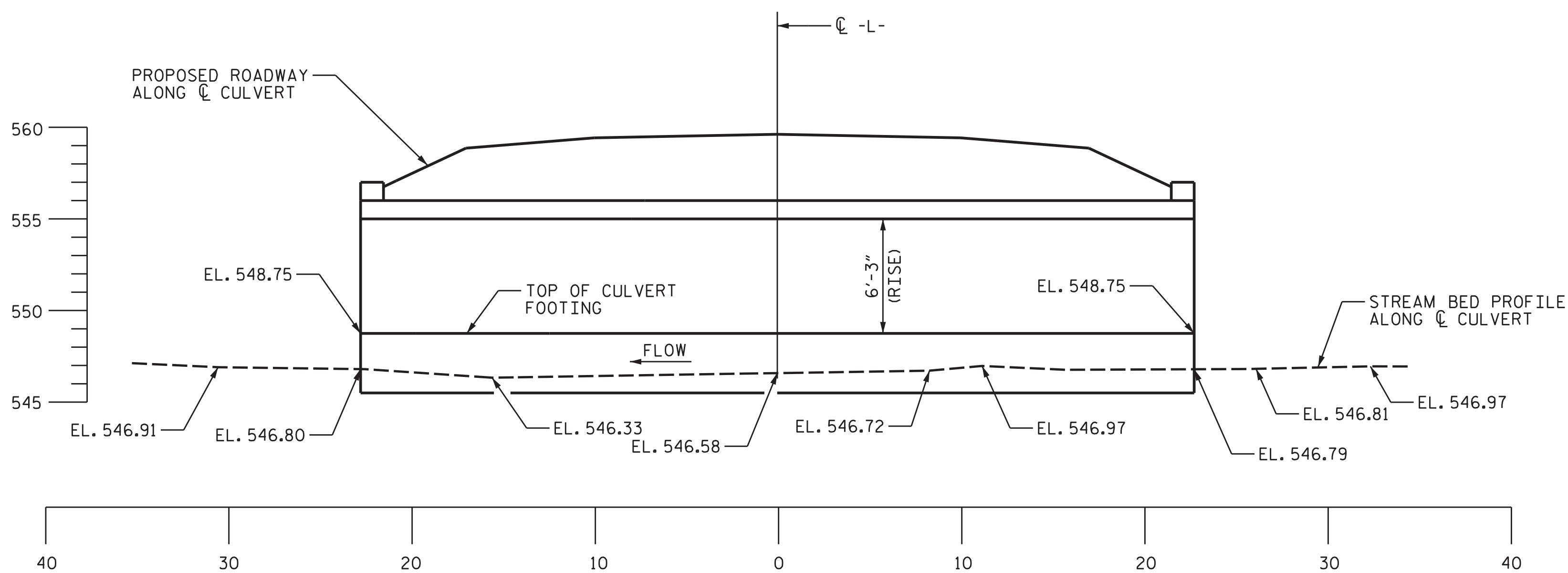
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			3

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



LOCATION SKETCH



PROFILE ALONG CULVERT

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

*****SYSTEM*****
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 *****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

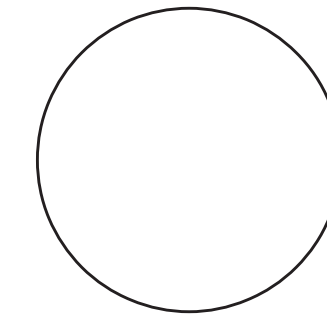
OVERTOPPING FLOOD DATA

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



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

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.

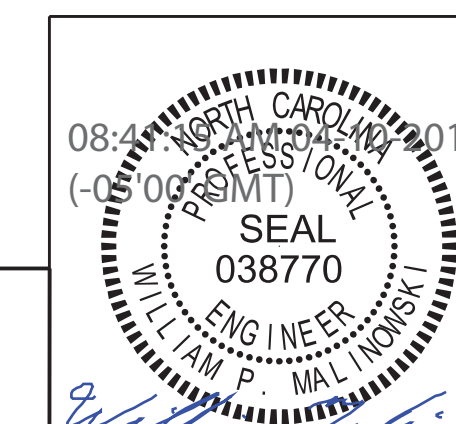
PROJECT NO. 17BP.10.R.38

UNION COUNTY

STATION: 12+39.42 -L-

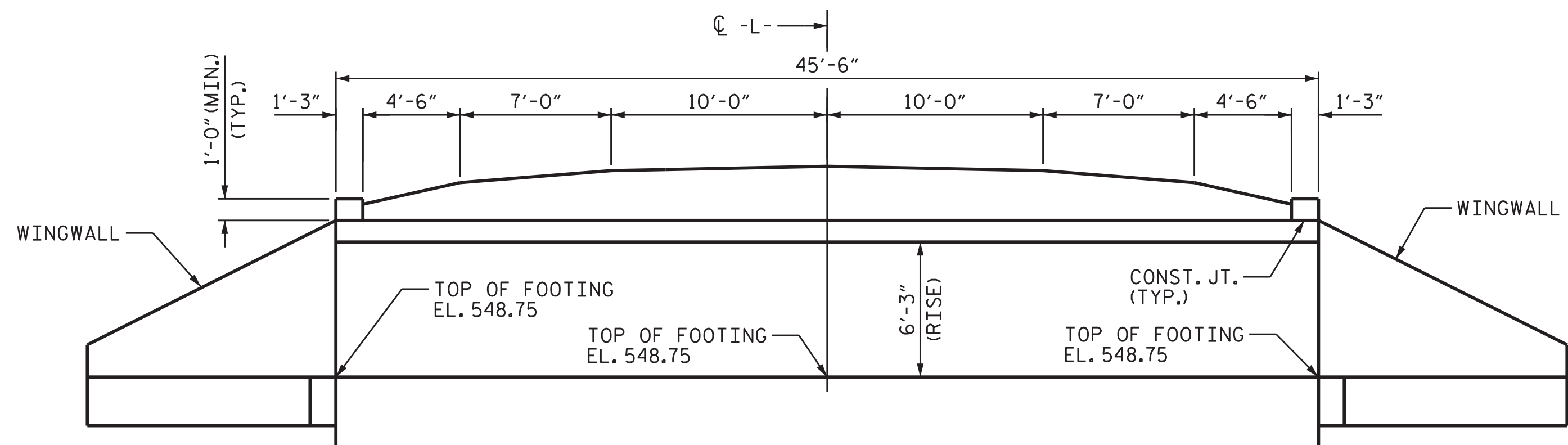
SHEET 1 OF 4 REPLACES BR. NO. 367

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

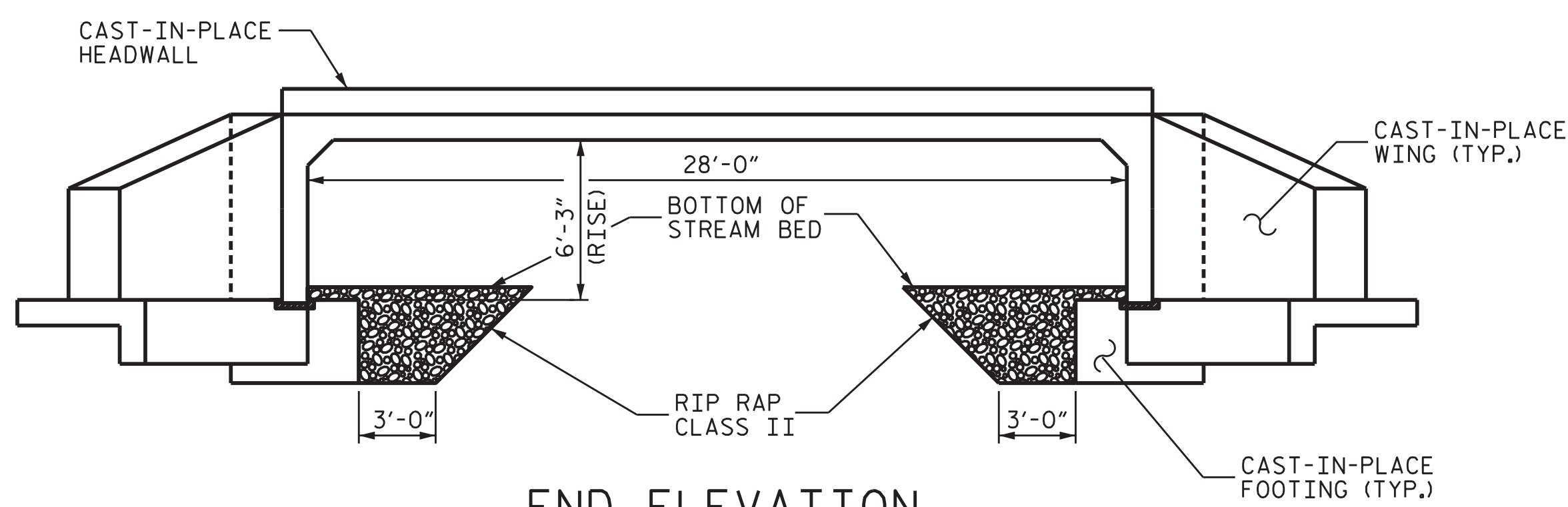


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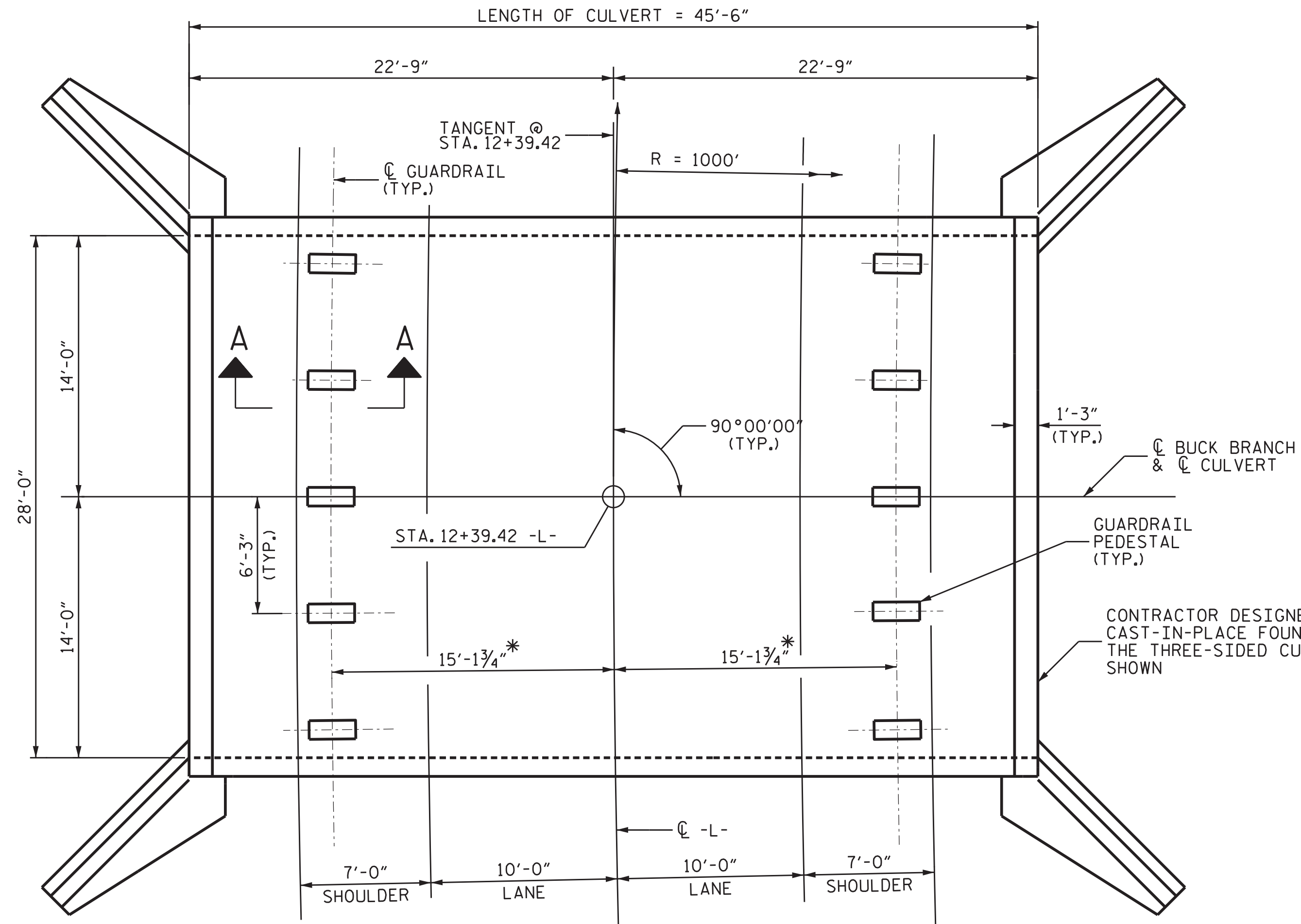
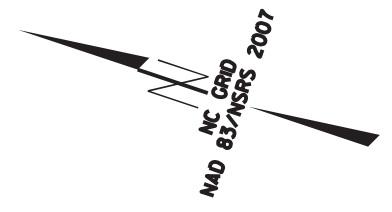
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			4



CULVERT SECTION NORMAL TO ROADWAY

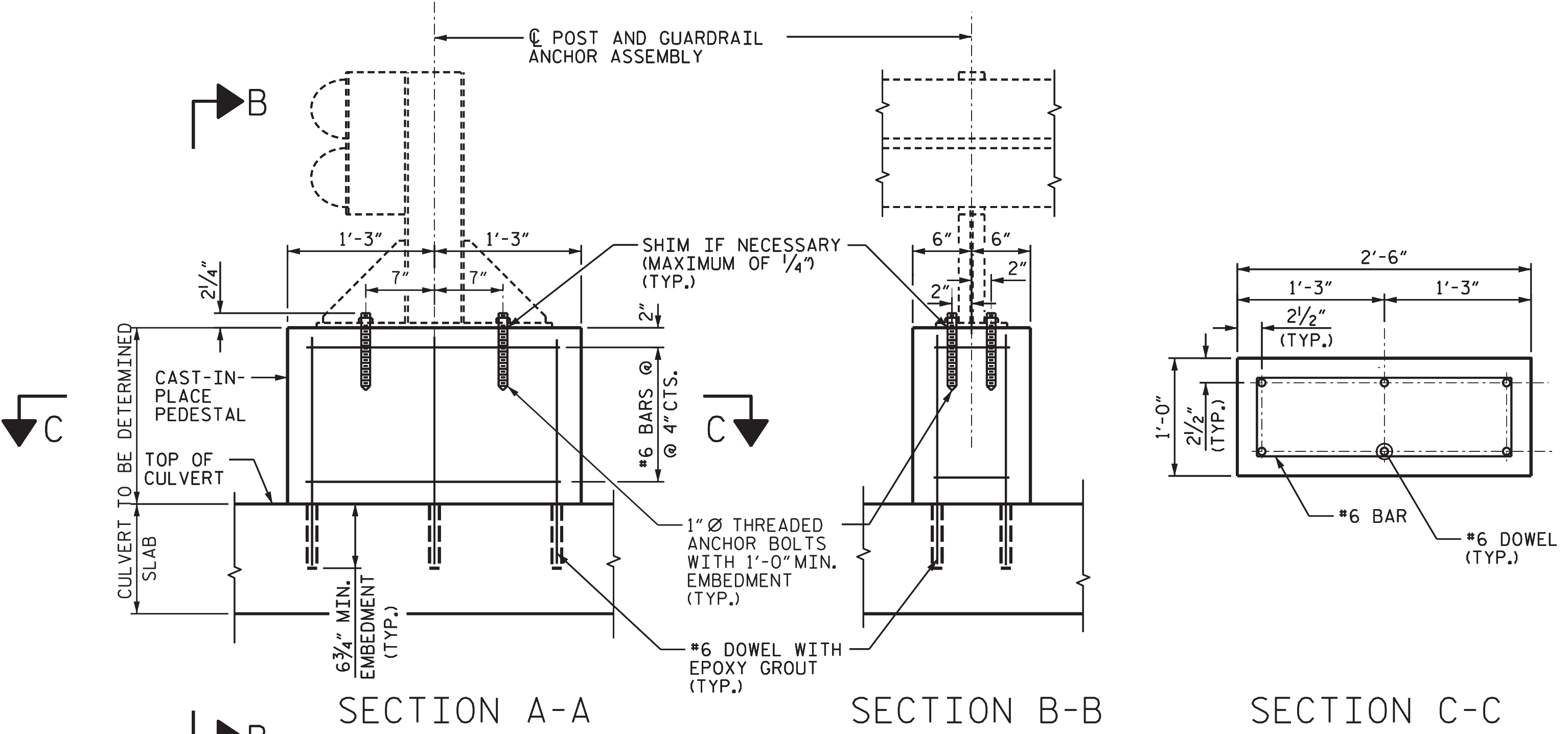


END ELEVATION



CULVERT PLAN

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



GUARDRAIL PEDESTAL DETAILS

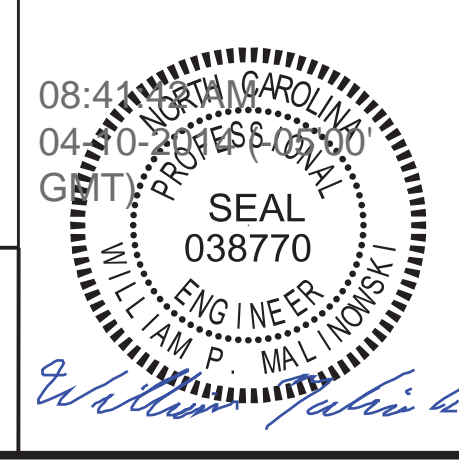
NOTES

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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

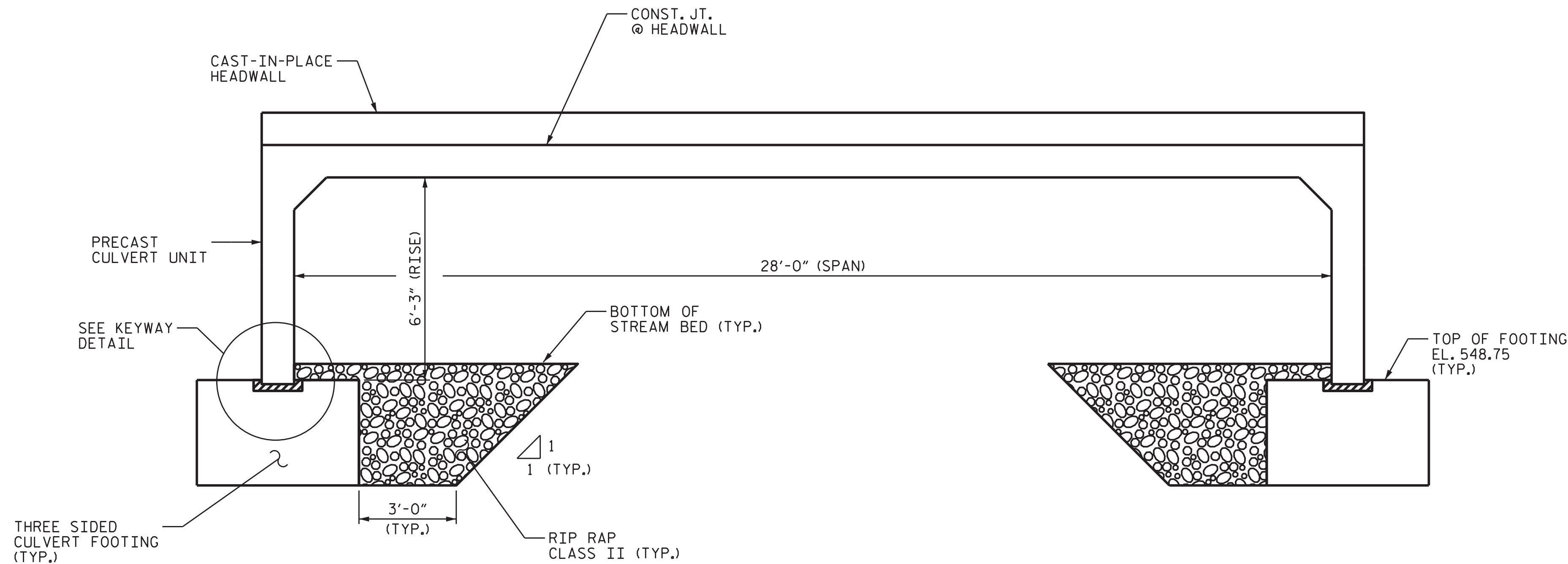


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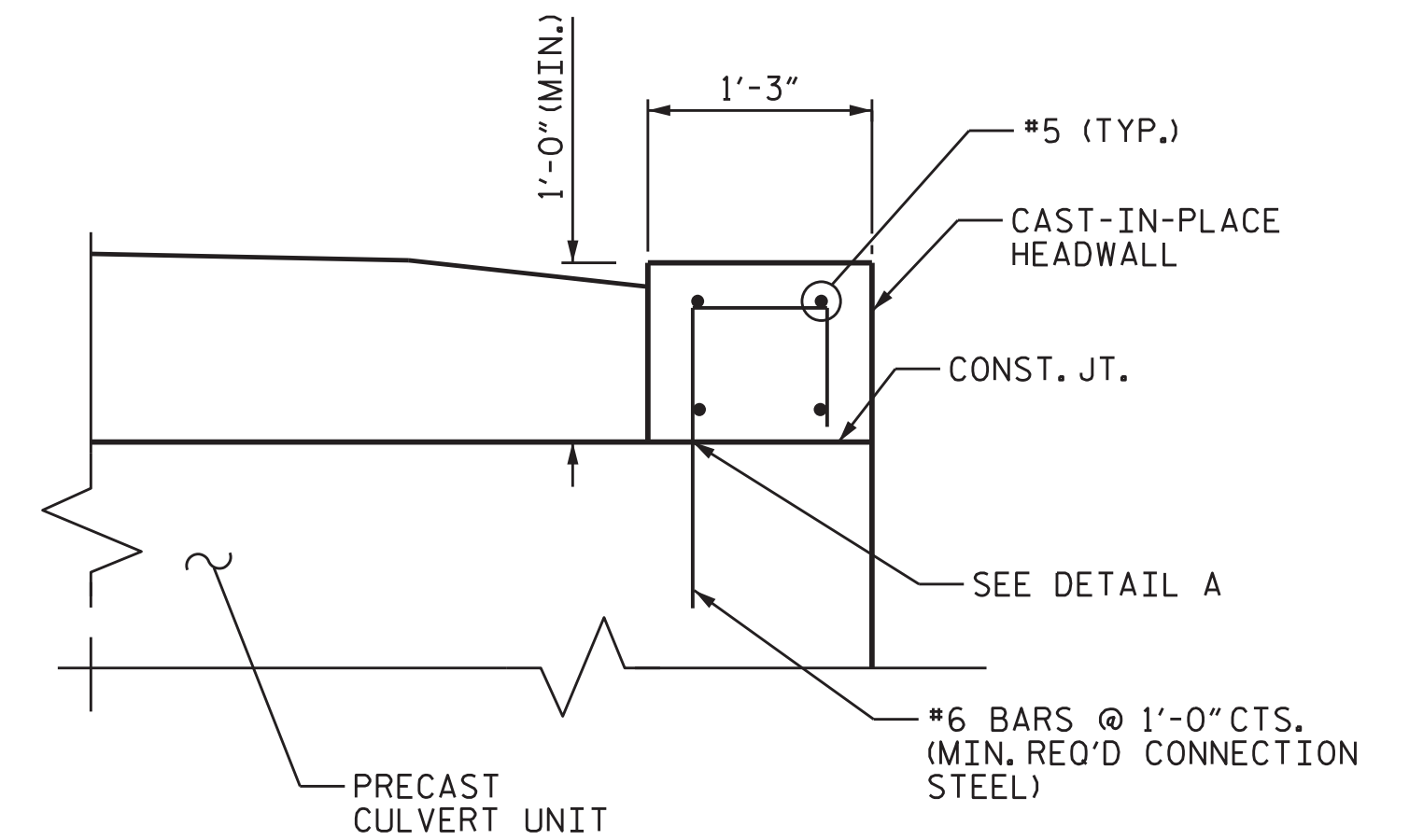
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REVISIONS						SHEET NO. C-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 4
2			4			

*****SYSTEM*****
 *****DCN*****
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RIGHT ANGLE SECTION OF
PRECAST CONCRETE THREE-SIDED CULVERT

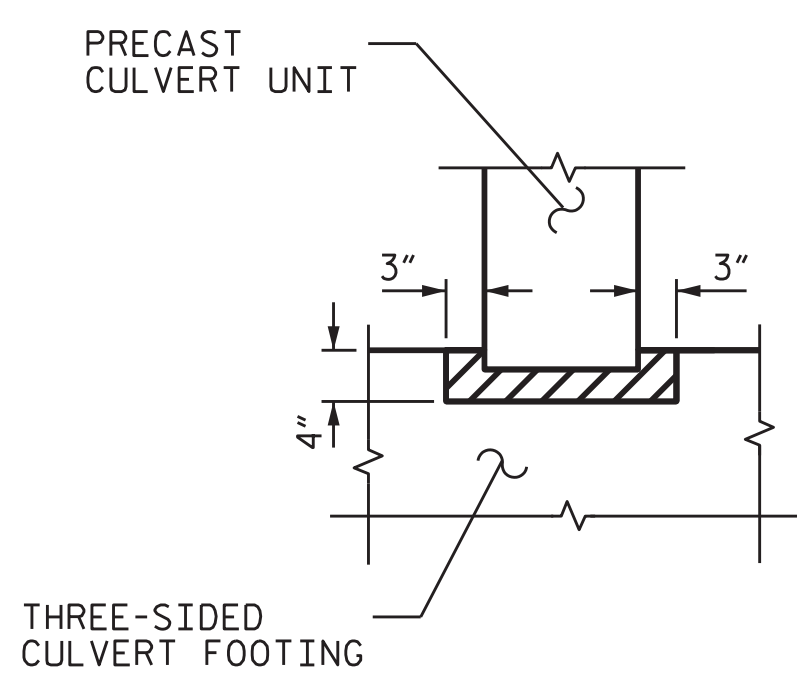


SECTION THRU HEADWALL

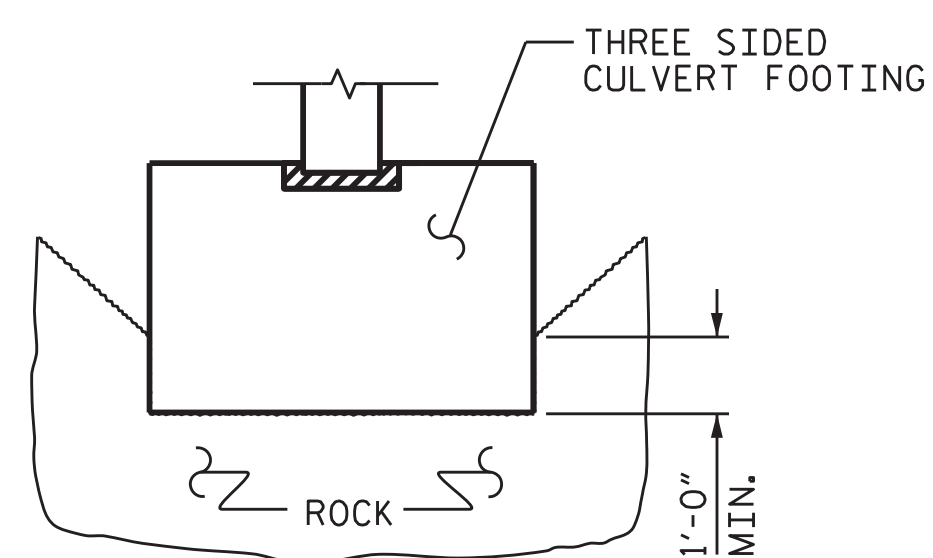


DETAIL A

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

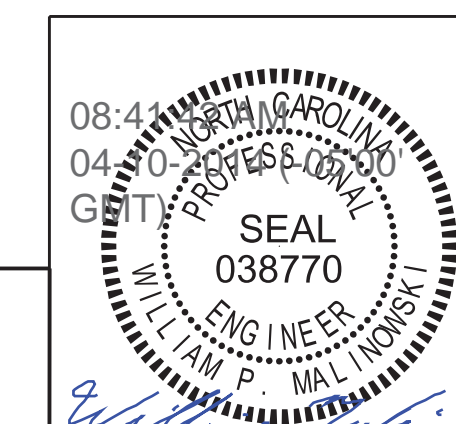
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DETAILS
PRECAST REINFORCED CONCRETE
THREE-SIDED CULVERT
SR 2107 (TOM WILLIAMS ROAD)
OVER BUCK BRANCH
90° SKEW

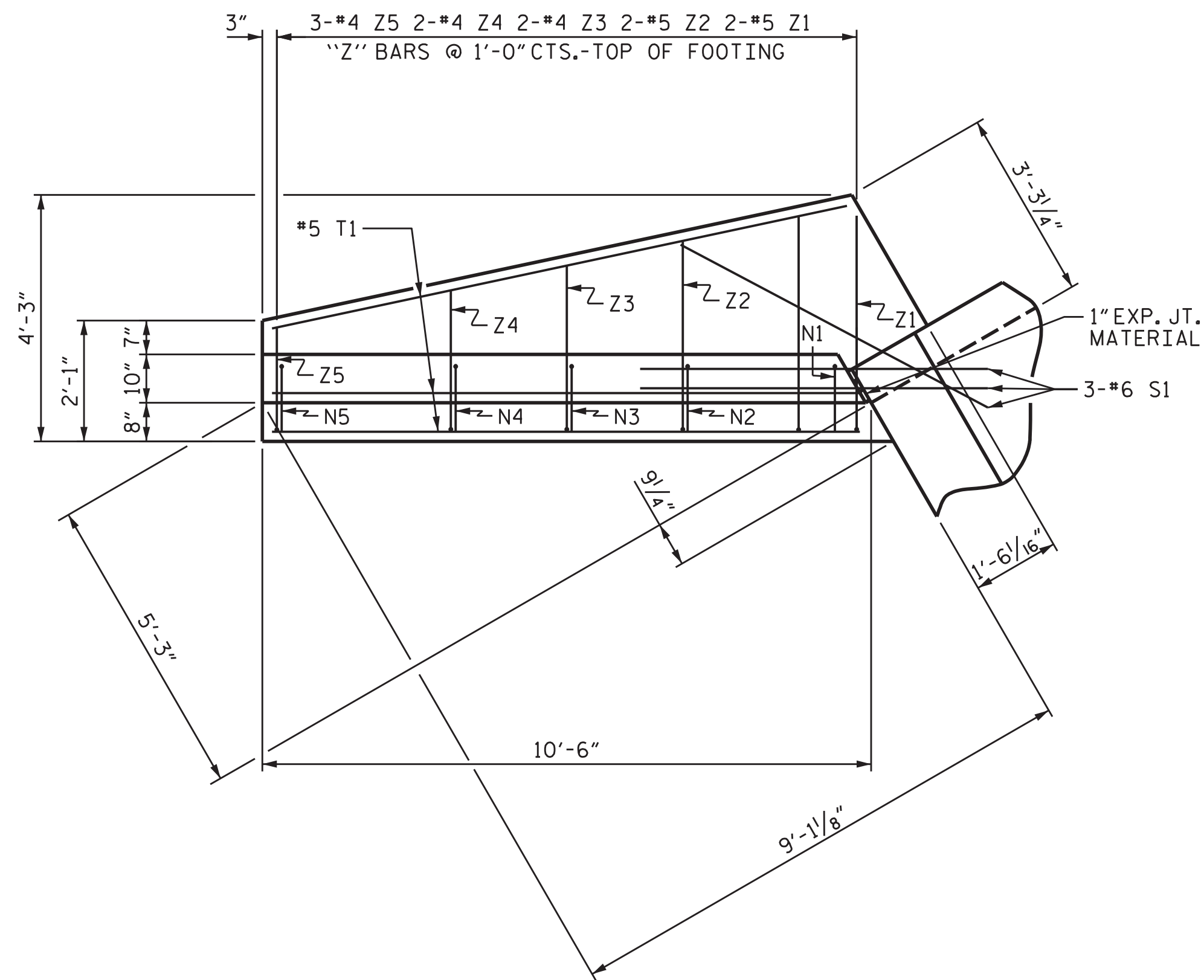
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			4

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

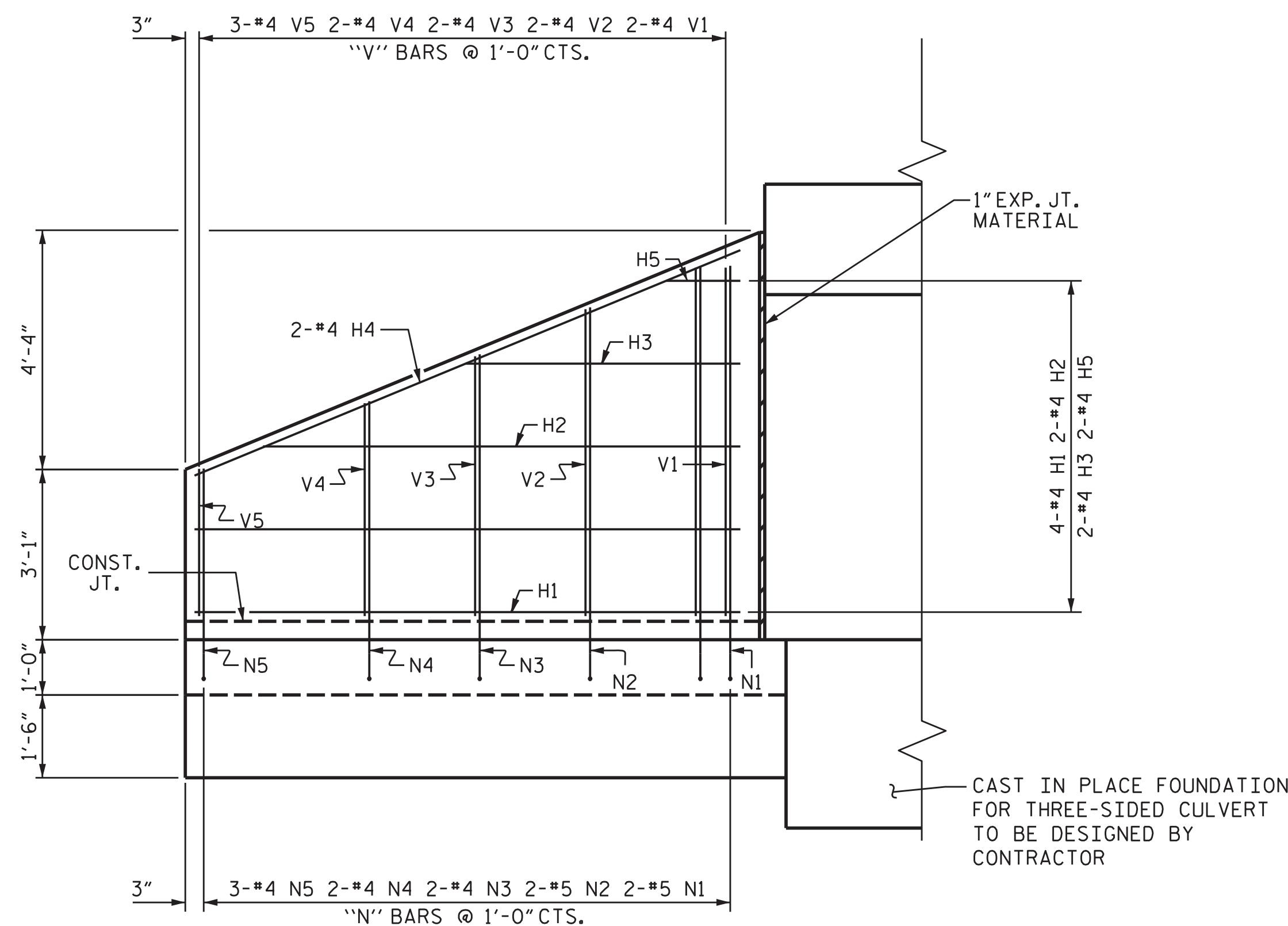
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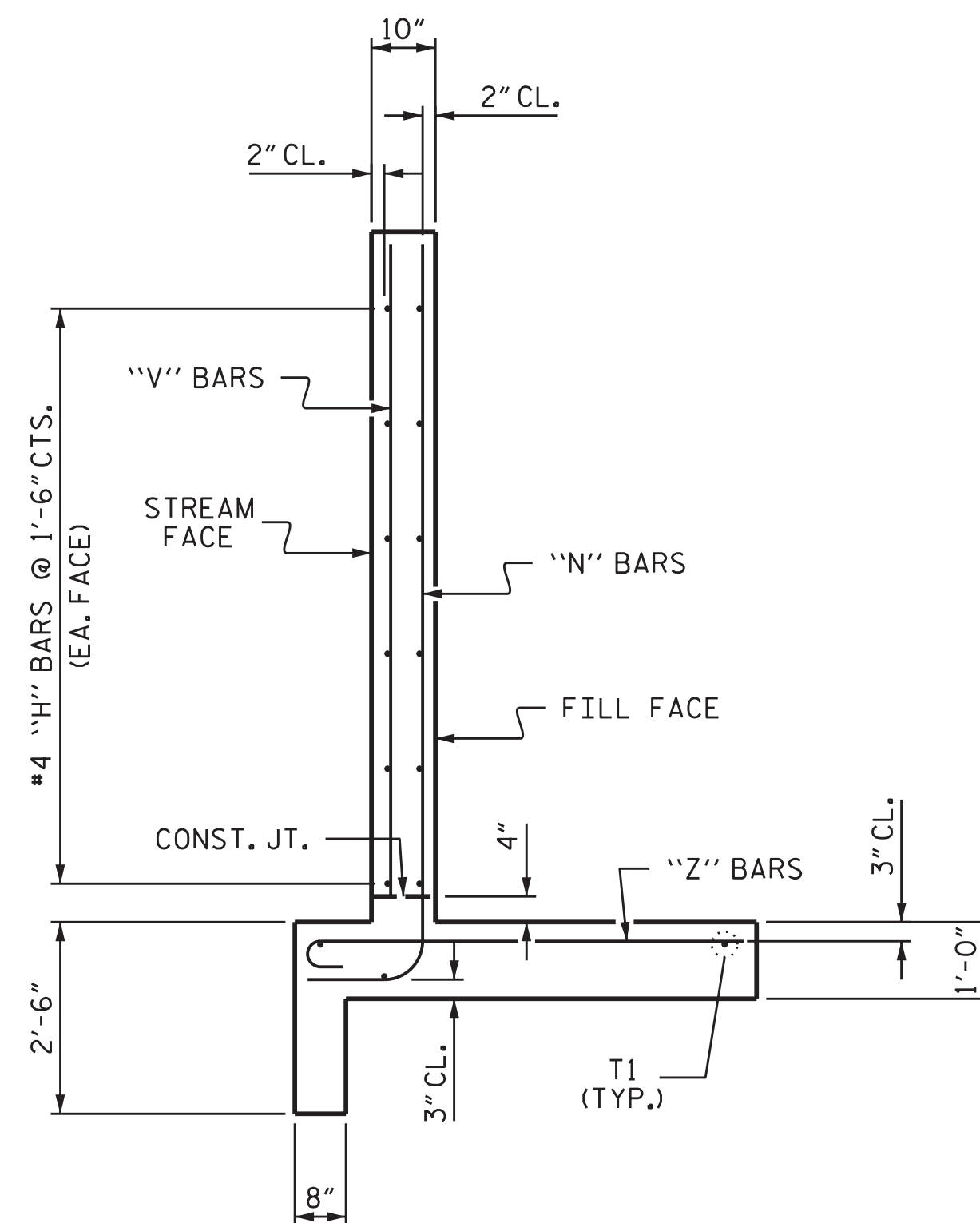




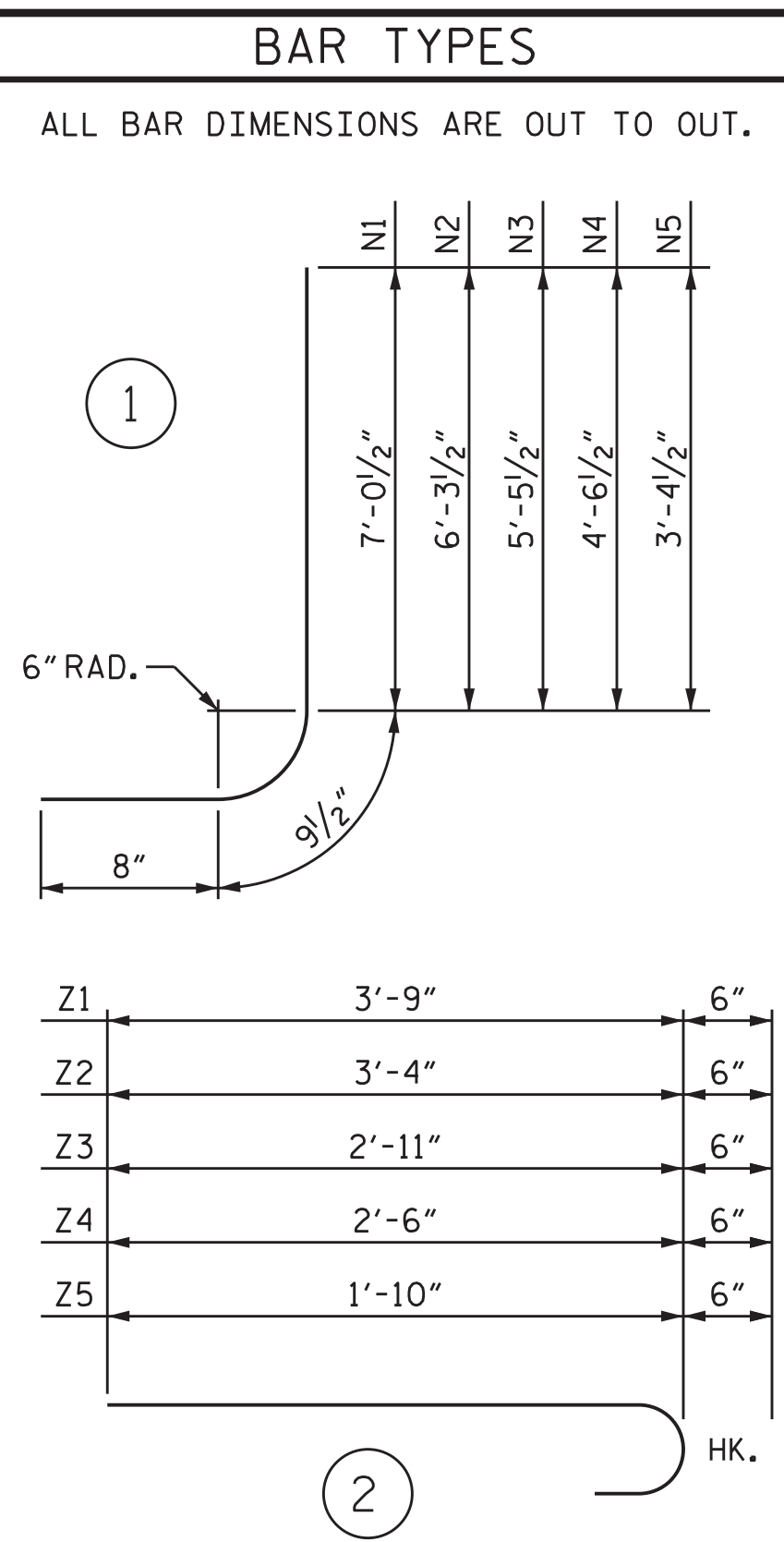
PLAN



ELEVATION



TYPICAL WING SECTION



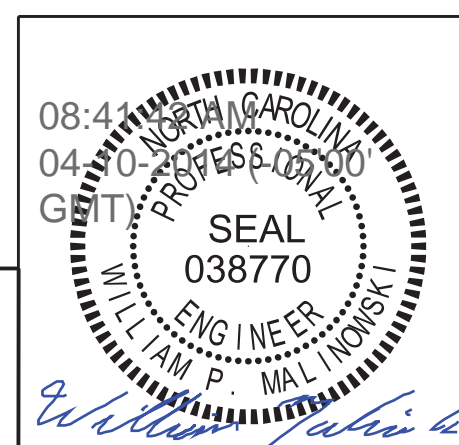
BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	9'-11"	106
H2	8	#4	STR	8'-8"	46
H3	8	#4	STR	5'-0"	27
H4	8	#4	STR	10'-8"	57
H5	8	#4	STR	1'-4"	7
N1	8	#5	1	8'-6"	71
N2	8	#5	1	7'-9"	65
N3	8	#4	1	6'-11"	37
N4	8	#4	1	6'-0"	32
N5	12	#4	1	4'-10"	39
S1	12	#6	STR	6'-0"	108
T1	12	#5	STR	10'-2"	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

- 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.

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

SHEET 4 OF 4 REPLACES BR. NO. 367

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



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

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

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