

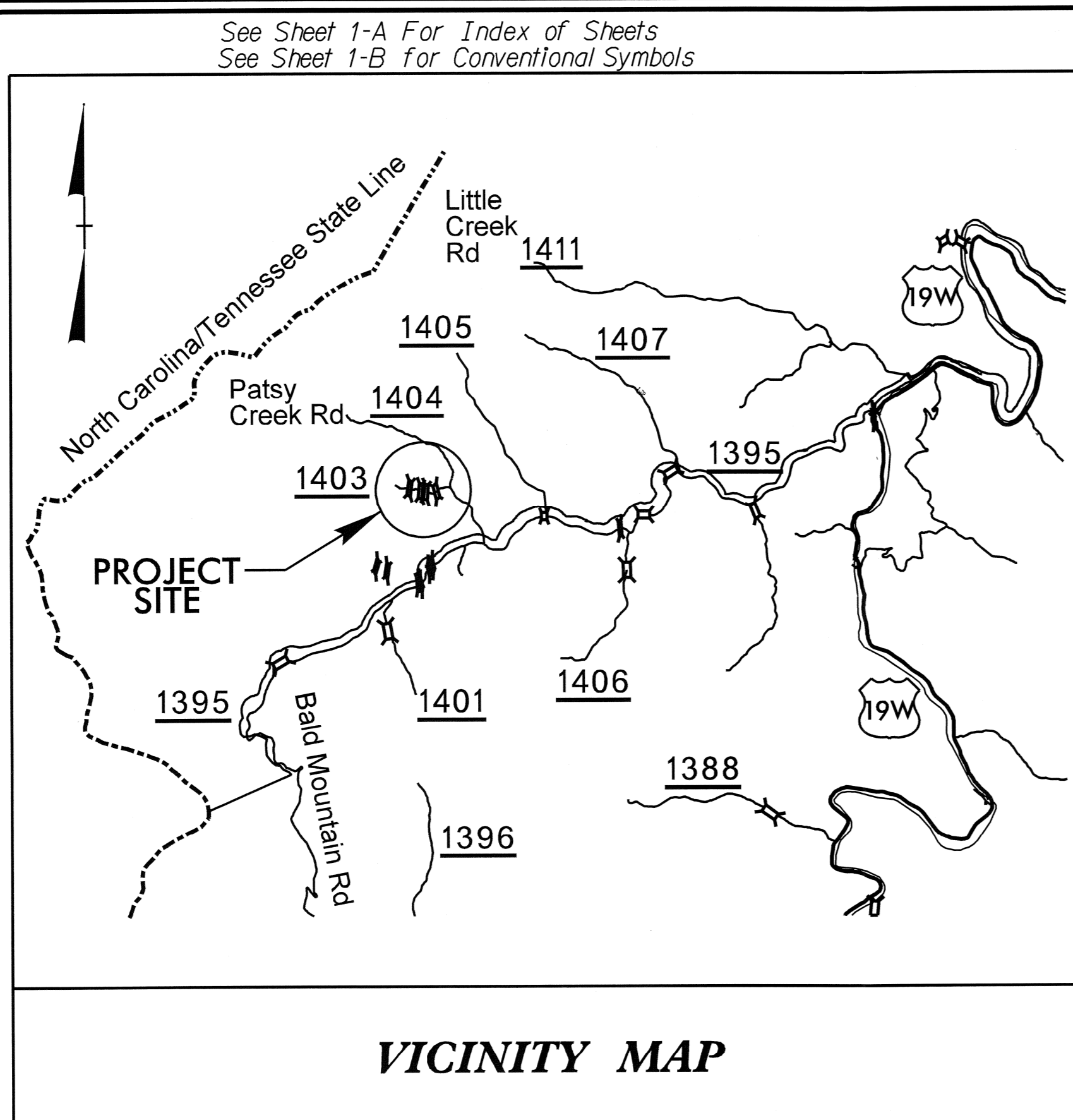
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.82	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.13.R.82		PE	
17BP.13.R.82		R/W & UTIL.	
17BP.13.R.82		CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

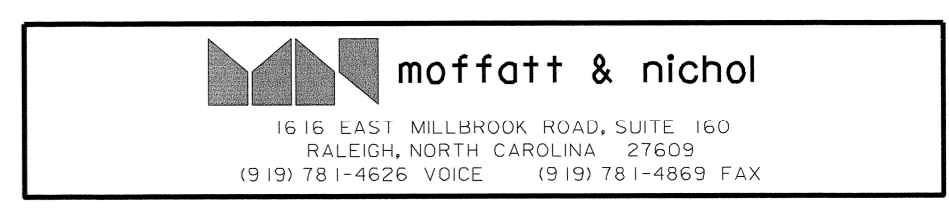
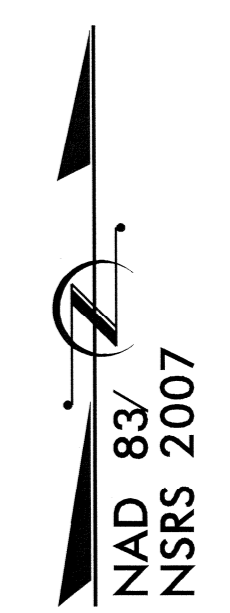
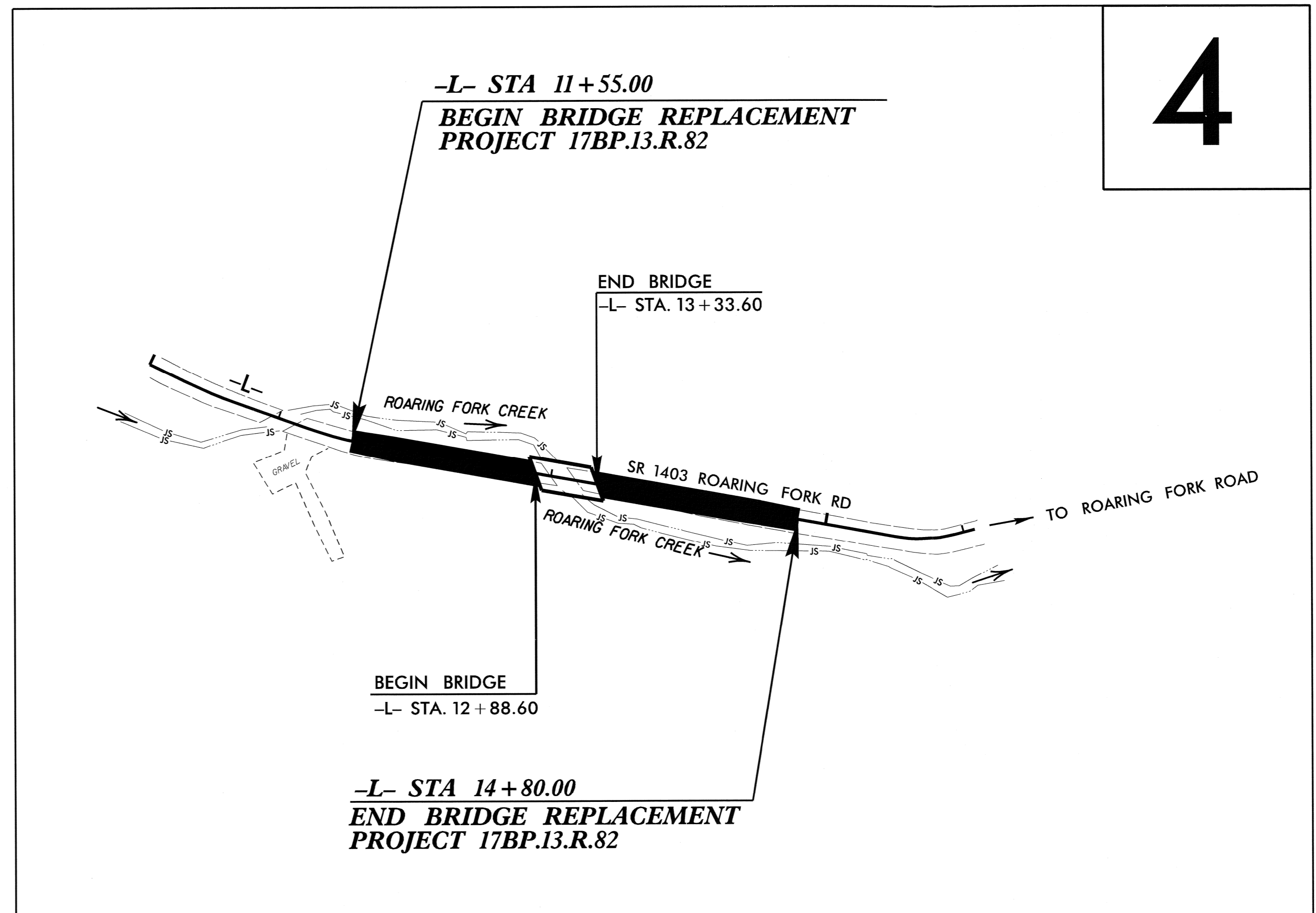
YANCEY COUNTY

**LOCATION: BRIDGE NO. 150 OVER ROARING FORK CREEK
ON SR 1403 (ROARING FORK RD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

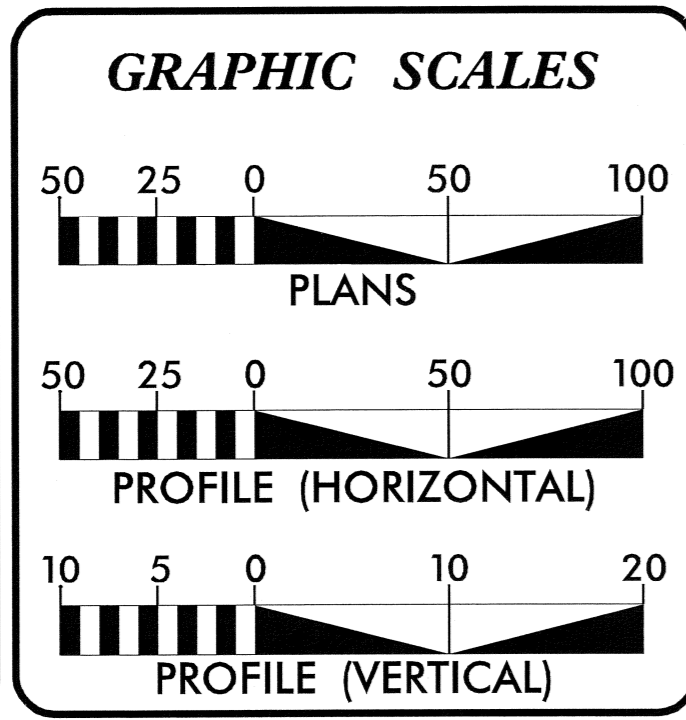


VICINITY MAP



CONTRACT: STATE PROJECT: 17BP.13.R.82

CONTRACT: STATE PROJECT: 17BP.13.R.82



DESIGN DATA
 ADT 2010 = 60
 V = 35 MPH
 FUNC. CLASS = RURAL LOCAL
 Sub-Regional Tier & Very Low-Volume Local Roads Guidelines.

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.13.R.82 = 0.053 MILES
 LENGTH OF STRUCTURE PROJECT 17BP.13.R.82 = 0.009 MILES
 TOTAL LENGTH OF PROJECT 17BP.13.R.82 = 0.062 MILES

Prepared in the Office of:
KCI ASSOCIATES OF NC
 4601 Six Forks Rd., Suite 220, Raleigh NC, 27609

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 12, 2013

LETTING DATE:

BARRY C. SMITH, PE
PROJECT ENGINEER

BRYAN E. HOUGH, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: TROY S. WILSON, PLS

HYDRAULICS ENGINEER

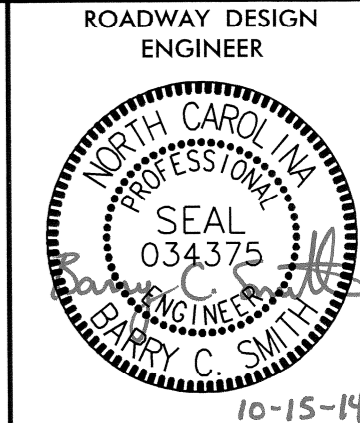
[Signature]
SIGNATURE: P.E. 11/3/14

ROADWAY DESIGN ENGINEER

[Signature]
SIGNATURE: P.E. 10-15-14

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER P.E.



EFF. 01-17-2012
REV. 10-30-2012

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS, PAVEMENT SCHEDULE, WEDGING DETAIL, AND CURB AND GUTTER DETAIL
2-A	DETOUR PLAN SHEET
2-B	DETAIL OF MODIFIED CONCRETE FLUME
3-A	SUMMARY OF EARTHWORK, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF RIP RAP, AND GUARDRAIL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 TO TMP-5	TRAFFIC MANAGEMENT PLANS
PMP-1 TO PMP-2	PAVEMENT MARKING PLANS
EC-1 TO EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
X-1A	CROSS SECTION SUMMARY SHEET
X-1 TO X-4	-L- CROSS-SECTIONS
X-5 TO X-8	-DET- CROSS SECTIONS
S-1 TO S-24	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04
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.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE FRENCH BROAD ELECTRIC AND FRONTIER COMMUNICATIONS.

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	♀
Well	⊙
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	○ CSX TRANSPORTATION MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite Marker	○
Existing Control of Access	⊙
Proposed Control of Access	⊙
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
Curb Cut Future Ramp	○ CCFR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXX

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

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

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	} CONC WW {
MINOR:	
Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
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	-----
Designated U/G Water Line (S.U.E.*)	-----
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

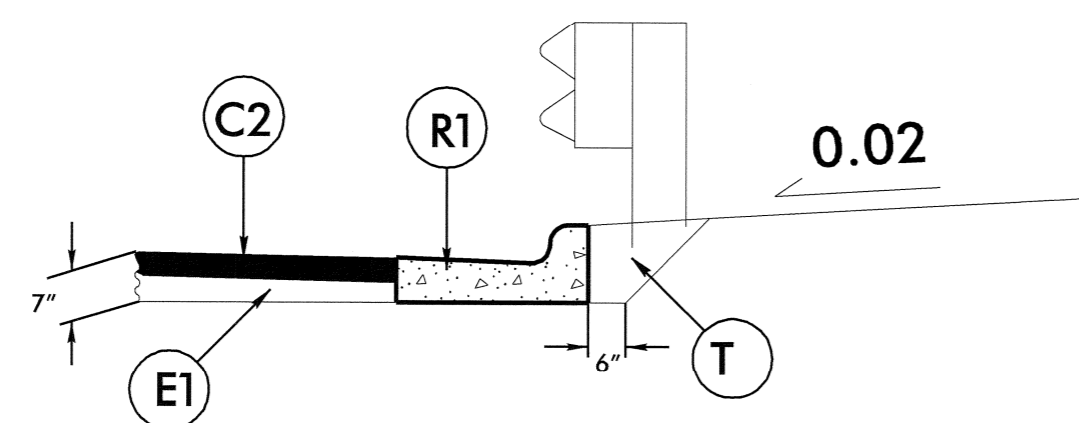
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	----- ZUTL
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.

6/2/99

PAVEMENT SCHEDULE FINAL DESIGN	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	2' TEMPORARY PORTABLE CONCRETE BARRIER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET).

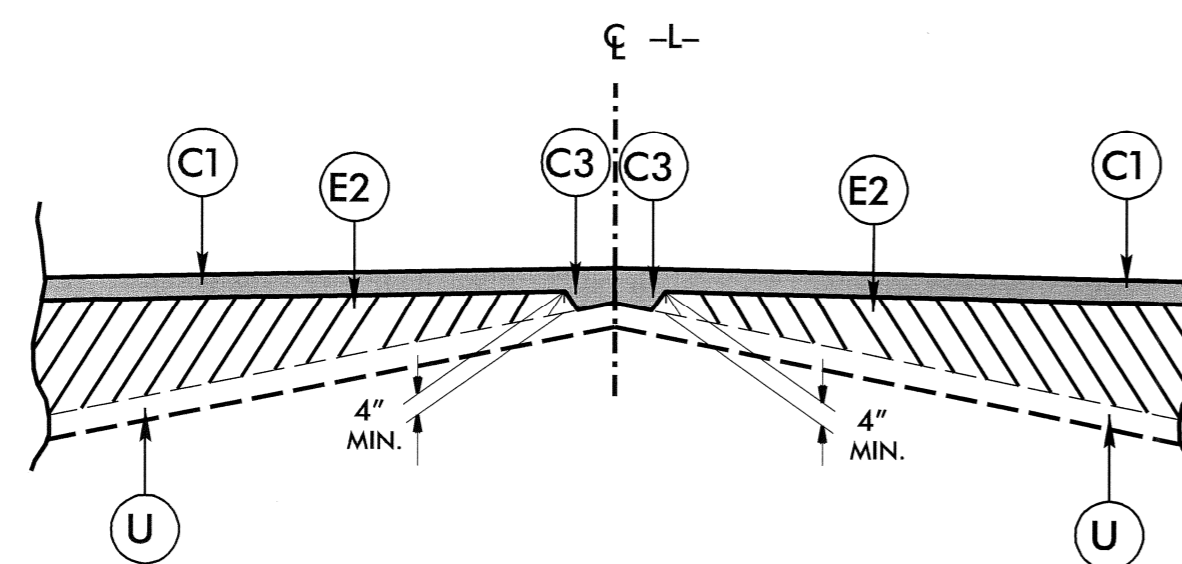
ALL PAVEMENT EDGE SLOPES ARE 1:1



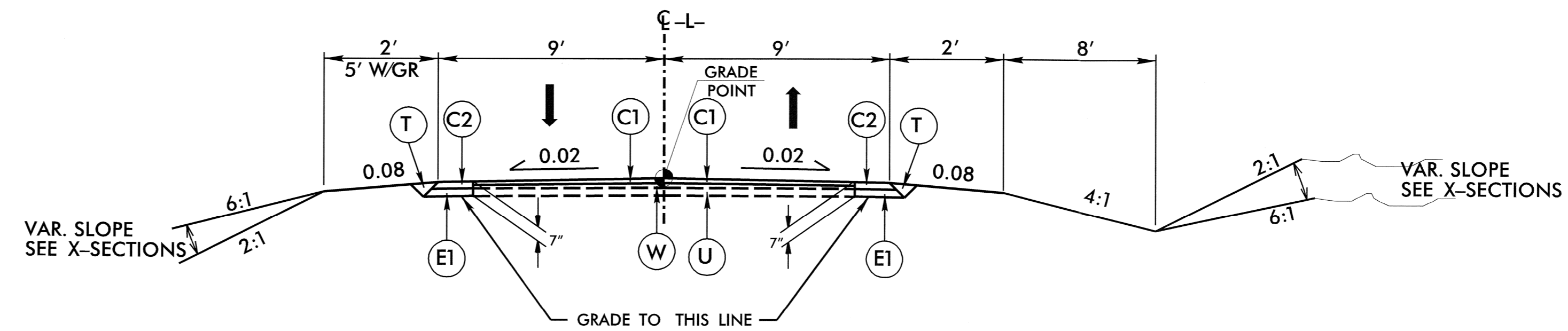
CURB AND GUTTER DETAIL

USE CURB AND GUTTER DETAIL

-L- STA. 13+27.25 TO -L- STA. 13+44.00 (LT.)
 -L- STA. 13+39.95 TO -L- STA. 14+01.43 (RT.)



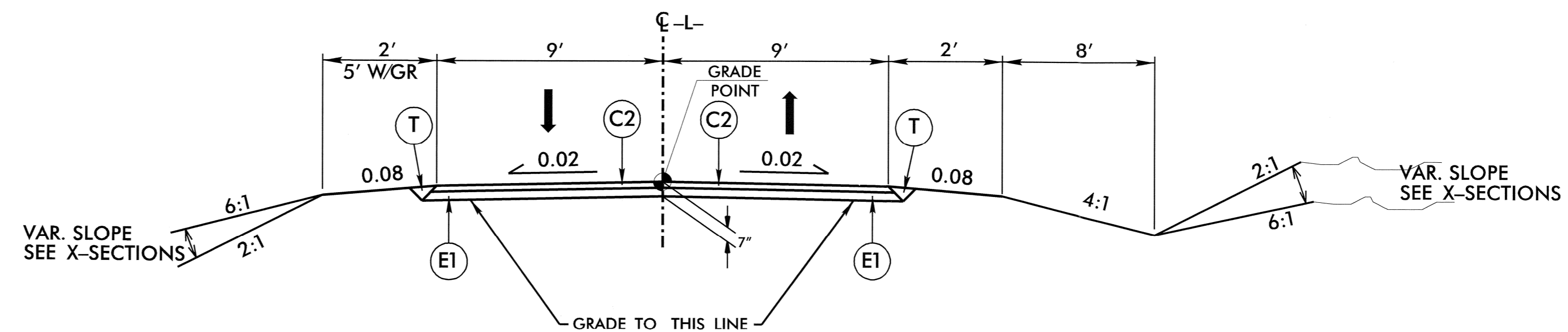
Detail Showing Method of Wedging



ROADWAY TYPICAL SECTION NO. 1

ROADWAY TYPICAL SECTION NO. 1

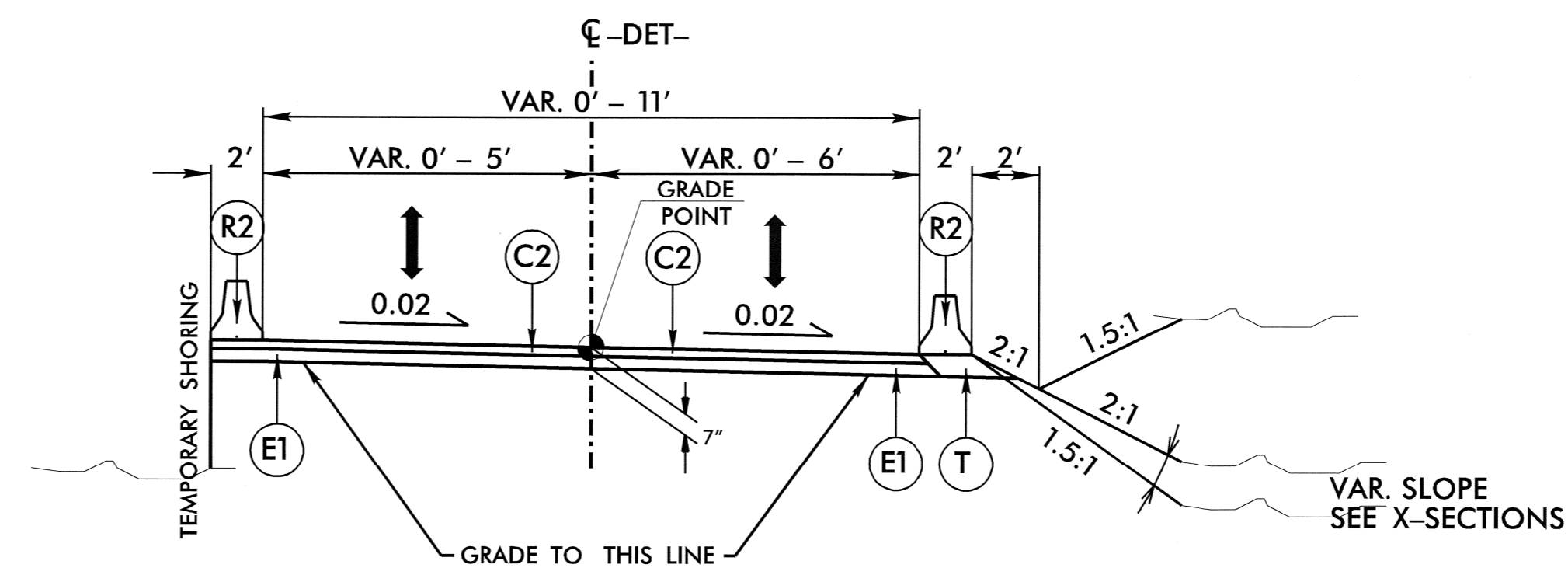
-L- STA. 11+55.00 TO STA. 12+38.00
 -L- STA. 14+00.00 TO STA. 14+80.00



ROADWAY TYPICAL SECTION NO. 2

ROADWAY TYPICAL SECTION NO. 2

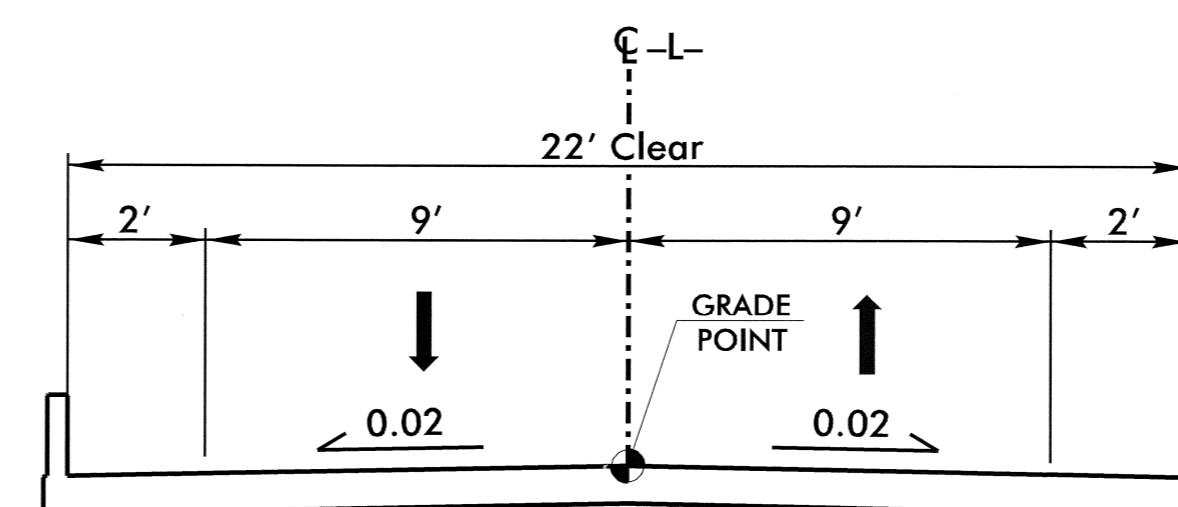
-L- STA. 12+38.00 TO STA. 12+88.60
 -L- STA. 13+33.60 TO STA. 14+00.00



ROADWAY TYPICAL SECTION NO. 3

ROADWAY TYPICAL SECTION NO. 3

-DET- STA. 10+39.45 TO STA. 12+29.89



TYPICAL SECTION ON STRUCTURE

STRUCTURE TYPICAL SECTION

-L- STA. 12+88.60 TO STA. 13+33.60

PROJECT REFERENCE NO. 17BP13.R.82	SHEET NO. 2
ROADWAY DESIGN ENGINEER	
<small>Engineers • Planners • Scientists • Construction Managers 4601 Six Forks Road, Landmark Center II, Suite 220 Raleigh, NC 27609-5210 Phone (919) 783-9214 • Fax (919) 783-9206</small>	

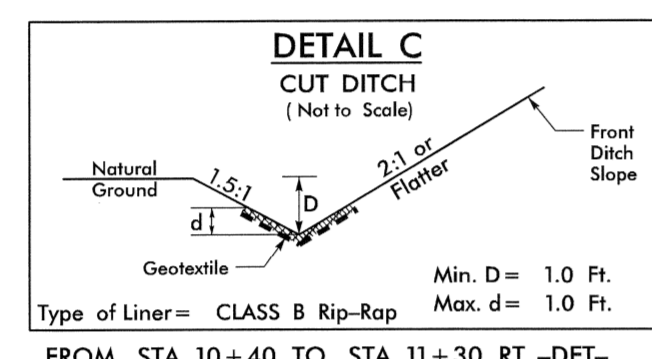
11/6/57 AM
 150-Reddy-tyj-p.dgn
 11/6/57 AM

TEMPORARY DETOUR

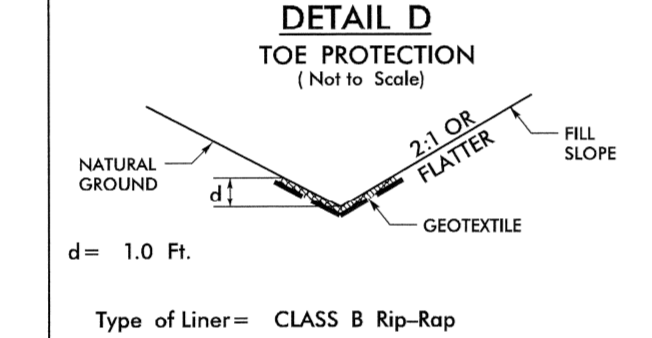
PROJECT REFERENCE NO. 17BP13.R.82	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Engineers • Planners • Scientists • Construction Managers 4601 Six Forks Road, Landmark Center II, Suite 220 Raleigh, NC 27609-5210 Phone (919) 783-9214 • Fax (919) 783-9266	
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4889 FAX	

FOR -DET- PROFILE, SEE SHEET 5

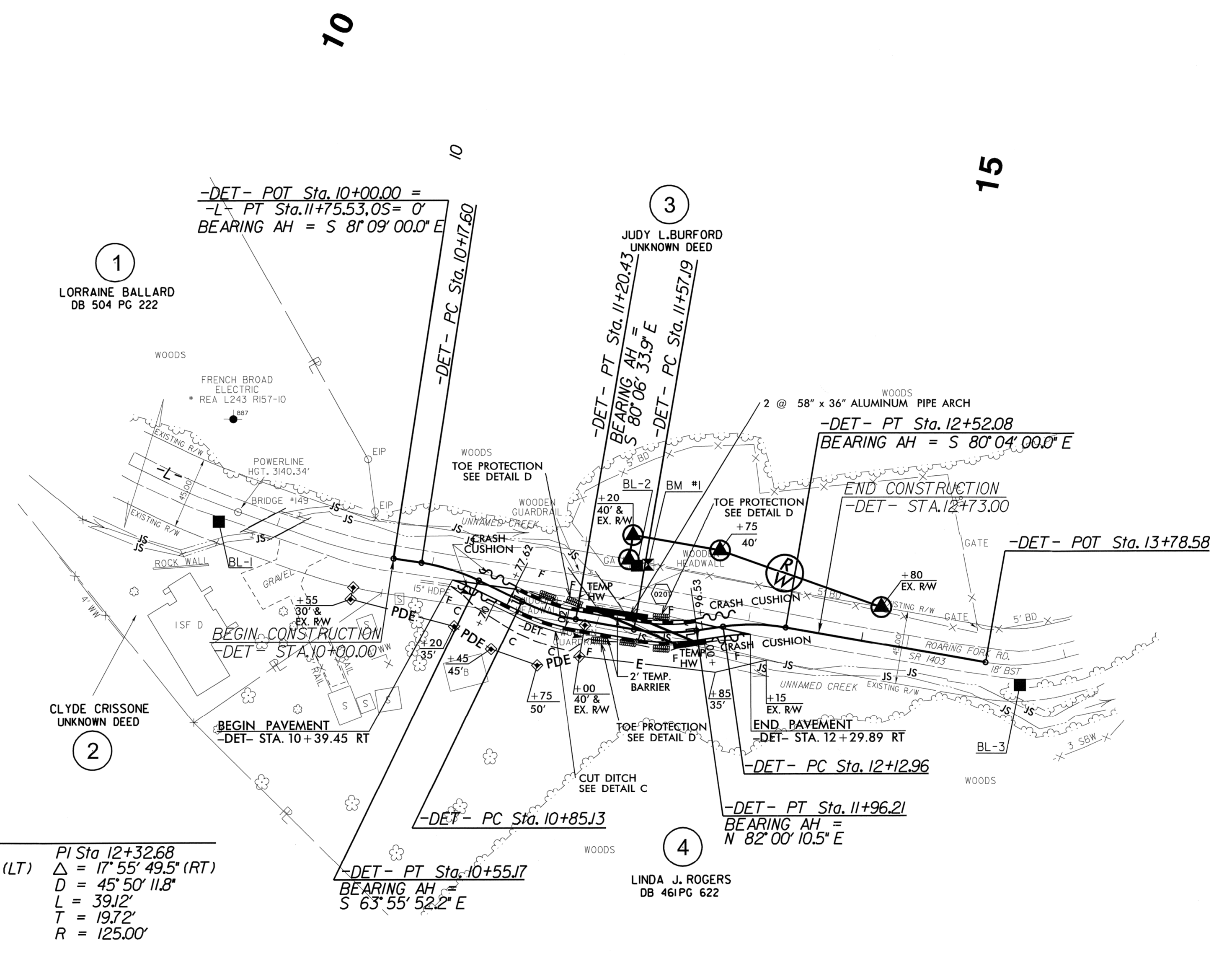
NAD 83/NSRS 2007



FROM STA. 10+40 TO STA. 11+30 RT -DET-



FROM STA. 11+30 TO STA. 11+81 RT -DET-
FROM STA. 11+00 TO STA. 11+25 LT -DET-
FROM STA. 11+60 TO STA. 11+80 LT -DET-



-DET-			
PI Sta 10+79.46	PI Sta 11+02.90	PI Sta 11+76.86	PI Sta 12+32.68
$\Delta = 10^{\circ} 39' 00.0''$ (LT)	$\Delta = 16^{\circ} 10' 41.8''$ (LT)	$\Delta = 17^{\circ} 53' 15.5''$ (LT)	$\Delta = 17^{\circ} 55' 49.5''$ (RT)
D = 20' 00' 00.0"	D = 45' 50' 11.8"	D = 45' 50' 11.8"	D = 45' 50' 11.8"
L = 53.25'	L = 35.30'	L = 39.02'	L = 39.12'
T = 26.70'	T = 17.77'	T = 19.67'	T = 19.72'
R = 286.48'	R = 125.00'	R = 125.00'	R = 125.00'

5/14/14 13-OC1-2014 11:16 9901501-Roadway\Proj\1501-Roadway\1501-Roadway_psh_a2a.dgn

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

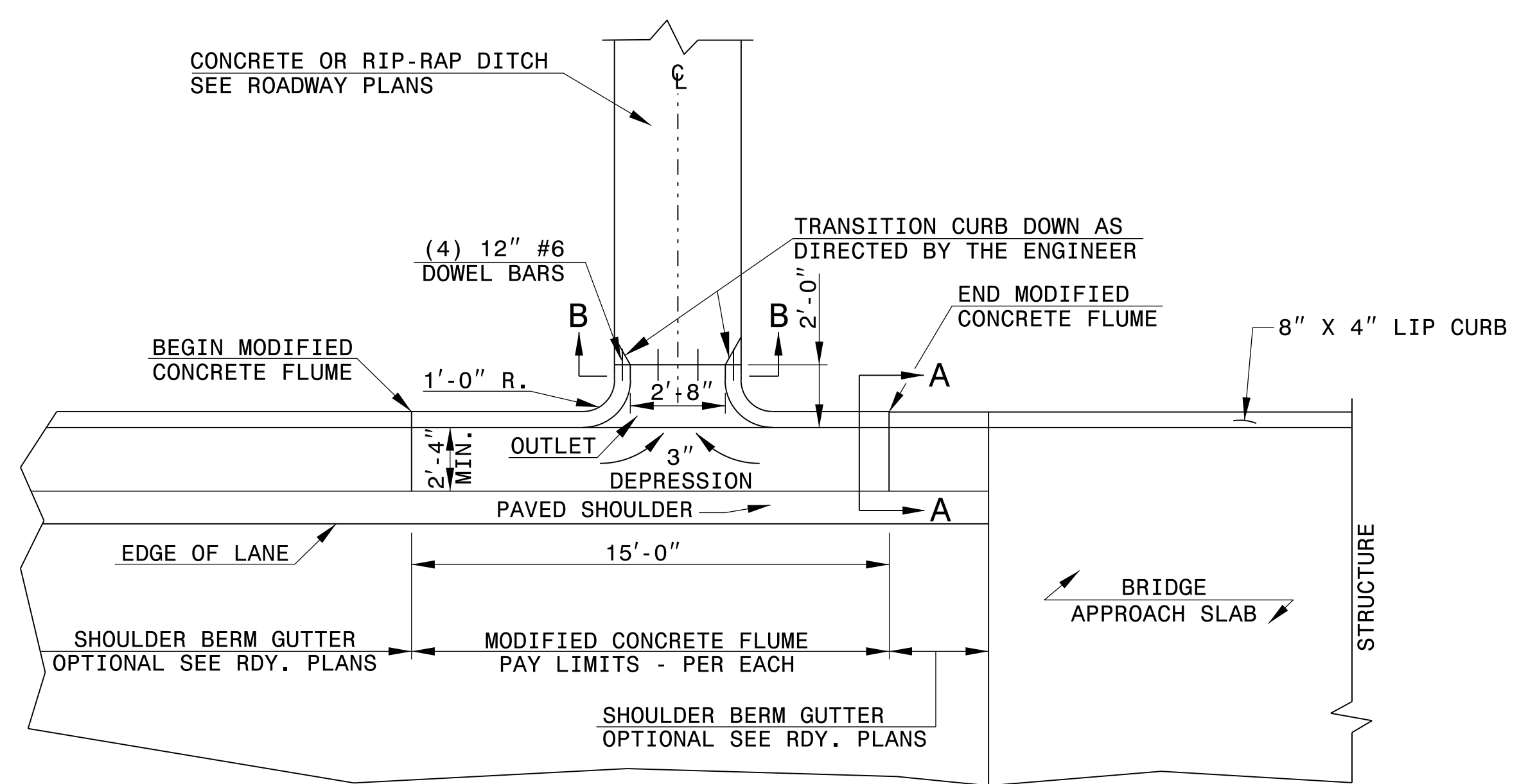
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

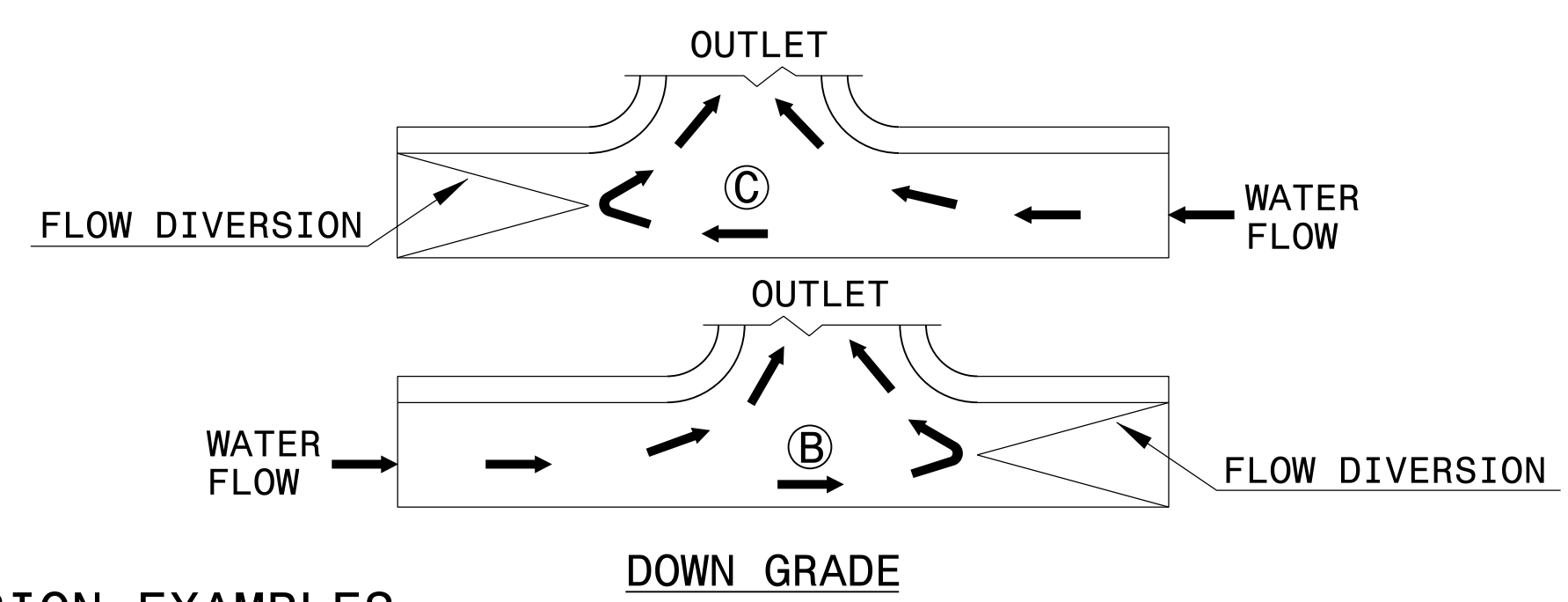
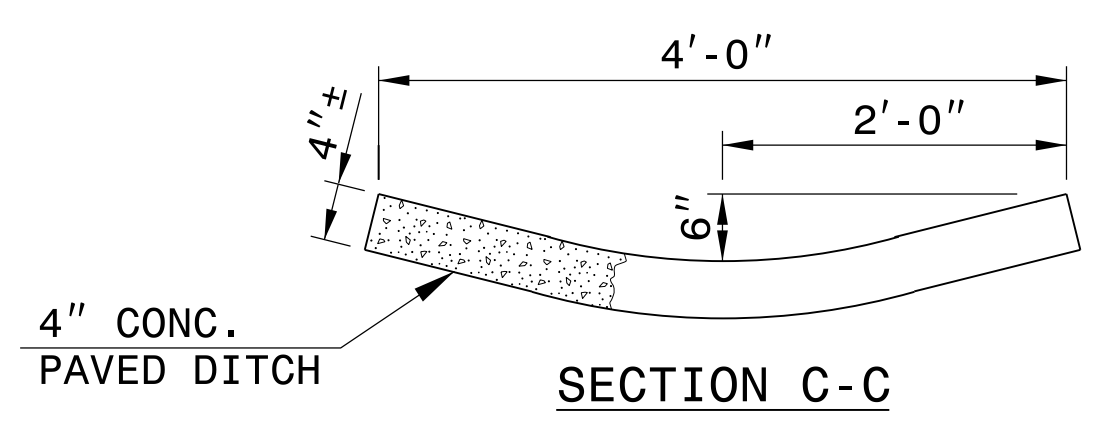
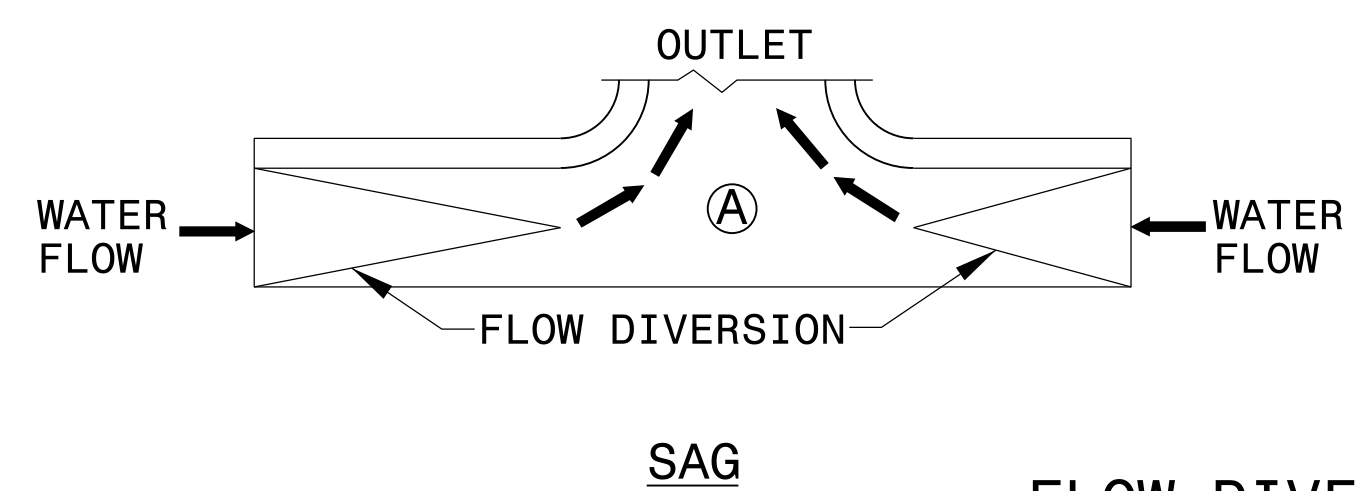
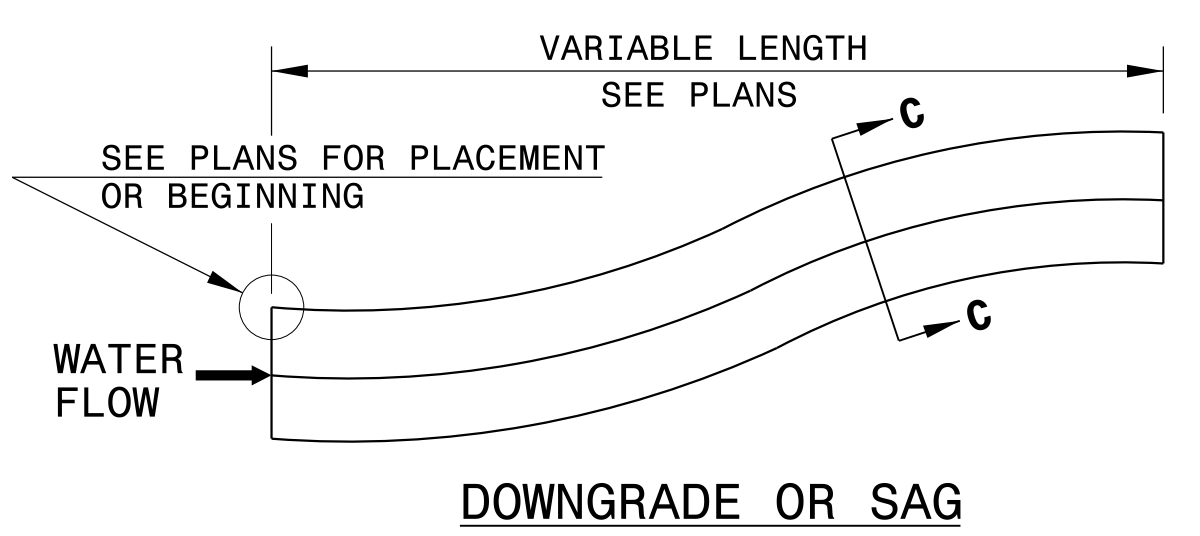
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

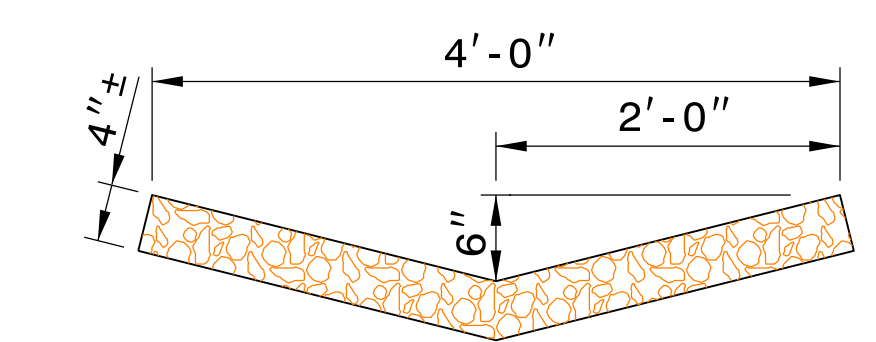
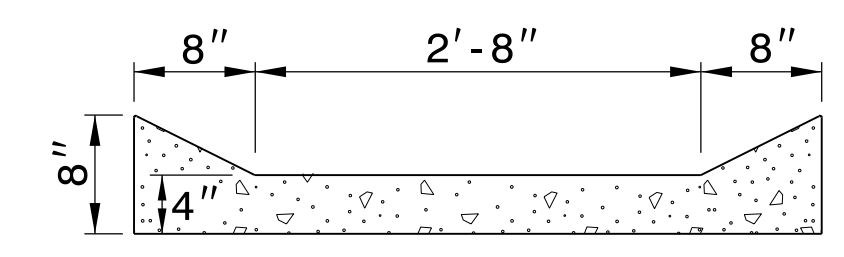
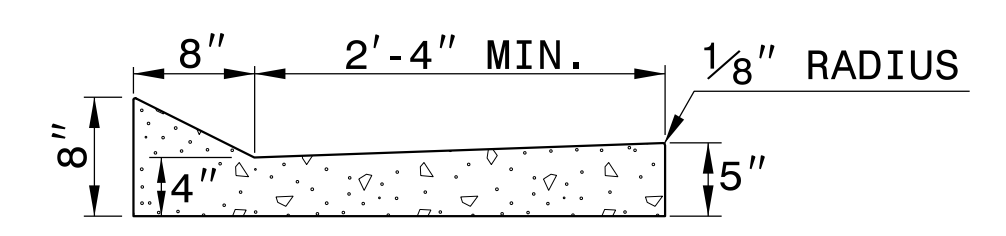
SHEET 1 OF 1
MODFLMDTCH



PLAN VIEW



FLOW DIVERSION EXAMPLES



- NOTES:
- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
 - CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
 - CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
 - CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
 - MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
 MODIFIED BY: E.E. Ward DATE: July 2004
 CHECKED BY: DATE:
 FILE SPEC.: w:\details\stand\modifiedflume.dgn

\$\$\$\$\$
 TIME\$\$\$\$\$
 USER\$\$\$\$\$
 \$\$\$

FOR -L- PROFILE, SEE SHEET 5

EXCAVATION (STR. PAY ITEM)

-L-

PI Sta 10+48.27 Δ = 6° 23' 00.0" (LT) D = 15° 00' 00.0" L = 42.56' T = 21.30' R = 381.97'	PI Sta 11+46.08 Δ = 9° 29' 59.5" (LT) D = 20° 00' 00.0" L = 47.50' T = 23.80' R = 286.48'	PI Sta 15+71.76 Δ = 23° 49' 00.5" (LT) D = 55° 00' 00.0" L = 43.30' T = 21.97' R = 104.17'
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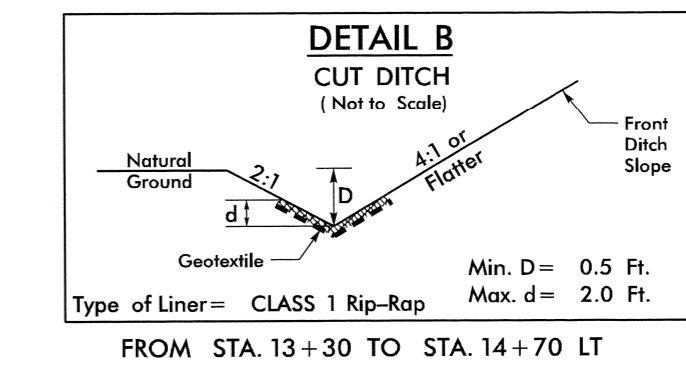
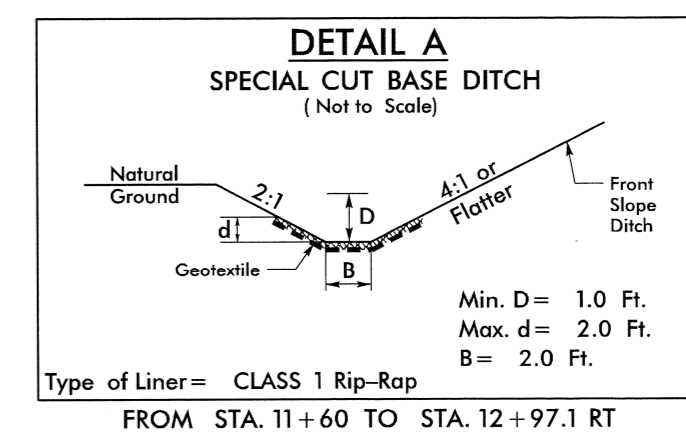
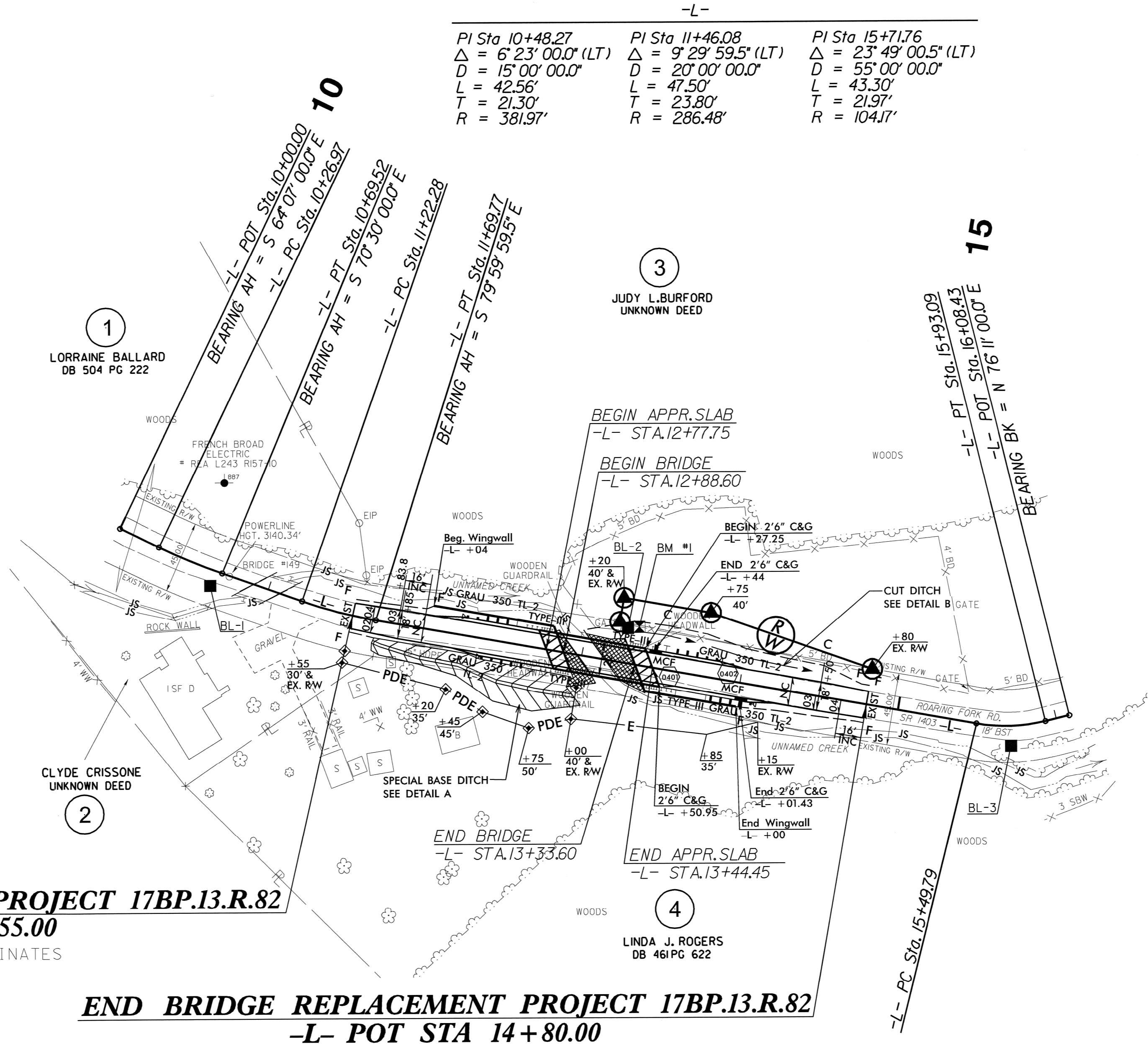
NAD 83/NSRS 2007

BEGIN BRIDGE REPLACEMENT PROJECT 17BP.13.R.82

-L- POC STA 11+55.00
LOCALIZED PROJECT COORDINATES
N = 830916.9415
E = 978633.7616

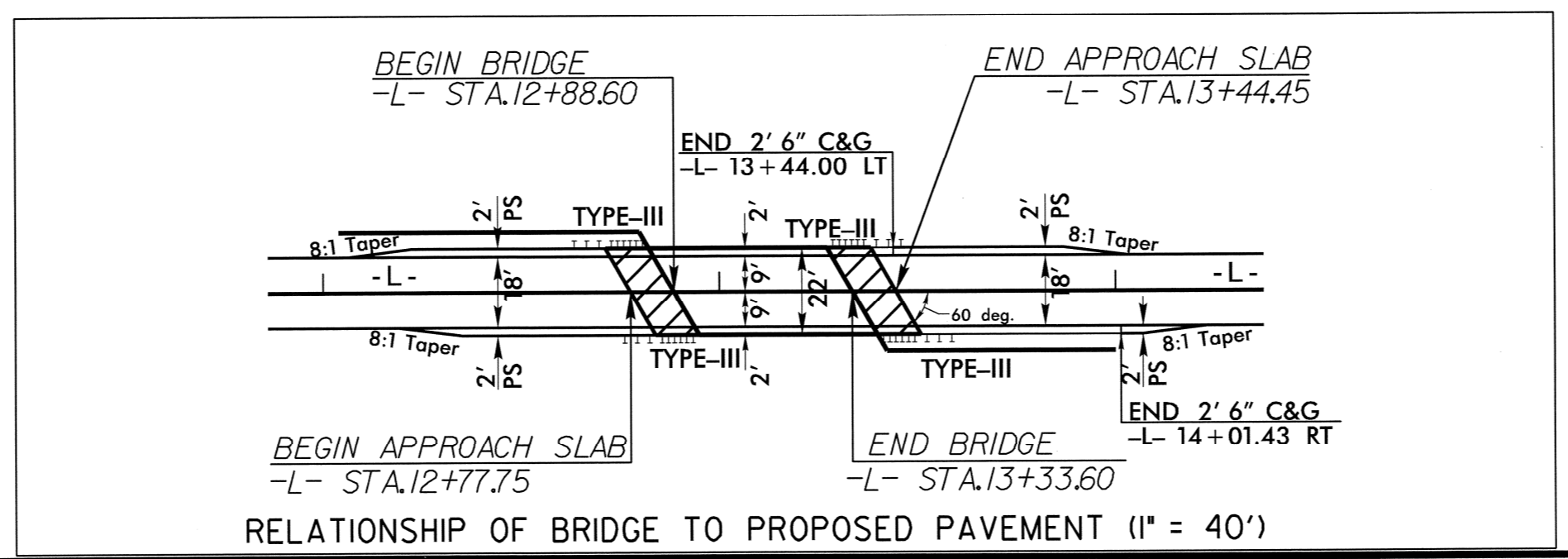
END BRIDGE REPLACEMENT PROJECT 17BP.13.R.82

-L- POT STA 14+80.00
LOCALIZED PROJECT COORDINATES
N = 830860.1311
E = 978953.7514



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	1	BL -1	830935.9783	978545.0884	3125.62	10+65.89	9.82 RT
	2	BL -2	830908.3900	978805.3930	3103.52	13+25.52	21.76 LT
	3	BL -3	830834.1495	979043.8821	3083.04	15+70.93	12.33 RT

BM1 ELEVATION = 3103.64
N 830909 E 978813
L STATION 13+32.46 23.73 LEFT
*5 REBAR SET AT BASE OF FENCE POST



BRIDGE APPROACH SLABS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "990150 BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 830908.3900(ft) EASTING: 978805.3930(ft) ELEVATION: 3103.52(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999809971

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "990150 BL-2" TO -L- STATION 11+55.00 IS N 87° 8' 51.4" W 171.84 ft

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

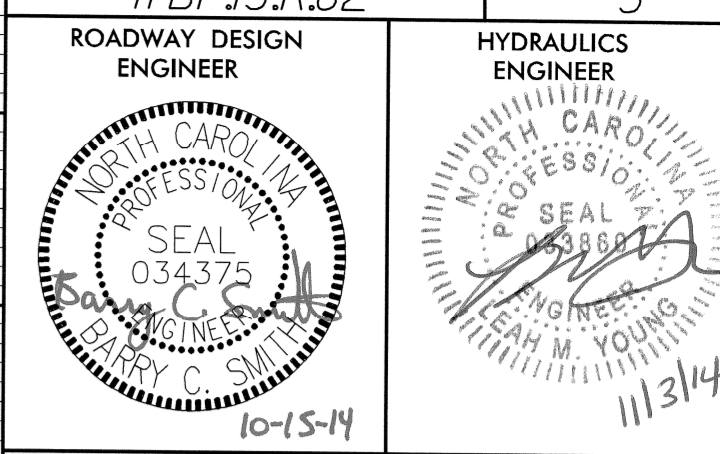
REVISIONS

8/17/09

13-067-2014.dwg Bridge Group RAG - 990150\17BP.13.R.82\17BP.13.R.82.dwg

UTILITY OWNERS
FRENCH BROAD ELECTRIC
381 CRIMSON LAUREL WAY
PO BOX 43
BAKERSVILLE, NC 28705
FRONTIER COMMUNICATIONS
15 SOUTH MAIN STREET
WEAVERVILLE, NC 28787

5/28/09



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 4601 Six Forks Road, Landmark Center II, Suite 220
 Raleigh, NC 27609-5210
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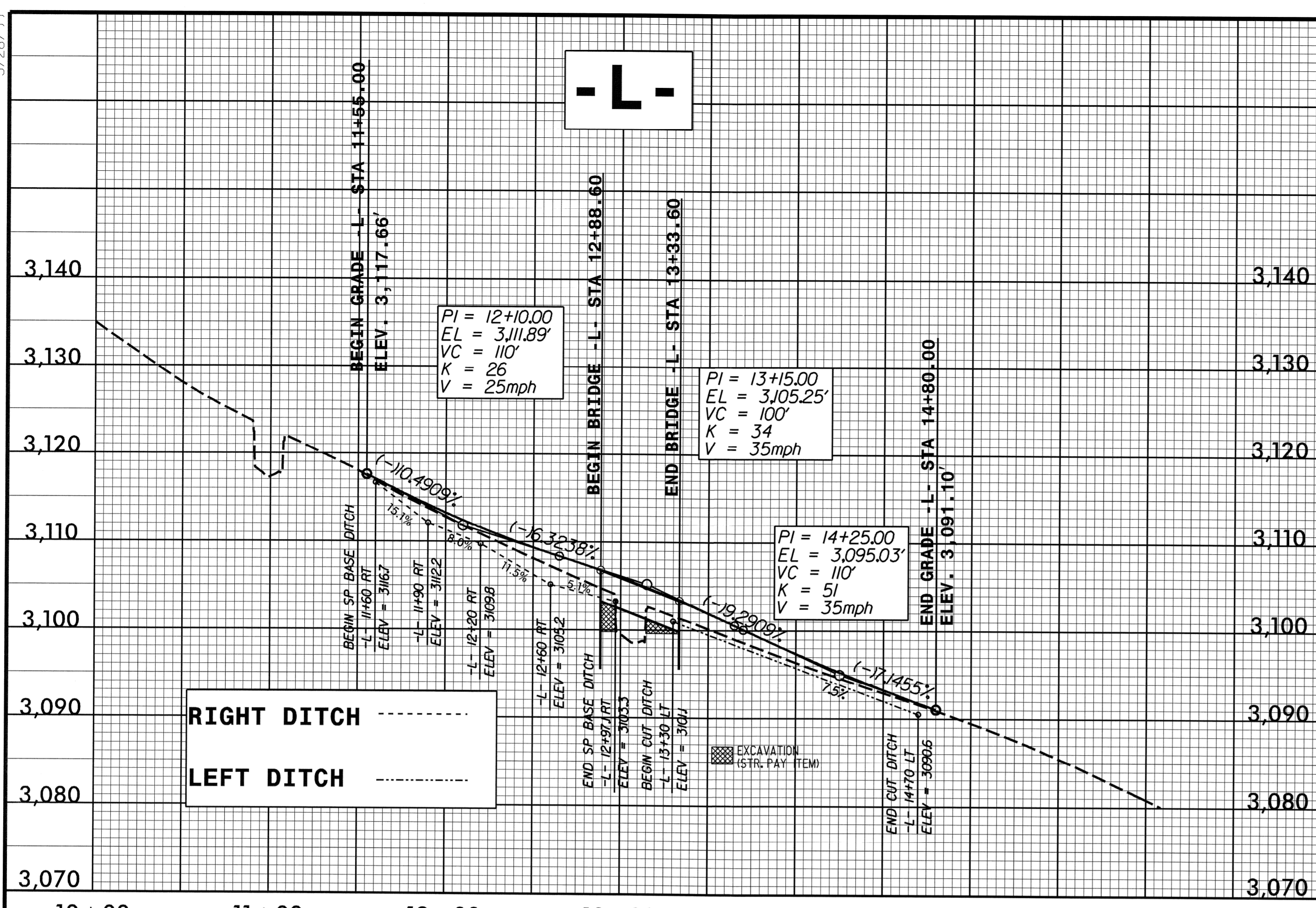
moftatt & nichol
 1616 EAST MILLBROOK ROAD, SUITE 160
 RALEIGH, NORTH CAROLINA 27609
 (919) 781-4626 VOICE (919) 781-4669 FAX

BM #1 - #5 REBAR SET AT BASE OF FENCE POST
 -L- STA. 13+32.46, 23.73' LT
 EL = 3103.64'

BRIDGE HYDRAULIC DATA

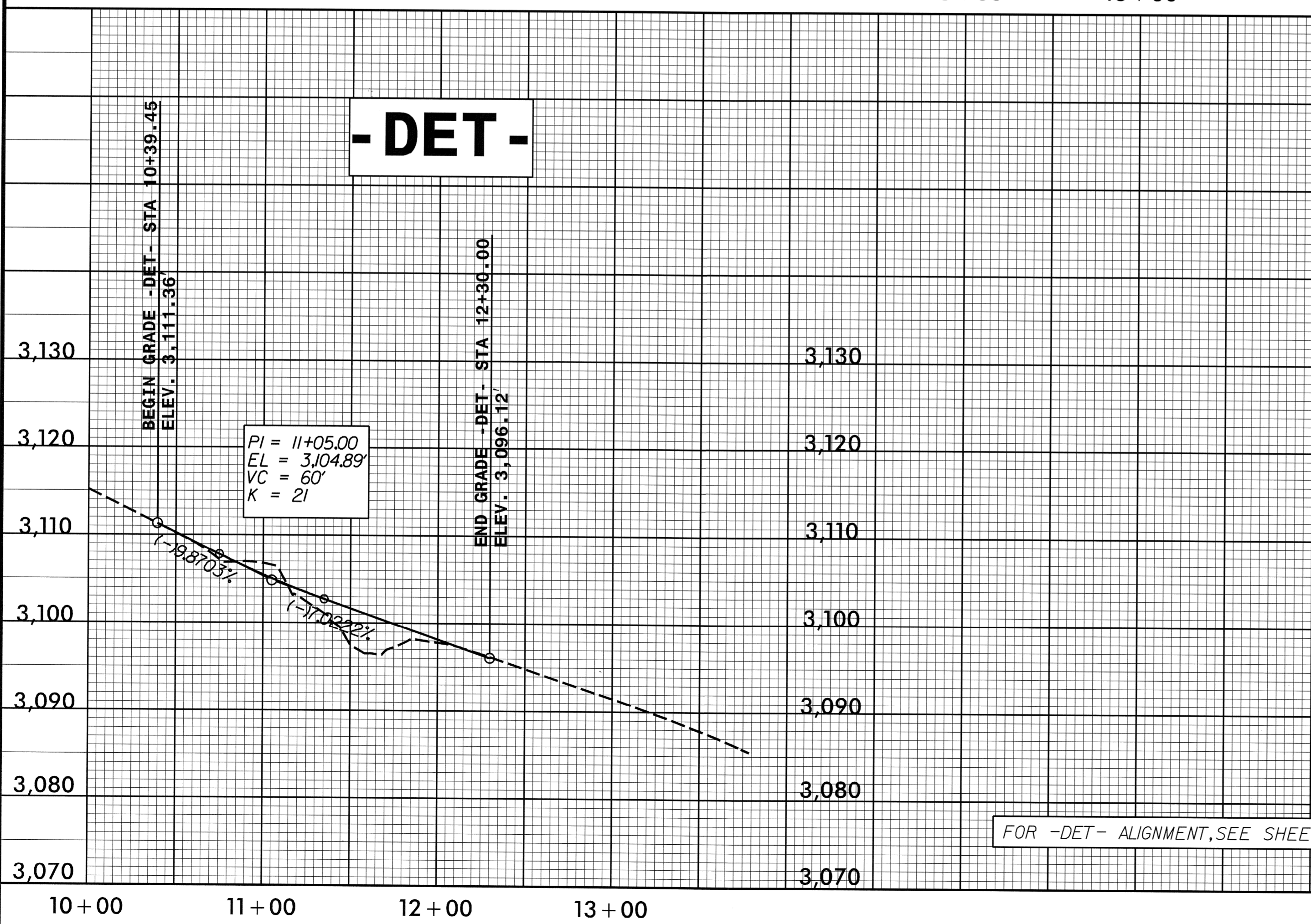
DESIGN DISCHARGE	= 260	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 3,026	FT
BASE DISCHARGE	= 410	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 3,030.8	FT
OVERTOPPING DISCHARGE	= 520	CFS
OVERTOPPING FREQUENCY	= 200 +/-	YRS
OVERTOPPING ELEVATION	= 3,039	FT

DATE OF SURVEY = 5/16/2012
 W.S.ELEVATION AT DATE OF SURVEY = 3,099.6 FT



FOR -L- ALIGNMENT, SEE SHEET 4

13-061-2014.dwg
 8/13/2015 10:45:56
 990150\Roadway\Proj\150_Rdy.p1_s5.dgn

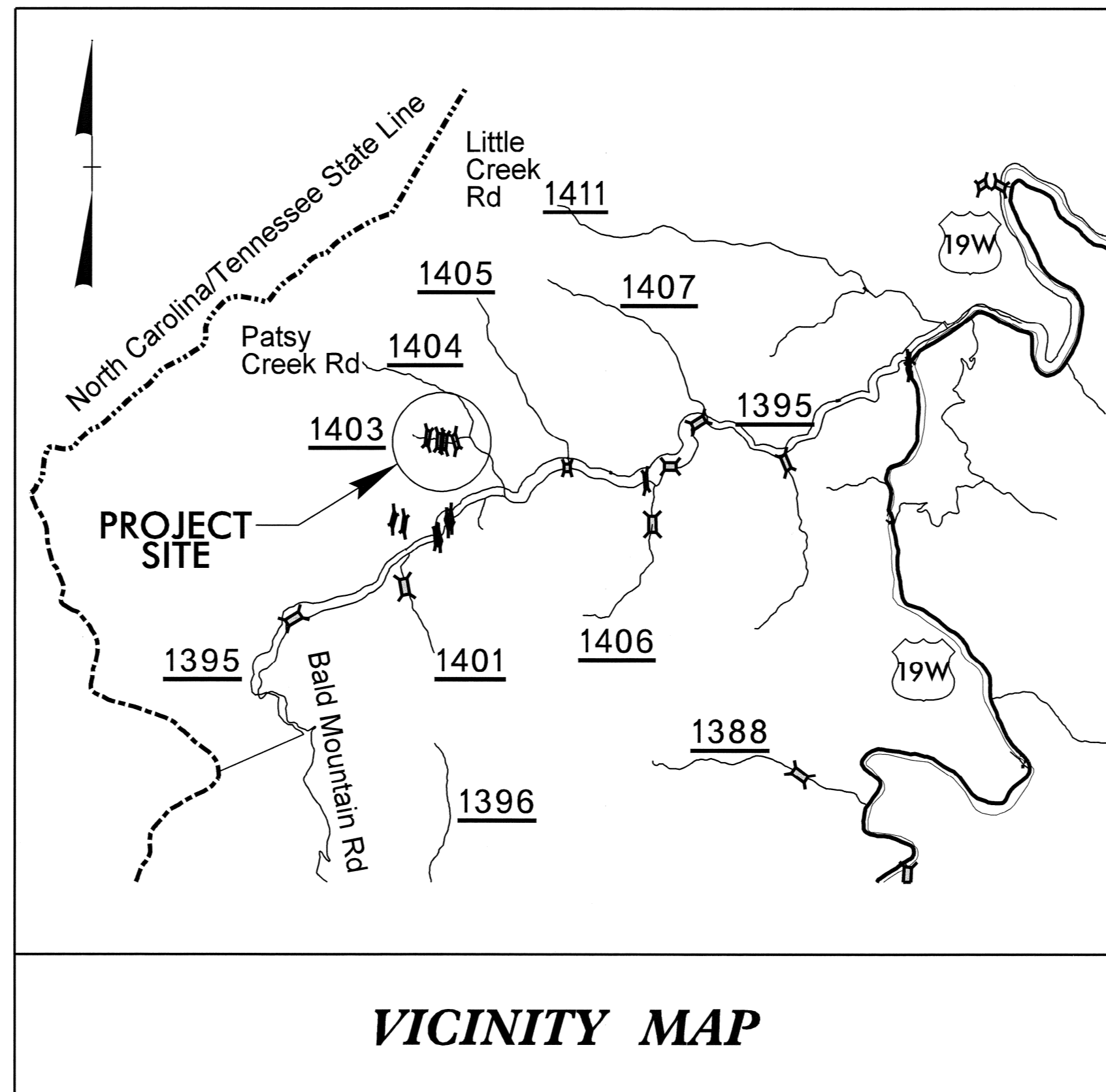


FOR -DET- ALIGNMENT, SEE SHEET 2-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

YANCEY COUNTY



**LOCATION: BRIDGE NO.150 OVER
ROARING FORK CREEK ON
SR 1403 (ROARING FORK RD)**

**TYPE OF WORK: GRADING, DRAINAGE,
PAVING, AND
STRUCTURE**

INDEX OF SHEETS

<u>SHEET NO.</u>	<u>TITLE</u>
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-2A	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2B	"BEGIN ROAD WORK" SPECIAL SIGN DESIGN
TMP-2C	DETAIL DRAWING FOR ONE-LANE, TWO-WAY TRAFFIC TAPER WORK ZONE WARNING SIGNS WITH TEMPORARY TRAFFIC SIGNAL SOUTHBOUND DETOUR SHIFT.
TMP-2D	DETAIL DRAWING FOR ONE-LANE, TWO-WAY TRAFFIC TAPER WORK ZONE WARNING SIGNS WITH TEMPORARY TRAFFIC SIGNAL NORTHBOUND SHIFT.
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE 1 DETAIL
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE 2 DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE 3 DETAIL

SHEET NO.
TMP-1

STATE PROJECT: 17BP.13.R.82

**CIVIL ENGINEERS
ENVIRONMENTAL - CEI
LAND SURVEYING
SUBSURFACE UTILITY
ENGINEERING**

SUITE 220, LANDMARK CENTER II,
4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609
(919) 783-9214
WWW.KCI.COM

APPROVED: *Barry C. Smith*
DATE: 10-15-14

SEAL



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN 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
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.

- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

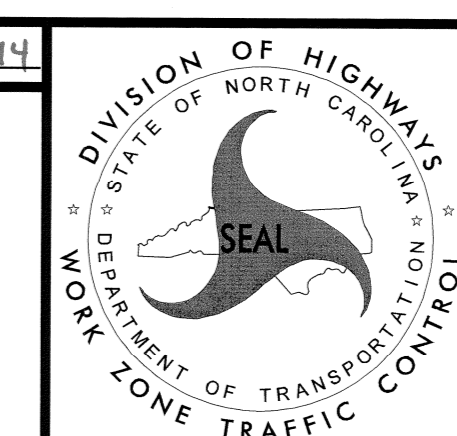
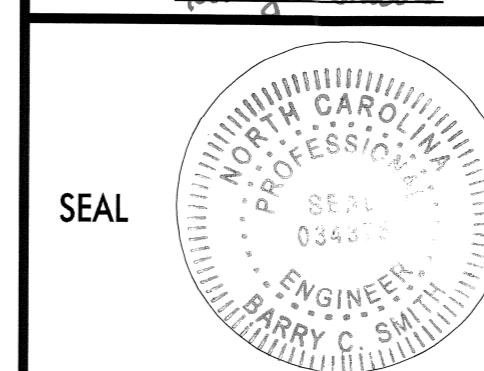
PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

DESCRIPTION	PAY ITEM
WHITE EDGELINE 2X	PAINT (4")
YELLOW DOUBLE CENTER LINE 2X	PAINT (4")
WHITE STOP BAR 2X	PAINT (24")
YELLOW AND YELLOW	TEMPORARY RAISED MARKERS

APPROVED: DATE: 0-15-14



MANAGEMENT STRATEGIES

- MAINTAIN LOCAL TRAFFIC USING ONSITE DETOUR ROAD AND TEMPORARY SIGNALS. UTILIZE SINGLE LANE WITH TWO-WAY TRAFFIC AND A MINIMUM WIDTH OF 10'.
- STAGE CONSTRUCT PROPOSED BRIDGE.
- OPEN TRAFFIC BACK TO TWO-WAY, TWO-LANE PATTERN ON TO SR1403
- REMOVE ONSITE DETOUR

LOCAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.82	TMP-1B

1. NOTIFY YANCEY COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CONSTRUCTION.
2. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER
3. MAINTAIN ACCESS TO EXISTING DRIVEWAYS AT ALL TIMES.
4. INSTALLATION AND MAINTENANCE OF THE TEMPORARY TRAFFIC SIGNAL IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBJECT TO APPROVAL OF THE DIVISION ENGINEER.

GENERAL NOTES

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.

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

- H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100 ft IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- I) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

- L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

- M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (25 MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- N) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

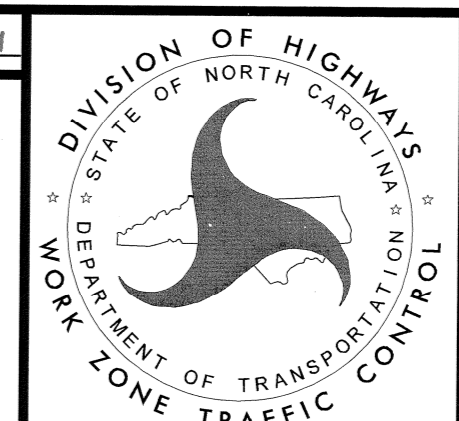
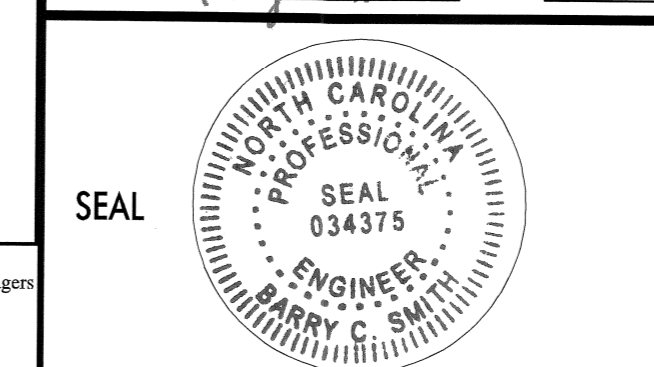
- O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (25 MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ROARING FORK ROAD (-DET-)	WHITE EDGELINES (4")	
ROARING FORK ROAD (-L-)	WHITE EDGELINES (4")	
ROARING FORK ROAD (-L-)	YELLOW DOUBLE CENTERLINE	YELLOW AND YELLOW TEMP. RAISED
- R) PLACE TWO APPLICATIONS OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

- U) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 100 ft AND 200 ft RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.
- V) FOR TEMPORARY SHORING DATA SEE SPECIAL PROVISIONS.

APPROVED: *Barry C. Smith* DATE: 10-15-14



TRANSPORTATION OPERATIONS PLAN

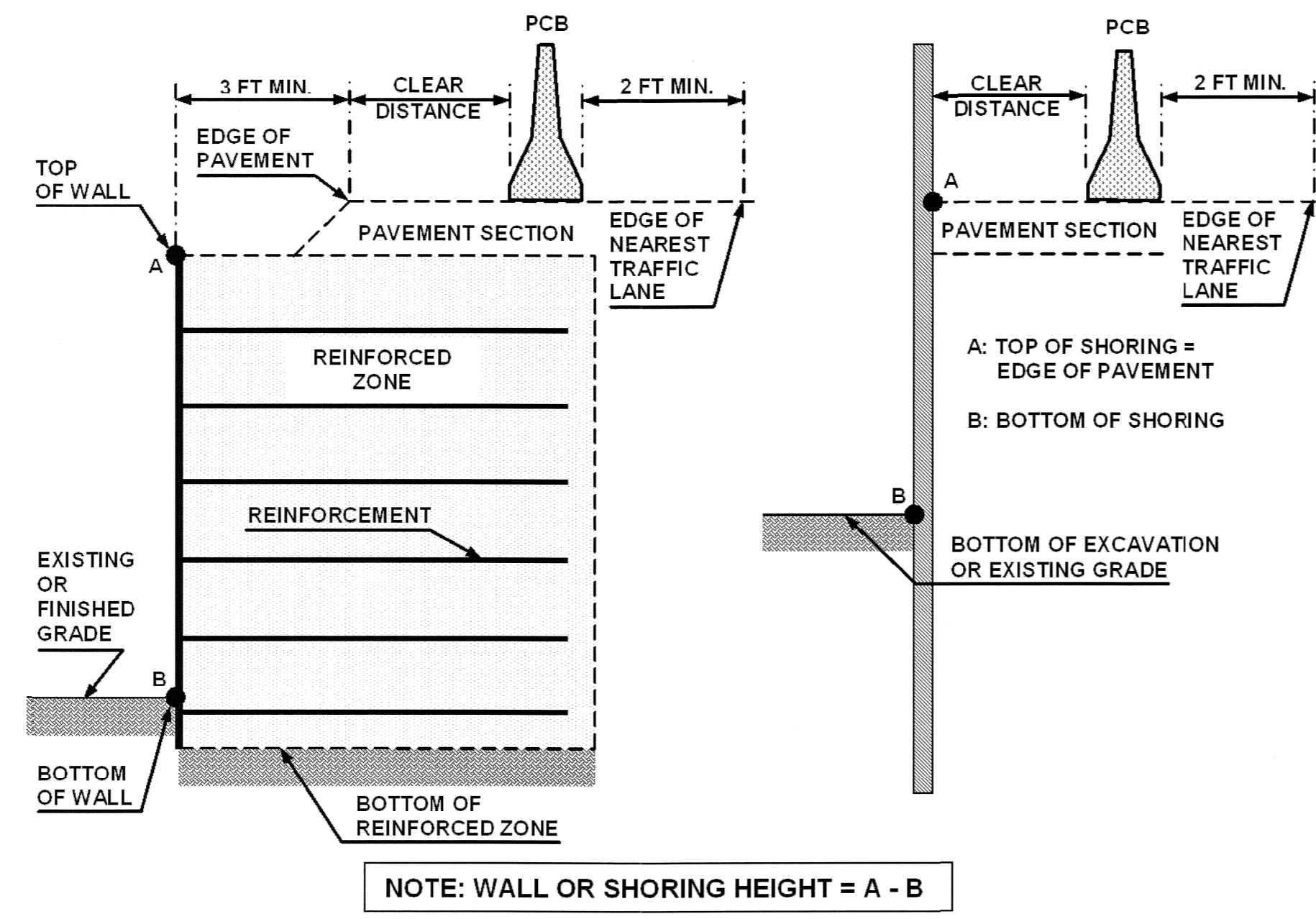


FIGURE A

NOTES

- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- 4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- 5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- 9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- 10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
50-56		26	26	28	32	35	38	
>56	26	27	29	32	36	38		
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

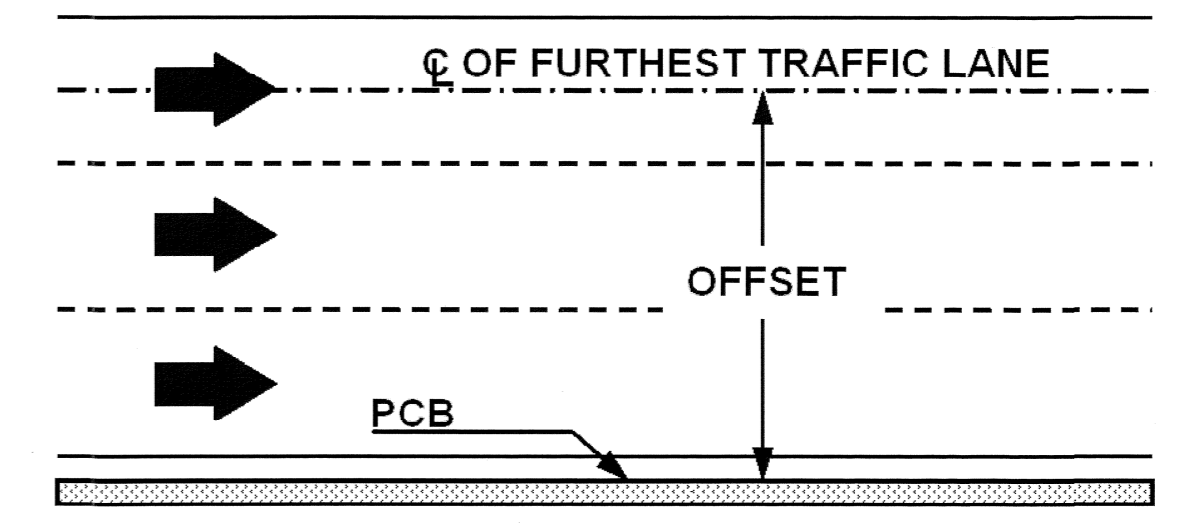


FIGURE B

APPROVED: <i>[Signature]</i> DATE: 10-15-14			PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
SEAL			

SP 11299

SIGN NUMBER: 11299	BACKG COLOR: Fluorescent Orange	DESIGN BY: WJ	CHECKED BY:	DATE: Jun 22, 2011
TYPE: B	COPY COLOR: Black	PROJECT ID: ALL	DIV: ALL	
QUANTITY: SEE PLANS				
SIGN WIDTH: 5'-6"				
HEIGHT: 5'-6"				
TOTAL AREA: 30.5 Sq.Ft.				
BORDER TYPE: INSET				
RECESS: 0.59"				
WIDTH: 0.75"				
RADII: 1.38"				
NO. Z BARS: N/A	MAT'L: 0.125" (3.2 mm) ALUMINUM			
LENGTH: N/A				

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

BORDER
R=1.38"
TH=0.75"
IN=0.59"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter										Series/Size
	B	E	G	I	N					Text Length
20.5	6	5.4	6.3	2.8	4.8	20.5				D 2000 25.2
21.4	R	0	A	D						D 2000 23.5
20.9	W	0	R	K						D 2000 24.5

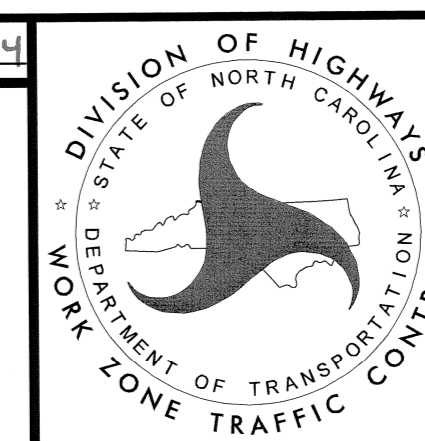
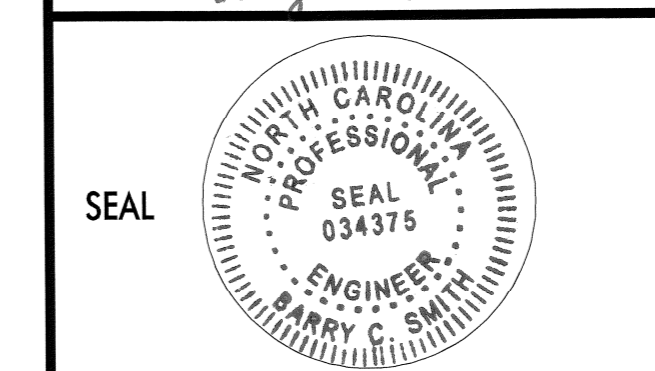
FILENAME: BEGIN ROAD WORK2

NORTH CAROLINA D.O.T. SIGN DETAIL

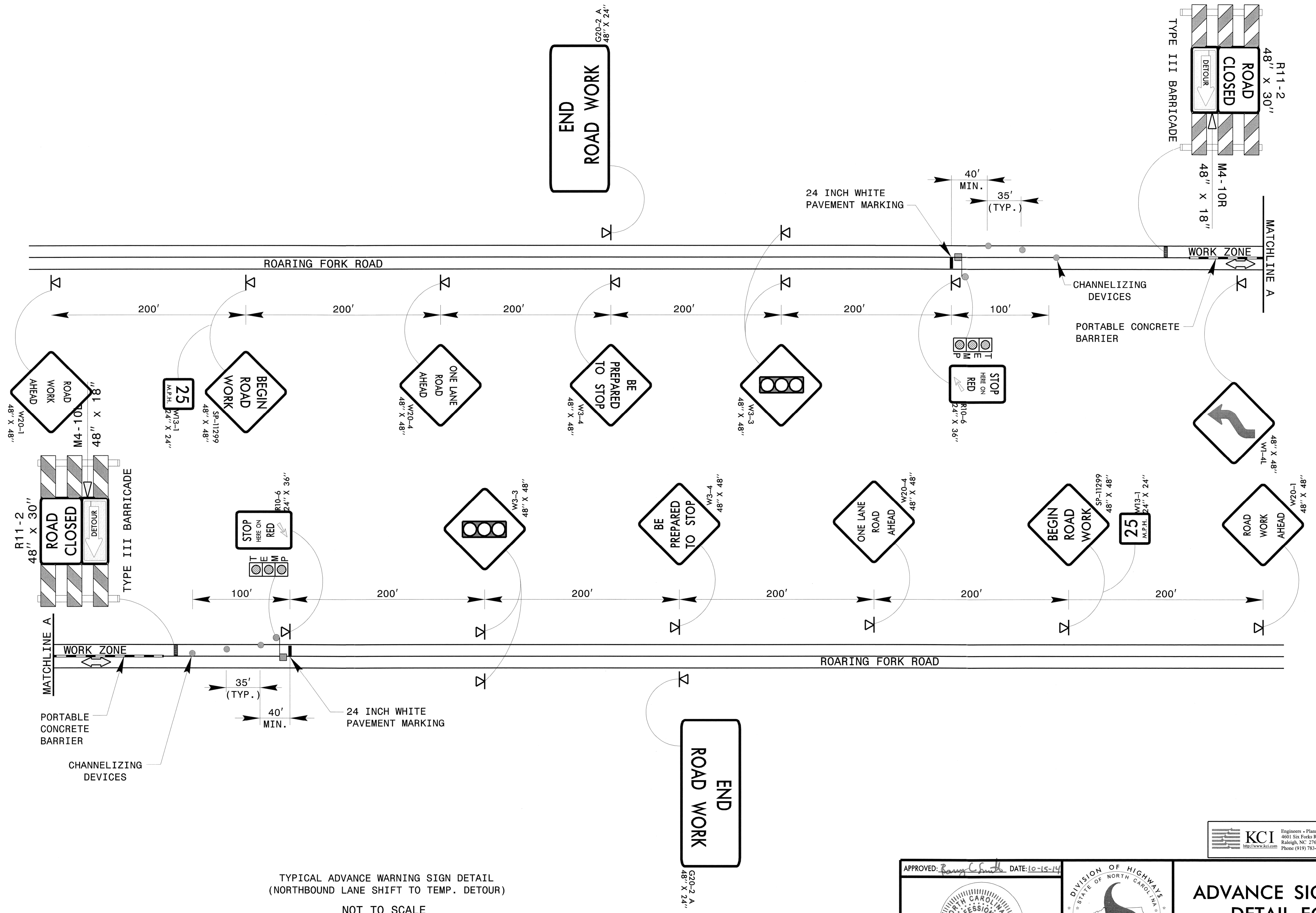
GENERAL NOTES FOR THE "BEGIN ROAD WORK" SIGN

- SIGN SP-11299 "BEGIN ROAD WORK" ONLY APPLIES TO FULL CONTROL AND PARTIAL CONTROL OF ACCESS ROADWAYS.
- WHEN USED, INSTALL SIGN SP-11299 "BEGIN ROAD WORK" ACCORDING TO DETAIL A ON ROADWAY STANDARD DRAWING 1101.01, SHEETS 1 & 2 OF 3.

APPROVED: *Barry C. Smith* DATE: 10-15-14



**BEGIN ROAD WORK
SIGN DESIGN**

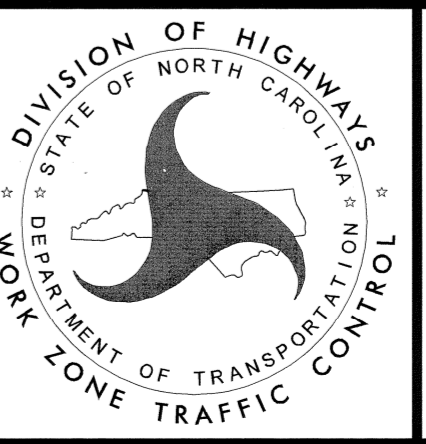


TYPICAL ADVANCE WARNING SIGN DETAIL
(NORTHBOUND LANE SHIFT TO TEMP. DETOUR)
NOT TO SCALE

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Division:

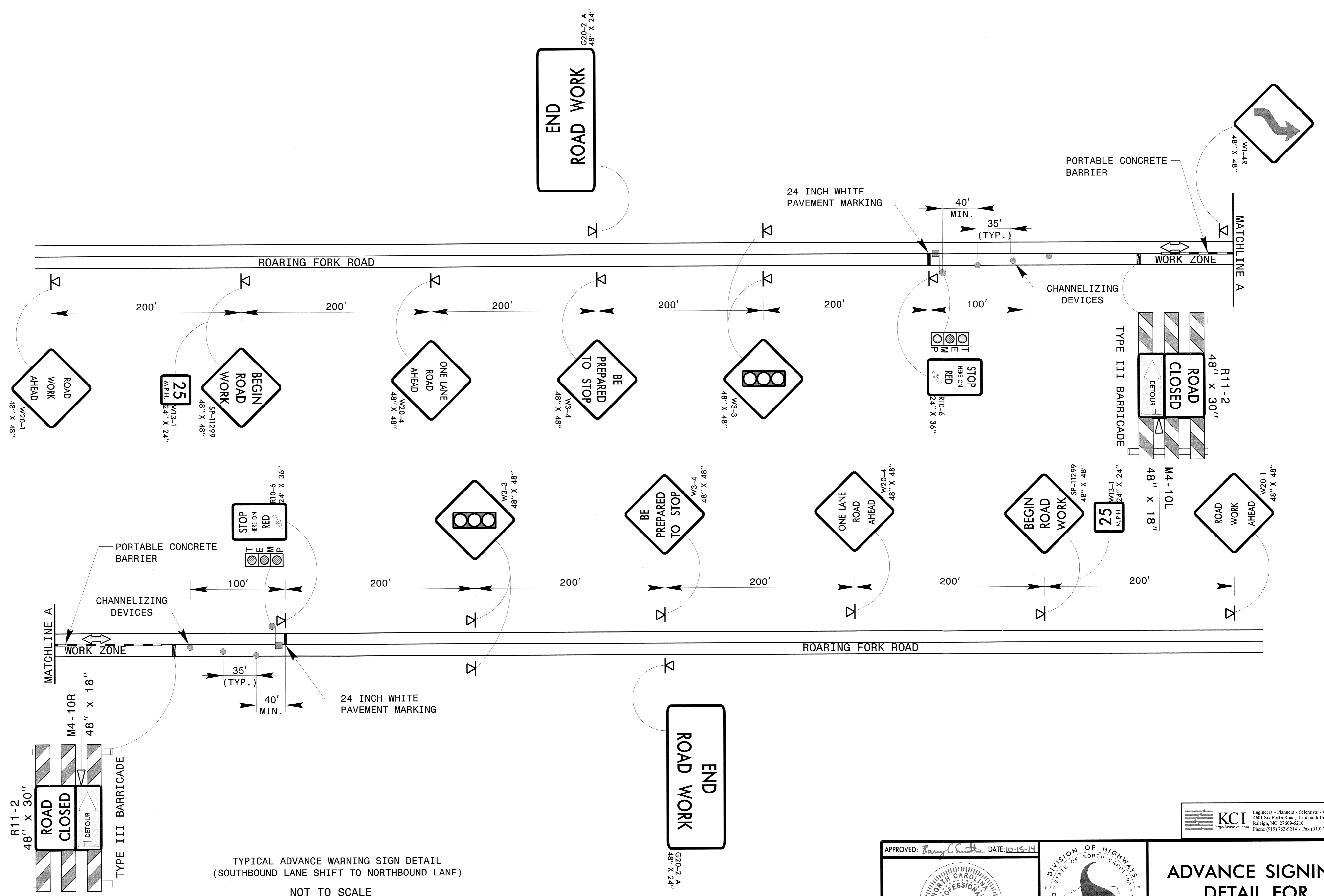
APPROVED: *Barry C. Smith* DATE: 10-15-14

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ADVANCE SIGNING DETAIL FOR TEMPORARY SIGNAL



TYPICAL ADVANCE WARNING SIGN DETAIL
(SOUTHBOUND LANE SHIFT TO NORTHBOUND LANE)
NOT TO SCALE

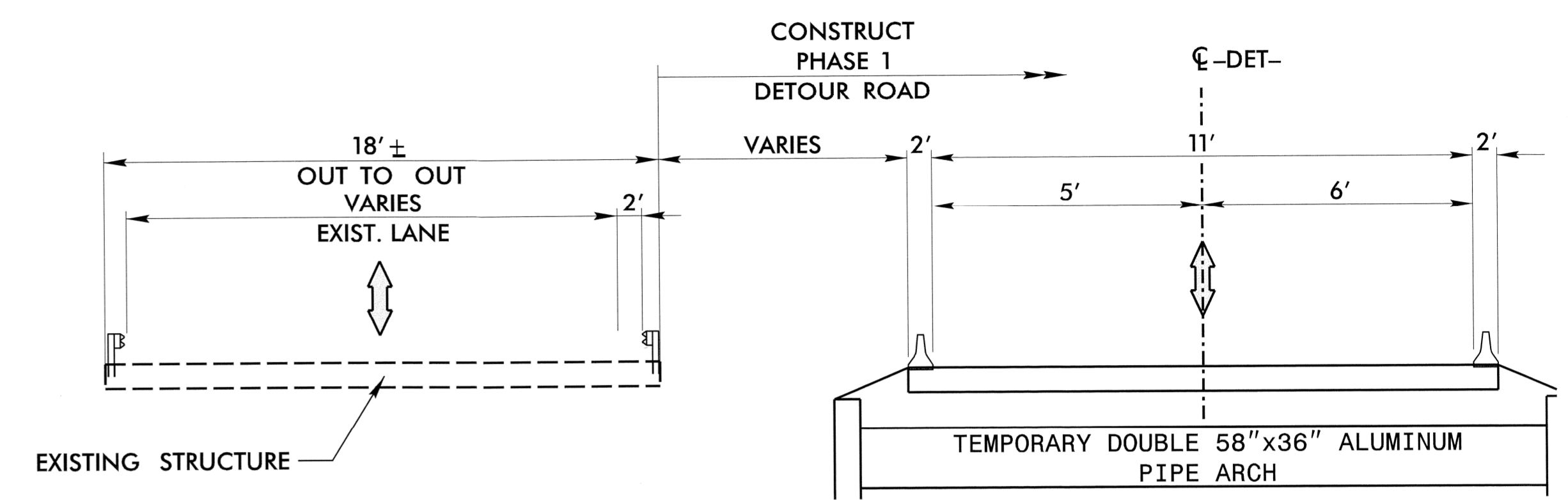
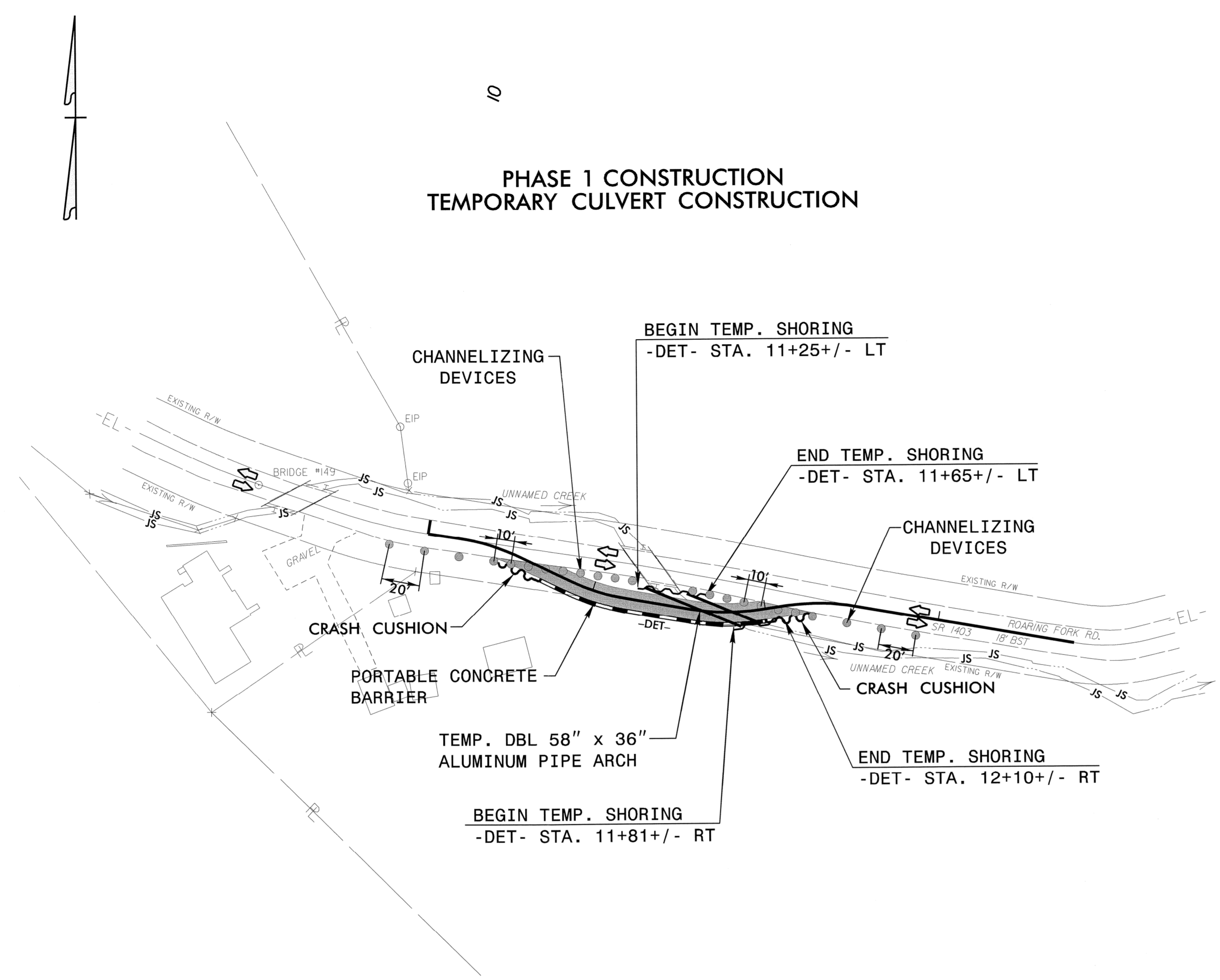
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15:04:16 TCP_2D.dwg
Division:

APPROVED: *Randy Smith* DATE: 10-16-14

SEAL

**ADVANCE SIGNING
DETAIL FOR
TEMPORARY SIGNAL**

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- NOTES:**
1. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
 2. SEE SPECIAL PROVISIONS FOR SHORING INFORMATION.
 3. REFER TO SHEET TMP-2C FOR ADVANCED SIGNING DETAILS.

PHASE 1

WORKING IN A CONTINUOUS MANNER COMPLETE THE FOLLOWING IN PHASE 1 STEPS 1 & 2:

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.04 SHEET 1 OF 1 COMPLETE THE FOLLOWING:

INSTALL ADVANCE WARNING WORK ZONE SIGNS PER ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3 AND ADVANCED SIGNING DETAIL SHEET TMP-2C.

INSTALL CHANNELIZING DEVICES (DRUMS) TO CLOSE SHOULDER ALONG EXISTING -L- FROM -L- STA. 11+55+/- TO -L- STA. 14+60+/-.

STEP 2: BEHIND TEMPORARY SHOULDER CLOSURE COMPLETE THE FOLLOWING:

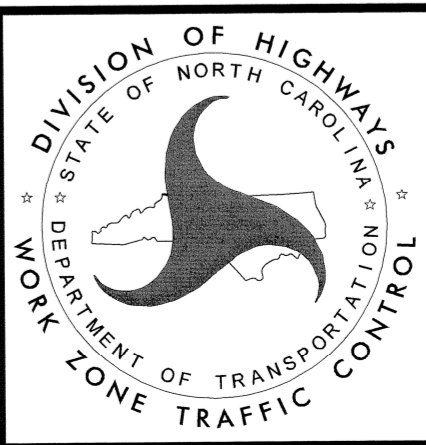
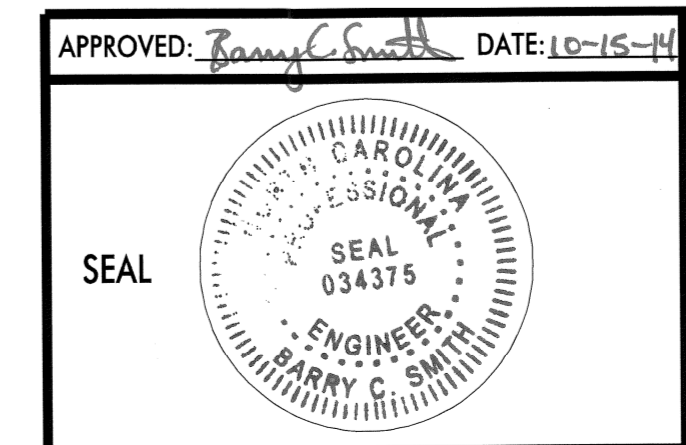
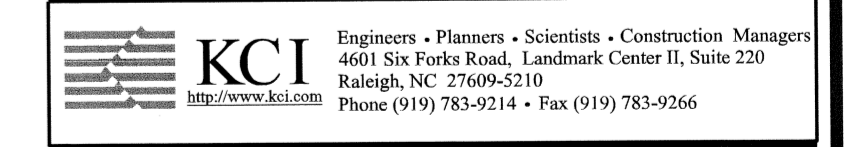
INSTALL TEMPORARY DOUBLE 58" X 36" ALUMINUM PIPE ARCHES.

INSTALL TEMPORARY SHORING ON LEFT SIDE OF DETOUR FROM -DET- STA. 11+25+/- TO -DET- STA. 11+65+/-, AND ON RIGHT SIDE OF DETOUR FROM -DET- STA. 11+81+/- TO -DET- STA. 12+10+/-.

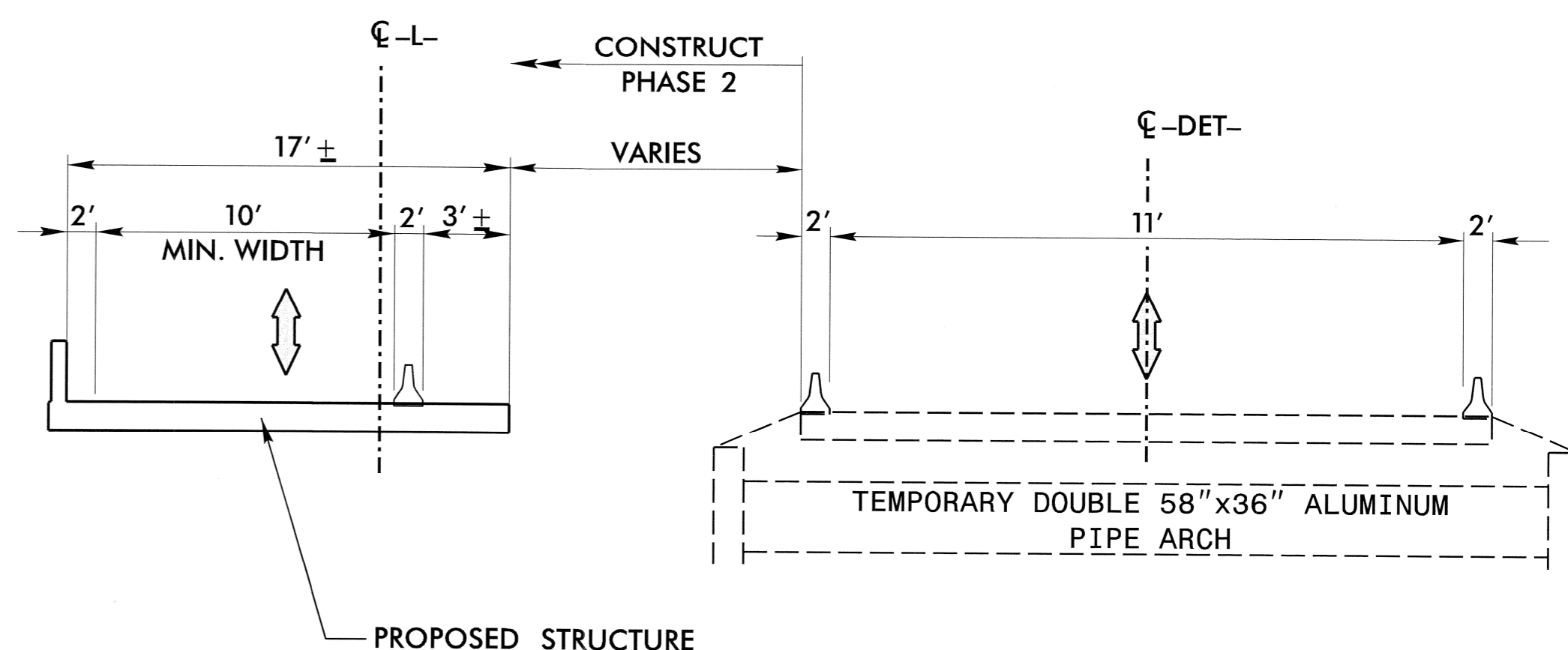
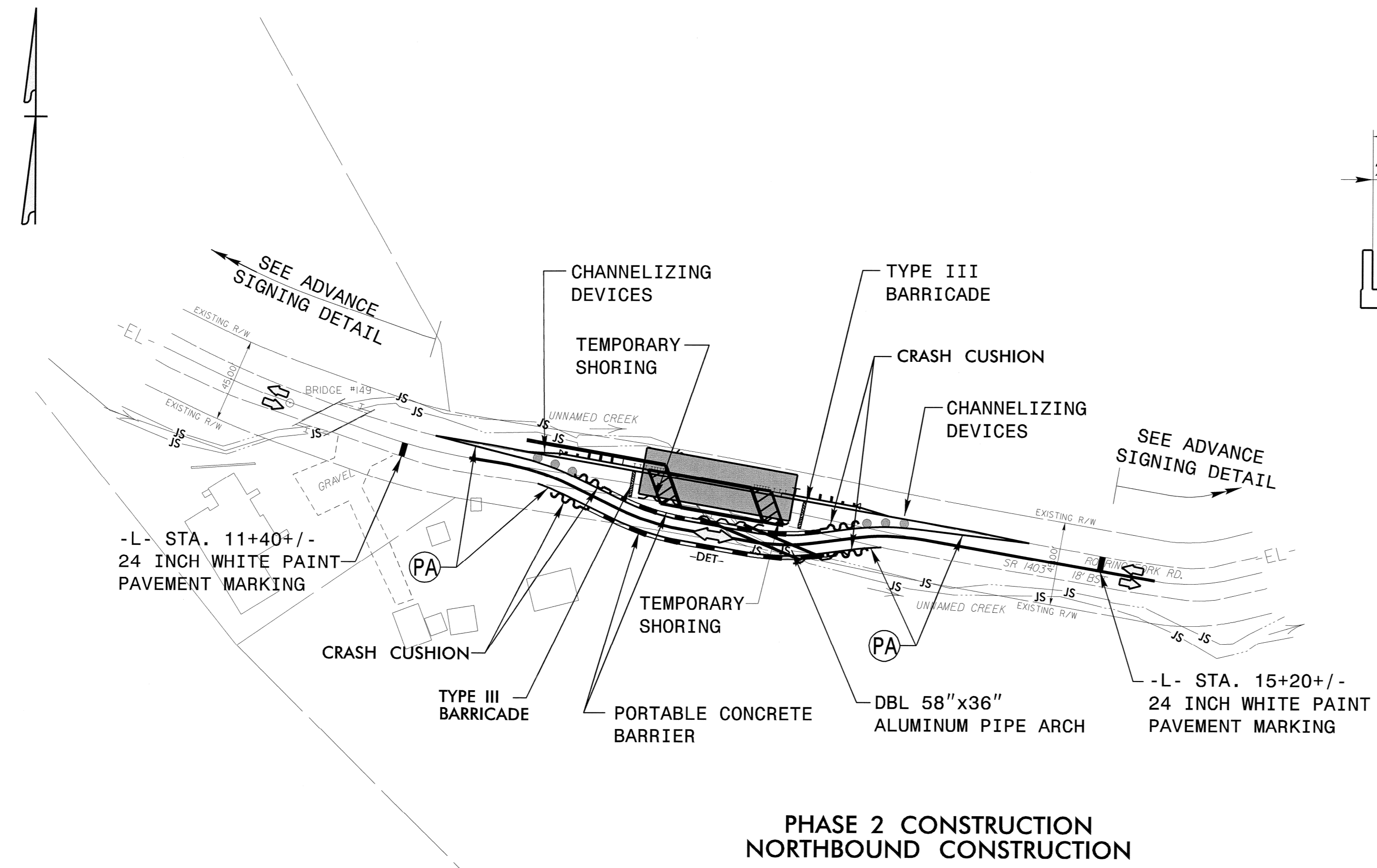
CONSTRUCT TEMPORARY DETOUR ROAD RIGHT OF EXISTING PAVEMENT FROM -L- STA. 12+14+/- TO -L- STA. 14+02+/- RT.

INSTALL TEMPORARY PORTABLE CONCRETE BARRIER ALONG THE RIGHT SIDE OF DETOUR ROAD FROM -DET- STA. 10+70+/- TO -DET- STA. 12+00+/- KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.

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**TEMPORARY TRAFFIC CONTROL
PHASE 1 DETAIL**



**DETOUR ROAD TYPICAL SECTION
PHASE 2**

- NOTES:
1. BLACKOUT EXISTING PAVEMENT MARKINGS AND RESTRIPE AS NECESSARY WITH TEMPORARY PAVEMENT MARKINGS.
 2. REMOVE CONFLICTING SIGNS AND MARKINGS TO COMPLY WITH TRAFFIC PATTERNS SHOWN ON THIS DRAWING. REFER TO SHEET TMP-2C FOR ADVANCE WARNING SIGNS DETAILS.
 3. SEE SPECIAL PROVISIONS FOR SHORING INFORMATION.
 4. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.

**PHASE 2 CONSTRUCTION
NORTHBOUND CONSTRUCTION**

PHASE 2

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 2 STEPS 1 TO 4.

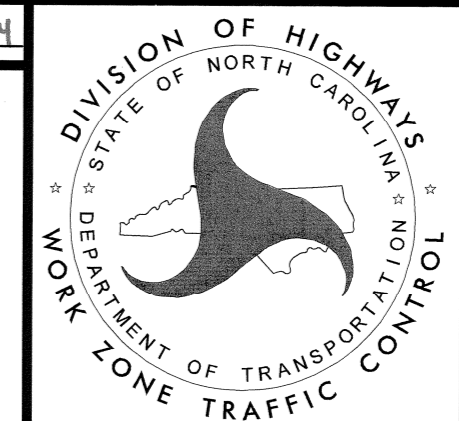
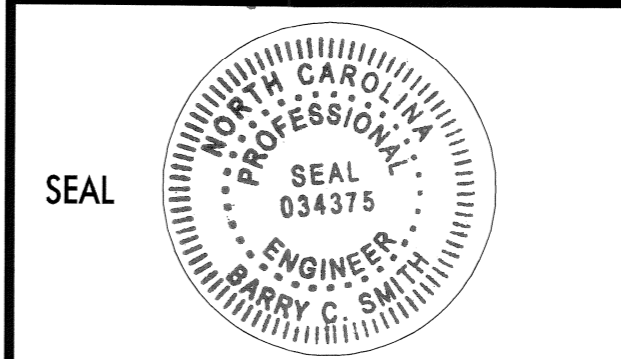
- STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1 COMPLETE THE FOLLOWING:
- INSTALL "ONE LANE ROAD AHEAD", "BE PREPARED TO STOP", "SIGNAL AHEAD", "STOP HERE ON RED", AND LANE SHIFT SIGNS PER DETAIL TMP-2C, KEEPING SIGNS COVERED.
- STEP 2: USING ROADWAY STANDARD 1101.02, SHEET 1 OF 15 AND FLAGGERS COMPLETE THE FOLLOWING:
- INSTALL TEMPORARY SIGNALS AND TEMPORARY 24" STOP BARS, KEEPING SIGNAL HEADS COVERED (SEE DETAIL TMP-2C).
 - REMOVE CHANNELIZING DEVICES ON RIGHT SIDE OF -L- IN PHASE 1 FROM -L- STA. 11+55+/- TO -L- STA. 14+60+/-.
 - PAVE/WEDGE AS NECESSARY TO SMOOTHLY TIE PROPOSED DETOUR ROAD WITH EXISTING ROARING FORK LOOP ROAD FROM -DET- STA.10+39+/- TO -DET- STA. 12+30+/-.
 - REMOVE EXISTING PAVEMENT MARKINGS AS NECESSARY AND PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) FROM -L- STA. 11+55 TO -L- STA.14+80 TYING EXISTING MARKINGS WITH TEMPORARY DETOUR ROAD AND DESIGNATING ONE-LANE, TWO-WAY TRAFFIC PATTERN.
 - INSTALL TEMPORARY P.C.B. ON THE LEFT SIDE OF DETOUR ROAD FROM -DET- STA. 10+77+/- TO -DET- STA. 11+97+/-, KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.
- STEP 3: UNCOVER "ONE LANE ROAD AHEAD", "BE PREPARED TO STOP", "SIGNAL AHEAD", "STOP HERE ON RED", AND TRAFFIC SHIFT SIGNS. INSTALL TYPE III BARRICADES AND CHANNELIZING DEVICES PER DETAIL TMP-2C AND PHASE 2 DETAIL ABOVE. UNCOVER AND ACTIVATE TEMPORARY SIGNALS.
- PLACE SR 1403 TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN FROM -L- STA. 11+40 TO -L- STA.15+20 USING NEWLY CONSTRUCTED DETOUR ROAD.

- STEP 4: BEHIND THE TEMPORARY BARRIER COMPLETE THE FOLLOWING:
- REMOVE EXISTING BRIDGE 150 INCLUDING WING WALLS.
 - BEGIN CONSTRUCTION OF A PORTION OF THE PROPOSED STRUCTURE INCLUDING LEFT SIDE WING WALLS AND RETAINING WALL. (SEE STRUCTURE PLANS)
 - INSTALL TEMPORARY SHORING FROM -L- STA. 12+65+/- RT TO -L- STA. 12+91+/- RT AND FROM -L- STA. 13+36+/- RT TO -L- STA. 13+55+/- RT.
 - BEGIN CONSTRUCTION OF PROPOSED ROADWAY FROM -L- STA. 12+65+/- TO -L- STA. 13+55+/- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. CONSTRUCT LEFT SIDE SHOULDERS, CURB AND GUTTER, AND GUARDRAIL FROM -L- STA. 11+55+/- LT TO -L- STA. 14+80+/- LT.

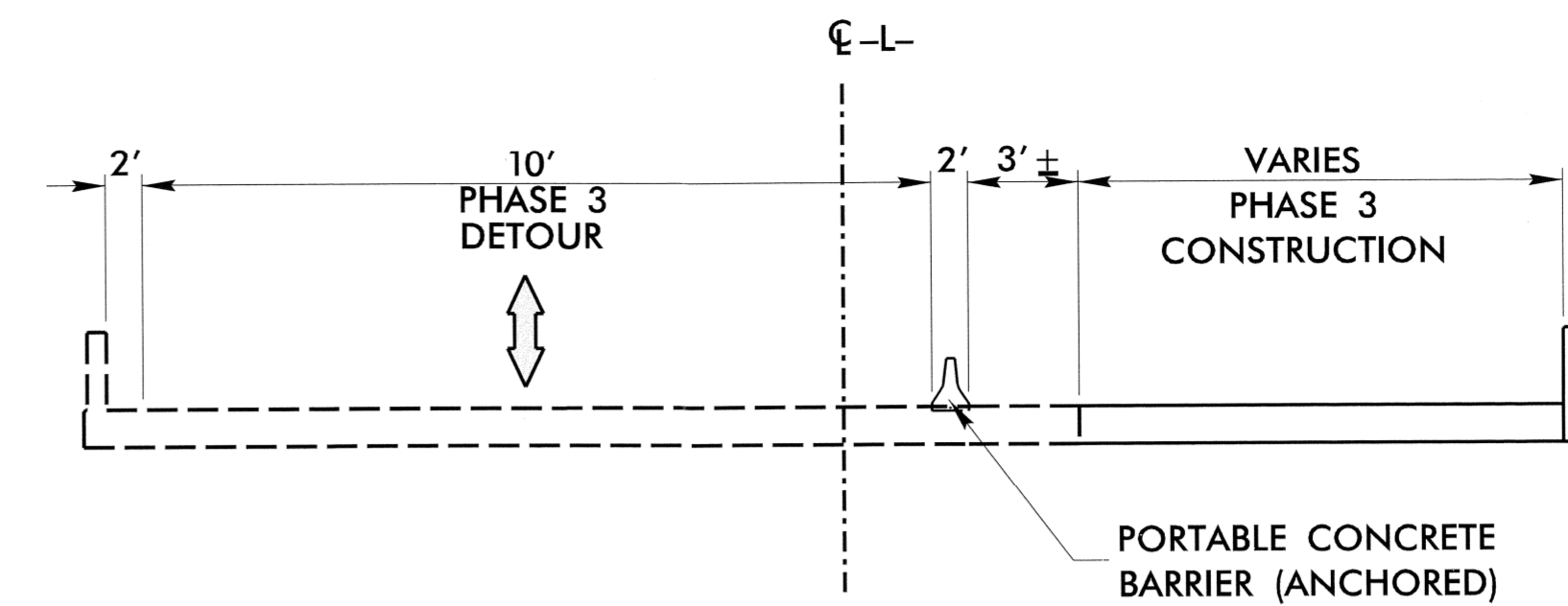
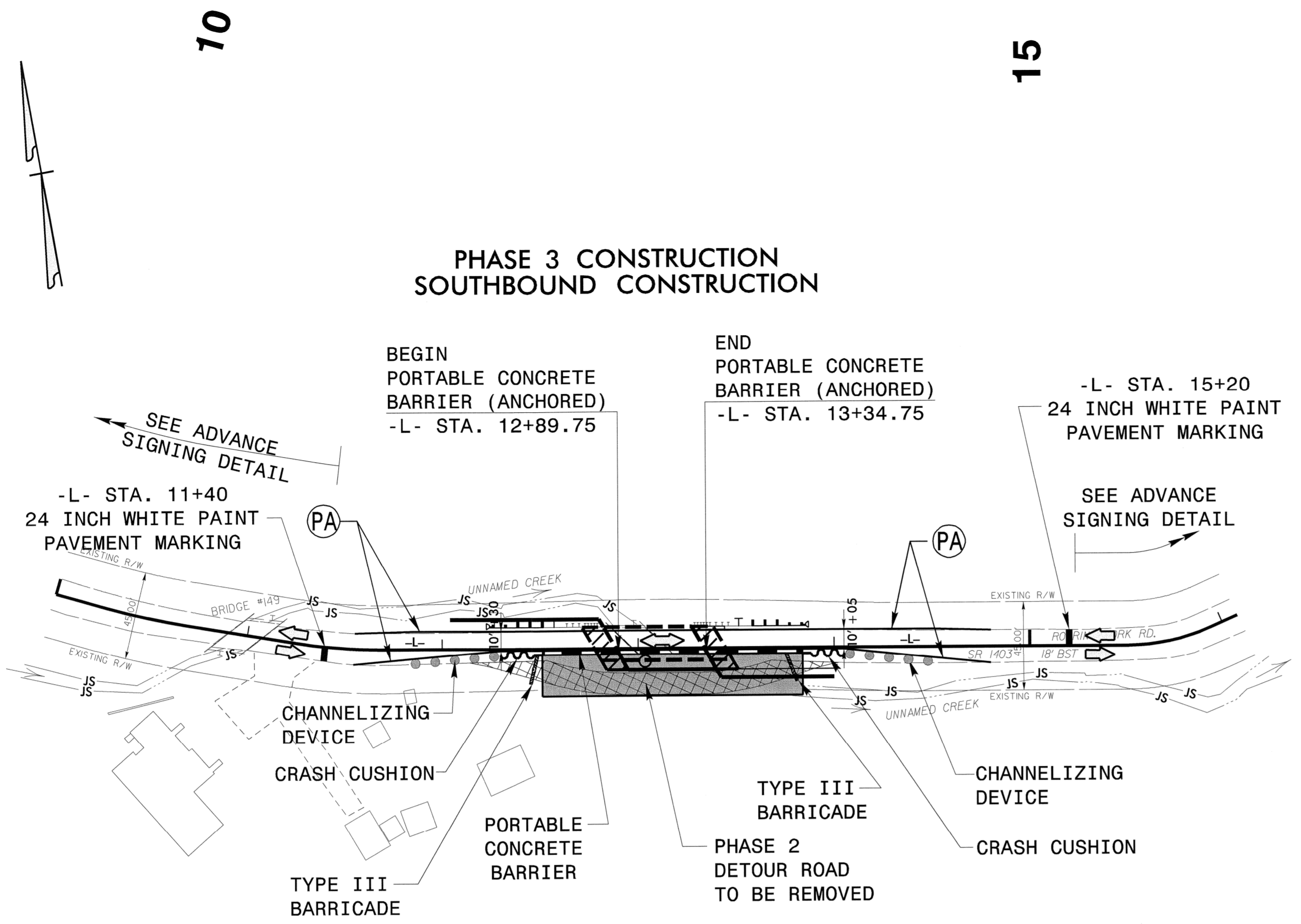
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APPROVED: *[Signature]* DATE: 10-15-14



**TEMPORARY TRAFFIC CONTROL
PHASE 2 DETAIL**



**DETOUR ROAD TYPICAL SECTION
PHASE 3**

- NOTES:**
1. BLACKOUT EXISTING PAVEMENT MARKINGS AND RESTRIPE AS NECESSARY WITH TEMPORARY PAVEMENT MARKINGS.
 2. REMOVE CONFLICTING SIGNS AND MARKINGS TO COMPLY WITH TRAFFIC PATTERNS SHOWN ON THIS DRAWING AND ON DETAIL SHEET TMP-2D.
 3. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.

PHASE 3
WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 3 STEP 1 IN ONE DAY OPERATION.

- STEP 1:** USING ROADWAY STANDARD DRAWING NUMBER 1101.02 SHEET 1 OF 15 AND FLAGGERS COMPLETE THE FOLLOWING:
- REMOVE CONFLICTING TEMPORARY PORTABLE CONCRETE BARRIER ON LEFT SIDE OF DETOUR FROM -DET- STA. 10+77 TO STA. 11+84 AND FROM -DET- STA. 11+60 TO STA. 11+84 KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.
 - PAVE/WEDGE AS NECESSARY TO SMOOTHLY TIE NEWLY CONSTRUCTED LEFT SIDE OF PROPOSED -L- FROM -L- STA. 11+55 TO STA. 12+65 AND FROM -L- STA. 13+55 TO STA. 14+80, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
 - PLACE NEW TEMPORARY PAVEMENT MARKINGS (PAINT) TO DESIGNATE A ONE-LANE, TWO-WAY PATTERN USING NORTHBOUND LANE, AS SHOWN ABOVE ON PHASE 3 DETAIL.
 - RESET TEMPORARY PORTABLE CONCRETE BARRIER 10' RIGHT OF LEFT E.O.T. FROM -L- STA. 12+51 TO -L- STA.13+84, KEEPING ENDS PROTECTED BY TEMPORARY CRASH CUSHIONS.
 - RESET TYPE III BARRICADES, CHANNELIZING DEVICES, AND LANE SHIFT SIGNS PER SHEET TMP-2D TO BLOCK TEMPORARY DETOUR ROAD AS SHOWN IN PHASE 3 DETAIL. PLACE SR 1403 (ROARING FORK ROAD) TRAFFIC IN NEW ONE-LANE (10' MIN.), TWO-WAY TRAFFIC PATTERN.

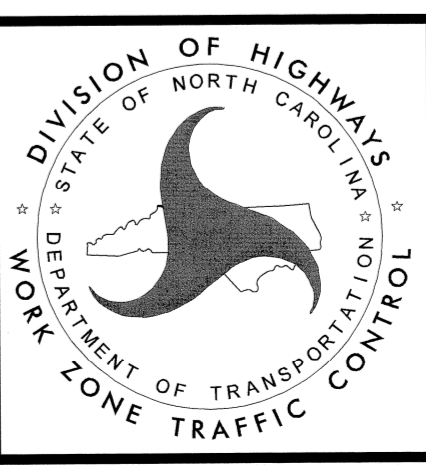
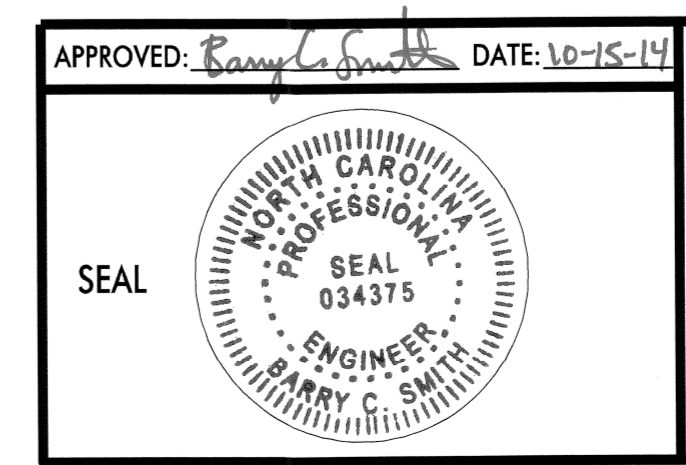
WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 3 STEPS 2, 3 & 4 BEHIND TEMPORARY PORTABLE CONCRETE BARRIER AND CHANNELIZING DEVICES.

- STEP 2:** REMOVE TEMPORARY DETOUR ROAD, TEMPORARY SHORING, TEMPORARY ALUMINUM PIPE ARCH, AND TEMPORARY PORTABLE CONCRETE BARRIER CONSTRUCTED IN PHASE 1.
- STEP 3:** COMPLETE CONSTRUCTION OF PROPOSED RIGHT SIDE OF STRUCTURE FROM -L- STA.12+92+/- TO -L- STA.13+37+/- INCLUDING RIGHT SIDE WING WALLS AND RETAINING WALL (SEE STRUCTURE PLANS).
- STEP 4:** CONSTRUCT PROPOSED -L- FROM -L- STA. 12+35+/- TO -L- STA. 14+07+/- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, REMOVING TEMPORARY SHORING IN THE PROCESS. COMPLETE PROPOSED RIGHT SIDE CURB AND GUTTER AND SHOULDER GRADING FROM -L- STA. 11+55 TO -L- STA. 14+80.

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE 3 STEPS 5 & 6.

- STEP 5:** USING ROADWAY STANDARD DRAWING NUMBER 1101.02, SHEET 1 OF 15 AND FLAGGERS COMPLETE THE FOLLOWING:
- REMOVE TEMPORARY PORTABLE CONCRETE BARRIER, CRASH CUSHIONS, AND CHANNELIZING DEVICES.
 - COVER OR REMOVE TEMPORARY SIGNALS, "SIGNAL AHEAD", "STOP HERE ON RED", AND LANE SHIFT SIGNS.
 - TIE RIGHT SIDE OF -L- TO LEFT SIDE OF -L- IN REMAINING AREAS UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. FINISH PLACING RIGHT SIDE GUARDRAIL.
 - REMOVE ALL EXISTING AND TEMPORARY PAVEMENT MARKINGS (PAINT) FROM -L- STA.11+55 TO -L- STA. 14+80. PLACE PAVEMENT MARKINGS (PAINT) IN THE FINAL TWO-WAY, TWO-LANE PATTERN FROM -L- STA.11+55 TO -L- STA. 14+80.
 - PLACE THE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS (PAINT) AND PAVEMENT MARKERS (PERMANENT RAISED) IN THE FINAL PATTERN.
 - OPEN SR 1403 (ROARING FORK ROAD) TO THE FINAL TWO-LANE, TWO-WAY PATTERN (SEE ROADWAY PLANS).
- STEP 6:** REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

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**TEMPORARY TRAFFIC CONTROL
PHASE 3 DETAIL**