STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.4	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.12.R.4		PE
17BP.12.R.4		R/W, UTIL
17BP.12.R.4		CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALEXANDER COUNTY

LOCATION: BRIDGE NO. 010226 OVER LAMBERT CREEK TRIBUTARY 1 ON SR 1316 (DAVID HERMAN ROAD)

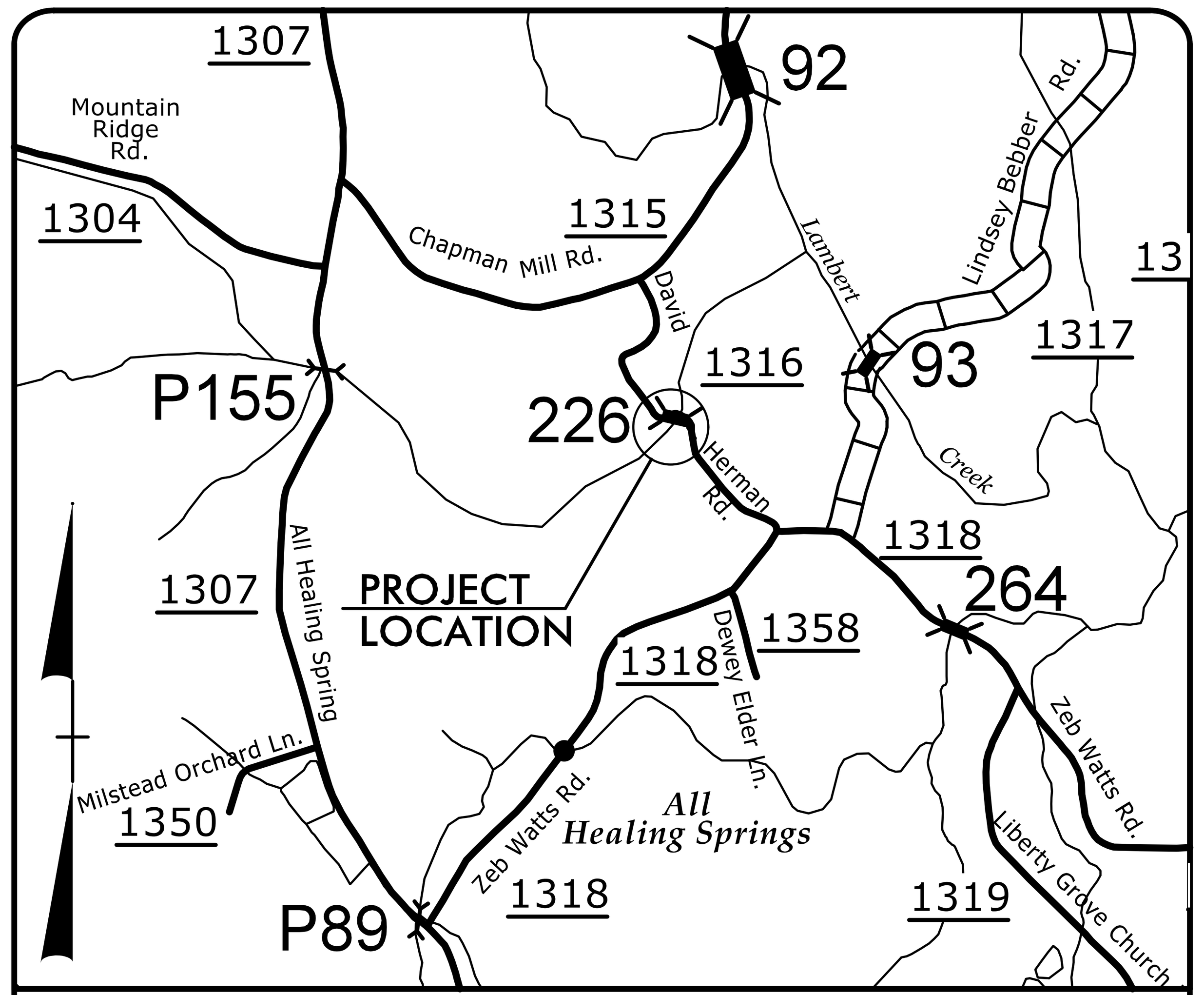
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

NAD 83/ NSRS 2007

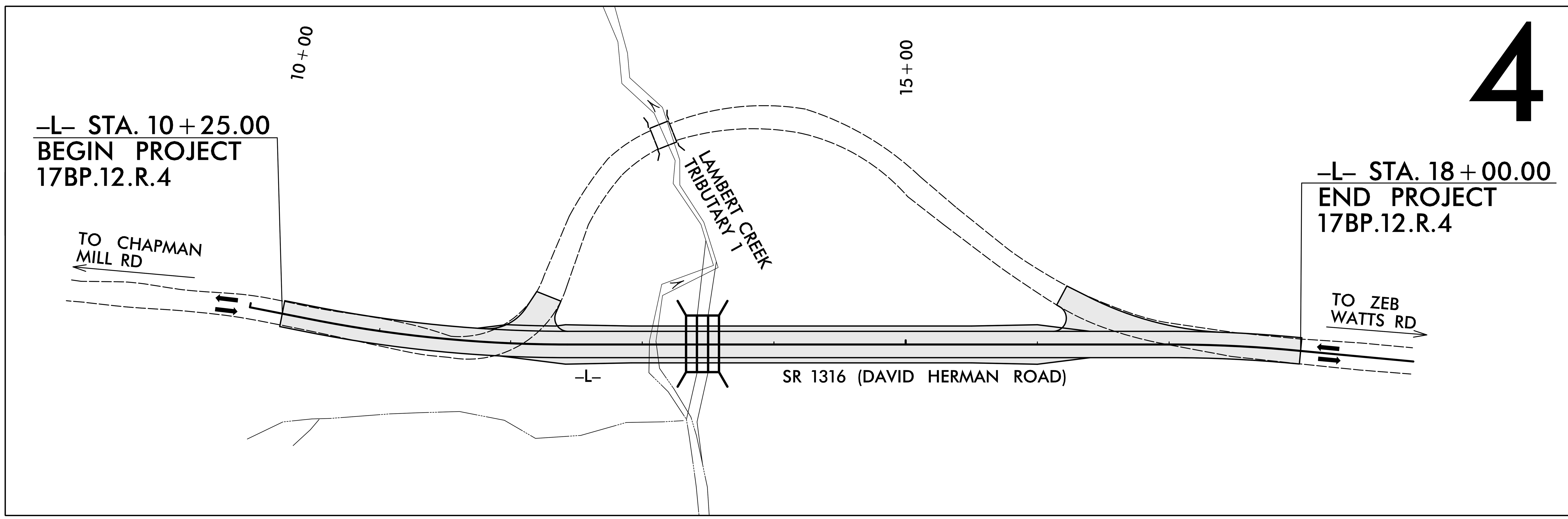
TIP PROJECT: 17BP.12.R.4

CONTRACT: DL00049

See Sheet 1-A For Index of Sheets



VICINITY MAP



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 120

V = 55 MPH

TTST = 6 %

FUNC CLASS = RURAL LOCAL SUB REGIONAL TIER

PROJECT LENGTH

LENGTH TOTAL PROJECT 17BP.12.R.4, #010226 =0.147 MILES

NCDOT CONTACT: STEVE RACKLEY, PE

PLANS PREPARED BY:	*PLANS PREPARED FOR:*
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	NORTH CAROLINA DEPARTMENT OF TRANSPORATION DIVISION 12 1710 East Marion Street Shelby, NC 28151

RIGHT OF WAY DATE:
JUNE 30, 2013

LETTING DATE:
OCTOBER 22, 2013

2012 STANDARD SPECIFICATIONS

LEONARD G. FLETCHER, PE
PROJECT ENGINEER

B. CHAD HOUSER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY 8/21/2013

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER BOBBY C. HOUSER 8/21/13

SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

$$$$$$SYSTIME$$$$$ $$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$ $$$$$USERNAME$$$$$

8/17/99

Alexander County
Bridge # 010226

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30456 ENGINEER BOBBY C. HOUSER 8/21/13

INDEX OF SHEETS

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
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3	SUMMARY OF GUARDRAIL AND EARTHWORK SUMMARY
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
PM-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1 THRU X-6	CROSS-SECTIONS
C-1 THRU C-5	CULVERT PLANS

GENERAL NOTES

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

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT IS ENERGY UNITED.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

$$$$$SYSTIME$$$$$
$$$$$SYSDATE$$$$$
$$$$$USERNAME$$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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:

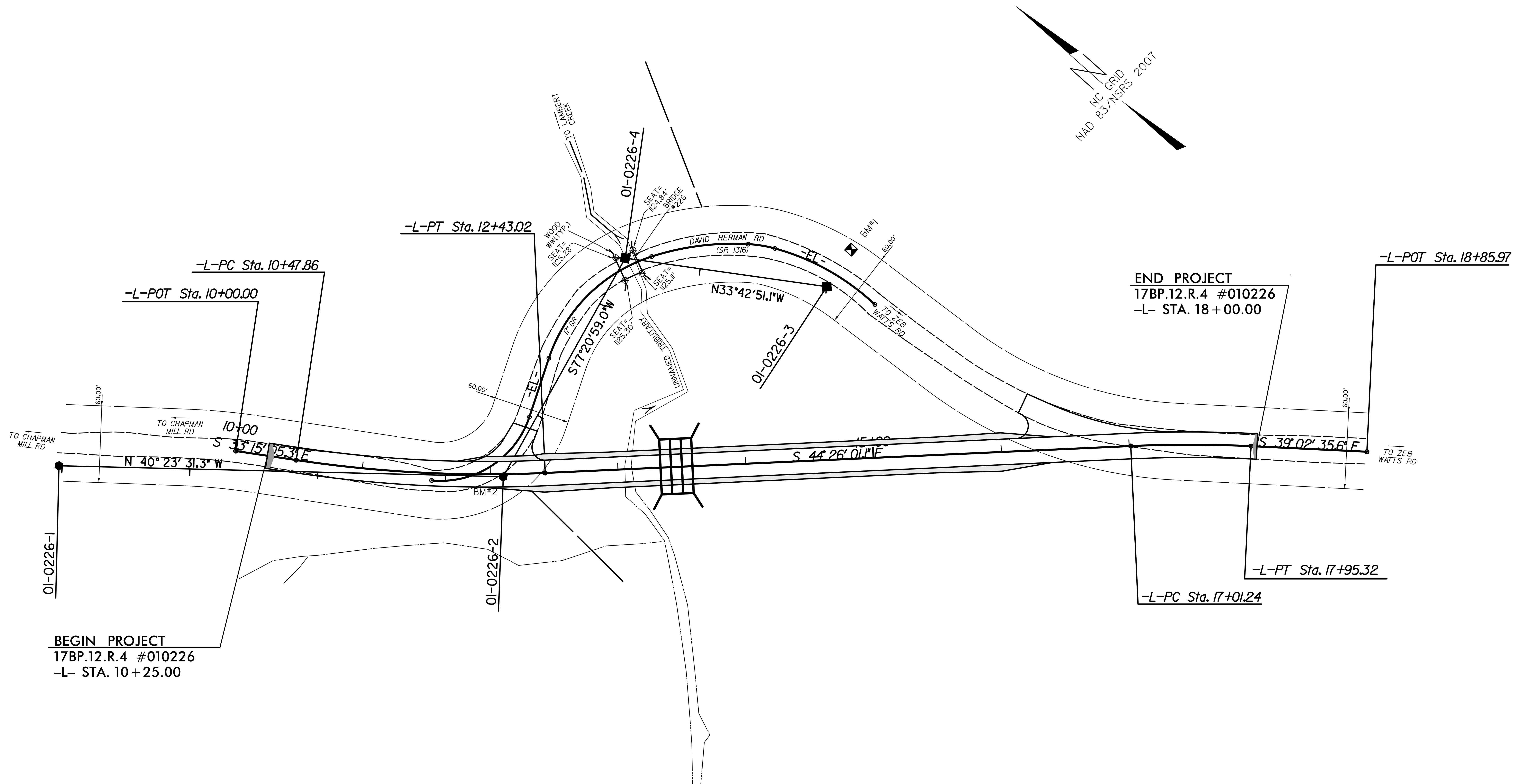
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According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

8/17/99

REVISIONS

ALEXANDER COUNTY
LOW IMPACT BRIDGE

STRUCTURE 010226
LS 12-11-028
WBS 17BP.12.R.4
TIP 01-0226



BL

POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
3	01-0226-3	806158.0436	1332092.5069	1127.00	10+39.75	11.65 LT
4	01-0226-4	806290.4278	1332004.1702	1126.61	12+07.37	6.69 RT
2	01-0226-2	806247.5490	1331813.1290	1132.60	14+00.67	12.14 LT
1	01-0226-1	806512.1610	1331587.9900	1148.47	OUTSIDE PROJECT LIMITS	

BENCHMARKS (NAVD 88)
****
BM#1 ELEVATION = 1132.99'
N 806163 E 1332127
"01-0226-3 TO BM#1
N 81°30'39.80" E DIST 34.70'
RR SPIKE IN WEST ROOT OF 10" WILD CHERRY TREE
****
****
BM#2 ELEVATION = 1132.60'
N 806248 E 1331813
BL STATION 8+55.00 0' RIGHT
REBAR WITH ALUMINUM CAP STAMPED
"01-0226-2" (SET FLUSH WITH GROUND).
POINT LIES 2' SOUTH OF SOUTHERN
EDGE OF DAVID HERMAN RD
****

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "01-0226-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 806512.161(ft) EASTING: 1331587.990(ft)
ELEVATION: 1148.47(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998959829
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "01-0226-1" TO -L- STATION 10+00 IS S46°34'34.4"E 138.69'

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

Scale 1" = 50'
50' 0 50' 100'

$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

6/2/99

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL

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

Alexander County
Bridge # 010226

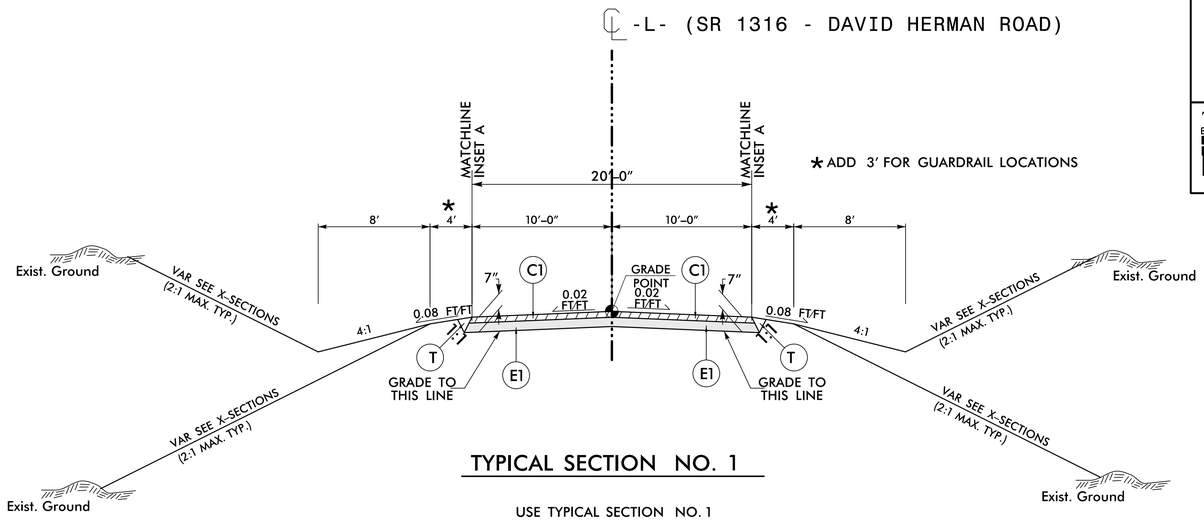
PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30499 ENGINEER 8/2/13 BOBBY C. HOUSER

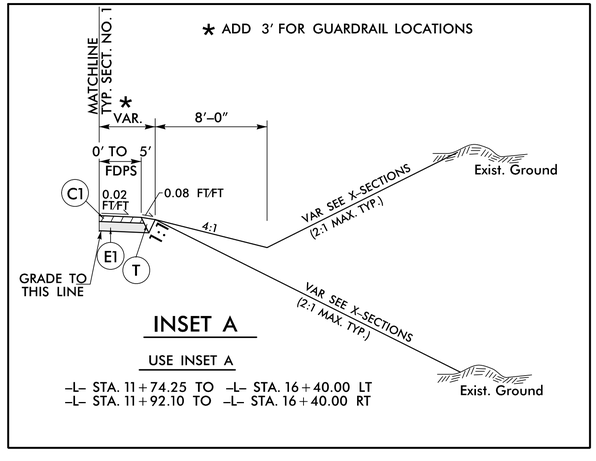
PAVEMENT DESIGN ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 10+25.00 TO –L– STA. 18+00.00



INSET A

USE INSET A
–L– STA. 11+74.25 TO –L– STA. 16+40.00 LT
–L– STA. 11+92.10 TO –L– STA. 16+40.00 RT

COMPUTED BY: SGM DATE: 7/26/2013 CHECKED BY: JLT DATE: 7/29/2013	PROJECT NO.	SHEET NO.
	17BP.12.R.4	3

RD261649

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+25	18+00	835	2,678	1,843	
PROJECT TOTALS:		835	2,678	1,843	
EST 5% TO REPLACE TOP SOIL ON BORROW PITS				92	
GRAND TOTALS:		835	2,678	1,935	
SAY:		900		2,100	

EST. DDE = 340 CUBIC YARDS

"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

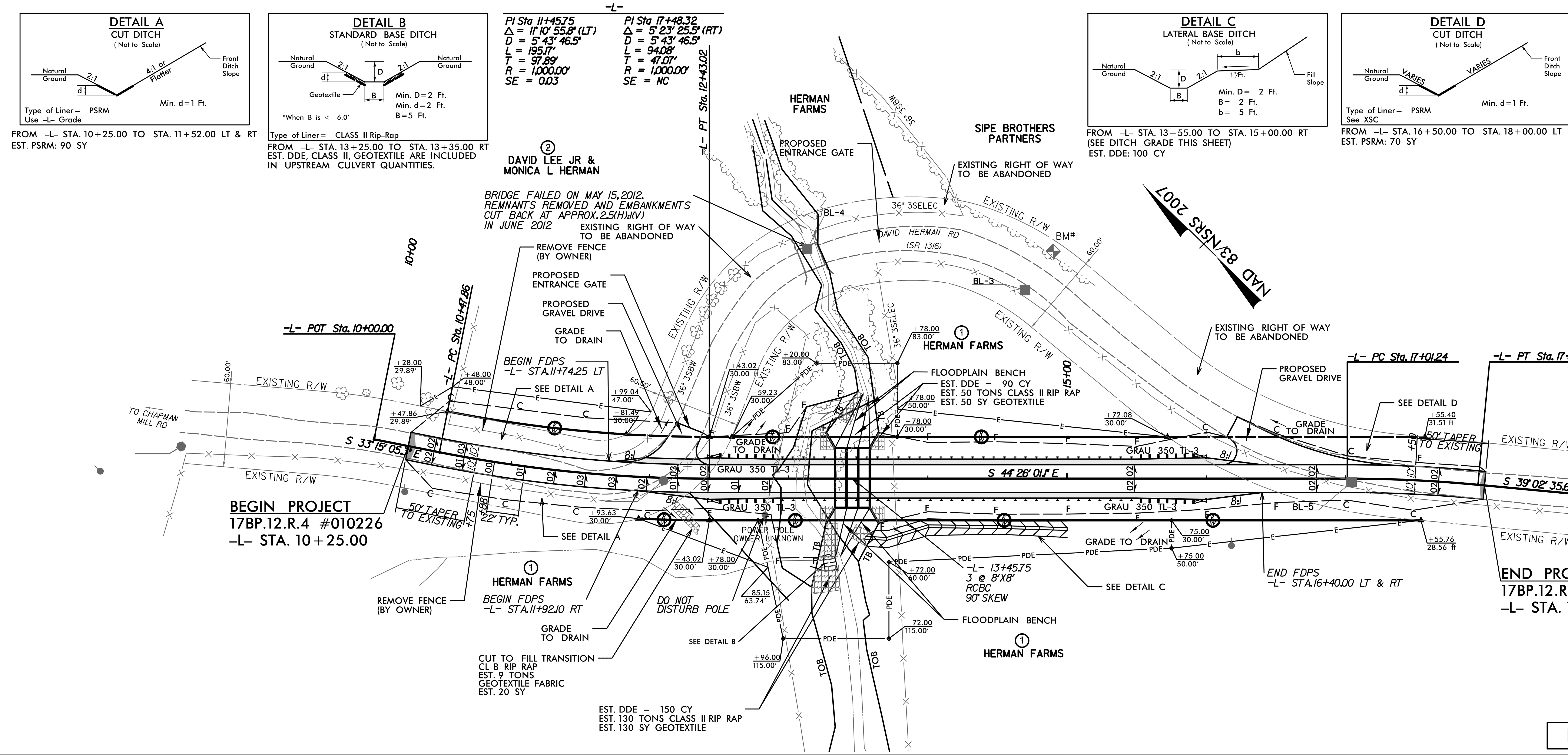
GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST.	TOTAL	FLAIR LENGTH		W		ANCHORS							IMP. ATTEN. TYPE 350			REMOVE EXISTING		REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END	FROM E.O.L.	SHLDR WIDTH	APPR. END	TRAIL. END	APPR. END	TRAIL. END		III	GRAU 350 (TL3)	AT-1	III SC			EA	G	NG	GUARDRAIL		
-L-	12+43.75	16+00.00	LT	356.25			13+58.25	13+33.25	4'	7'	50	50	1	1			2										
-L-	12+43.75	16+00.00	RT	356.25			13+33.25	13+58.25	4'	7'	50	50	1	1			2										
SUB-TOTALS:				712.50													4										
	LESS ANCHOR DEDUCTIONS																										
	GRAU-350 (TL-3)	4@50.00ft		200																							
	ANCHOR TOTALS			200																							
GRAND TOTALS				512.50													4										
SAY				525																							

ADDITIONAL GUARDRAIL POSTS = 5 EA

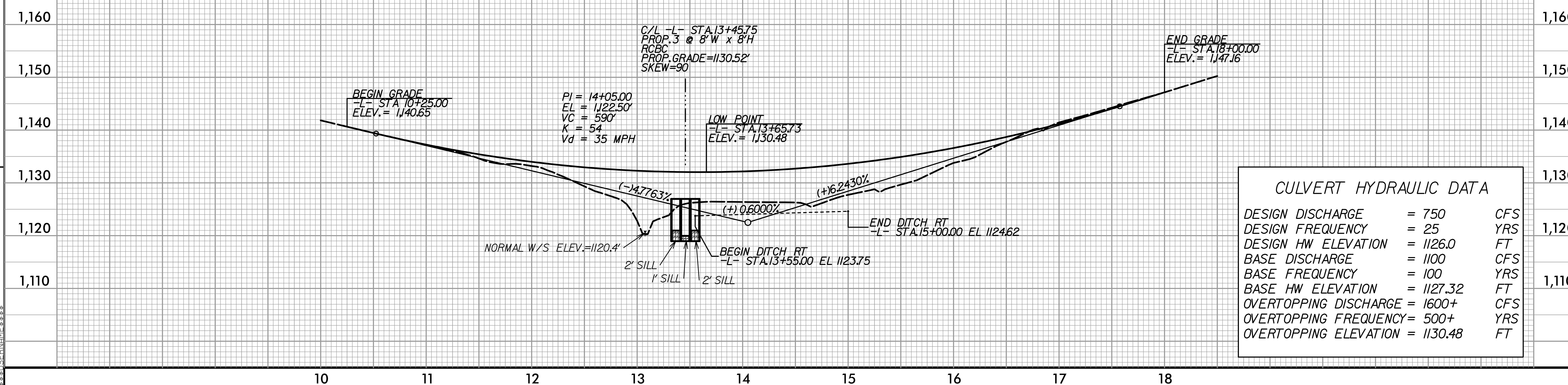
PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30499 BOBBY C. HOUSER 8/21/13	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038697 DAVID B. PETTY 8/21/2013

ALEXANDER COUNTY
BRIDGE #010226



FOR CULVERT PLANS, SEE SHEET C-1 THRU C-5

BM #1
RR SPIKE SET IN BASE OF 10'
WILD CHERRY TREE EAST OF CULVERT
N 806,163.17 E 1,332,126.83
ELEV. = 1,132.99 FT
-L- STA. 14+90, 164' LT



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 750	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1126.0	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1127.32	FT
OVERTOPPING DISCHARGE	= 1600+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1130.48	FT

REVISIONS

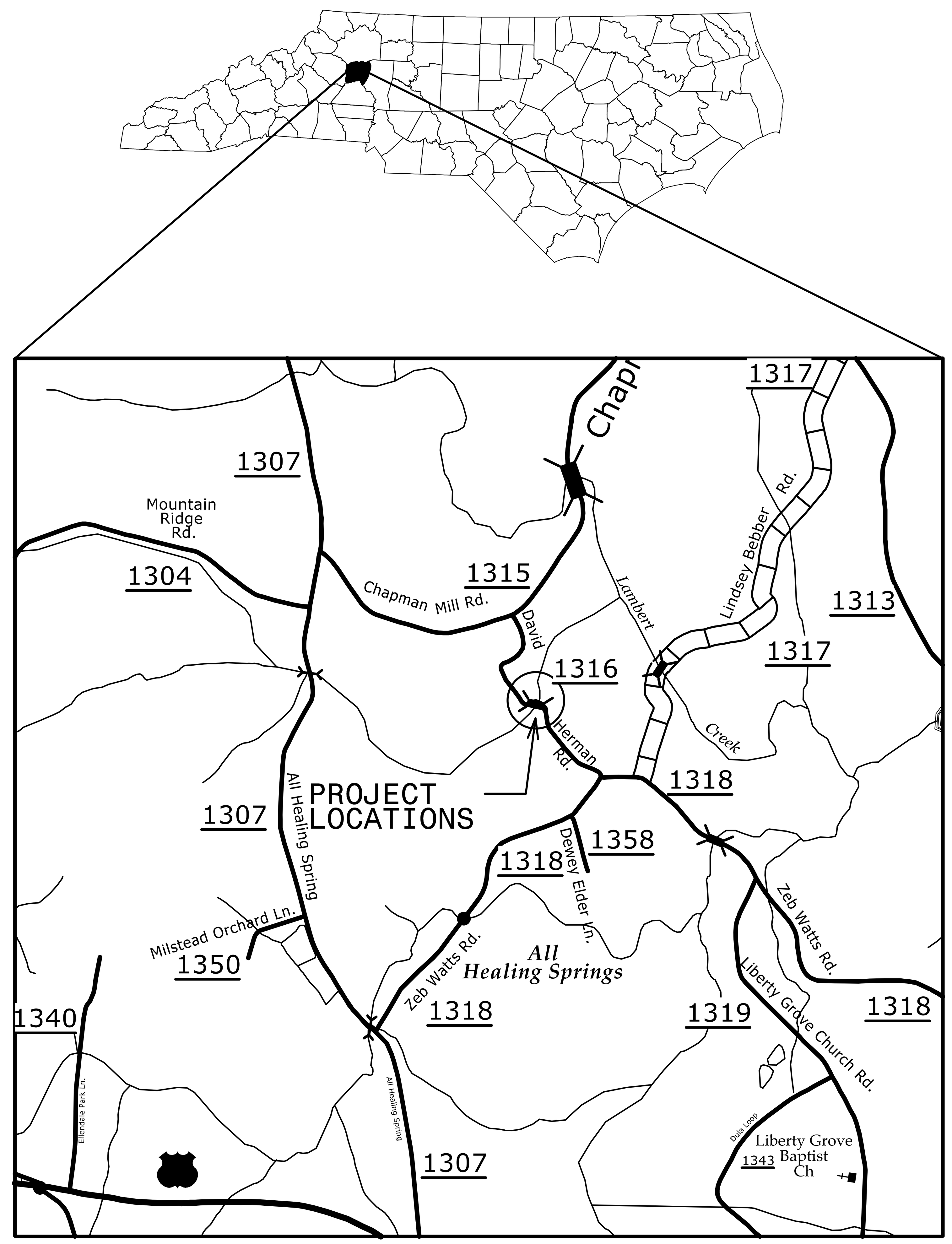
8/17/99

$$$$$$$$SYSTIME$$$$$ $$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$ $$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ALEXANDER COUNTY

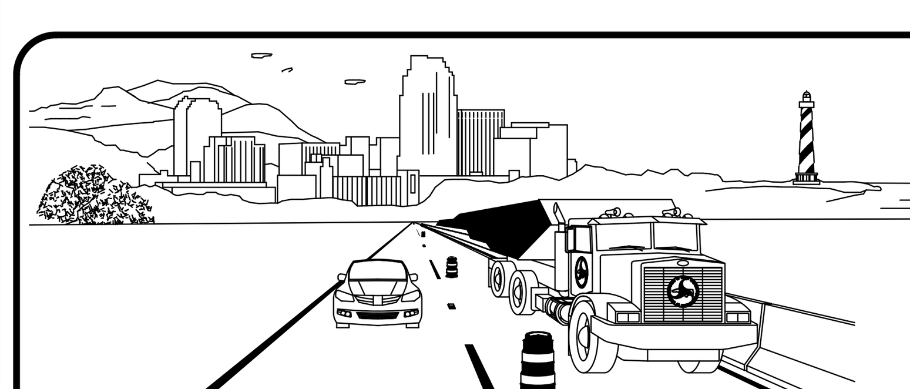


VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: 17BP.12.R.4 #010226



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — *PROJECT ENGINEER*
SANDRA G. MELVIN — *DESIGN TECHNICIAN*

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

*APPROVED:*__________
*DATE:*__________

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY, JR. 8/21/13

$$$$$$$SYSTIME$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

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
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
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.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

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

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JAMES L. TERRY 8/21/13

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

$$$$$SYSTIME$$$$$
$$$$$USERNAME$$$$$

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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

B) 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.

C) STATE FORCES WILL BE RESPONSIBLE FOR PROVIDING SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

STATE FORCES WILL BE RESPONSIBLE FOR PROVIDING SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE .

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

H) PLACE ONE APPLICATION 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.

I) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

J) THE CONTRACTOR IS TO REMOVE AND RETURN ALL DETOUR SIGNING TO THE DIVISION ENGINEER UPON COMPLETION OF THE PROJECT.

MANAGEMENT STRATEGIES

DURING THE CONSTRUCTION OF THE PROPOSED SR 1316 (DAVID HERMAN RD) TRAFFIC WILL REMAIN DETOURED OFFSITE AS CURRENTLY POSTED BY DIVISION PERSONNEL.

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED:__________ DATE:______

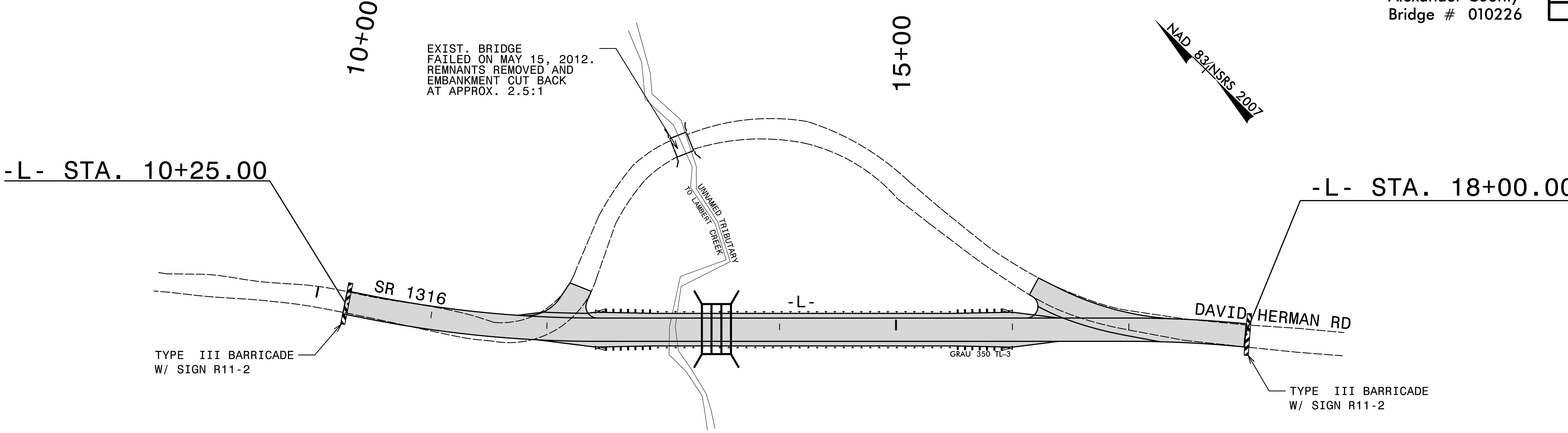
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY, JR. 8/21/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$USERNAME$$$$



PHASING NOTES

NOTE: DUE TO THE PRIOR FAILURE OF THE EXISTING BRIDGE, DAVID HERMAN RD (SR 1316) TRAFFIC WAS PLACED ON AN OFF-SITE DETOUR BY DIVISION, TRAFFIC WILL REMAIN ON THIS DETOUR UNTIL COMPLETION OF PROJECT.

STEP 1: INSTALL TYPE III BARRICADES AND SIGNS, AS NEEDED. (SEE TMP-2 AND NCDOT RDWY. STD. 1101.03 (SHT 1 OF 9).

STEP 2: CONSTRUCT THE NEW CULVERT ON TRIB. TO LAMBERT CREEK AND CONSTRUCT DAVID HERMAN RD (SR 1316) UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 10+25.00 TO STA. 18+00.00 (SEE TMP-2)

STEP 3: PLACE FINAL PAVEMENT MARKINGS FROM -L- STA. 10+25.00 TO STA. 18+00.00 (SEE SHEET PMP-1)

STEP 4: REMOVE BARRICADES, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES AND OPEN DAVID HERMAN ROAD (SR 1316) TO TRAFFIC IN FINAL PATTERN.

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED:________ DATE:________

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY, JR. 8/21/13

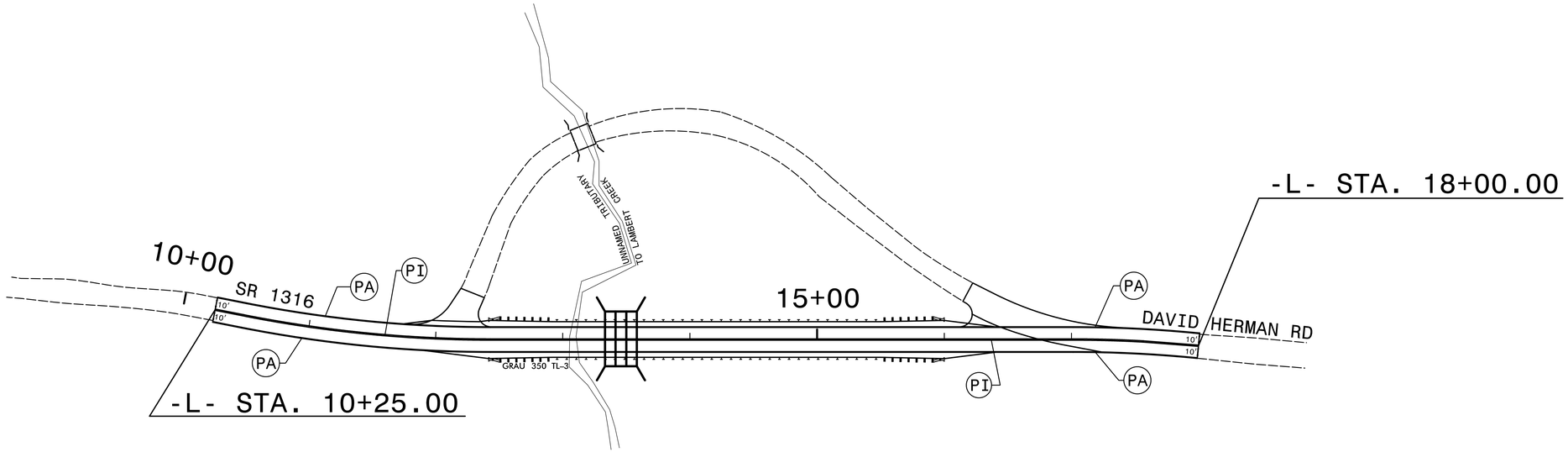
DIVISION OF HIGHWAYS, STATE OF NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION, WORK ZONE TRAFFIC CONTROL

PHASING

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

Alexander County
Bridge # 010226

PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.4	PMP-1



Pavement Marking Schedule

TIP Project # 17BP.12.R.4

SYMB	DESCRIPTION	PAY ITEM QUANTITY		TOTAL
	FINAL			
	PAVEMENT MARKINGS			
	PAINT(4")			
PA	WHITE EDGELINE (2X)	3100	LF	
PI	YELLOW DOUBLE CENTER (2X)	3100	LF	
			TOTAL	6200 LF

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JAMES L. TERRY III 8/21/13

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

FINAL PAVEMENT MARKING PLAN AND SCHEDULE

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

TIP PROJECT: 17BP.12.R.4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.12.R.4	EC-1	

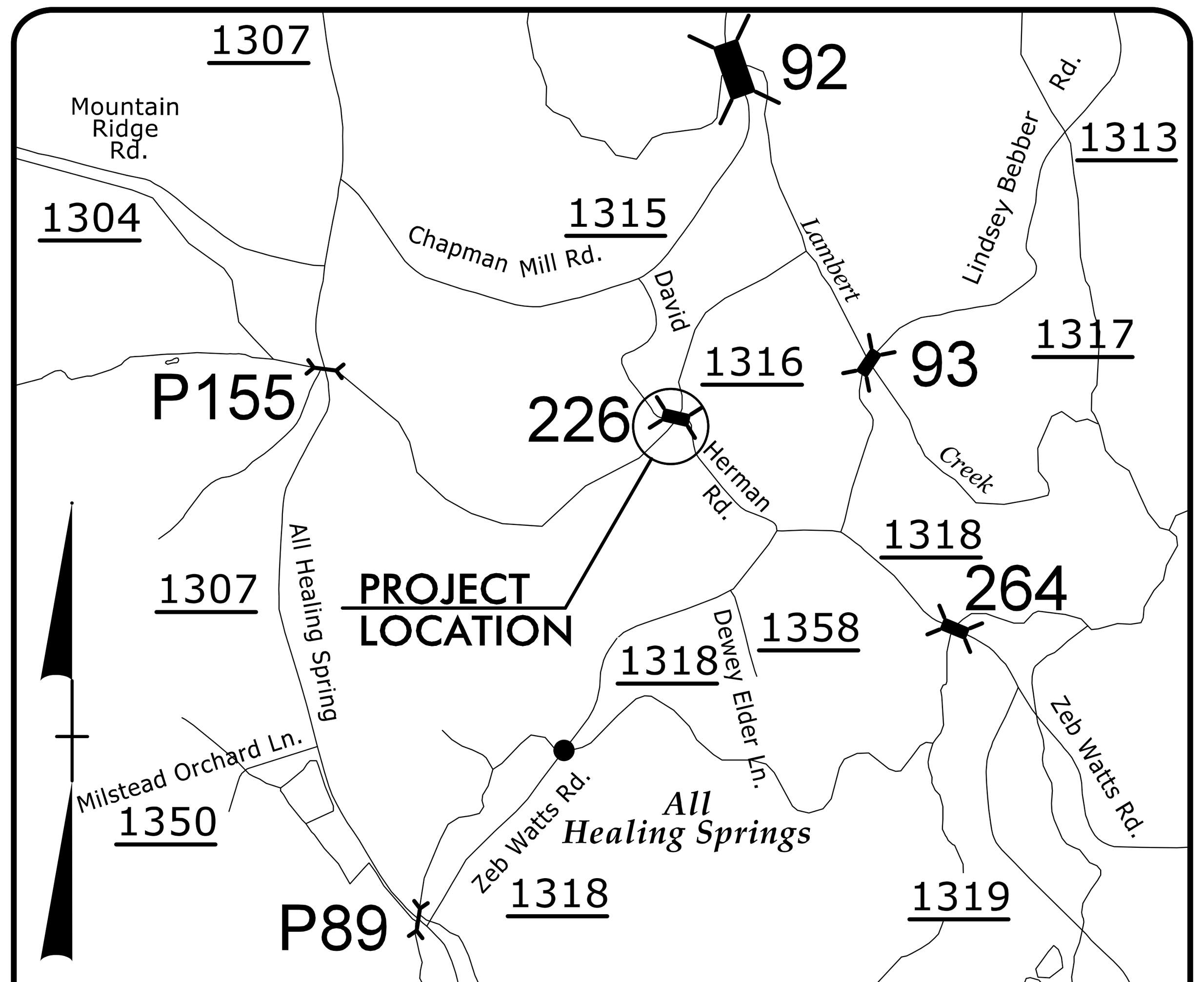
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.12.R.4		PE
17BP.12.R.4		R/W, UTIL
17BP.12.R.4		CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

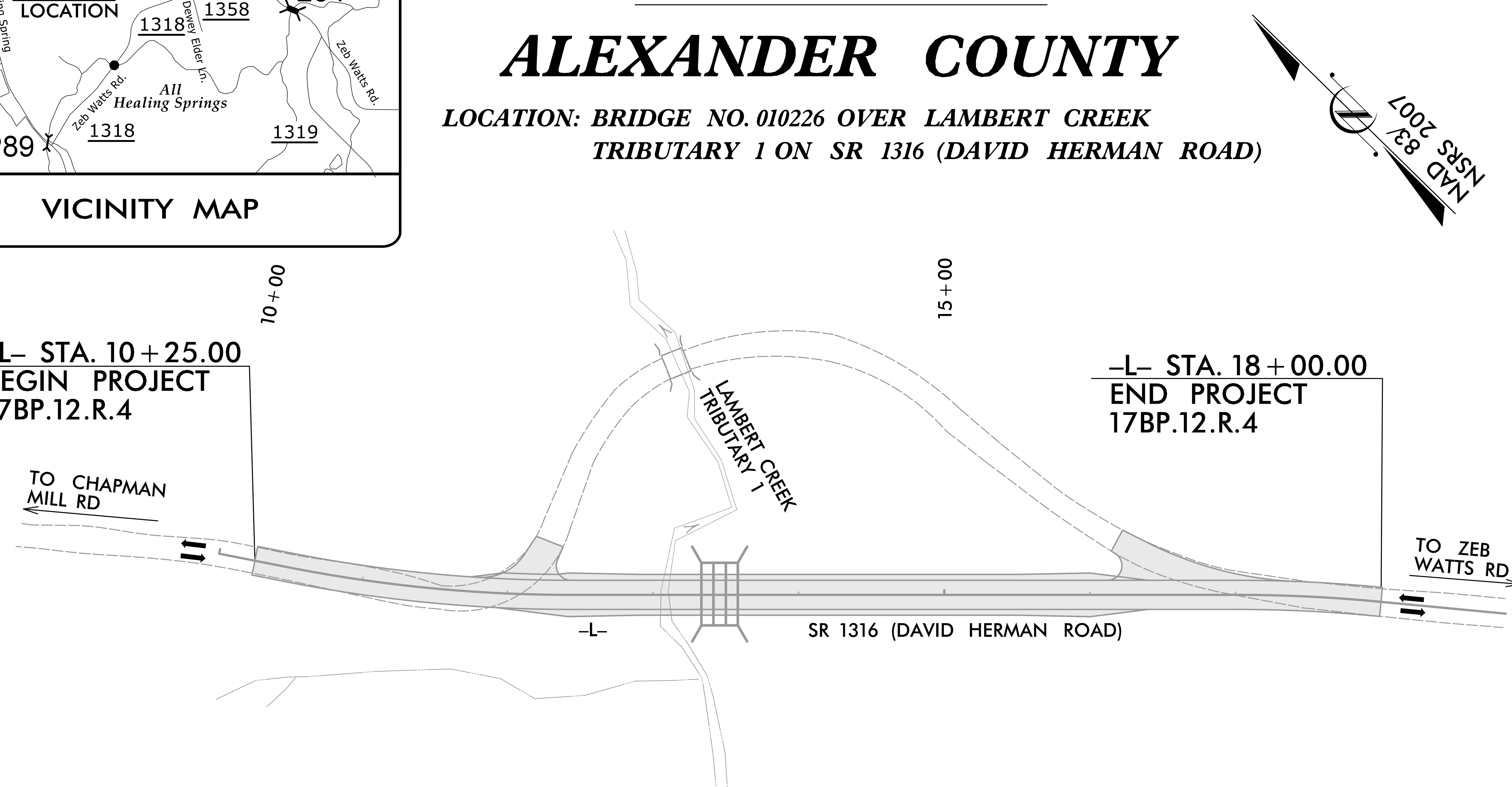
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ALEXANDER COUNTY

LOCATION: BRIDGE NO. 010226 OVER LAMBERT CREEK TRIBUTARY 1 ON SR 1316 (DAVID HERMAN ROAD)



VICINITY MAP



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
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.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

TGS ENGINEERS

Plans Prepared By:
TGS ENGINEERS
804-C N. LAFAYETTE ST.
SHELBY, NC 28150
PH (704) 476-0003

2012 STANDARD SPECIFICATIONS

LETTING DATE:

OCTOBER 22, 2013

NCDOT DIVISION 12
NCDOT Contact:
STEVE RACKLEY, PE
DIVISION BRIDGE
PROGRAM MANAGER

JIMMY L. TERRY, PE
PROJECT ENGINEER
LEVEL III CERTIFICATION
NUMBER 3145

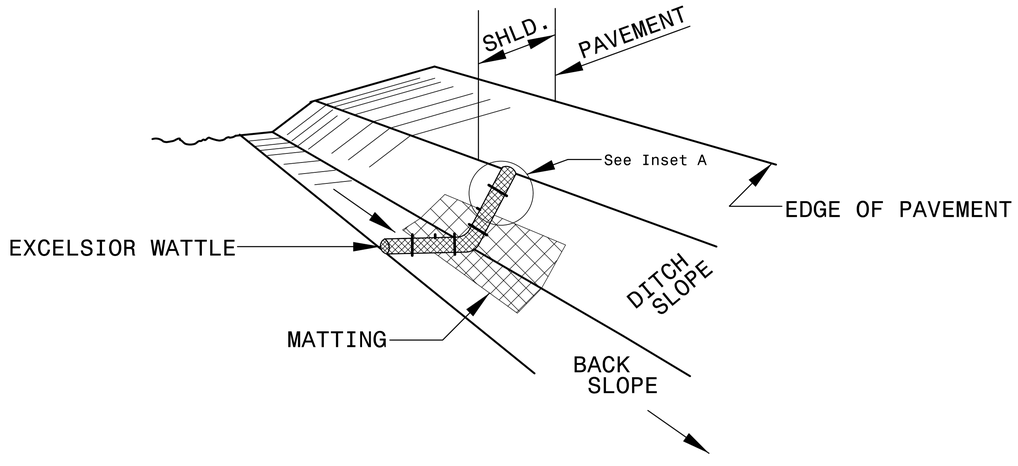
Roadway Standard Drawings

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 revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

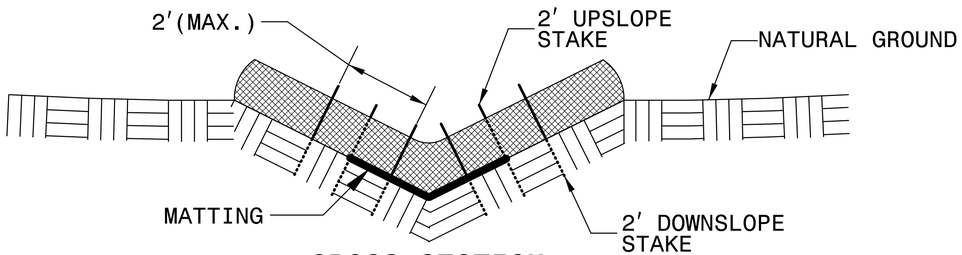
1604.01 Railroad Erosion Control Detail
1605.01 Temporary Silt Fence
1606.01 Special Sediment Control Fence
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1630.01 Riser Basin
1630.02 Silt Basin Type B
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.05 Temporary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

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

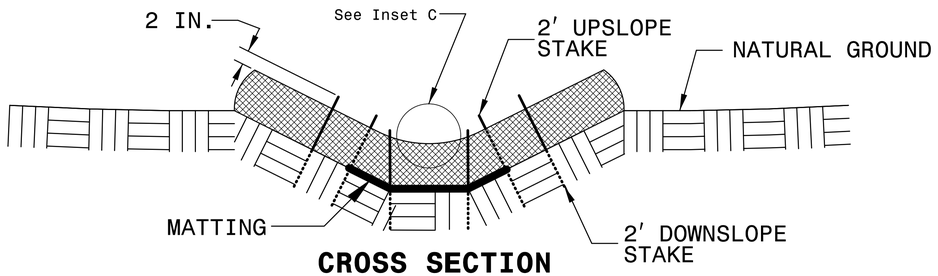
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

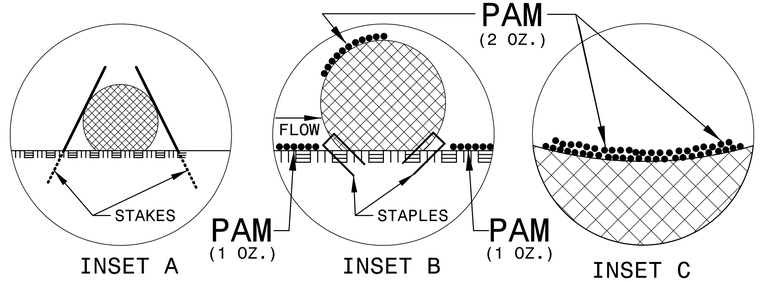
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

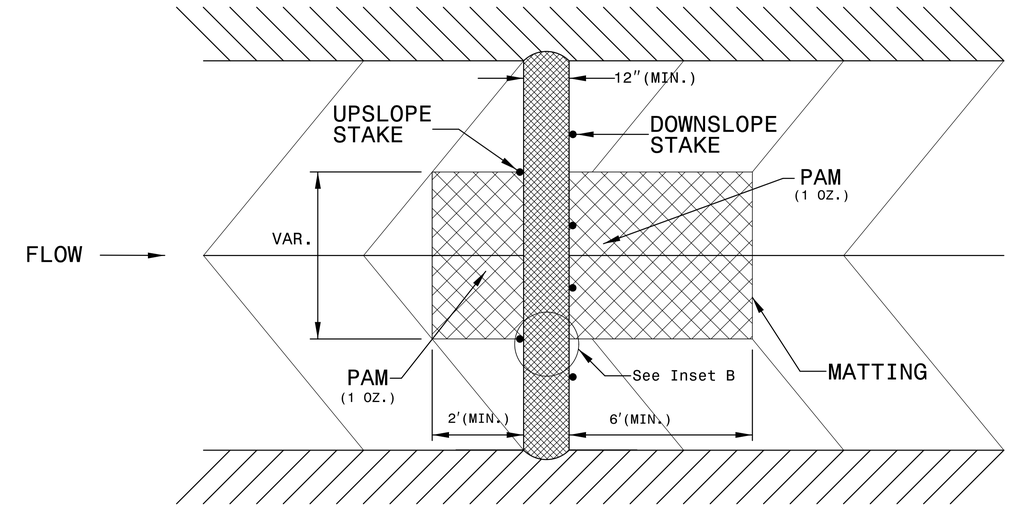
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.





TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

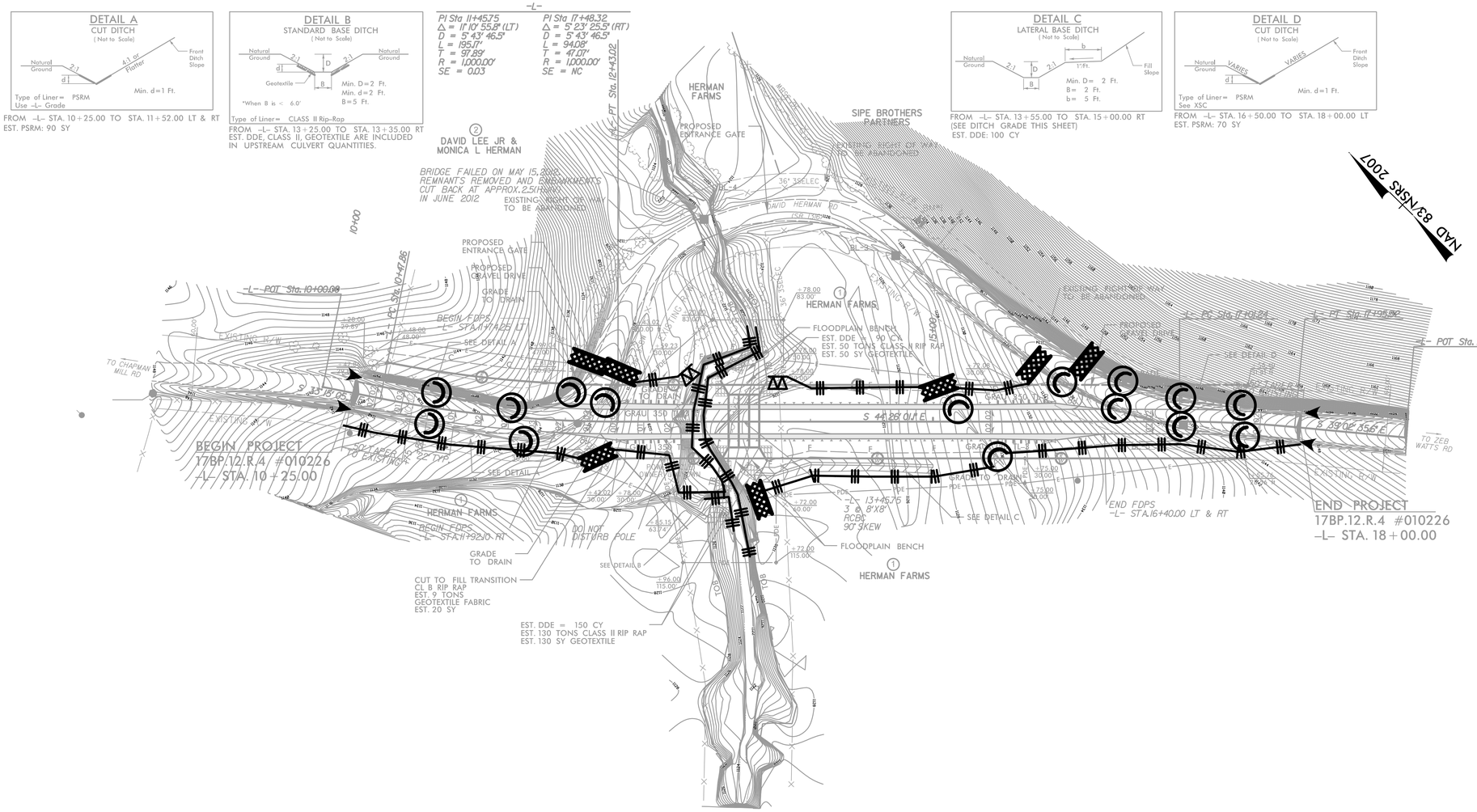
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

Alexander County
Bridge # 010226

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CULVERT CONSTRUCTION SEQUENCE
STA. 13 + 45.75 –L–

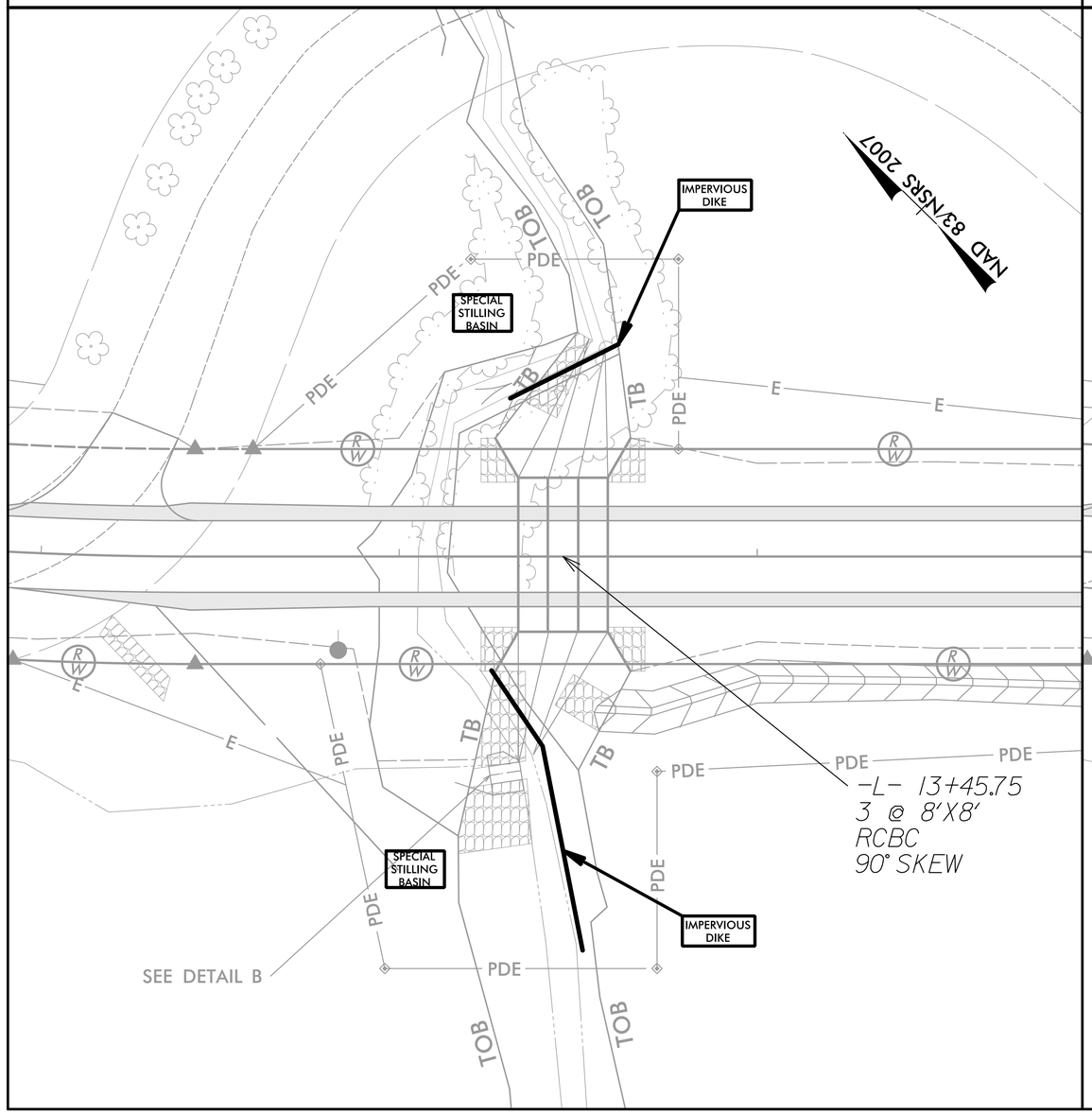
PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.6	EC-4A/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

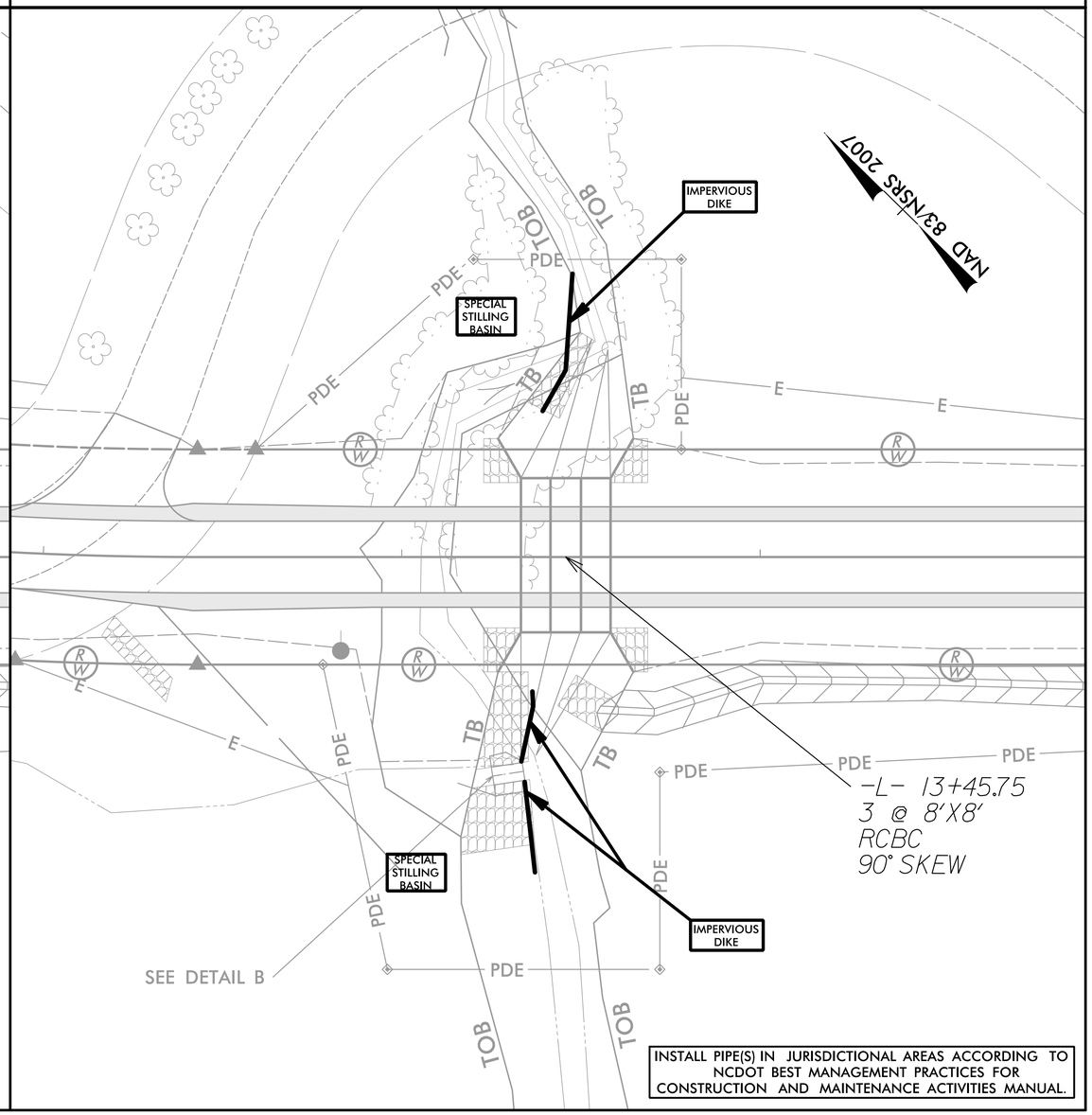
PHASE I

1. Install perimeter erosion control devices as shown on EC–4. Place special stilling basins as directed by the Engineer.
2. Construct impervious dikes to prevent stream flow from intruding into work area.
3. Construct the proposed culvert while flow is maintained in existing stream.
4. Remove impervious dikes and reroute flow into proposed channel and culvert.

PHASE II

5. Construct impervious dikes to prevent stream flow from intruding into existing channel.
6. Fill in existing channel.
7. Remove impervious dikes and complete any necessary Inlet/Outlet channel improvements.
8. Remove special stilling basins.
9. Complete roadway construction.

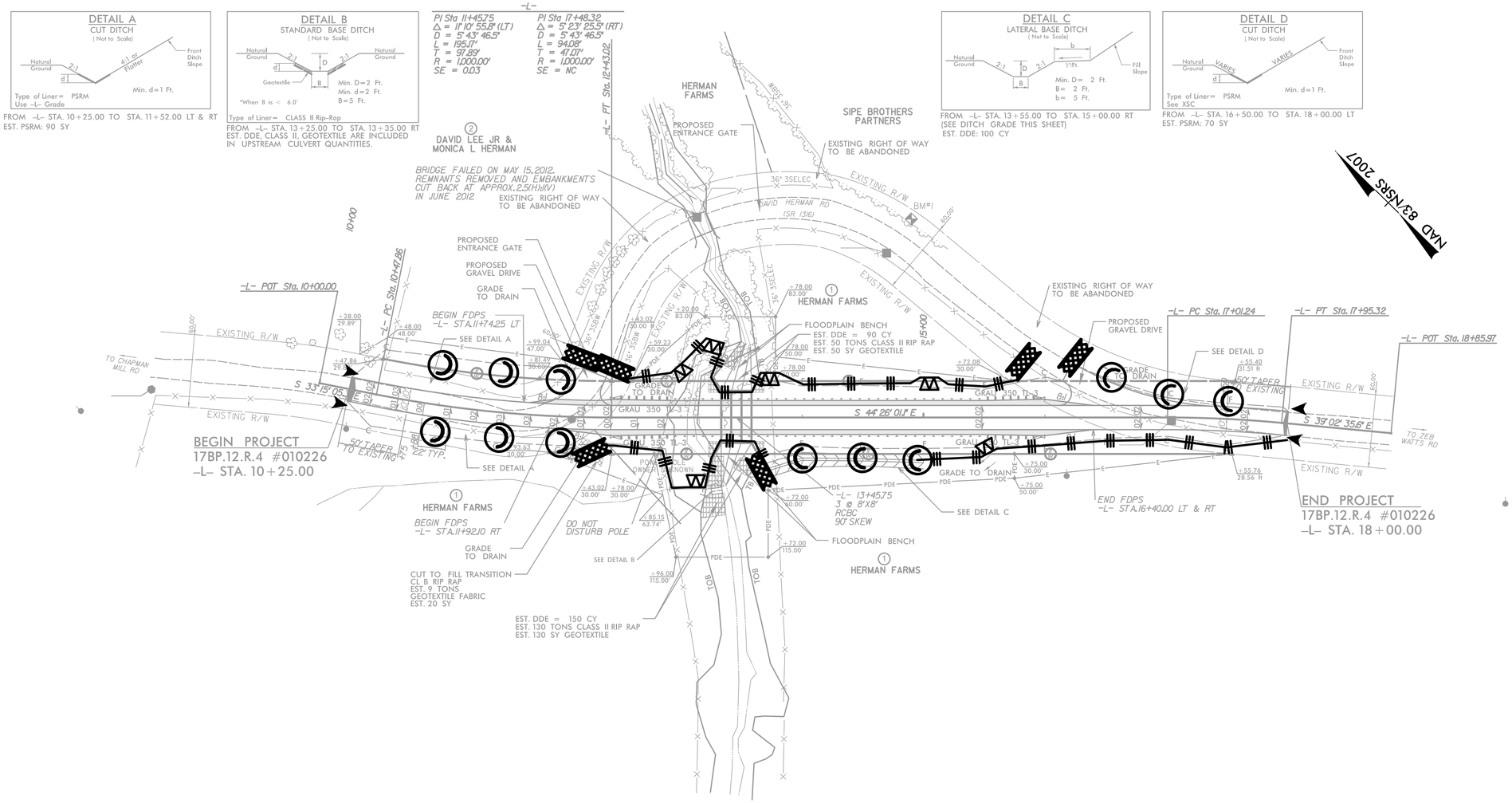




INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

Alexander County
Bridge # 010226

PROJECT REFERENCE NO.	SHEET NO.
17BP.12.R.4	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.12.R.4	X-1

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, AND CLEARING AND GRUBBING WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

8/23/99

$$$$$SYSTIME$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.12.R.4	X-2

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

1130 1125 1120 1115

0.020 0.020

50:1 2:1 2:1 50:1 2:1

S.S. 1126.15

S.S. 1123.92

1122.81

13+00.00

1130 1125

50:1 0.020 0.000 2:1

S.S. 1131.17

S.S. 1129.41

1129.99

12+43.02

PROP. DRIVE

1120 1135 1130 1125

0.030 0.019 4:1 2:1 S.S. 1131.98

1133.18

1130.98

12+00.00

1145 1140 1135 1130 1125

S.S. 1141.02

2:1 4:1 0.030 0.028 4:1 2:1 S.S. 1134.40

1134.62

1132.22 1132.99

11+50.00

—℄—

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

$$$$SYSTIME$$$$
$$$$SUN$$$$
$$$$SFENAME$$$$
$$$$SD$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.12.R.4	X-3

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

1130 1125 1120

0.020 0.020

2:1 2:1 12:1 2:1 2:1

S.S. 1127.54

S.S. 1127.17

1124.62

1127.73

15+00.00

1130 1125 1120

0.020 0.020

2:1 2:1 12:1 2:1 2:1

S.S. 1125.90

S.S. 1126.41

1124.32

1126.28

14+50.00

1130 1125 1120

0.020 0.020

2:1 2:1 12:1 2:1 2:1

S.S. 1126.06

S.S. 1126.84

1124.02

1126.38

14+00.00

1130 1125 1120 1115

0.020 0.020

2:1 2:1

1126.22

3–8x8 RCBC

13+50.00

—℄—

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

$$$$SYSTIME$$$$
$$$$SJOB$$$$
$$$$SENAME$$$$
$$$$SECS$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.4	X-4

$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 2.5 5

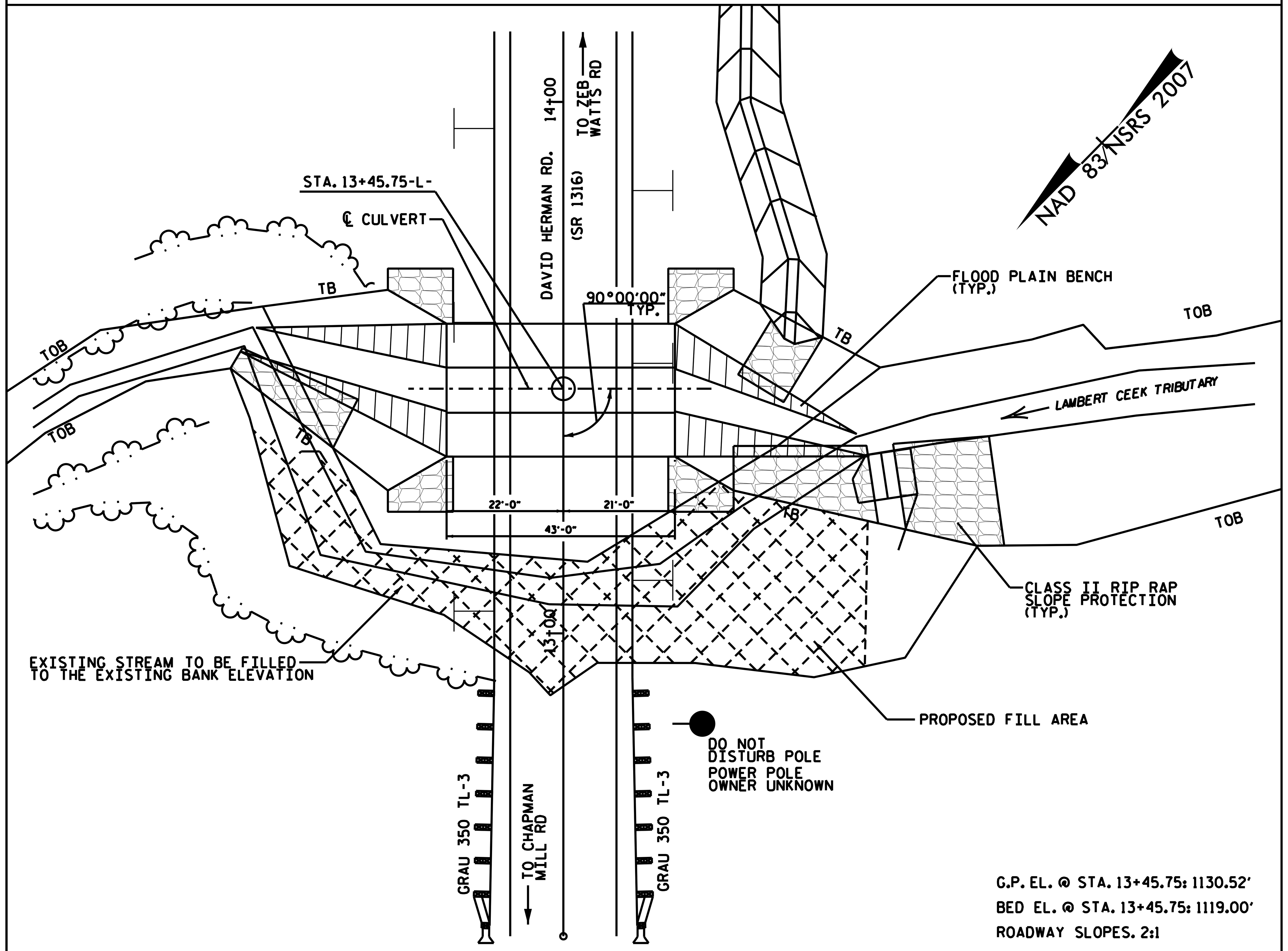
PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.4	X-5

$$$$$$SYSTIME$$$$
$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
17BP.12.R.4	X-6

BENCH MARK: -L- STA. 14+90 164' LT. RR SPIKE IN WEST ROOT OF 10" WILD CHERRY TREE. EL. 1,132.99' NAVD 88



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL-----------------3'-0"

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

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

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

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

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

THIS BARREL STANDARD TO BE USED ONLY ON CULVERT ON 90° SKEW AND TO BE USED WITH STANDARD WING SHEET WITH THE SAME SKEW AND VERTICAL CLEARANCE.

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

EXCAVATE 1' BELOW THE CULVERT AND FOOTING AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414 OF THE STANDARD SPECIFICATIONS.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

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

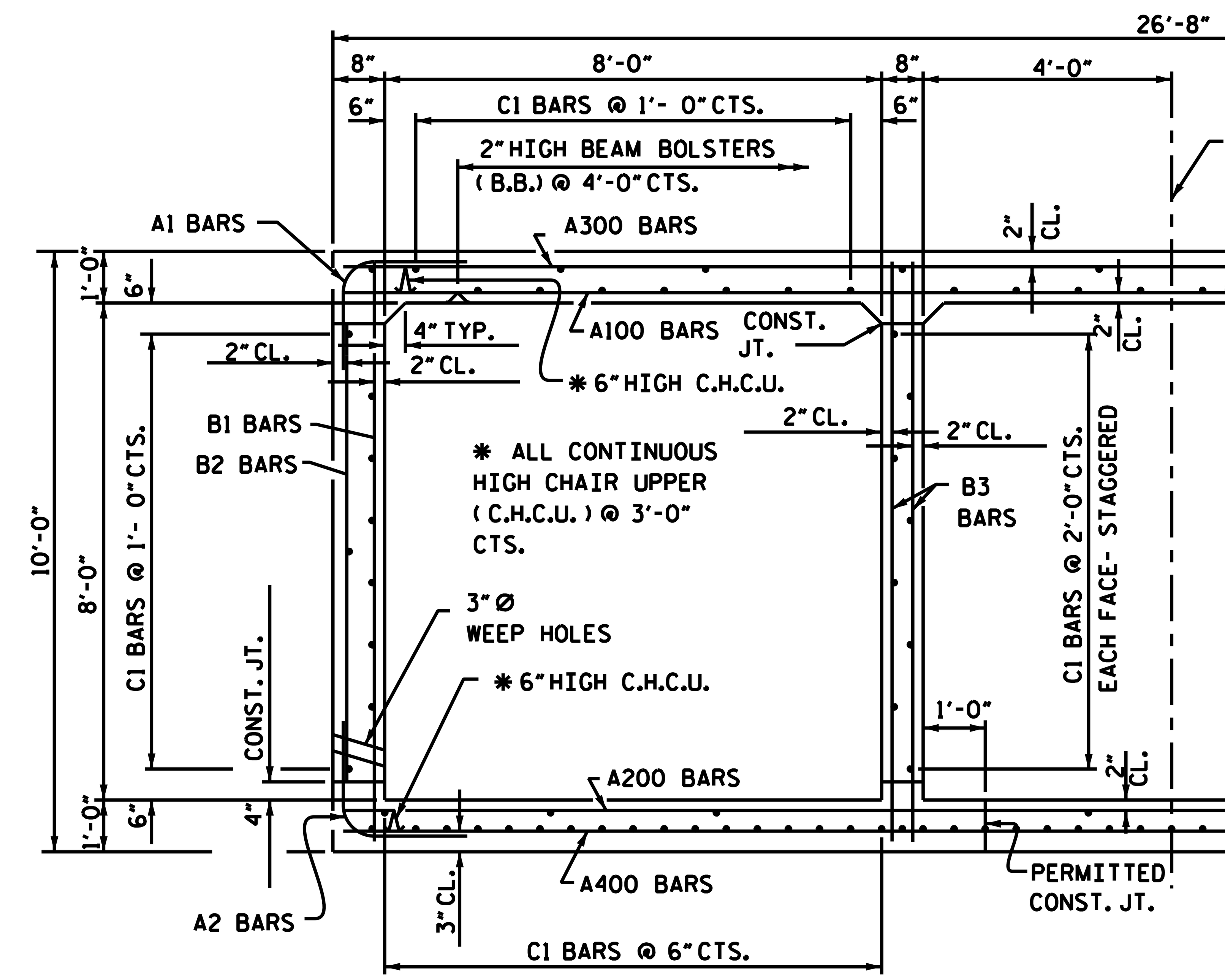
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL PLANS, SEE ROADWAY PLANS.



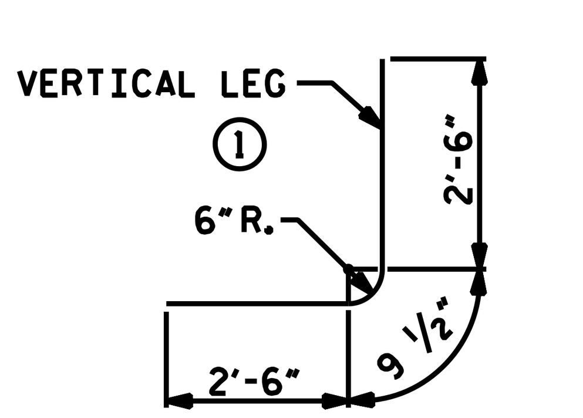
RIGHT ANGLE SECTION OF BARREL

THERE ARE 129 "C" BARS IN SECTION OF BARREL.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 2.78 CY/FT 119.5		C.Y.
WING ETC.	29.9	C.Y.
TOTAL	149.4	C.Y.
REINFORCING STEEL		
BARREL	21,191	LBS.
WINGS ETC.	1,453	LBS.
TOTAL	22,644	LBS.
FOUNDATION COND. MAT., BOX CUL.		85 TONS
CULVERT EXCAVATION, STA 13+45.75		LUMP SUM

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

SPLICE LENGTHS CHART

BAR	SIZE	SPLICE LENGTH
B1	#5	2'-7"
B3	#4	2'-0"
C1	#4	2'-0"

REINFORCING STEEL BAR SCHEDULE

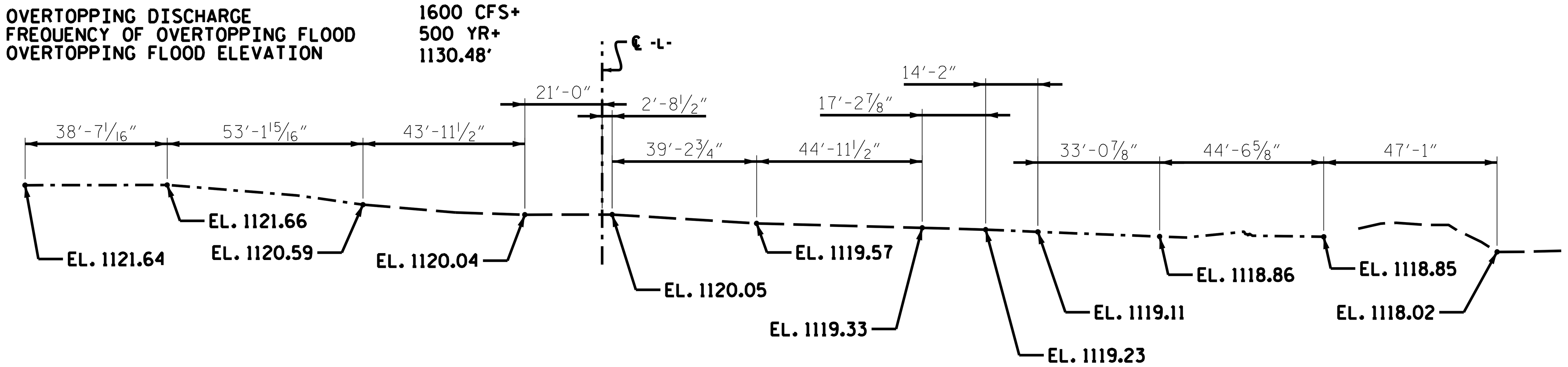
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	88	#8	1	5'-9 1/2"	1,361
A2	88	#8	1	5'-9 1/2"	1,361
A100	87	#7	STR	26'-4"	4,683
A200	87	#4	STR	26'-4"	1,531
A300	44	#9	STR	26'-4"	3,940
A400	87	#4	STR	26'-4"	1,531
B1	88	#5	STR	9'-8"	888
B2	88	#4	STR	7'-4"	432
B3	176	#4	STR	9'-8"	1137
C1	258	#4	STR	23'-4"	4022
D1	18	#6	STR	2'-7"	70
D2	6	#6	STR	1'-7"	15
G1	8	#5	STR	26'-4"	220
REINFORCING STEEL					21,191 LBS.

HYDRAULIC DATA:

DESIGN DISCHARGE	750 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	1126.0'
DRAINAGE AREA	1.6 SQ. MI.
BASE DISCHARGE	1100 CFS
FREQUENCY OF BASE DISCHARGE	100 YRS.
BASE HIGH WATER ELEVATION	1127.32'

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	1600 CFS+
FREQUENCY OF OVERTOPPING FLOOD	500 YR+
OVERTOPPING FLOOD ELEVATION	1130.48'



PROFILE ALONG ℄ CULVERT

PREPARED BY TGS ENGINEERS 107-A MICA AVENUE MORGANTON, NC 28655

9/12/13

PROJECT NO. 17BP.12.R.4

ALEXANDER COUNTY

STATION: 13+45.75-L-

SHEET 1 OF 5 REPLACES BR. NO. 226

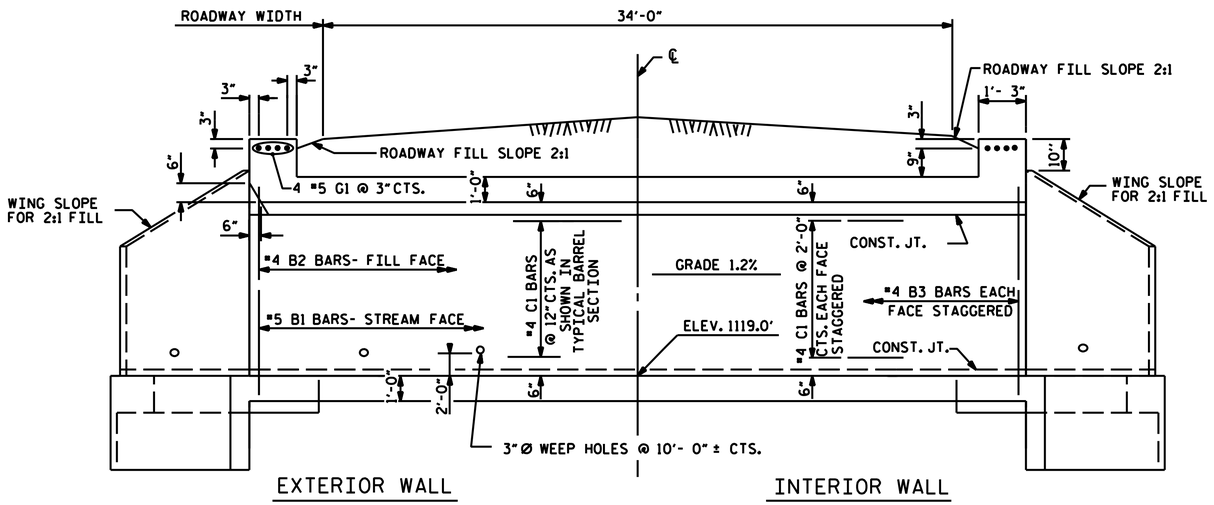
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD TRIPLE 8 FT. X 8 FT. CONCRETE BOX CULVERT 90° SKEW

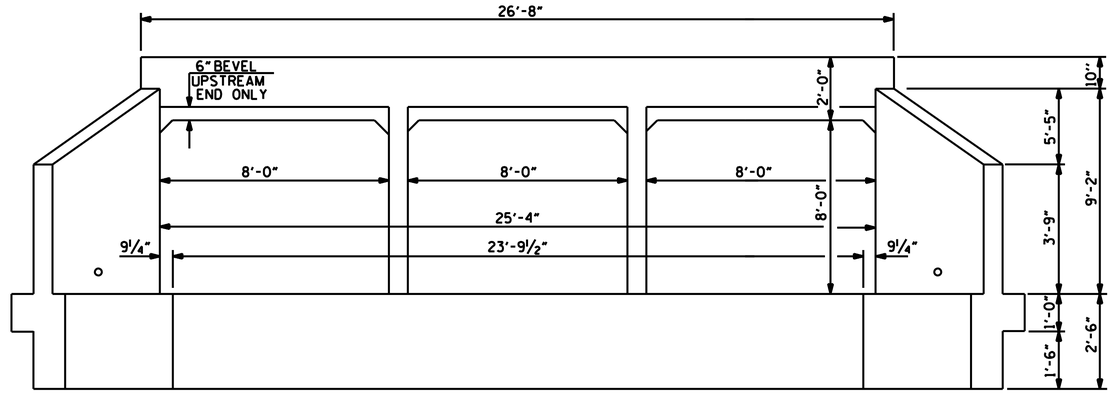
OCTOBER 1989

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

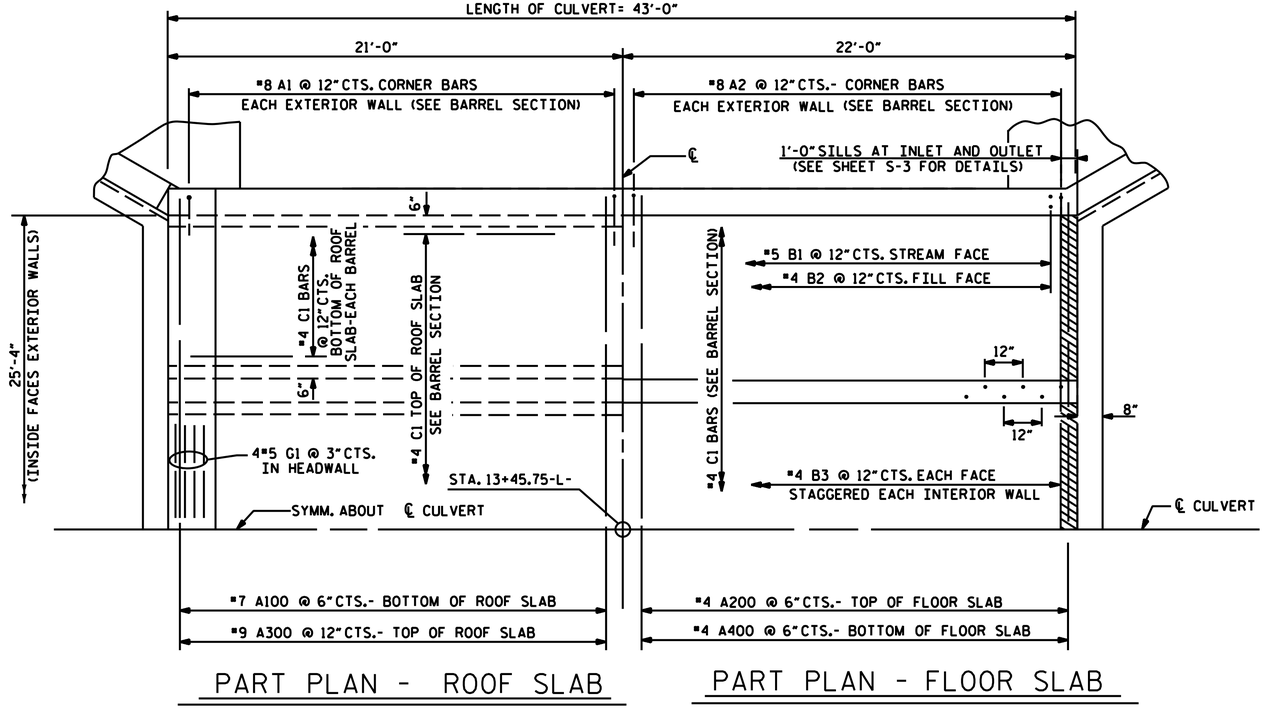
ASSEMBLED BY: CCC	DATE: 9/13	SPECIAL
CHECKED BY: MTC	DATE: 9/13	
DRAWN BY: J. E. MANGUM	DATE: 10/25/89	STANDARD
CHECKED BY: A.R. BISSETTE	DATE: AUG. 1989	



CULVERT SECTION NORMAL TO ROADWAY

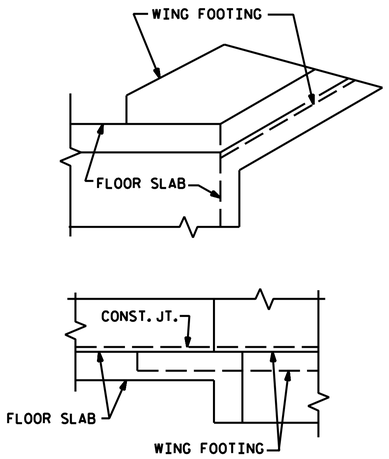


END ELEVATION



PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB



DETAIL

CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN SLAB IS THICKER THAN FOOTING

REVISED 8-28-92 BY E.L.R. CHECKED BY G.R.P.
REDRAWN NOV. 1990

REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.

ASSEMBLED BY : CCC	DATE : 9/13	SPECIAL	
CHECKED BY : MTC	DATE : 9/13		
DRAWN BY : JOEL JOHNSON	DATE : MAR. 1971	STANDARD	
CHECKED BY : GARY BROOME	DATE : MAR. 1971		

PREPARED BY
TGS ENGINEERS
107-A MICA AVENUE
MORGANTON, NC 28655

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL RICHARD G. FLETCHER 9/12/13

PROJECT NO. 17BP.12.R.4

ALEXANDER COUNTY

STATION: 13+45.75-L-

SHEET 2 OF 5

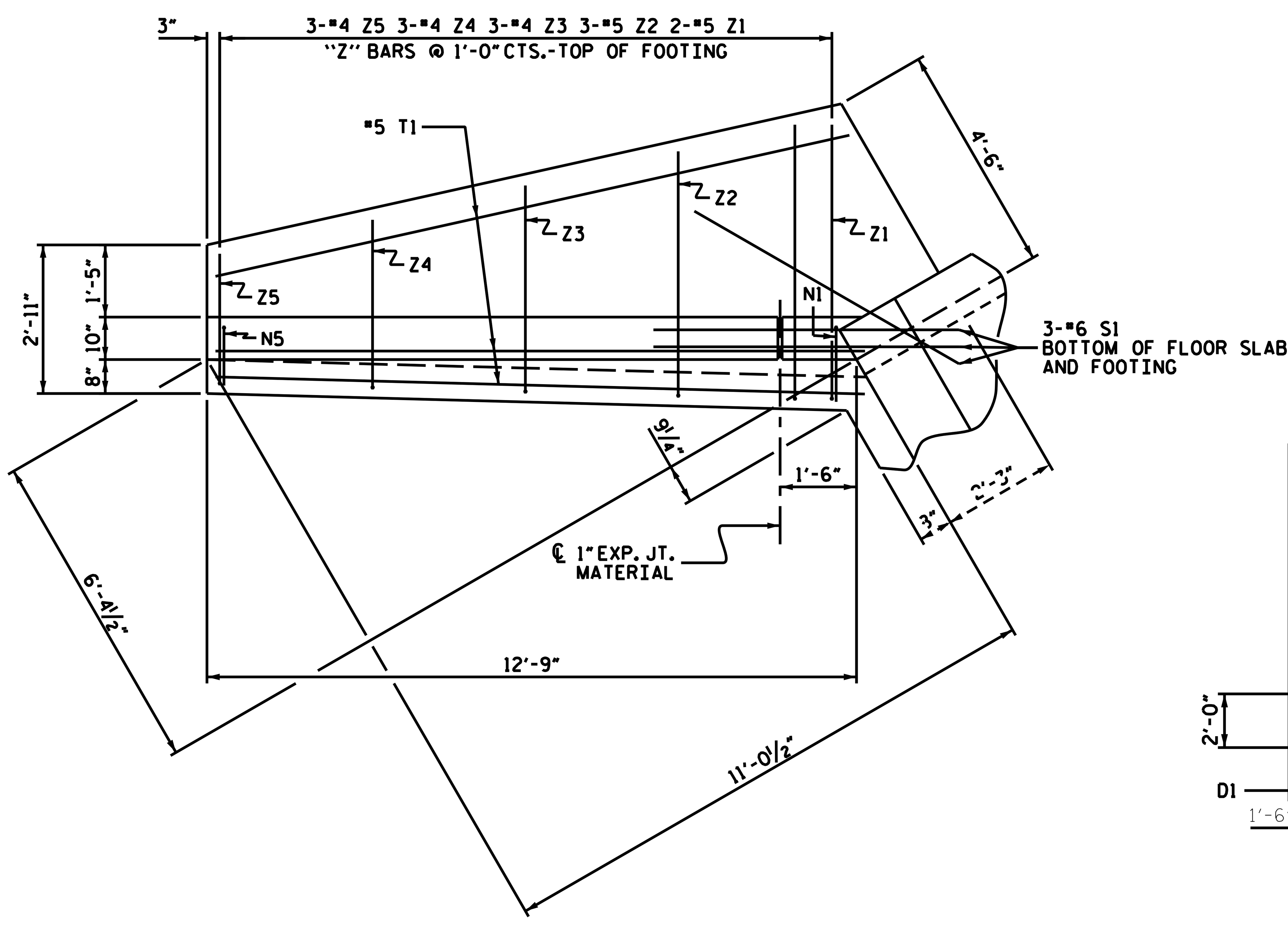
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD TRIPLE 8 FT. X 8 FT. CONCRETE BOX CULVERT 90° SKEW

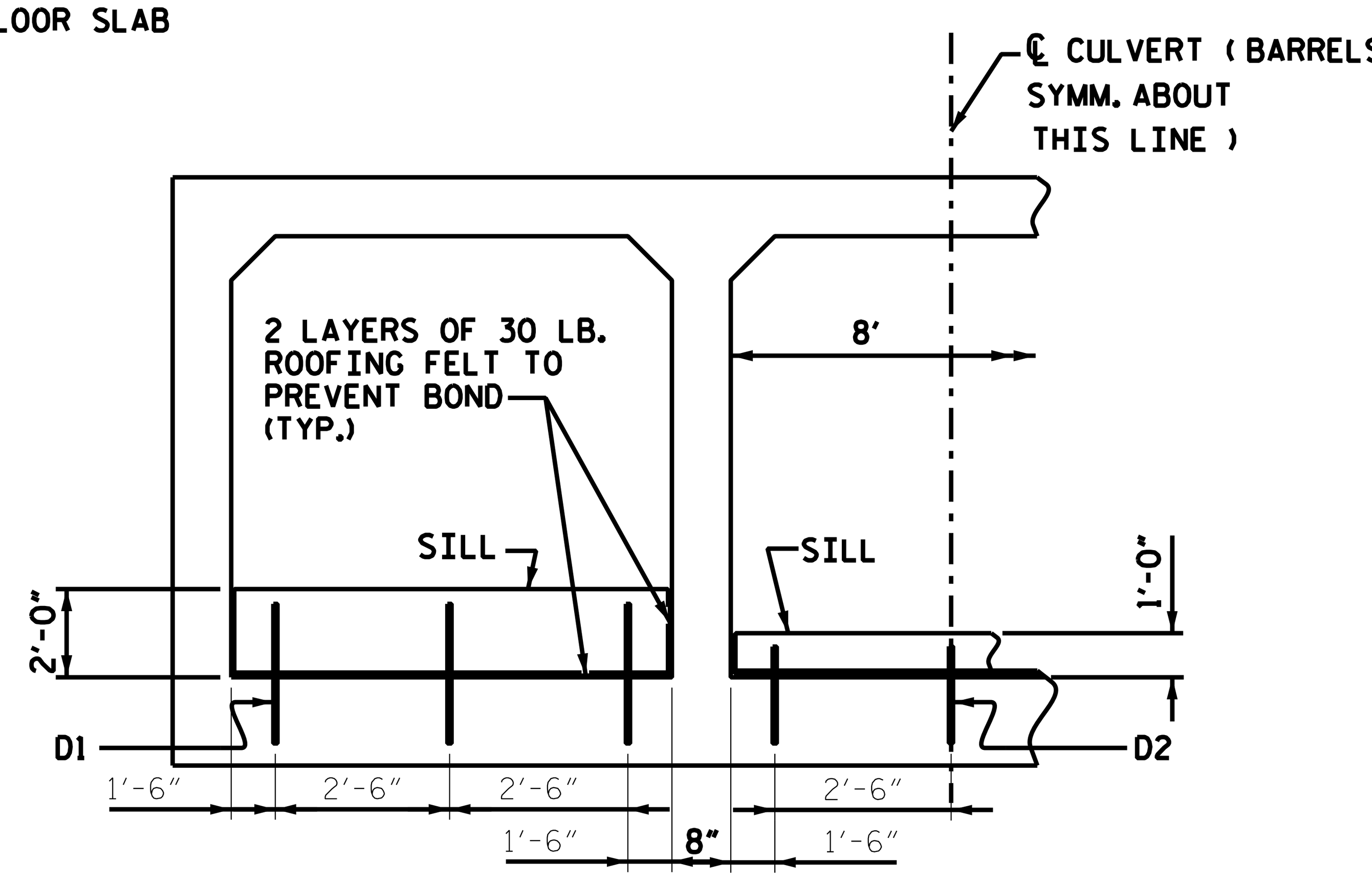
1971

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

STD. NO. CB13



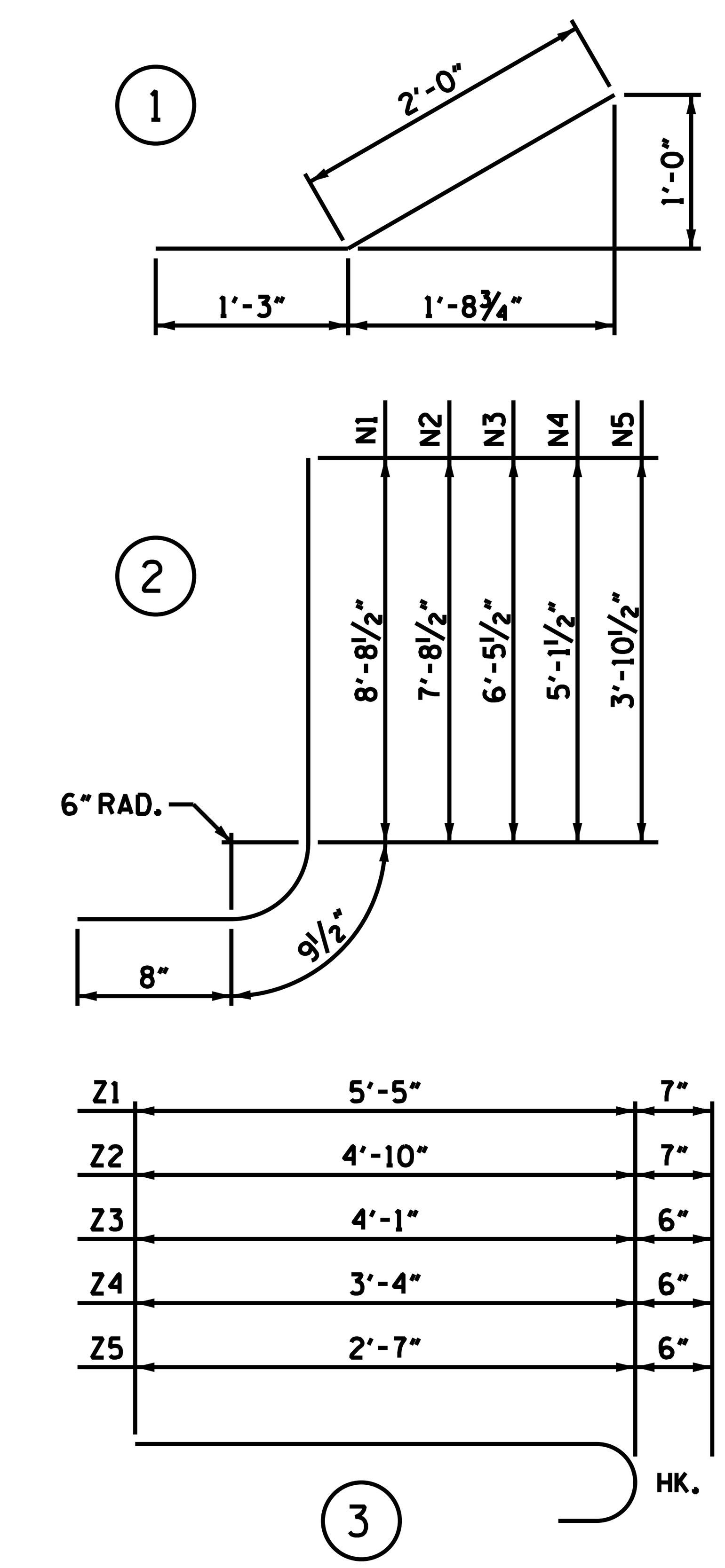
PLAN



ELEVATION (SHOWING SILLS)

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

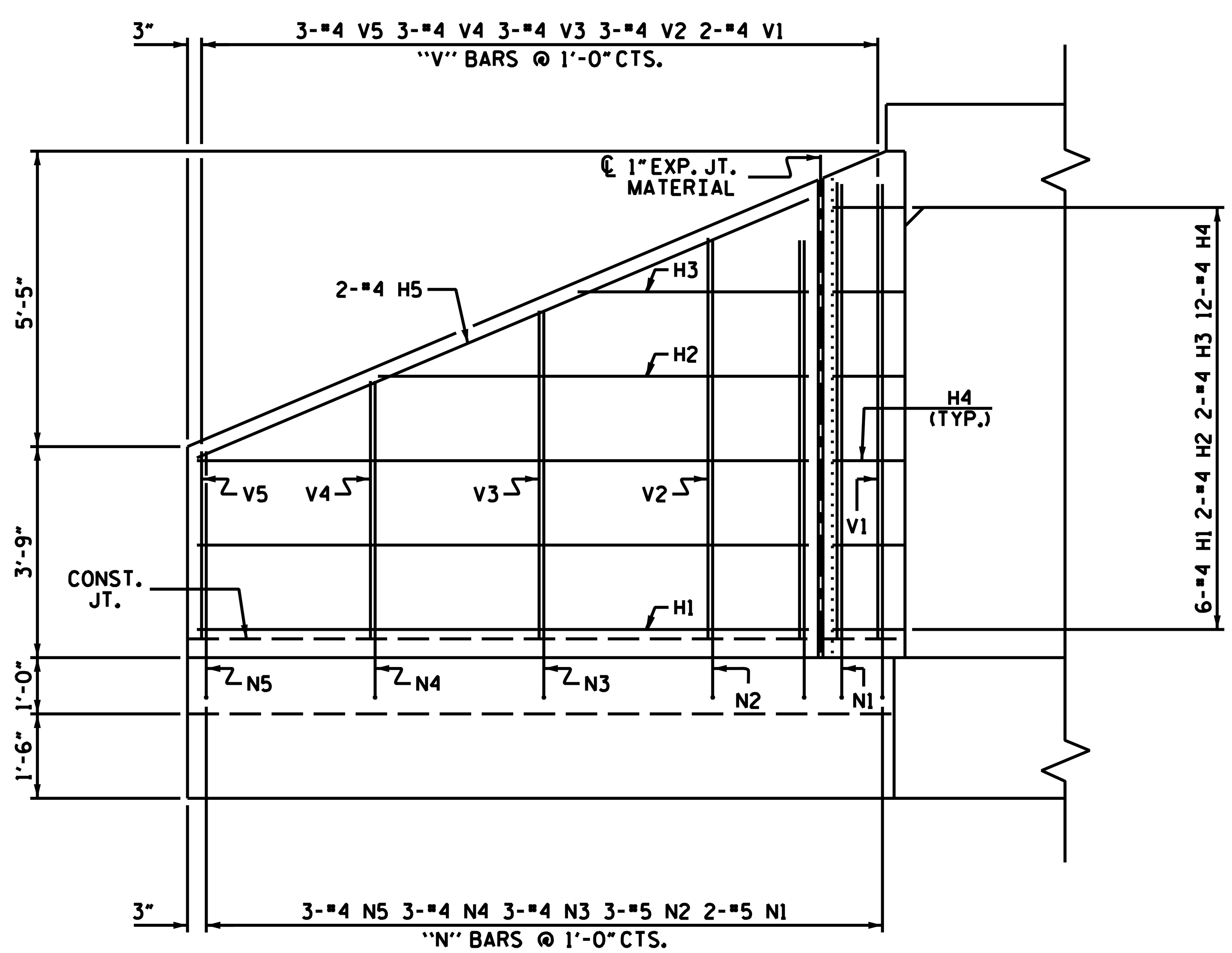


BILL OF MATERIAL

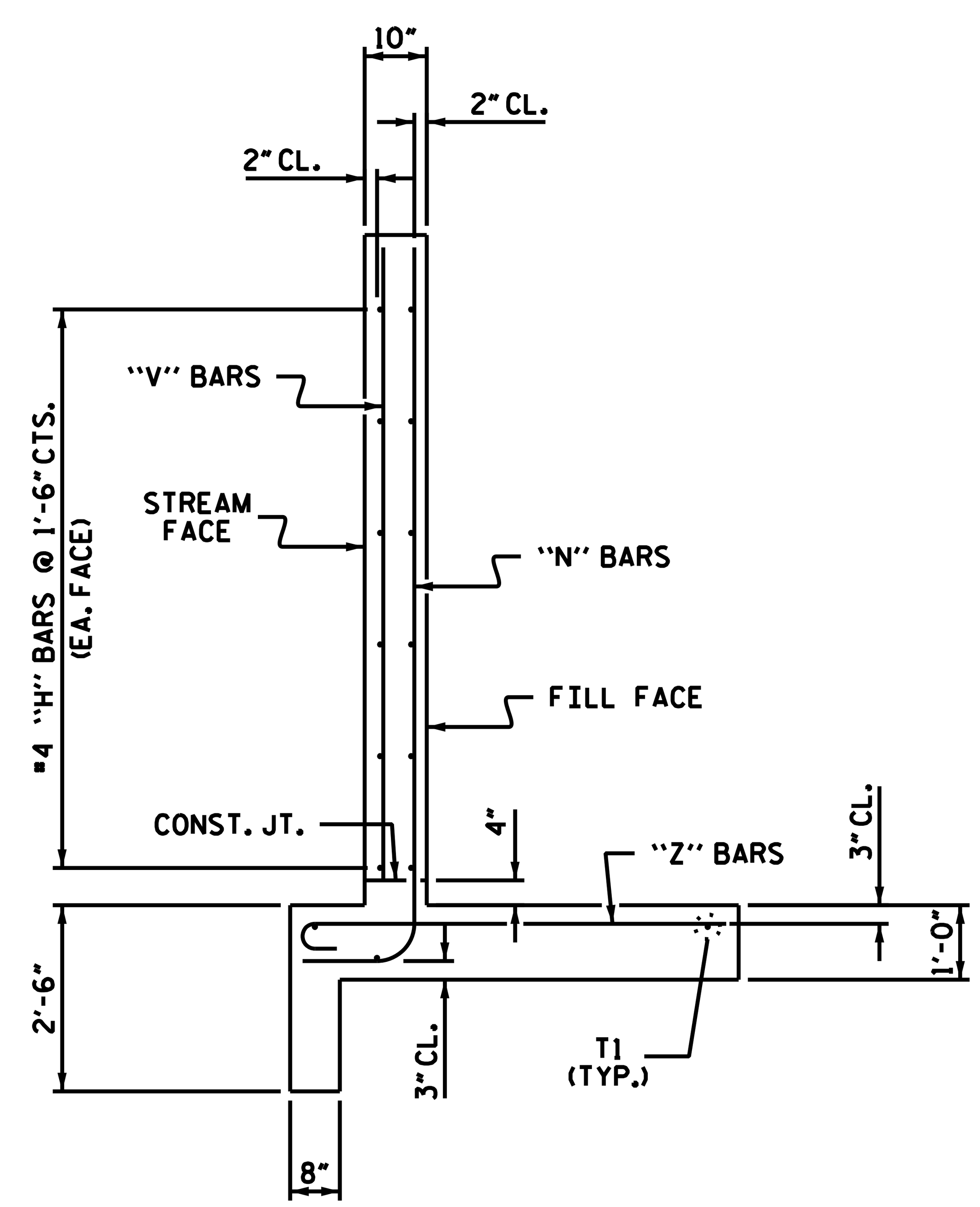
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	24	#4	STR	10'-10"	174
H2	8	#4	STR	7'-8"	41
H3	8	#4	STR	4'-1"	22
H4	48	#4	1	3'-3"	104
H5	8	#4	STR	11'-9"	63
N1	8	#5	2	10'-2"	85
N2	12	#5	2	9'-2"	115
N3	12	#4	2	7'-11"	63
N4	12	#4	2	6'-7"	53
N5	12	#4	2	5'-4"	43
S1	12	#6	STR	6'-0"	108
T1	12	#5	STR	12'-9"	160
V1	8	#4	STR	8'-1"	43
V2	12	#4	STR	7'-1"	57
V3	12	#4	STR	5'-10"	47
V4	12	#4	STR	4'-7"	37
V5	12	#4	STR	3'-4"	27
Z1	8	#5	3	6'-0"	50
Z2	12	#5	3	5'-5"	68
Z3	12	#4	3	4'-7"	37
Z4	12	#4	3	3'-10"	31
Z5	12	#4	3	3'-1"	25

REINFORCING STEEL FOR 4 WINGS — 1453 LBS

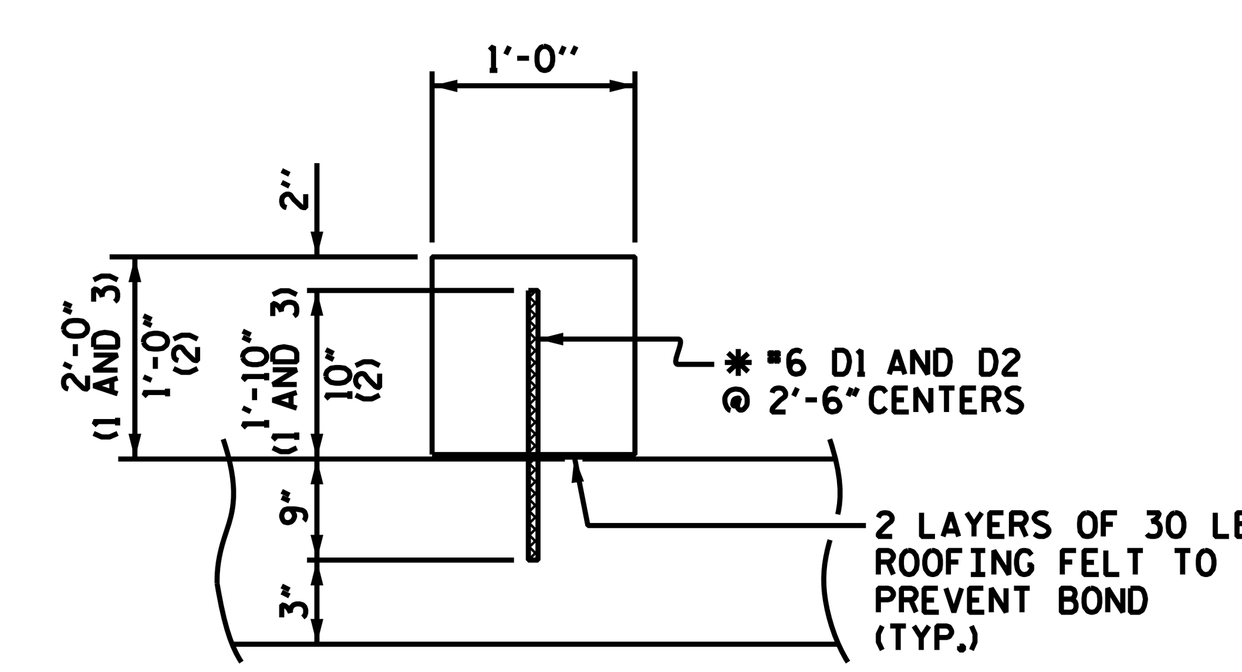
CLASS A CONCRETE
- 4 WINGS — 21.4 CY
- 2 HEADWALLS — 2.5 CY
- 2 END CURTAIN WALLS — 3.0 CY
- SILLS — 3.0 CY
- TOTAL — 29.9 CY



ELEVATION



TYPICAL WING SECTION



SECTION THROUGH SILL

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

NOTES

PLACE SILLS AT THE INLET AND OUTLET OF THE BARRELS ONLY. BACKFILL BARRELS WITH NATIVE BED MATERIAL. SUBSIDIZE WITH CLASS B RIP RAP IF NEEDED.

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

PROJECT NO. 17BP.12.R.4

ALEXANDER COUNTY

STATION: 13+45.75-L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS FOR CONCRETE BOX CULVERT

H = 8'-0" SLOPE = 2:1

90° SKEW

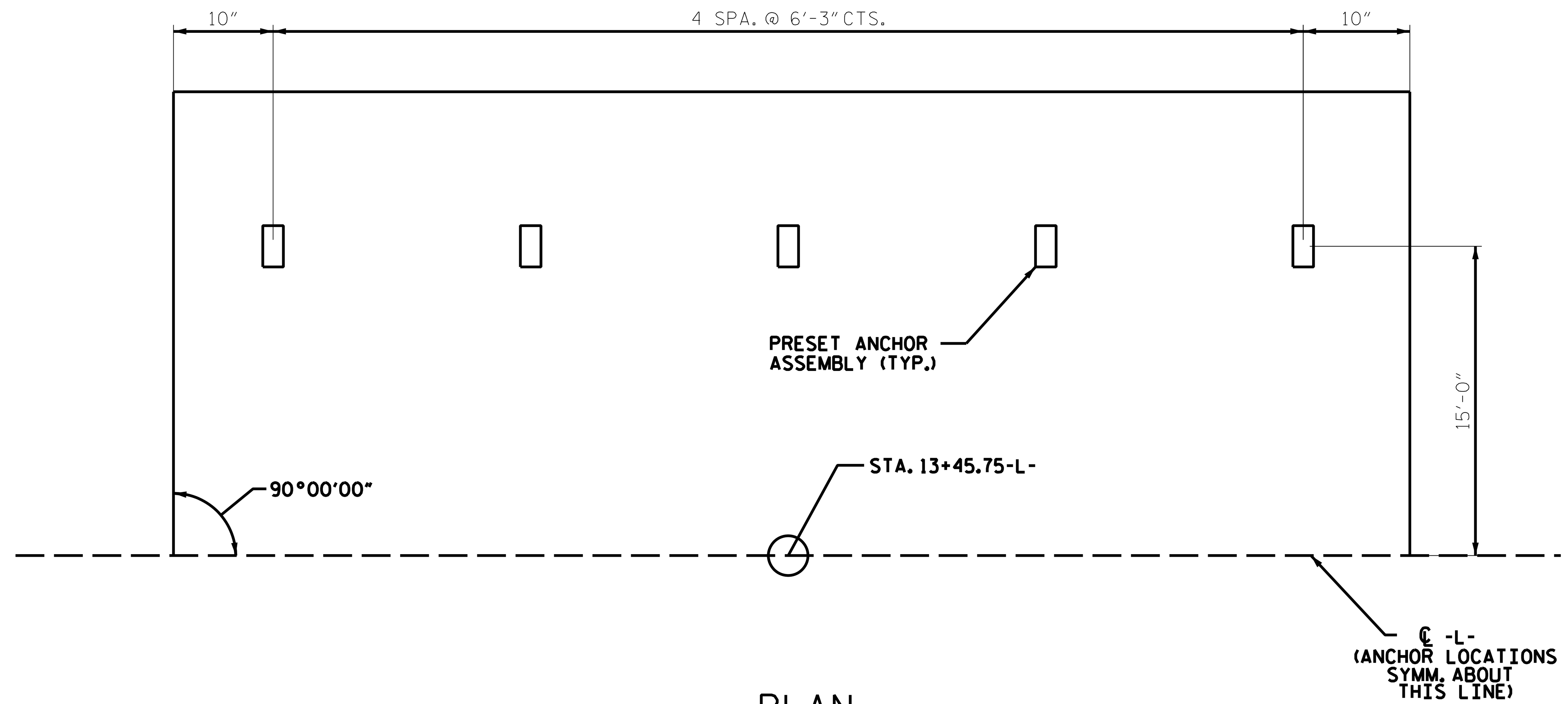
REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-3
1			3				TOTAL SHEETS
2			4				5

PREPARED BY
TGS ENGINEERS
107-A MICA AVENUE
MORGANTON, NC 28655

9/12/13

ASSEMBLED BY :	CCC	DATE :	9/13
CHECKED BY :	MTC	DATE :	9/13
DRAWN BY : CCJ	10/99		
CHECKED BY : RWW	03/00		

STD. NO. CW9008



PLAN

SHOWING : GUARDRAIL ANCHOR ASSEMBLY SPACING.

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2½".

B. 4 - 1" Ø X 2 ¼" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2¼" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 7⁄16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

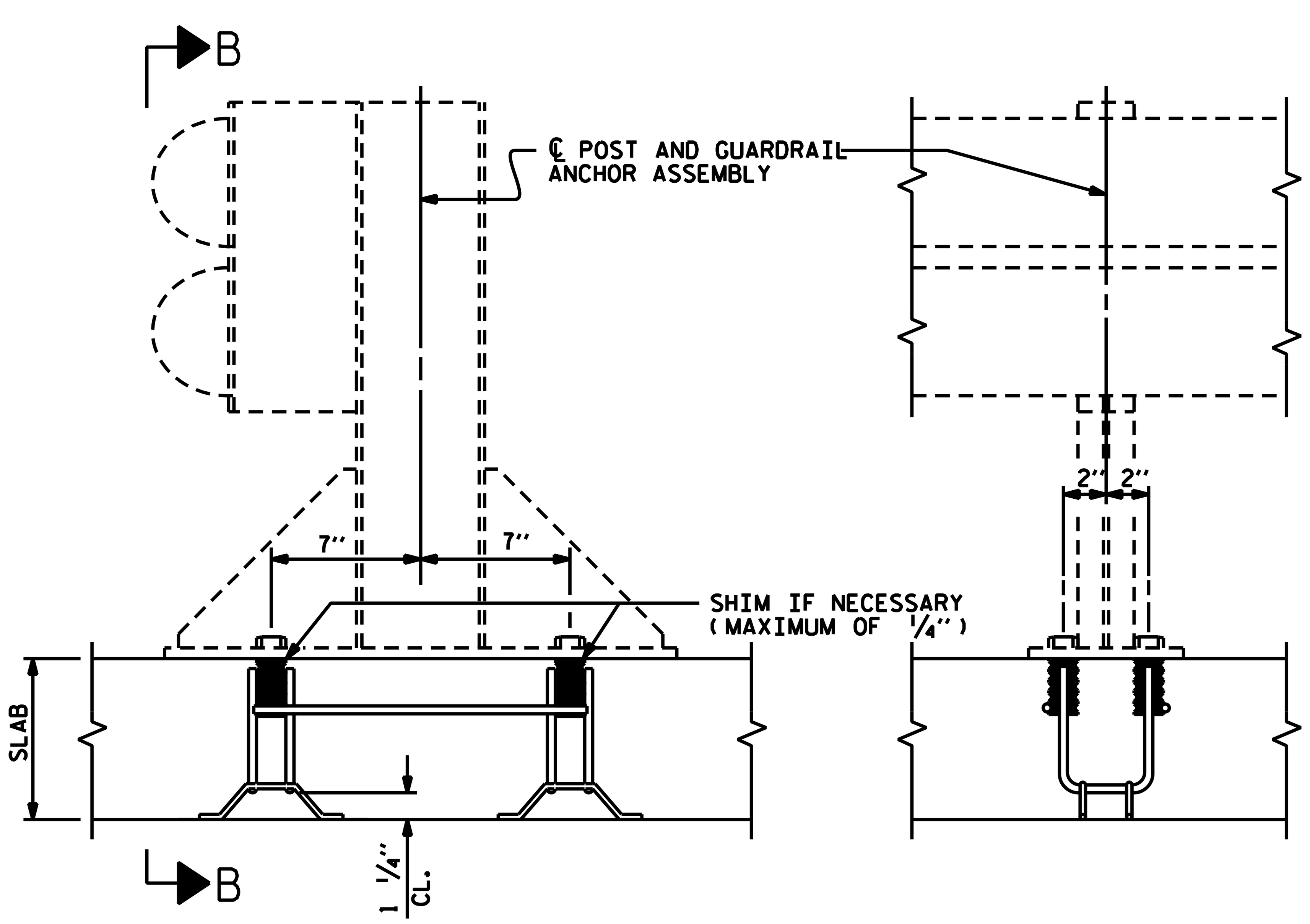
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

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

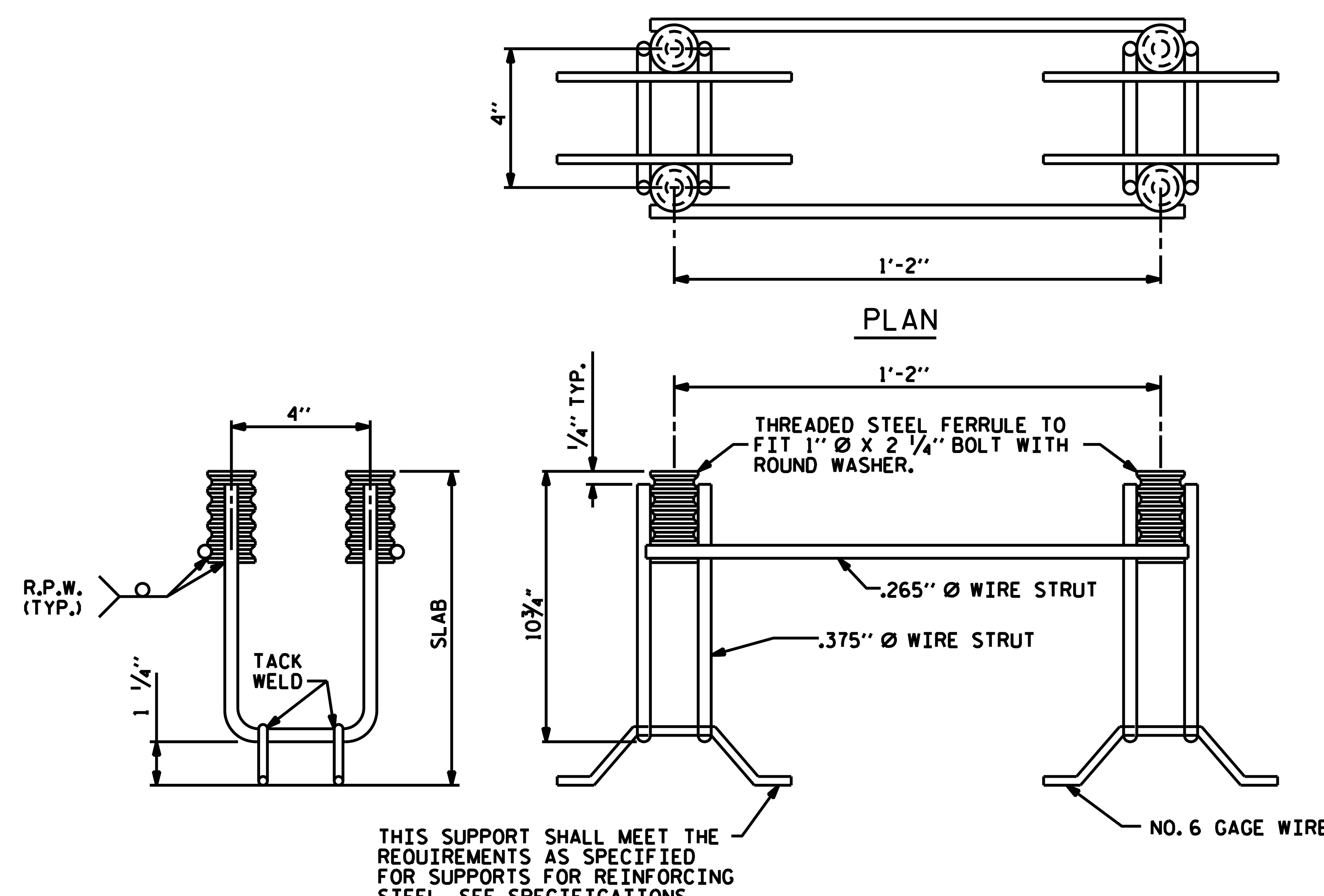
SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. 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.



SECTION A-A

SECTION B-B



GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

PREPARED BY
TGS ENGINEERS
804 W LAFAYETTE ST
SHELBY, NC 28150

PROJECT NO. 17BP.12.R.4
ALEXANDER COUNTY
STATION: 13+45.75-L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

ANCHORAGE DETAILS FOR GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

9/12/13

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

STD. NO. GRA1

ASSEMBLED BY :	CCC	DATE :	9/13
CHECKED BY :	MTC	DATE :	9/13
DRAWN BY : FCJ 6/88	REV. 7/10/01	LES/RDR	
CHECKED BY : ARB 6/88	REV. 5/7/03	RWW/JTE	
	REV. 5/1/06R	KMM/GM	

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. 17BP.12.R.4

ALEXANDER COUNTY

STATION: 13+45.75-L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

PREPARED BY
TGS ENGINEERS
804 W LAFAYETTE ST
SHELBY, NC 28150

9/12/13

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

STD. NO. SN

DRAWN BY : CCC DATE : 9/13
CHECKED BY : MTC DATE : 9/13

REV. 6-16-95 EEM ( ) RGW REV. 5-7-03 RWW ( ) JTE REV. 10-1-11 MAA ( ) GM
REV. 8-16-99 RWW ( ) LES REV. 5-1-06 TLA ( ) GM