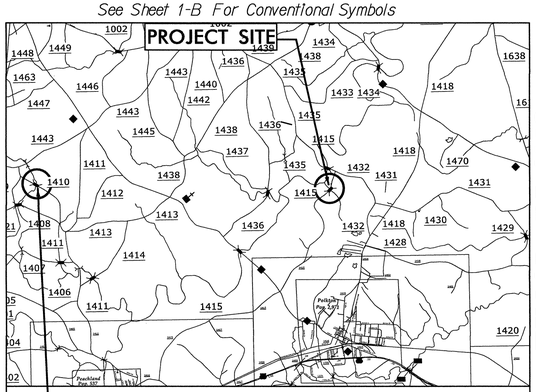
09/08/99

CONTRACT: PROJECT: 17BP.10.R.29/17BP.10.R.32

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.29/17BP.10.R.32	1	

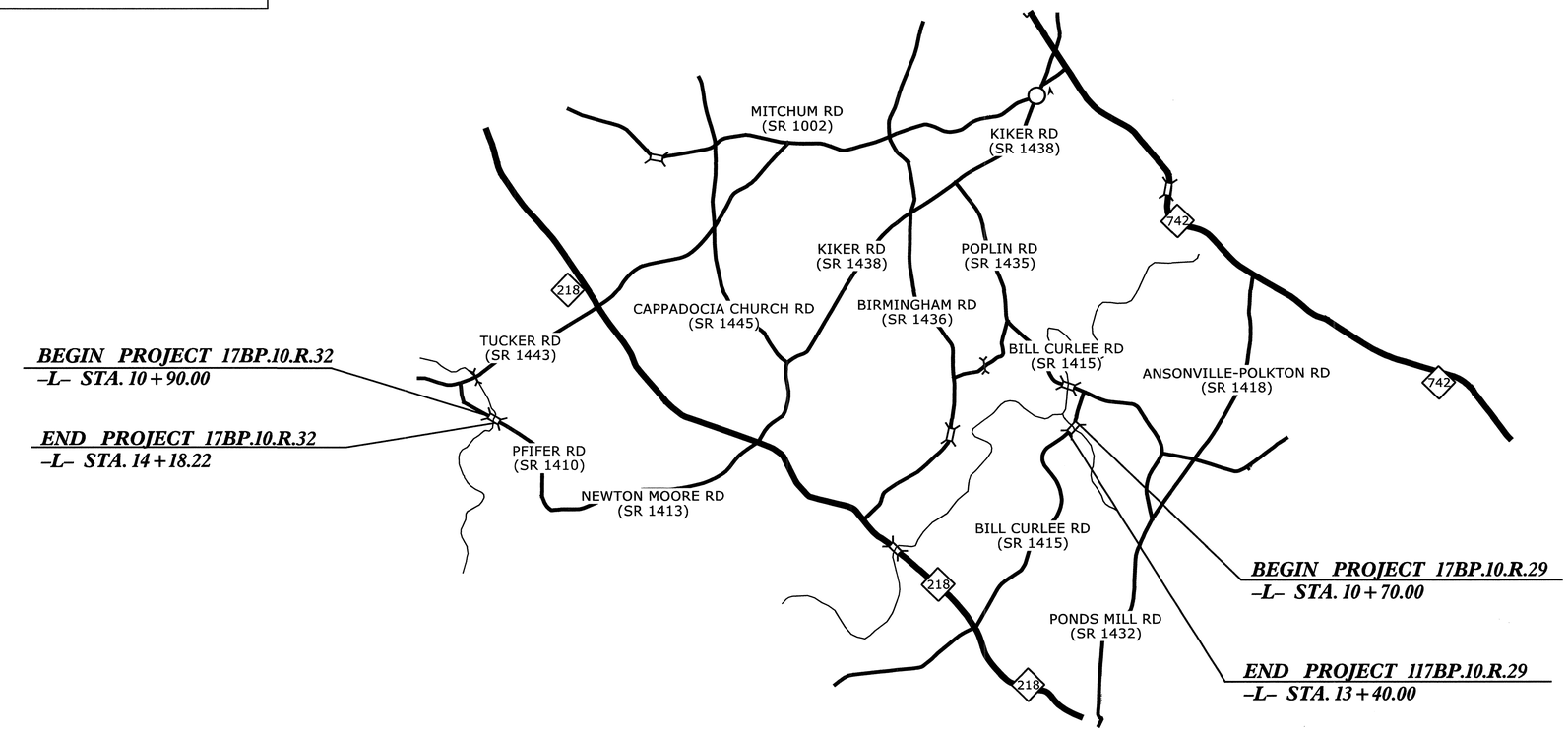
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.29		PE
17BP.10.R.29		R/W
17BP.10.R.32		PE
17BP.10.R.32		R/W
17BP.10.R.29/17BP.10.R.32		CONSTR

LOCATION: 17BP.10.R.29 – BRIDGE #030253 OVER CEDAR BRANCH ON SR 1415 (BILL CURLEE ROAD)

17BP.10.R.32 – BRIDGE #030310 OVER CAUDLE BRANCH ON SR 1410 (PHIFER ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

NAD 83/
NSRS 2007



NCDOT CONTACT:
GARLAND HAYWOOD, P.E.
DIVISION 10 BRIDGE PROGRAM MANAGER
(704) 983–4400

PROJECT LENGTH

TOTAL LENGTH OF PROJECT
17BP.10.R.29/17BP.10.R.32 = 0.113 MILES

Prepared for NCDOT In the Office of:
Gannett Fleming
GANNETT FLEMING, INC.
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
PHONE: 704-375-2438 FAX: 704-332-9361
GF PROJECT NO. – 055335.096
NC Lic. No. F-0270

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
17BP.10.R.29 DEC 2012
17BP.10.R.32 JAN 2013

LETTING DATE:
APRIL 2013

ALLISON C. JOHNSON, P.E.
PROJECT ENGINEER

CANDICE L. LATSON, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
3/7/13
NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEAVER
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ALLISON C. JOHNSON
3/6/13
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION · STATE OF NORTH CAROLINA

2/13/2013
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cgfault

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29/17BP.10.R.32	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON
5/7/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WELDON
5/7/13

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	SUMMARY OF QUANTITIES

17BP.10.R.29

SHEET NUMBER	*SHEET*
1	TITLE SHEET
1C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND DETAILS
2A-2B	HEADWALL & PIPE DETAILS
3	EARTHWORK SUMMARY, SUMMARY OF GUARDRAIL, RIGHT OF WAY SUMMARY & PIPE SUMMARY
4	PLAN & PROFILE SHEET
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
UC-1 THRU UC-4	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-3	CROSS-SECTIONS

17BP.10.R.32

SHEET NUMBER	*SHEET*
1	TITLE SHEET
1C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3	EARTHWORK SUMMARY, SUMMARY OF GUARDRAIL & RIGHT OF WAY SUMMARY
4	PLAN & PROFILE SHEET
PM-1	PAVEMENT MARKING PLANS
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
UC-1 THRU UC-4	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-3	CROSS-SECTIONS
C-1 THRU C-3	CULVERT PLANS

GENERAL NOTES

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

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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.02	Guardrail Installation
876.04	Drainage Ditches with Class B Rip Rap
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	Temporary Silt Fence
1622.01	Guide for Temporary Berms and Slope Drain
1630.04	Stilling Basin
1630.06	Special Stilling Basin
1631.01	Matting Installation

2/13/2013
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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29/17BP.10.R.32	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.

12/06/07

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29/17BP.10.R.32	2
R/W SHEET NO.	

Gannett Fleming
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CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

17BP.10.R.29

MASTER ITEM NO.	SEC. NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT
0000100000-N	800	MOBILIZATION	1	LS
0000400000-N	801	CONSTRUCTION SURVEYING	1	LS
0057000000-E	226	UNDERCUT EXCAVATION`	180	CY
0063000000-N	SP	GRADING	1	LS
0134000000-E	240	DRAINAGE DITCH EXCAVATION	30	CY
0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	200	SY
0318000000-E	300	FOUNDATION CONDITIONING MATERIAL	120	TON
1220000000-E	545	INCIDENTAL STONE BASE	120	TON
1330000000-E	607	INCIDENTAL MILLING	120	SY
1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	120	TON
1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	80	TON
1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	60	TON
1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	15	TON
3030000000-E	862	STEEL BM GUARDRAIL	100	LF
3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	4	EA
3628000000-E	876	RIP RAP, CLASS I	82	TON
3656000000-E	876	GEOTEXTILE FOR DRAINAGE	109	SY
4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	192	SF
4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	20	SF
4445000000-E	1145	BARRICADES (TYPE III)	40	LF
5325600000-E	1510	6” WATER LINE	100	LF
5800000000-E	1530	ABANDON 6" UTILITY PIPE	95	LF
6000000000-E	1605	TEMPORARY SILT FENCE	690	LF
6012000000-E	1610	SEDIMENT CONTROL STONE	20	TON
6015000000-E	1615	TEMPORARY MULCHING	0.50	ACR
6018000000-E	1620	SEED FOR TEMPORARY SEEDING	50	LB
6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	0.25	TON
6024000000-E	1622	TEMPORARY SLOPE DRAINS	200	LF
6029000000-E	SP	SAFETY FENCE	100	LF
6030000000-E	1630	SILT EXCAVATION	30	CY
6036000000-E	1631	MATTING FOR EROSION CONTROL:	650	SY
6037000000-E	SP	COIR FIBER MATTING	140	SY
6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	60	SY
6048000000-E	SP	FLOATING TURBIDITY CURTAIN	15	SY
6070000000-N	1639	SPECIAL STILLING BASINS	1	EA
6071010000-E	SP	WATTLE	150	LF
6071020000-E	SP	POLYACRYLAMIDE (PAM)	15	LB
6084000000-E	1660	SEEDING AND MULCHING	0.50	ACR
6087000000-E	1660	MOWING	0.50	ACR
6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB
6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25	TON
6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50	LB
6108000000-E	1665	FERTILIZER TOPDRESSING	0.25	TON
6114500000-N	SP	SPECIALIZED HAND MOWING	10	MHR
6117000000-N	SP	RESPONSE FOR EROSION CONTROL	13	EA
STRUCTURAL ITEMS				
8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION 12+31.31 -L-	1	LS
8804000000-N	SP	GENERIC CULVERT ITEM -112" X 75" CORRUGATED ALUMINUM ALLOY PIPE ARCH CULVERT &	1	LS

17BP.10.R.32

MASTER ITEM NO.	SEC. NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT
0000100000-N	800	MOBILIZATION	1	LS
0000400000-N	801	CONSTRUCTION SURVEYING	1	LS
0057000000-E	226	UNDERCUT EXCAVATION`	180	CY
0063000000-N	SP	GRADING	1	LS
0134000000-E	240	DRAINAGE DITCH EXCAVATION	30	CY
0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	200	SY
1220000000-E	545	INCIDENTAL STONE BASE	50	TON
1330000000-E	607	INCIDENTAL MILLING	120	SY
1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	70	TON
1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	100	TON
1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	70	TON
1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	15	TON
3030000000-E	862	STEEL BM GUARDRAIL	200	LF
3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	4	EA
3628000000-E	876	RIP RAP, CLASS I	20	TON
3656000000-E	876	GEOTEXTILE FOR DRAINAGE	50	SY
4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	192	SF
4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	20	SF
4445000000-E	1145	BARRICADES (TYPE III)	40	LF
5325600000-E	1510	6” WATER LINE	150	LF
5800000000-E	1530	ABANDON 6" UTILITY PIPE	185	LF
5871400000-E	1550	TRENCHLESS INSTALLATION OF 6" IN SOIL	40	LF
6000000000-E	1605	TEMPORARY SILT FENCE	575	LF
6012000000-E	1610	SEDIMENT CONTROL STONE	15	TON
6015000000-E	1615	TEMPORARY MULCHING	0.50	ACR
6018000000-E	1620	SEED FOR TEMPORARY SEEDING	50	LB
6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	0.25	TON
6024000000-E	1622	TEMPORARY SLOPE DRAINS	200	LF
6029000000-E	SP	SAFETY FENCE	100	LF
6030000000-E	1630	SILT EXCAVATION	30	CY
6036000000-E	1631	MATTING FOR EROSION CONTROL:	1090	SY
6037000000-E	SP	COIR FIBER SOIL MATTING	50	SY
6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	30	SY
6048000000-E	SP	FLOATING TURBIDITY CURTAIN	15	SY
6069000000-E	1638	STILLING BASINS	76	CY
6070000000-N	1639	SPECIAL STILLING BASINS	1	EA
6071010000-E	SP	WATTLE	140	LF
6084000000-E	1660	SEEDING AND MULCHING	0.50	ACR
6087000000-E	1660	MOWING	0.50	ACR
6090000000-E	1661	SEED FOR REPAIR SEEDING	50	LB
6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25	TON
6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50	LB
6108000000-E	1665	FERTILIZER TOPDRESSING	0.25	TON
6114500000-N	SP	SPECIALIZED HAND MOWING	10	MHR
6117000000-N	SP	RESPONSE FOR EROSION CONTROL	13	EA
STRUCTURAL ITEMS				
8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION 12+33.22 -L-	1	LS
8804000000-N	SP	GENERIC CULVERT ITEM - INSTALLATION PRECAST REINFORCED CONCRETE 3- SIDED CULVERT AT STATION 12+33.22 -L-	1	LS

3/21/2013
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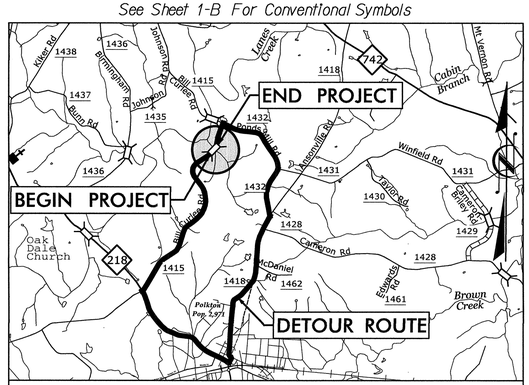
05/08/09

PROJECT: 17BP.10.R.29

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.29	1	

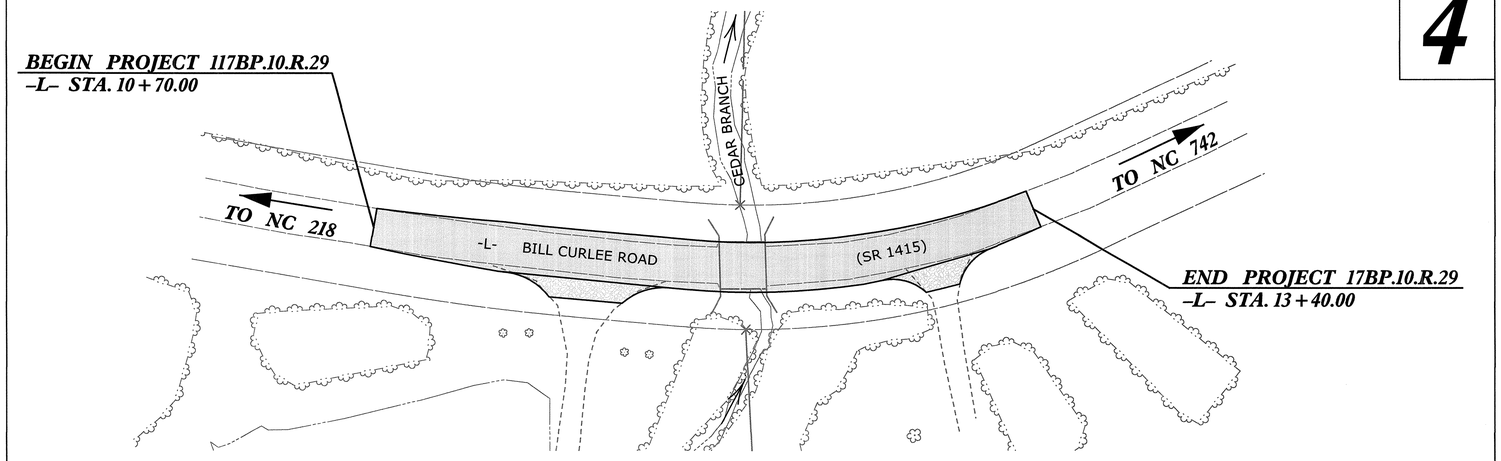
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.29		PE
17BP.10.R.29		R/W & UTILITIES
17BP.10.R.29		CONST

LOCATION: BRIDGE #030253 OVER CEDAR BRANCH ON SR 1415 (BILL CURLEE ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

NAD 83/ NSRS 2007

4



NCDOT CONTACT:
GARLAND HAYWOOD, P.E.
DIVISION 10 BRIDGE PROGRAM MANAGER
(704) 983-4400

THIS PROJECT IS WITHIN THE MUNCIPAL BOUNDARIES OF POLKTON.
CLEARING ON THIS PROJECT SHALL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2012 = NA
ADT 2010 = 180
DHV = NA
D = NA
T = NA *
V = 35 MPH
*TTST = NA DUAL NA
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

TOTAL LENGTH OF PROJECT 17BP.10.R.29 = 0.051 MILES

Prepared for NCDOT In the Office of:

Gannett Fleming
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301 S. McDOWELL STREET, SUITE 1008
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PHONE: 704-375-2438 FAX: 704-332-9361
GF PROJECT NO. – 055335.253
NC Lic. No. F-0270

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DEC 2012

LETTING DATE: APRIL 2013

ALLISON C. JOHNSON, P.E.
PROJECT ENGINEER

CANDICE L. LATSON, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S.J. WEAVER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA SEAL 15424 ENGINEER ALLISON C. JOHNSON

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

3/6/2013
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tbl 06/29/12

PROJECT REFERENCE NO.	SHEET NO.
03-0253	1C
Location and Surveys	

SURVEY CONTROL SHEET
PRELIMINARY PLANS

L

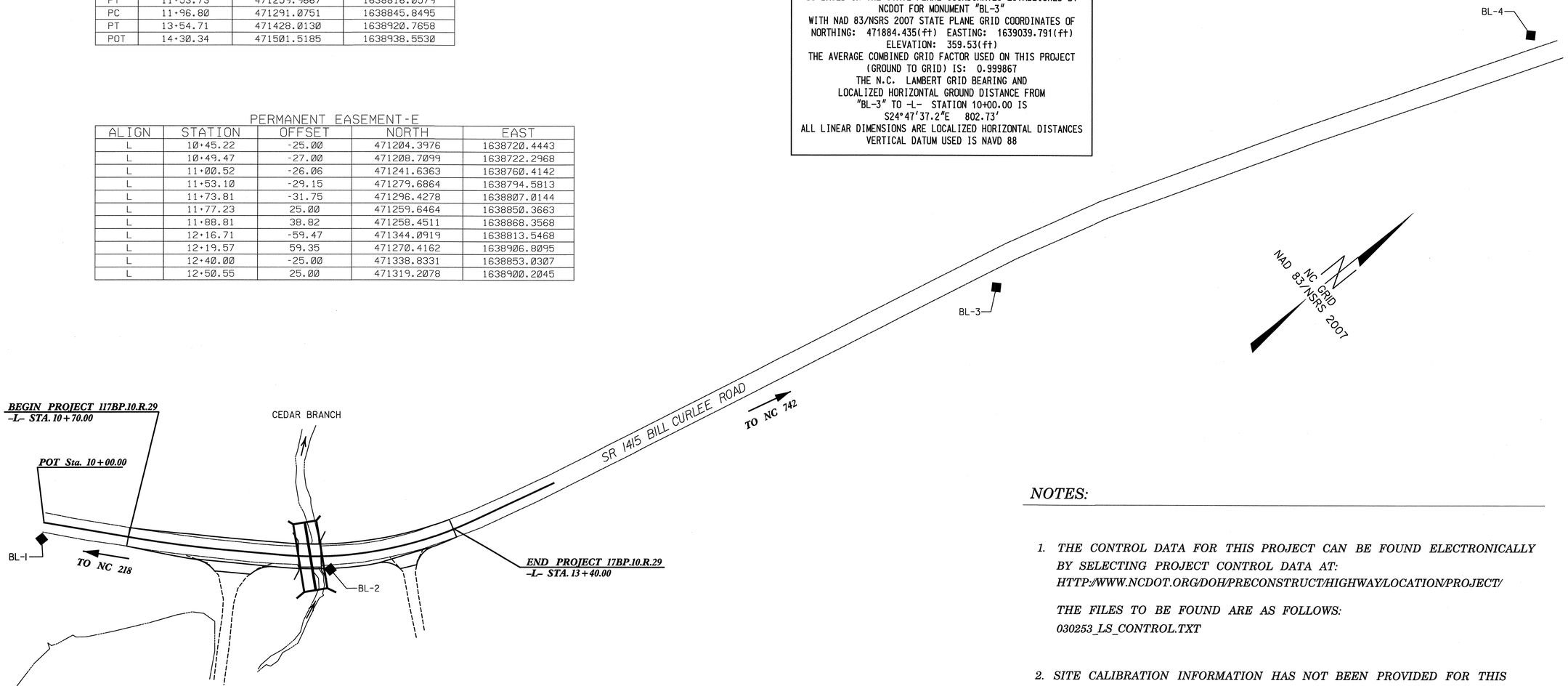
TYPE	STATION	NORTH	EAST
POT	10+00.00	471155.6980	1638703.1651
PC	10+75.67	471205.8695	1638759.8125
PT	11+53.73	471259.9667	1638816.0579
PC	11+96.80	471291.0751	1638845.8495
PT	13+54.71	471428.0130	1638920.7658
POT	14+30.34	471501.5185	1638938.5530

PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+45.22	-25.00	471204.3976	1638720.4443
L	10+49.47	-27.00	471208.7099	1638722.2968
L	11+00.52	-26.06	471241.6363	1638760.4142
L	11+53.10	-29.15	471279.6864	1638794.5813
L	11+73.81	-31.75	471296.4278	1638807.0144
L	11+77.23	25.00	471259.6464	1638850.3663
L	11+88.81	38.82	471258.4511	1638868.3568
L	12+16.71	-59.47	471344.0919	1638813.5468
L	12+19.57	59.35	471270.4162	1638906.8095
L	12+40.00	-25.00	471338.8331	1638853.0307
L	12+50.55	25.00	471319.2078	1638900.2045

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-3"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 471884.435(ft) EASTING: 1639039.791(ft)
ELEVATION: 359.53(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"BL-3" TO -L- STATION 10+00.00 IS
S24°47'37.2"E 802.73'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	471145.7450	1638712.4790	339.98	10+00.37	13.63 RT
2	BL-2	471314.7180	1638879.6700	328.11	12+35.99	10.72 RT
3	BL-3	471884.4350	1639039.7910	359.53	OUTSIDE PROJECT LIMITS	
4	BL-4	472354.6760	1639151.8230	370.37	OUTSIDE PROJECT LIMITS	

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: 030253_LS_CONTROL.TXT

2. *SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.*

3. *PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. POSITIONS ESTABLISHED USING NCGS REAL TIME KINEMATIC NETWORK (VRS)*

   MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

- ⬢ *INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL*
- ■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
- ⧓ *INDICATES BENCHMARKS FOR VERTICAL PROJECT CONTROL*

NOTE: DRAWING NOT TO SCALE

2/13/2013
C:\55335_Div10\030253\Roadway\Proj\030253_ls_1c.dgn
ESeals

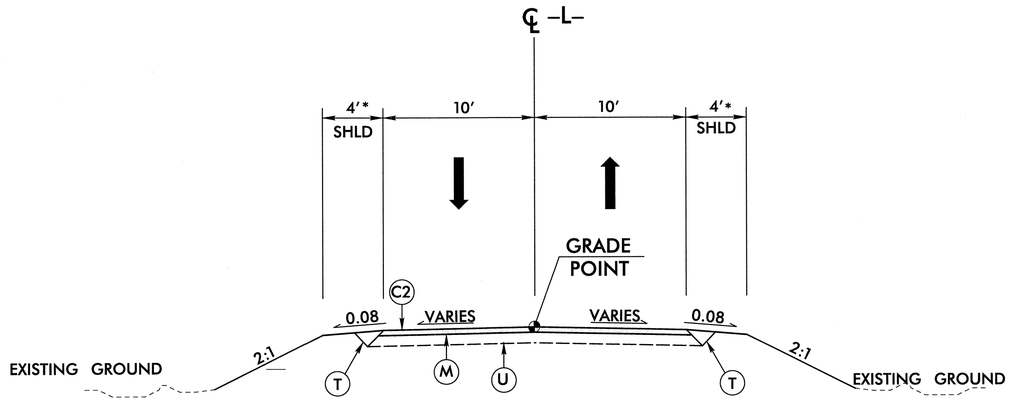
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

PAVEMENT DESIGN ENGINEER

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270



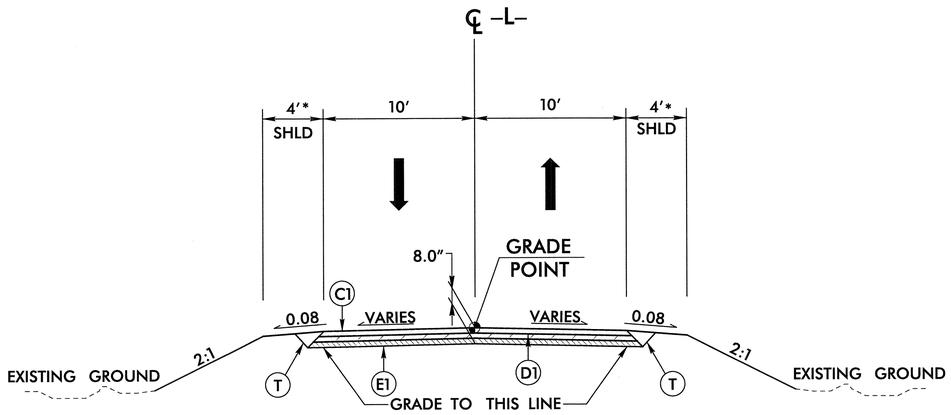
TYPICAL SECTION NO. 1

–L– STA. 10+70.00 TO STA. 10+95.00
–L– STA. 13+15.00 TO STA. 13+40.00

NOTE: SEE PLAN FOR SUPER ELEVATION RATES AND TRANSITIONS
* 7'–0" WITH GUARDRAIL

PAVEMENT SCHEDULE	
ITEM	DESCRIPTION
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
M	MILLING 1.5"
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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



TYPICAL SECTION NO. 2

–L– STA. 10+95.00 TO STA. 13+15.00

NOTE: SEE PLAN FOR SUPER ELEVATION RATES AND TRANSITIONS
* 7'–0" WITH GUARDRAIL

2/13/2013
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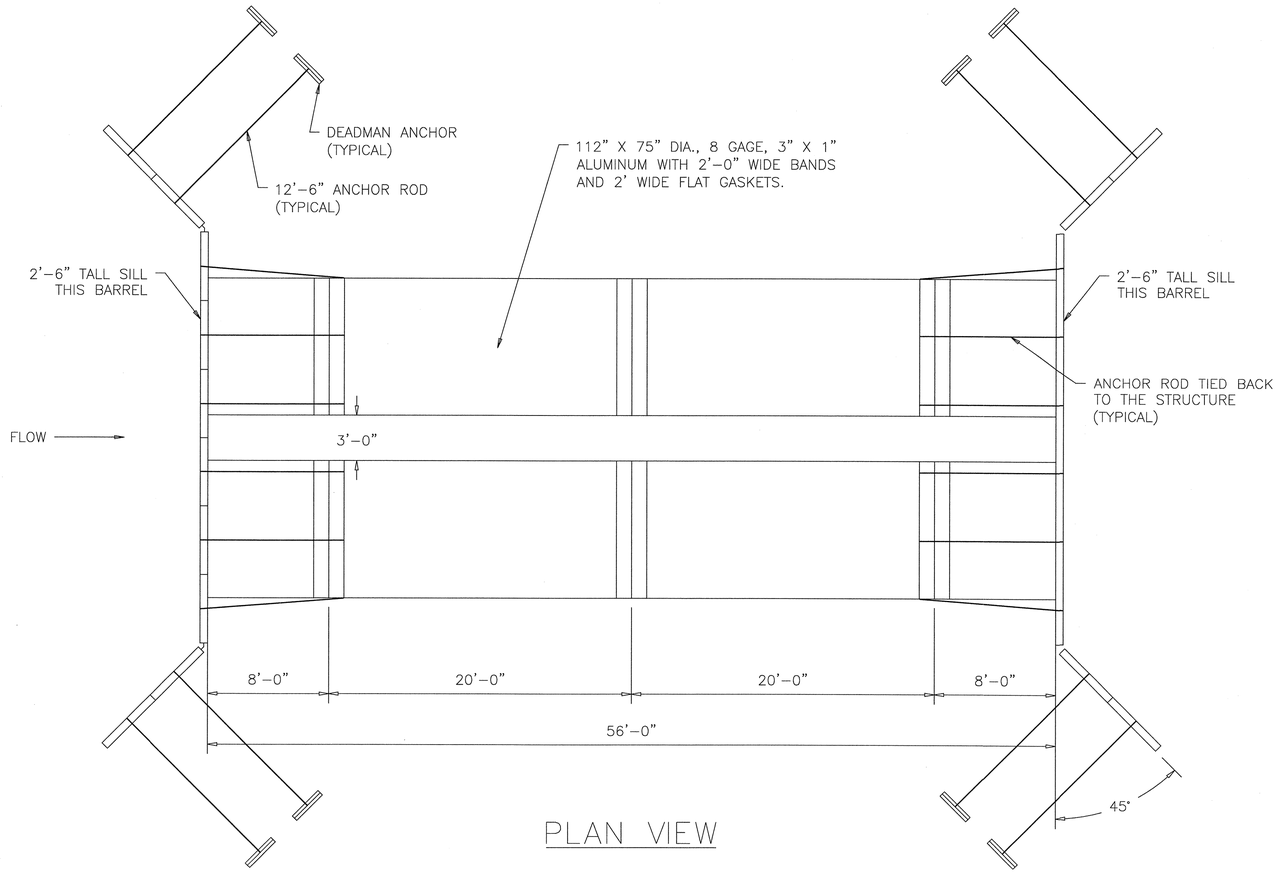
default

6/2/99

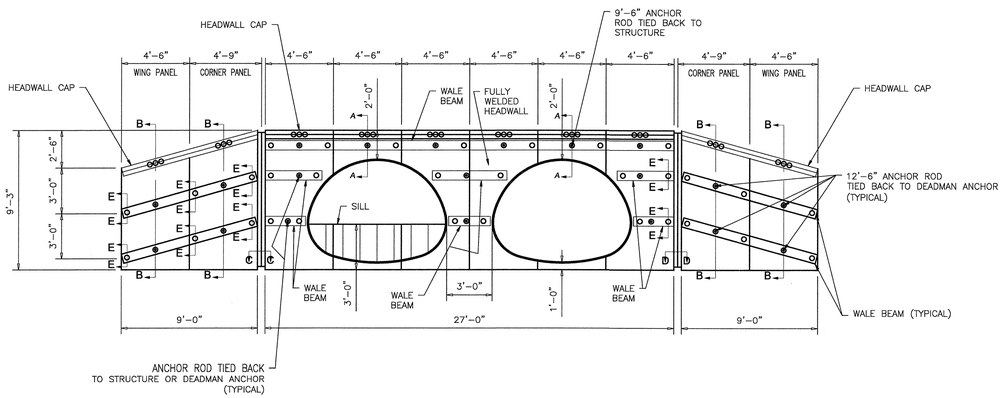
NOTE:
CONTRACTOR MUST SUBMIT SEALED SHOP DRAWINGS FOR PIPE & HEADWALLS TO NCDOT FOR APPROVAL PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

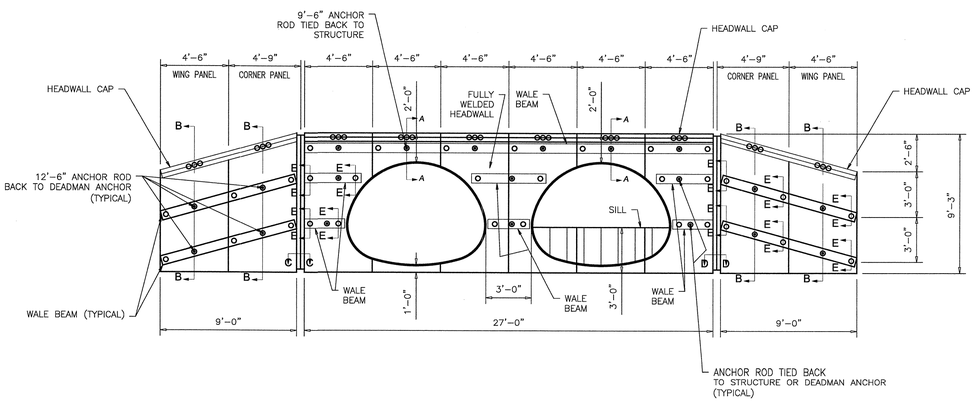
Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270



PLAN VIEW



EXPANDED INLET END VIEW



EXPANDED OUTLET END VIEW

ALUMINUM PIPE/HEADWALL DETAILS

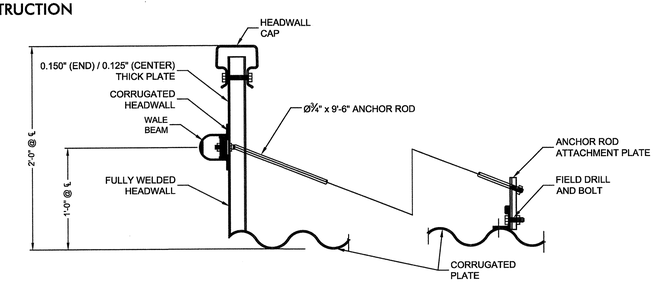
SYSTIME=$$$

6/2/99

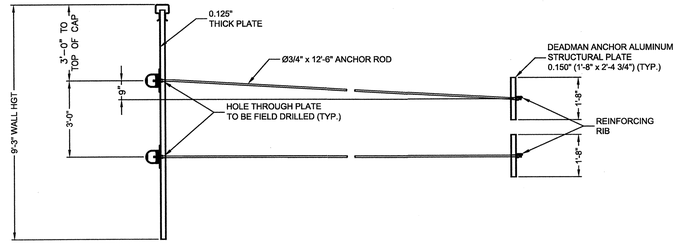
NOTE:
CONTRACTOR MUST SUBMIT SEALED
SHOP DRAWINGS FOR PIPE & HEADWALLS
TO NCDOT FOR APPROVAL PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

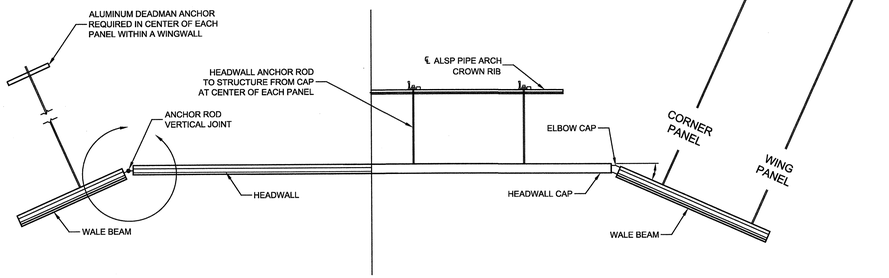


SECTION A-A
HEADWALL ATTACHMENT TO CROWN OF STRUCTURE

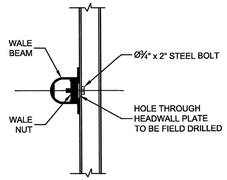


SECTION B-B
DEADMAN ANCHOR ATTACHMENT

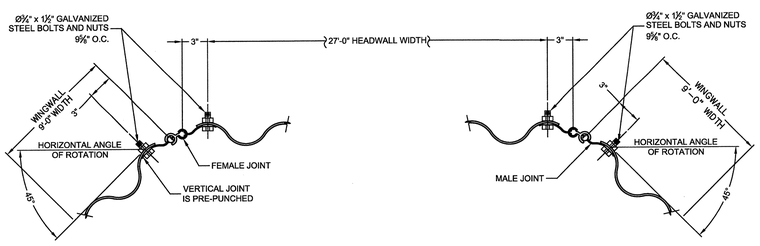
DOUBLE WALE



PLAN VIEW
NOT TO SCALE



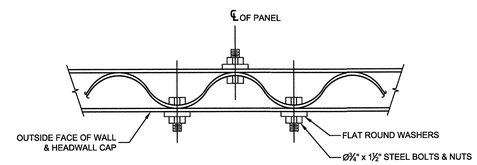
SECTION E-E
WALE BEAM ATTACHMENT



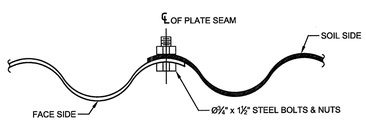
SECTION C-C

SECTION D-D

TYPICAL HEADWALL PANEL TO WING PANEL JOINTS DETAIL
(BOTH ENDS)



HEADWALL CAP AT ATTACHMENT TO PANEL DETAIL



TYPICAL PANEL LAP DETAIL

ALUMINUM PIPE/HEADWALL DETAILS

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

12/06/07

COMPUTED BY: CJE DATE: 8/13/12
CHECKED BY: ACJ DATE: 8/14/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALISON C. JOHNSON

8/14/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEAD JR.

8/7/13

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	DUAL EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.	PERM. UTILITY EASE.
1	MARSHALL AND TERRY IVEY	10.00 AC				959 SF	347 SF		
2	RONNIE L AND VICKEY R HENRY	10.00 AC					959 SF	880 SF	
3	CLAUDE B MANESS	17.00 AC				1,180 SF		763 SF	
4	JOHN D GADDY	12.68 AC					488 SF	483 SF	

SUMMARY OF EARTHWORK
(in Cubic Yards)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
10+70.00	13+40.00	51	123	72	
PROJECT TOTALS:		51	123	72	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS				4	
GRAND TOTALS:		51		76	
SAY:					

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

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

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	11+27.09	13+12.14	LT	185			12+28.13	12+00.24	4	7	50	50	2.0	1.0			2													
-L-	11+73.90	12+88.43	RT	115			12+10.81	12+38.95	4	7	50	50	3.5	4.5			2													
TOTAL:				300																										
TOTAL ANCHOR LENGTH:				200																										
TOTAL GUARDRAIL LENGTH				100																										
SAY:				100																										

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54" | 60" | 66" | 72" | 78" | 84" | | | BITUMINOUS COATED C.S. PIPE TYPE B 54" .109 | 54" .138 | 54" .168 | 54" SHOP ELON.-GATED .138 | 54" SHOP ELON.-GATED .168 | 60" .138 | 60" .168 | 66" .138 | 66" .168 | 72" .138 | 72" .168 | | STRUCTURAL PLATE PIPE 60" 12 | 60" 10 | | 66" 12 | 66" 10 | | 72" 12 | 72" 10 | | | | REINFORCED ENDWALLS WITH R.C. - C.Y. | WITH C.S. - C.Y. | MASONARY DRAINAGE STRUCTURES CUBIC YARDS | 112" X 75" ARCH CAA | | | | | | | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLEN C JOHNSON — 3/6/13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEDDIN — 3/7/13

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

PI Sta 11+14.72
Δ = 4° 42' 28.6" (LT)
D = 6° 01' 52.1"
L = 78.06'
T = 39.05'
R = 950.00'

PI Sta 12+77.63
Δ = 30° 09' 29.4" (LT)
D = 19° 05' 54.9"
L = 157.91'
T = 80.83'
R = 300.00'

-L- STA. 12+20.24=
℄ CULVERT

① MARSHALL L AND TERRY J IVEY
DB 261 PG 317

② RONNIE L AND VICKEY R HENRY
DB 326 PG 281

③ CLAUDE B MANESS
DB 116 PG 416

④ JOHN D GADDY
DB 781 PG 111

CEDAR BRANCH

POT Sta. 10+00.00

PC Sta. 10+75.67

PT Sta. 11+53.73

PC Sta. 11+96.80

PT Sta. 13+13.04

POT Sta. 14+30.34

NAD 83/ NSRS 2007

BEGIN PROJECT 17BP.10.R.29
POT -L- STA.10+70.00

END PROJECT 17BP.10.R.29
POT -L- STA.13+40.00

N 48° 28' 09.5" E

N 43° 45' 40.9" E

N 13° 36' 11.5" E

SR 1415 BILL CURLEE RD

-L- SR 1415 (BILL CURLEE ROAD)

CURVE 1

CURVE 2

R 995'

R 25'

R 20'

50' TAPER

75' TAPER

80'

22' EXIST

15'BST

GRAU-350

PROP. GUARDRAIL (TYP.)

TIE TO EXISTING (TYP.)

PROPOSED WATERLINE

FLOODPLAIN BENCH W/CLASS I RIP RAP
EST. 21 TONS
EST. 30 SY FF

LATERAL V DITCH WITH RIPRAP FROM 10+50 TO 11+00 AND PSRM FROM 11+00 TO 12+00
SEE DETAIL L1 & L2

CLASS I RIP RAP
EST. 14 TONS
EST. 20 SY FF

CLASS I RIP RAP
EST. 16 TONS
EST. 14 SY FF

FLOODPLAIN BENCH WITH CLASS I RIP RAP
EST. 20 TONS
EST. 30 SY FF

LATERAL BASE DITCH
SEE DETAIL L3

PROP 30' GRAVEL DRIVEWAY
+56.03

PROP 14' GRAVEL DRIVEWAY
+96.45

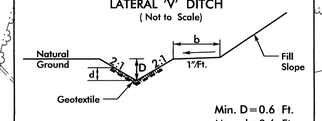
EXISTING R/W

POND

BL-1

BL-2

DETAIL L1
LATERAL 'V' DITCH
(Not to Scale)

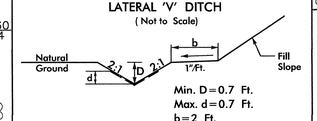


Min. D=0.6 Ft.
Max. d=0.6 Ft.
b= 2 Ft.

Type of Liner= CLASS I Rip-Rap

FROM STA. 10+50 LT TO STA. 11+00 LT

DETAIL L2
LATERAL 'V' DITCH
(Not to Scale)

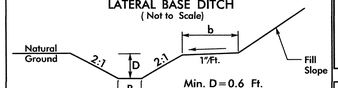


Min. D=0.7 Ft.
Max. d=0.7 Ft.
b=2 Ft.

Type of Liner= PSRM

FROM STA. 11+00 LT TO STA. 12+00 LT

DETAIL L3
LATERAL BASE DITCH
(Not to Scale)



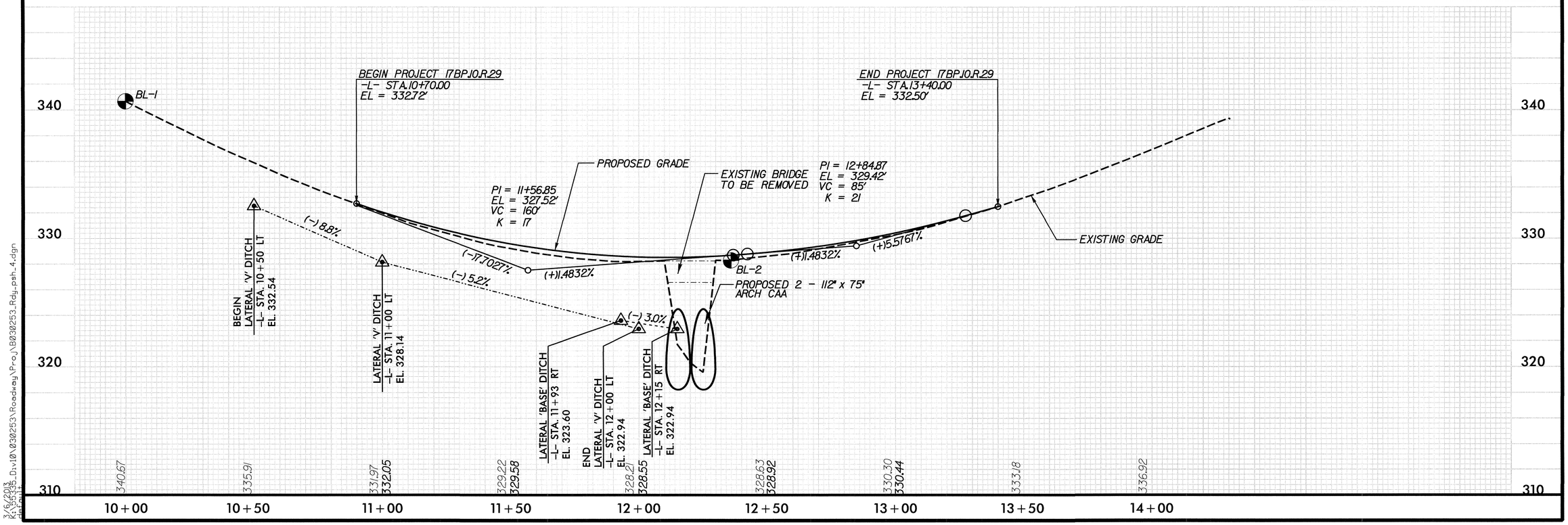
Min. D=0.6 Ft.
B=3 Ft.
b=2 Ft.

FROM STA. 11+93 RT TO STA. 12+15 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-3"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 471884.435(ft) EASTING: 1639039.791(ft)
ELEVATION: 359.53(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-3" TO -L- POT STATION 10+70.00 IS S 22° 36' 51.31" W 739.16 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-1	N 471145.7450	E 1638712.4790	ELEV 339.98
BL-2	N 471314.7180	E 1638879.6700	ELEV 328.11
BL-3	N 471884.4350	E 1639039.7910	ELEV 359.53
BL-4	N 472354.6760	E 1639151.8230	ELEV 370.37



3/6/2013
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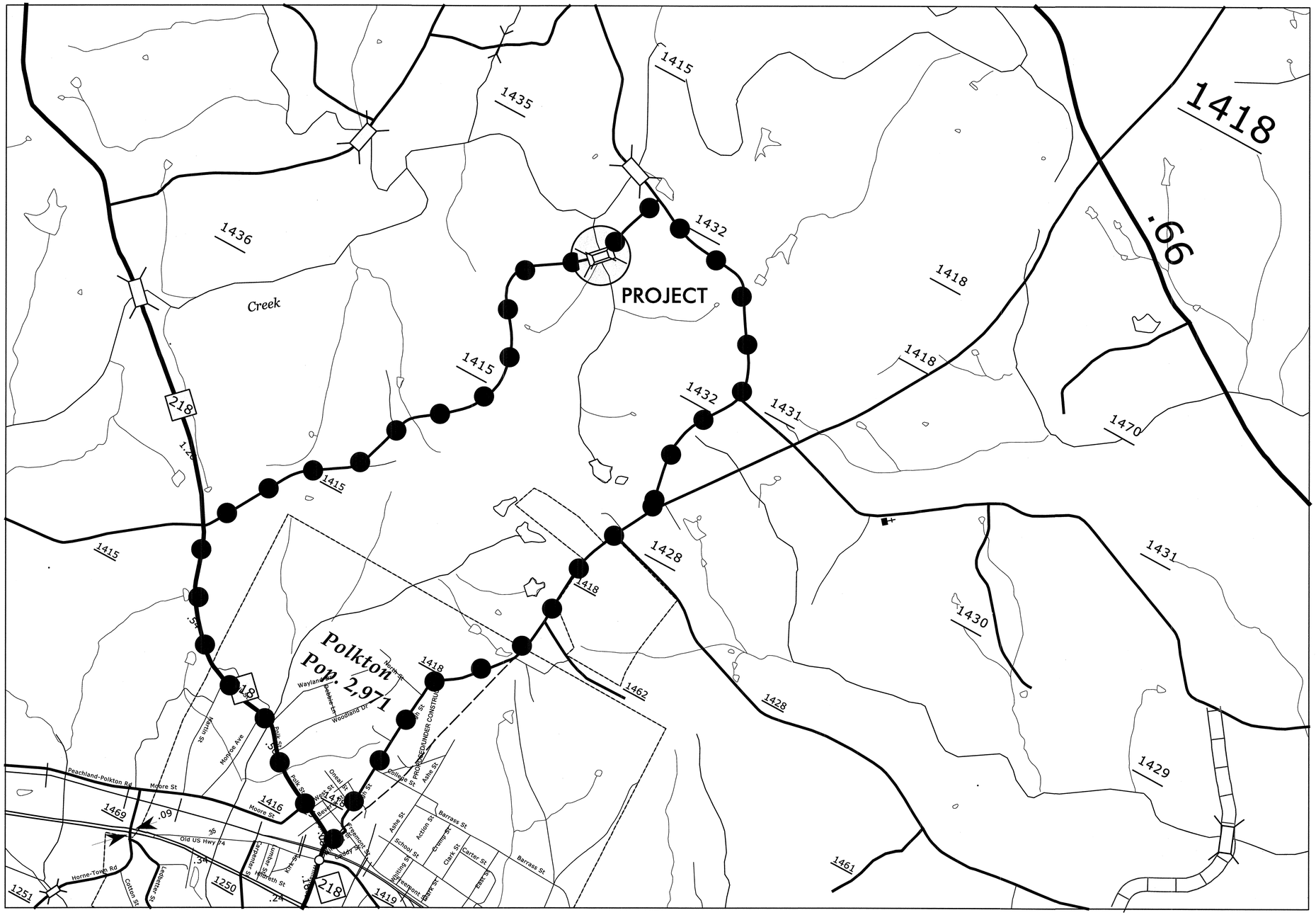
8/17/99

REVISIONS

DETOUR ROUTE



PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	TCP-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

Gannett Fleming

301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644

NC Lic. No. F-0270

NAD 83/
NSRS 2007

1000 500 0 1000 2000

Scale 1"=1000'

\\S\STIMES\$\$\$

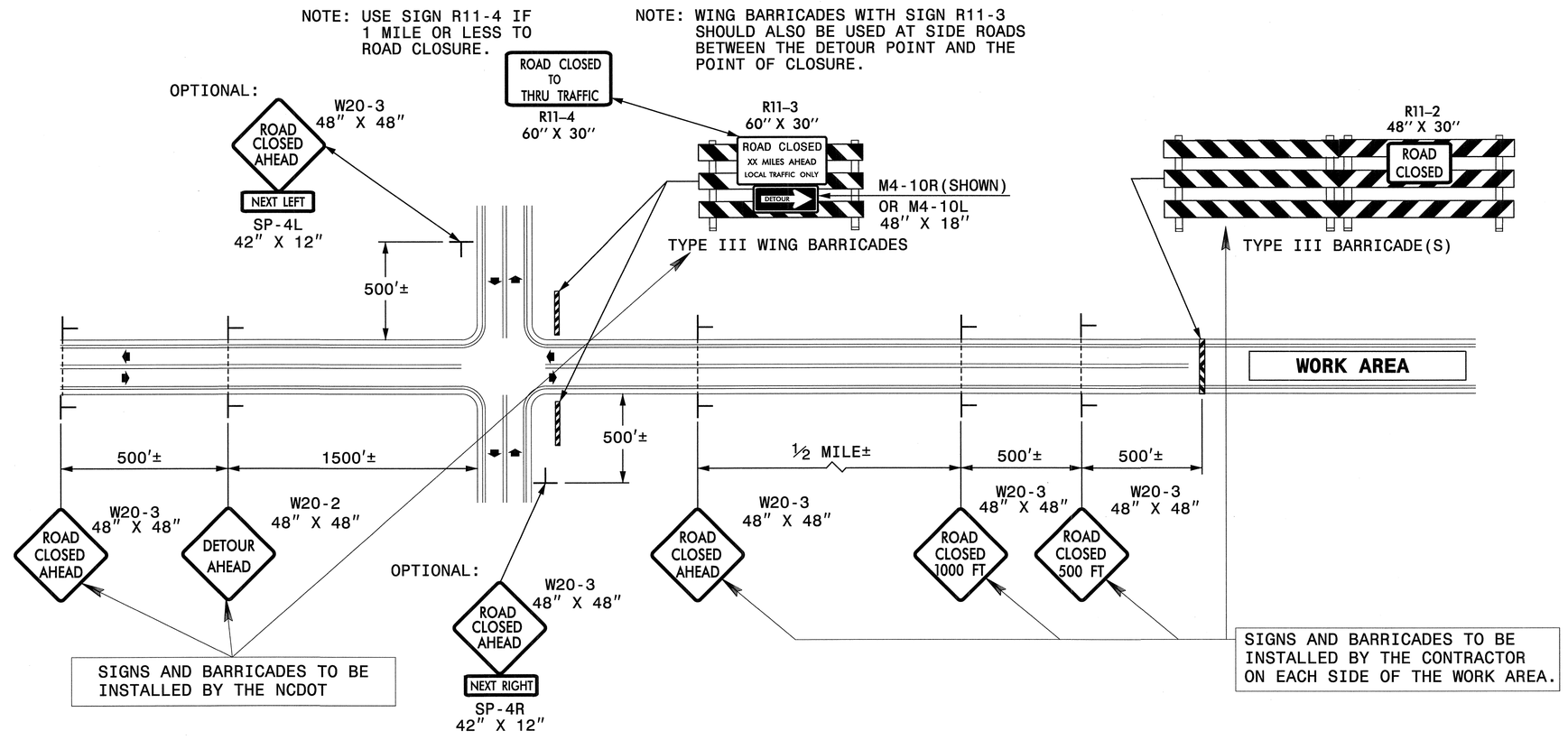
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	TCP-2

8/17/99

REVISIONS

TEMPORARY ROAD CLOSURE

CLOSURE BEYOND DETOUR POINT



GENERAL NOTES

1-IF NECESSARY USE THIS STD. FOR TWO-LANE, TWO-WAY, AND MULTILANE DIVIDED AND UNDIVIDED ROADWAYS.

2-INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY NCDOT FORCES UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

3-INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.

4-USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.

5-DO NOT DISPLAY FRACTIONS OR DECIMALS ON SIGN R11-3 "ROAD CLOSED XX MILES AHEAD".

6-POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.

7-USE PORTABLE SIGNS IF ROAD CLOSURE IS TO BE IMPLEMENTED FOR LESS THAN ONE DAY OR FOR EMERGENCIES.

LEGEND

- ├ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

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

09/08/99

PROJECT: 17BP.10.R.29

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.29	UC-1	
ANSON COUNTY #030253			
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

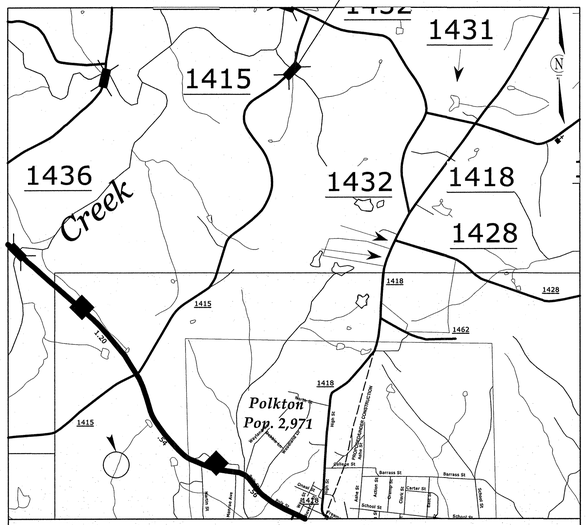
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
ANSON COUNTY

LOCATION: BRIDGE NO. 030253 ON SR 1415 (BILL CURLEE ROAD) OVER CEDAR BRANCH

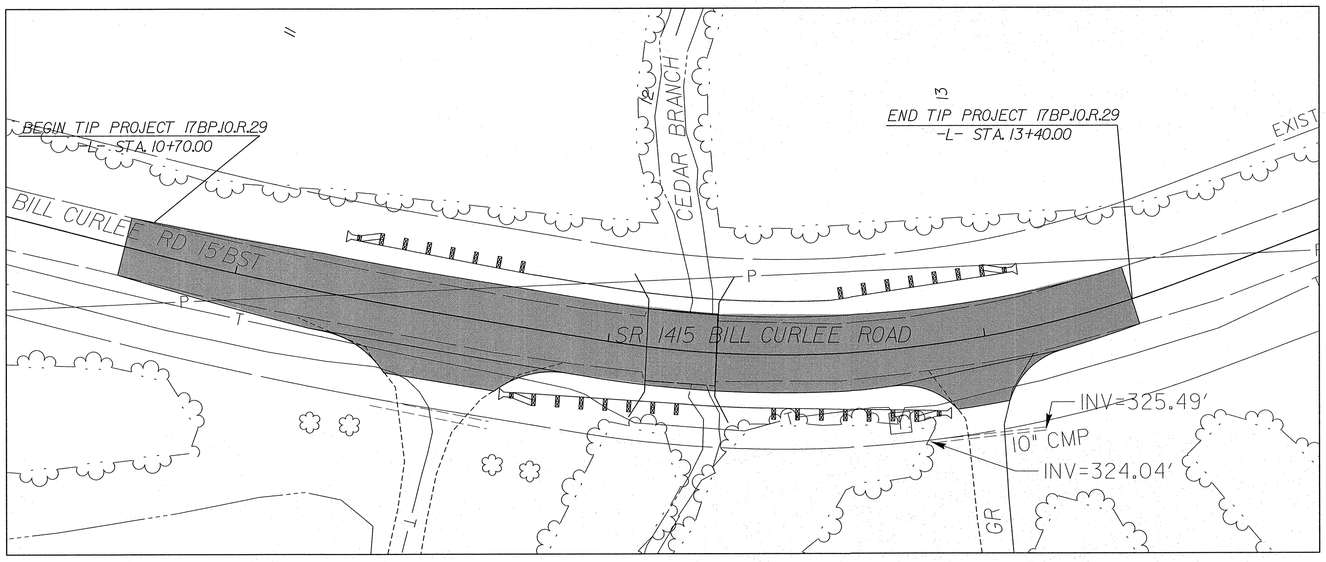
TYPE OF WORK: UTILITY CONSTRUCTION

PROJECT SITE LOCATION



VICINITY MAP

N.T.S.



NC GRID · NAD 83 /07ADJ

All materials, equipment, labor, and workmanship shall be in accordance with and subject to the Water and Sewer Authority of Anson County's standard specifications; and the North Carolina Administrative Code for wastewater collection and water distribution systems. In the event of conflict between Water and Sewer Authority of Anson County's standard specifications; or the North Carolina Administrative Code, the more restrictive requirements shall apply.

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC–1	TITLE SHEET
UC–2	SYMBOLOGY SHEET
UC–3	UTILITY PLAN AND PROFILE SHEET
UC–4	UTILITY DETAILS AND CONSTRUCTION NOTES

WATER AND SEWER OWNERS ON PROJECT

(1) WATER AND SEWER – ANSON COUNTY UTILITIES

Steve Natoli
PHONE (704) 694–5208

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028612 ENGINEER ERIC M. TWEED

3-6-13

PLANS PREPARED BY:

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

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

Roger Worthington, P.E. ***UTILITIES SECTION ENGINEER***
Louis L. Mitchell, P.E. ***DIVISION CONSTRUCTION MANAGER***
Eric Tweed, P.E. ***UTILITIES PROJECT ENGINEER***

5/14/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	UC-2
BRIDGE NO. 030253	

ROADWAY DESIGN ENGINEER

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029812 ENGINEER
3-6-13

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown)
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PDCV
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RDCV

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown)
- Force Main Sewer Line (Sized as Shown)
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown)
- Trenchless Installation
- Encasement by Open Cut
- Encasement
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole — W
- Power Manhole — P
- Telephone Manhole — T
- Sanitary Sewer Manhole — S
- Hand Hole for Cable — HH
- Power Transformer — PT
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

REV: 2/1/2012

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$

TEST HOLE INFORMATION
Utility Owner: Anson County
Utility Type: Water

TEST HOLE #1
Size and Material: 6" DIP
Ground Elevation (ft.): 323.76'
Utility Depth to Top (ft.): 3.26'
Utility Top Elevation (ft.): 320.50'
Northing (ft.): 471311.97'
Easting (ft.): 1638826.11'

TEST HOLE #2
Size and Material: 6"DIP
Ground Elevation (ft.): 322.88'
Utility Depth to Top (ft.): 3.28'
Utility Top Elevation (ft.): 319.60'
Northing (ft.): 471342.03'
Easting (ft.): 1638846.02'

PROJECT TOTAL: 228LF OF NEW RJ DIP

NOTE: CONTRACTOR SHALL LOCATE BOTH TIE IN POINTS PRIOR TO BEGINNING CONSTRUCTION OF WATER LINE. TWO TEST HOLES SHOW ACTUAL WL LOCATION BUT SUE INFORMATION DOES NOT CORRESPOND IN THE AREA OF TIE-IN.

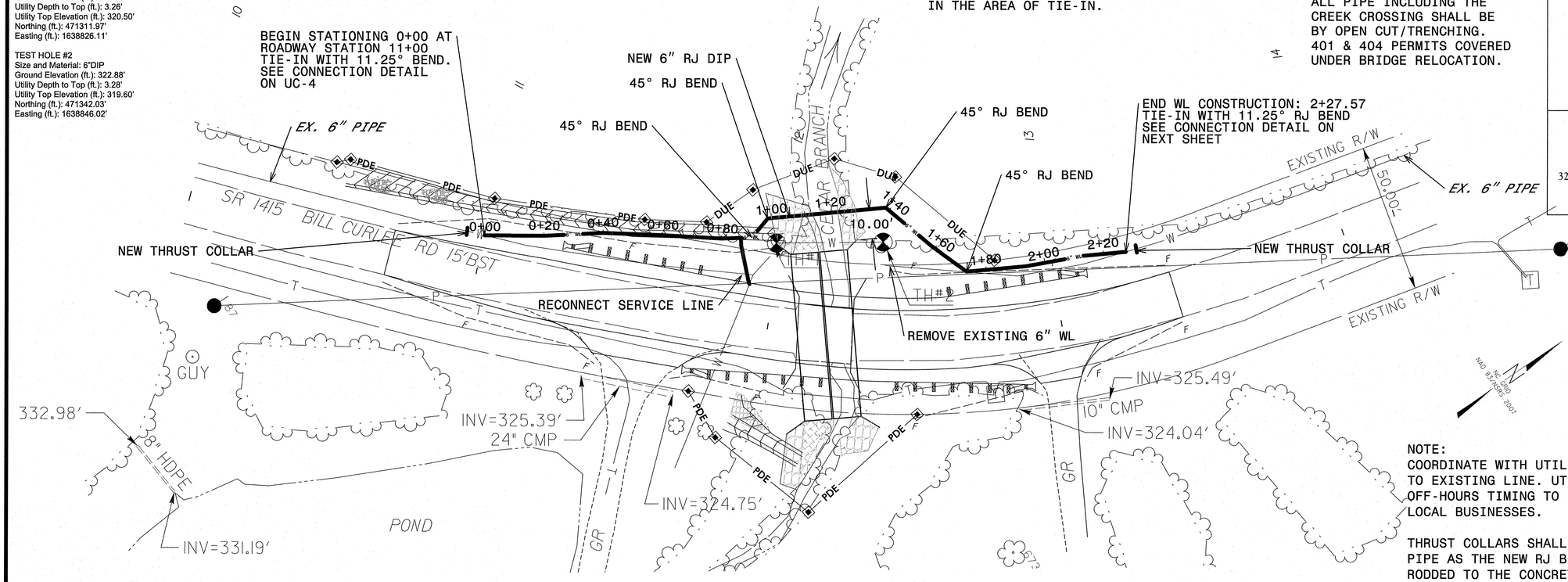
ALL PIPE ON THIS JOB SHALL BE RESTRAINED JOINT (RJ) DUCTILE IRON PIPE (DIP)

ALL PIPE INCLUDING THE CREEK CROSSING SHALL BE BY OPEN CUT/TRENCHING. 401 & 404 PERMITS COVERED UNDER BRIDGE RELOCATION.

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	UC-3
BRIDGE NO.	030253
ROADWAY DESIGN ENGINEER	UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028912 ENGINEER ERIC M. TEMPLETON
3-6-13

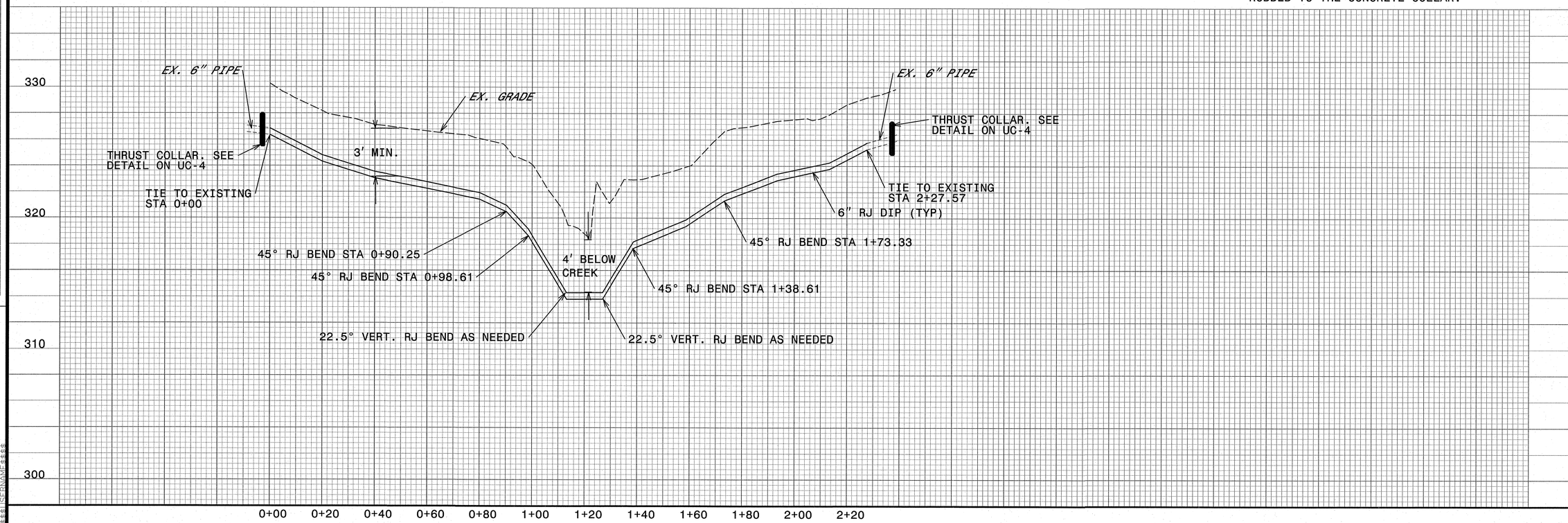
CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189



GRAPHIC SCALES
20 10 0 20 40
PLANS
20 10 0 20 40
PROFILE (HORIZONTAL)
4 2 0 4 8
PROFILE (VERTICAL)

NOTE:
COORDINATE WITH UTILITY OWNER FOR MAKING TIES TO EXISTING LINE. UTILITY OWNER MAY REQUEST OFF-HOURS TIMING TO PREVENT DISRUPTIONS TO LOCAL BUSINESSES.

THRUST COLLARS SHALL BE ON THE SAME JOINT OF PIPE AS THE NEW RJ BEND OR THE BEND SHALL BE RODDED TO THE CONCRETE COLLAR.



REVISIONS

8/17/99

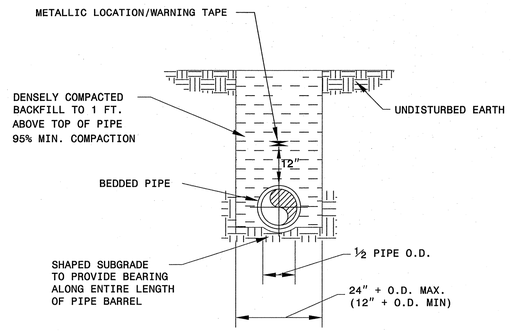
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	UC-4
BRIDGE NO.	030253
ROADWAY DESIGN ENGINEER	UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028912 ENGINEER ERIC M. TWEED

3-6-13

CH ENGINEERING

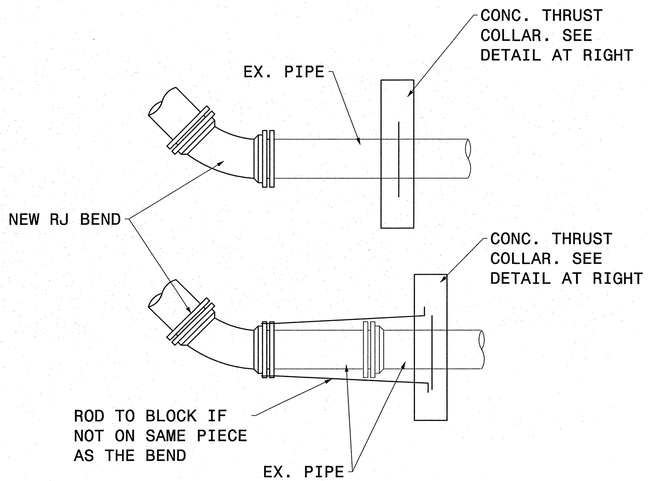
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189



WATER MAINS 8" AND SMALLER SHALL HAVE A MINIMUM OF 3' OF COVER.

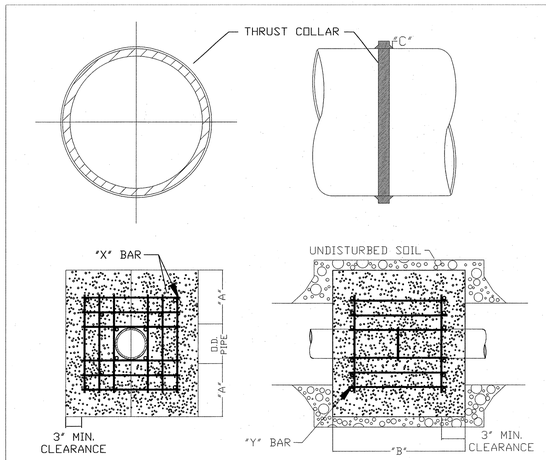
PIPE LAYING CONDITION

NOT TO SCALE



RODS SHALL BE SAME Ø AS BOLTS SUPPLIED WITH THE BEND.

PIPE CONNECTION DETAIL



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

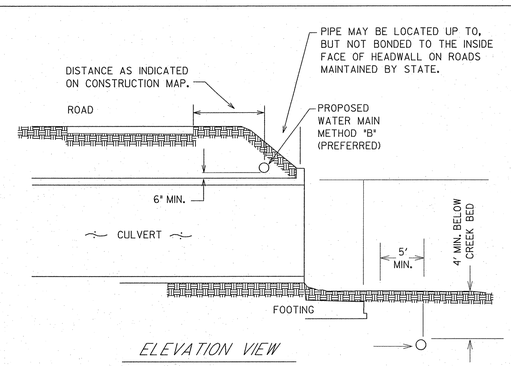
THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"-6"-16", 20"-24", 30"-36", 48"
6" - 36"	1'-4"	1'-7"	2" 3" 4"
48" & greater	1'-8"	1'-9"	6"

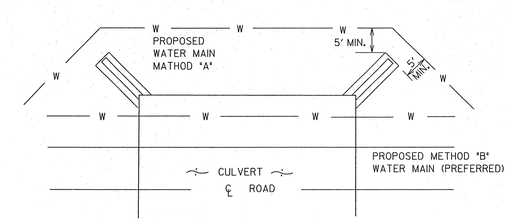
NOTES:

1. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
2. REINFORCING BARS SHALL BE TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH
4. THRUST COLLAR MAY BE JOINED USING RJ COLLAR

THRUST COLLAR DESIGN DATA FOR WATER MAINS



ELEVATION VIEW



PLAN VIEW

NOTES:

1. ALL PIPE LARGER THAN 2-INCH SHALL BE D.I.P. UNLESS SHOWN ON CONSTRUCTION PLANS. 2-INCH PIPE SHALL BE PVC.
2. MINIMUM COVER OVER CULVERT IN ANY DIRECTION SHALL BE 30". IF 30" COVER CANNOT BE MAINTAINED, ENCASE PIPE IN CONCRETE PER STANDARD DETAIL. SEPARATE ENCASEMENT FROM CULVERT WITH BURLAP OR PLASTIC FILM TO PREVENT BONDING.

No.	Date	By	Revision

ANSON COUNTY
UTILITY DEPARTMENT

Job No. File No.
Scales
PLAN NTS
PROFILE
Hor.
Vert.
As Built Date

STANDARD DETAIL
WATER
WATER MAIN LOCATIONS AT CULVERTS

Surveyed By	Designed By	Drawn By	Project-Engr	Approved By	Date	Sheet 6	Of

REVISIONS

8/17/99

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

09/08/99

PROJECT: 17BP.10.R.29

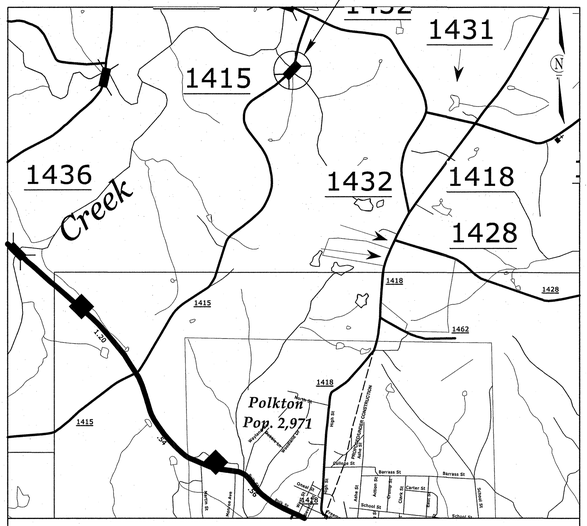
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
17BP.10.R.29	UO–1

UTILITIES BY OTHERS PLANS
ANSON COUNTY

LOCATION: BRIDGE NO. 030253 ON SR 1415 (BILL CURLEE ROAD) OVER CEDAR BRANCH

TYPE OF WORK: AERIAL UTILITIES

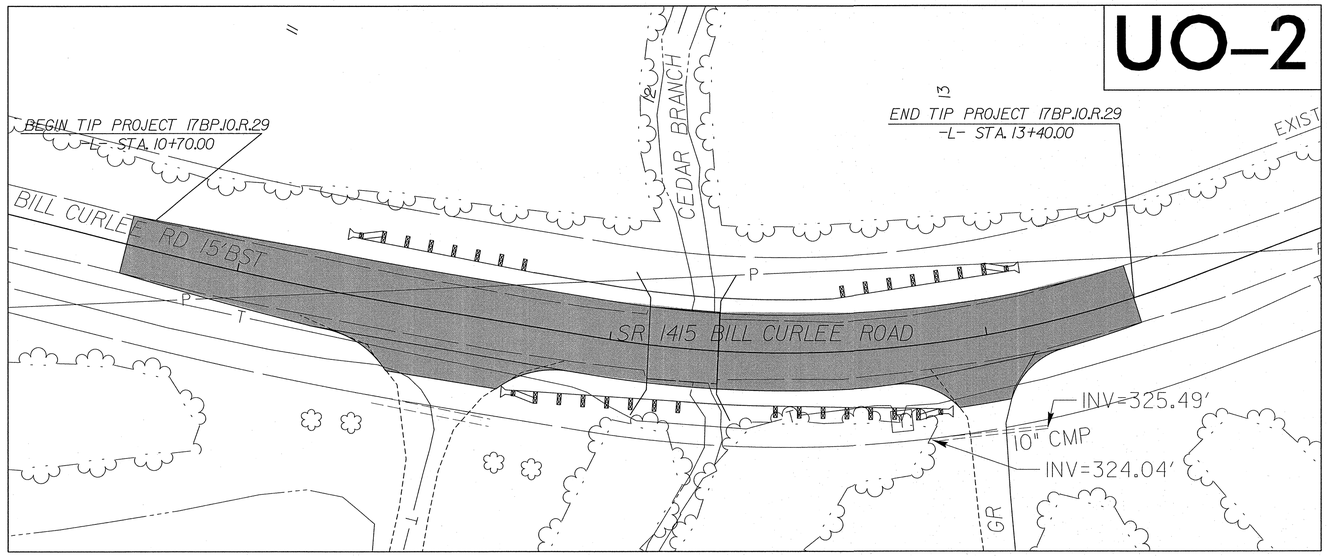


VICINITY MAP

N.T.S.

NC GRID · NAD 83 /07ADJ

UO–2



GRAPHIC SCALES

20 10 0 20 40
PLANS

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO–1	TITLE SHEET
UO–2	UTILITIES BY OTHERS PLAN SHEET

POWER OWNERS ON PROJECT

(1) POWER – PEE DEE ELECTRIC

Travis Wallace
PHONE (910) 997–4441 ext 8842

(2) PHONE – WINDSTREAM

Mike Jones
PHONE (707) 694–4876

PLANS PREPARED BY:

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER

Mary Jo Lee, P.E.

PREPARED IN THE OFFICE OF:

DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER

5/14/99

CONTACT INFORMATION FOR UTILITIES

POWER: PEE DEE ELECTRIC; TRAVIS WALLACE 910–997–4441ext8842 TWALLACE@PDEMC.COM
PHONE: WINDSTREAM; MIKE JONES 707–694–4876 MIKE.JONES@WINDSTREAM.COM
WATER: ANSON COUNTY UTILITES; STEVE NATOLI 704–694–5208 SNATOLI@CO.ANSON.NC.US

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

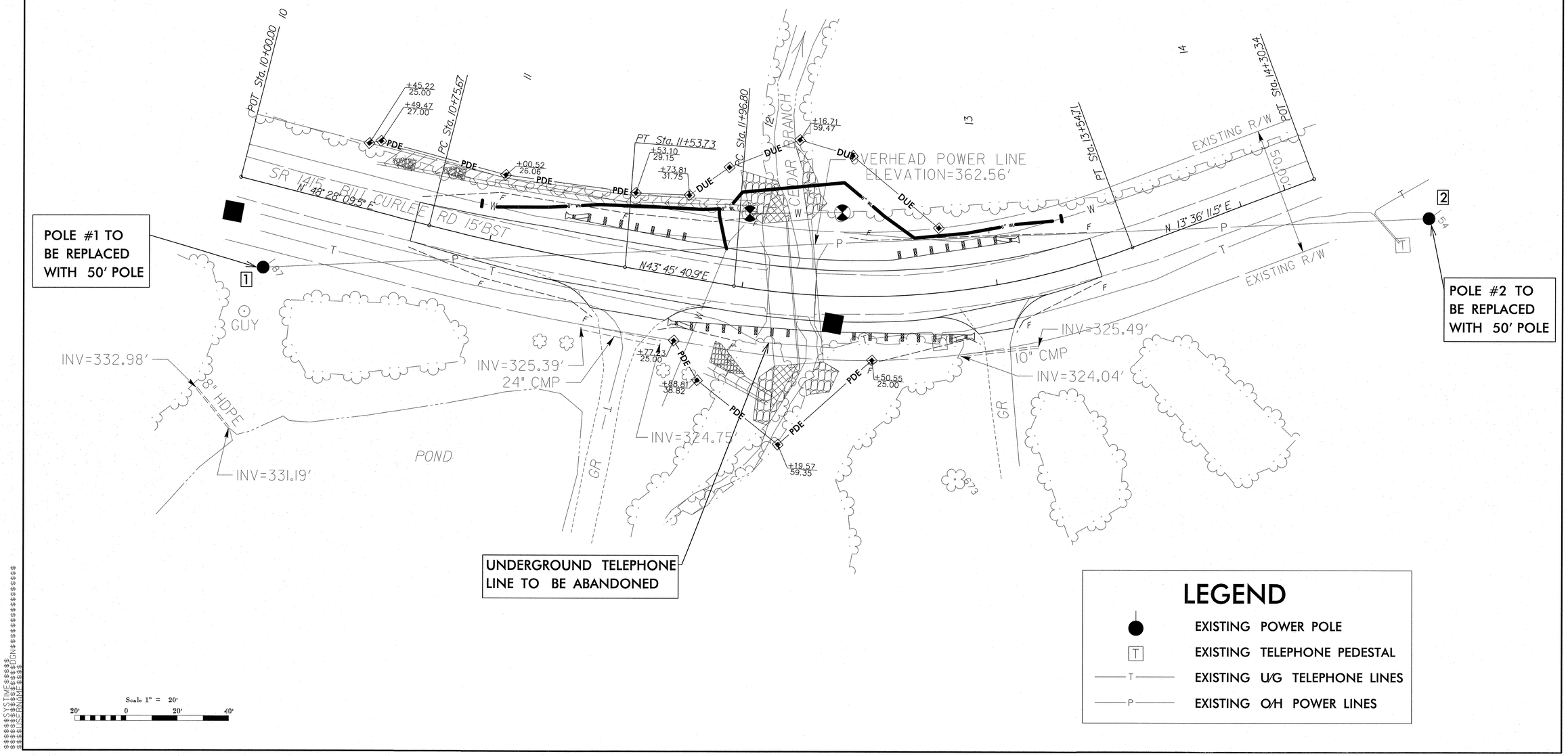
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	UO–2

UTILITIES BY OTHERS

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

NOTES
*PEE DEE EMC TO REMOVE EXISTING 40′ POLES AND REPLACE WITH NEW 50′ POLES TO RAISE THE LINE 10′. A TEMPORARY RUBBER BOOT WILL BE PLACED ON THE AERIAL LINE DURING CONSTRUCTION.
*WINDSTREAM WILL ABANDON THEIR UNDERGROUND CABLES AT THE CREEK AND WILL ATTACH TO PEE DEE EMC'S NEW POLES

NAD 83/NSRS 2007 NC GRID



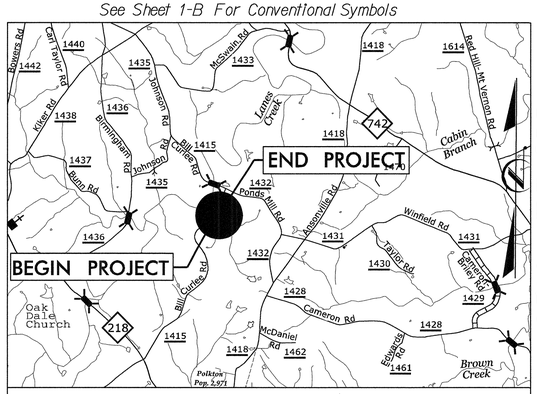
LEGEND

- EXISTING POWER POLE
- EXISTING TELEPHONE PEDESTAL
- T — EXISTING U/G TELEPHONE LINES
- P — EXISTING O/H POWER LINES

09/08/99

PROJECT: 17BP.10.R.29

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP N.T.S.

25% PLAN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ANSON COUNTY

LOCATION: BRIDGE #030253 OVER CEDAR BRANCH ON SR 1415 (BILL CURLEE ROAD)

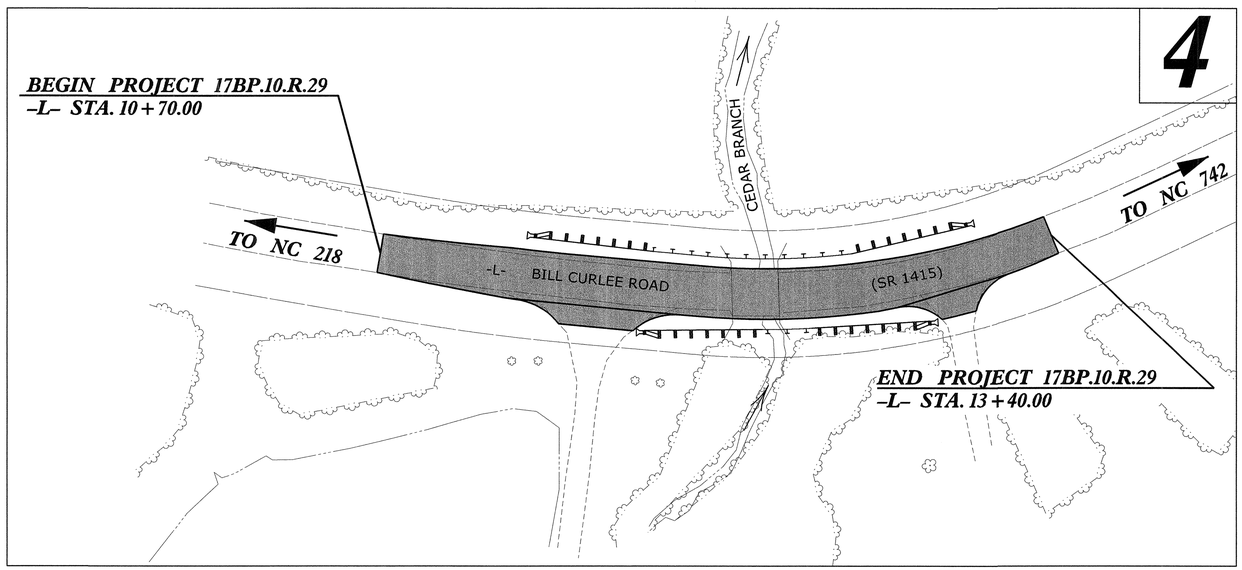
TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.29	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		PE

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	





NCDOT CONTACT:
GREG JONES – DIVISION 10 BRIDGE
PROJECT MANAGER
(704) 983–4400

THIS PROJECT IS WITHIN THE MUNCIPAL BOUNDARIES OF MORVEN.
CLEARING ON THIS PROJECT SHALL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD II.

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

ROGER WEADON, P.E.
LEVEL IIIA NAME

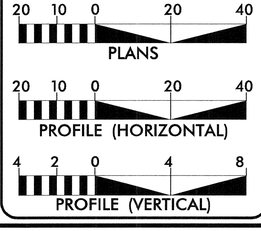
619
LEVEL IIIA CERTIFICATION NO.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

GRAPHIC SCALES



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEADON

3/7/13

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

Prepared In the Office of:

Gannett Fleming
GANNETT FLEMING, INC.
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
PHONE: 704-375-2438 FAX: 704-332-9361
GF PROJECT NO. – 055335.052

AND

M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

3/7/2013
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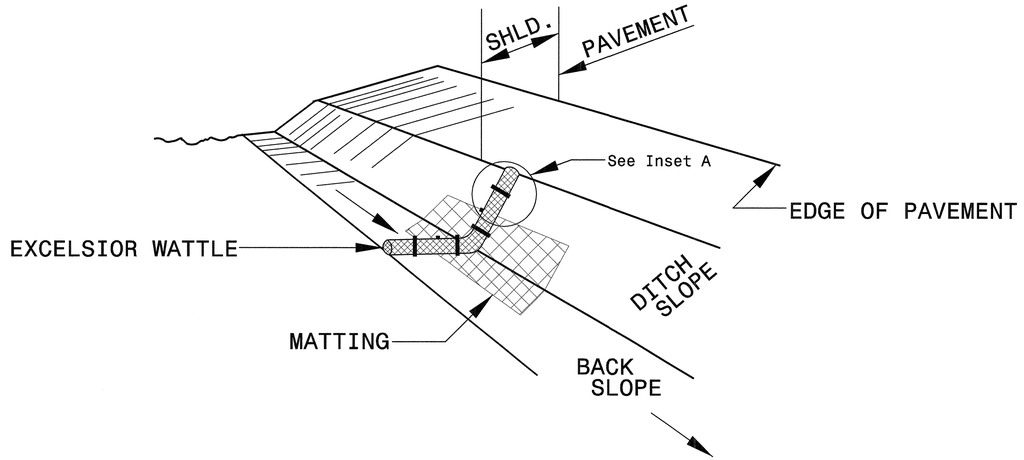
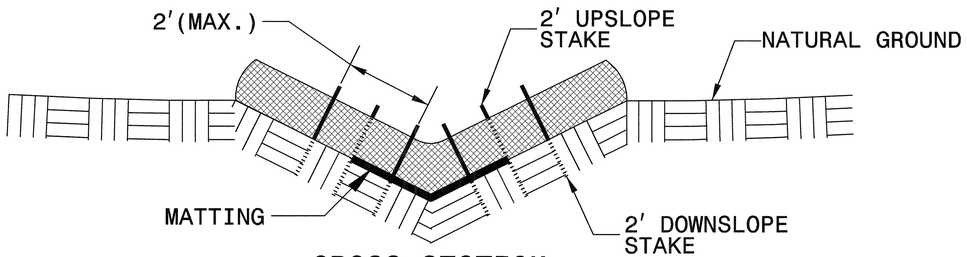
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	EC-2
R/W SHEET NO.	

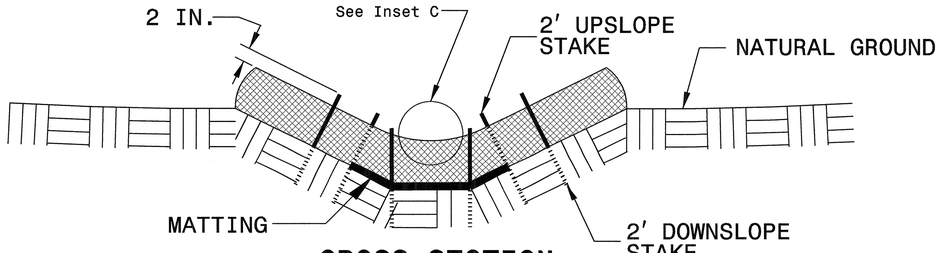
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

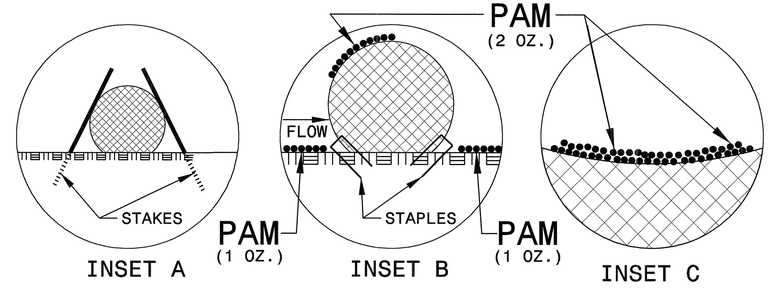
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

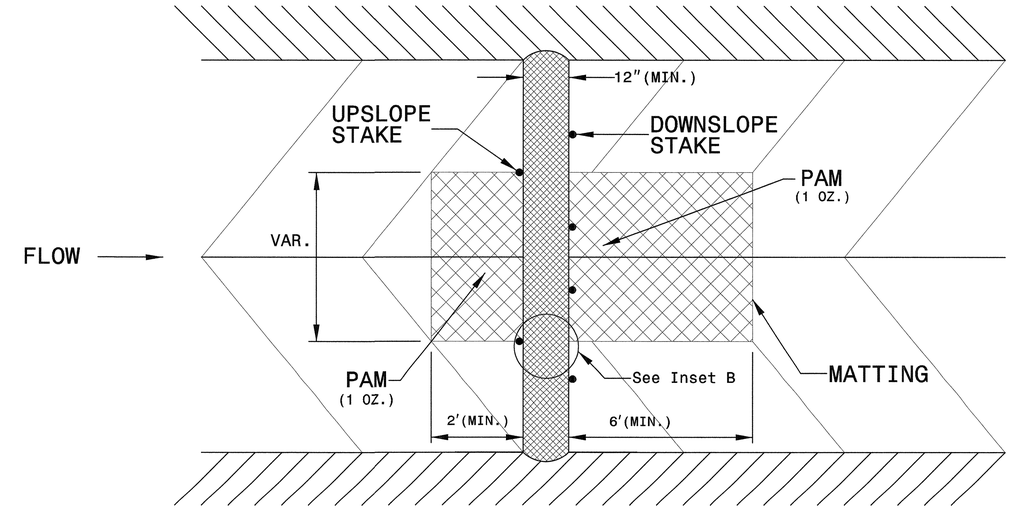
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

8/17/99

REVISIONS

SYSTIME$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	EC-2A
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WELDON

3/7/13

CULVERT CONSTRUCTION SEQUENCE

1. INSTALL SPECIAL STILLING BASIN.

2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.

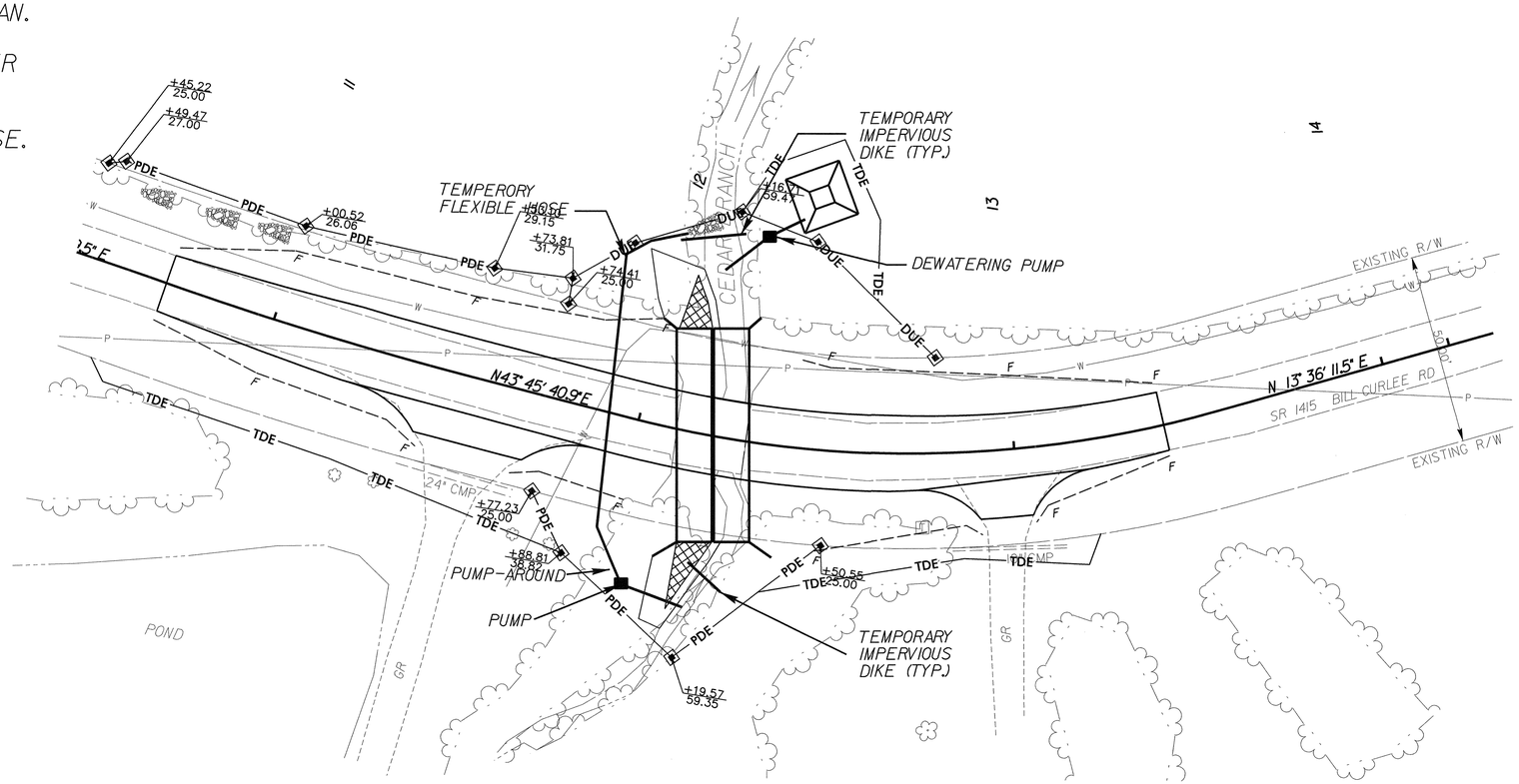
3. INSTALL UPSTREAM TEMPORARY IMPERVIOUS DIKE (CONSTRUCTED OF SAND BAGS) AND BEGIN PUMPING OPERATION FOR STREAM DIVERSION.

4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS DEWATER ENTRAPPED AREA AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAYS WORK.

5. INSTALL PIPE CULVERTS ACCORDING TO THE PLAN.

5. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES.

6. REMOVE PUMPS AND TEMPERORY FLEXIBLE HOSE. REMOVE SPECIAL STILLING BASIN.



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.29	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	1193	1215	RT	25
				SUBTOTAL	25
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					625
				TOTAL	650
				SAY	650

PERMANENT SOIL REINFORCEMENT MAT

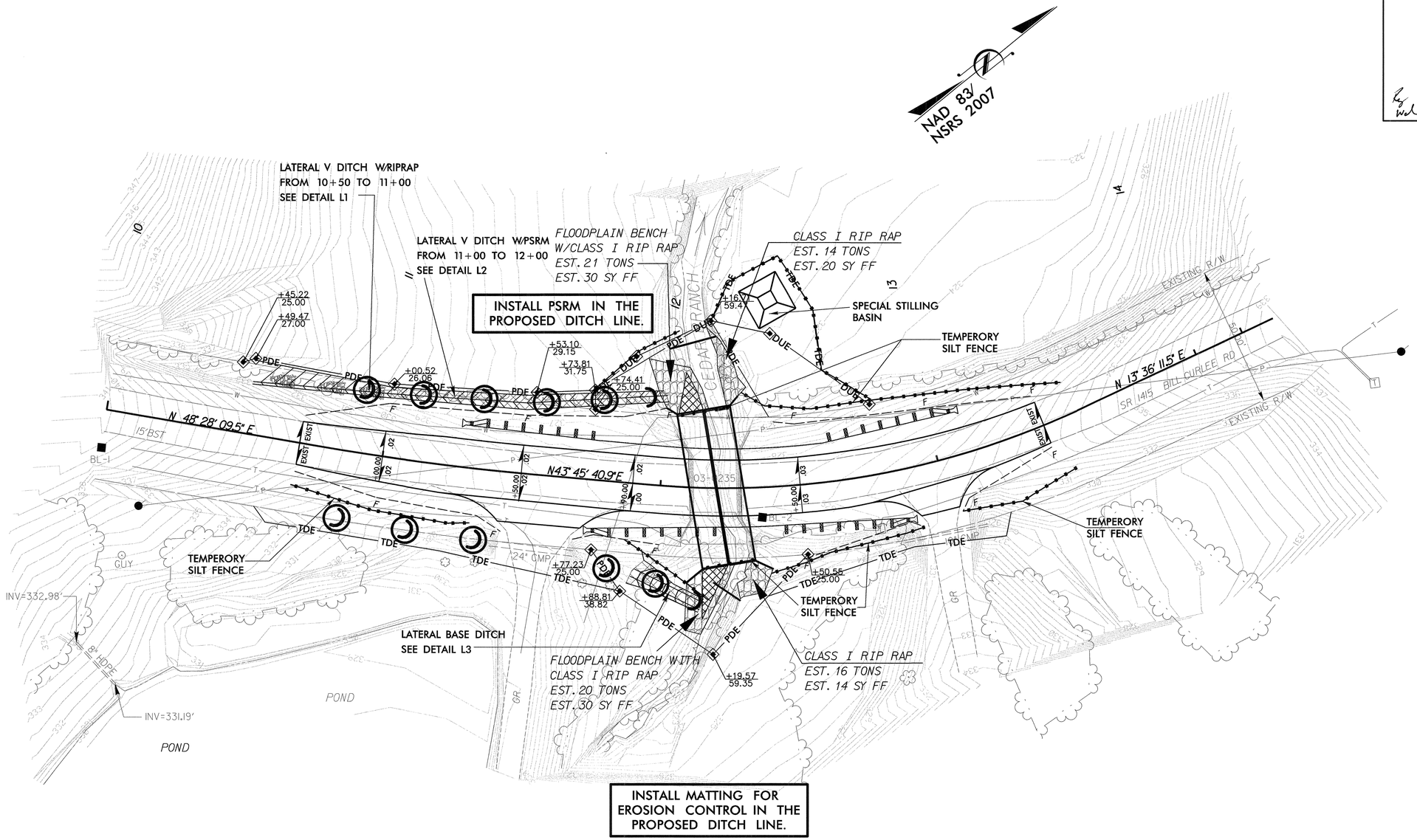
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	1100	1200	LT	60
				SUBTOTAL	60
		ADDITIONAL PSRM TO BE INSTALLED			5
				TOTAL	65
				SAY	65

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.29	EC-4
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEADON

3/7/13



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Scale 1" = 20'

50' 0 50' 100'

REVISIONS

8/17/99

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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.29	X-1

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

340
335
330
325

S.S. 329.319
328.14
2:1
0.020
332.05
0.020
331.97
2:1
S.S. 331.133

11+00.000

340
335
330
325

335.91

10+50.000

350
345
340
335
330

340.67

10+00.000

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

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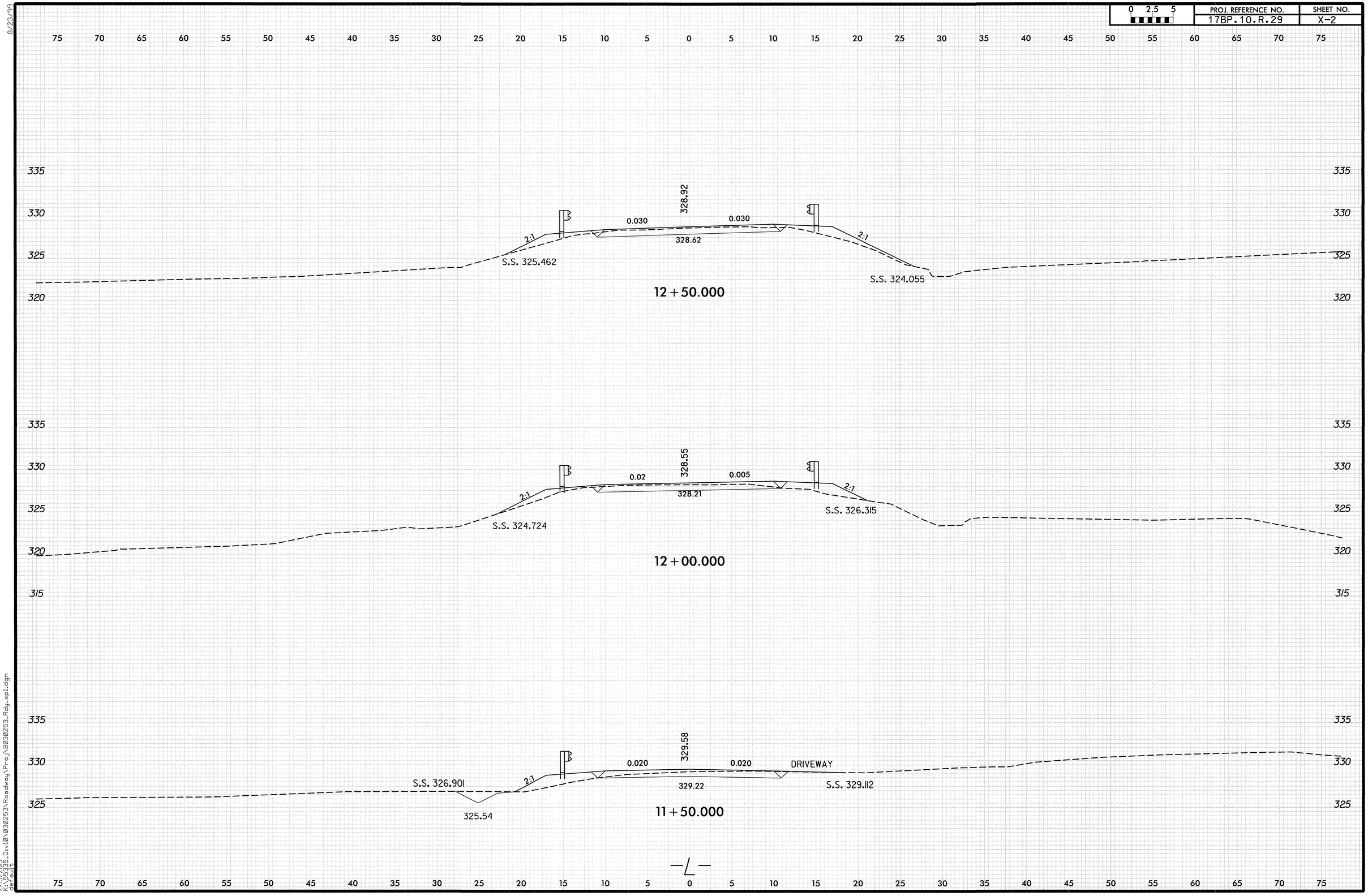

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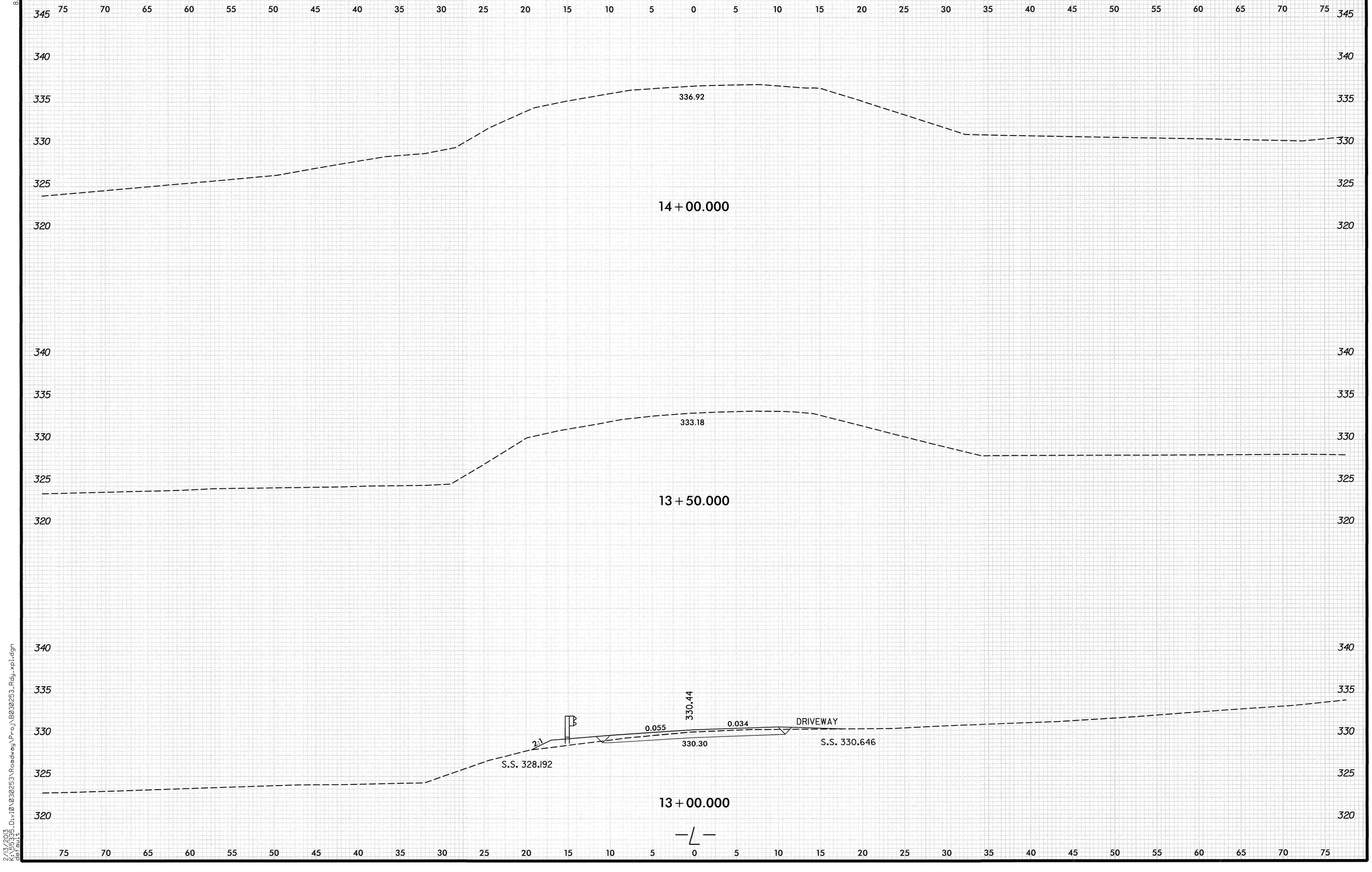

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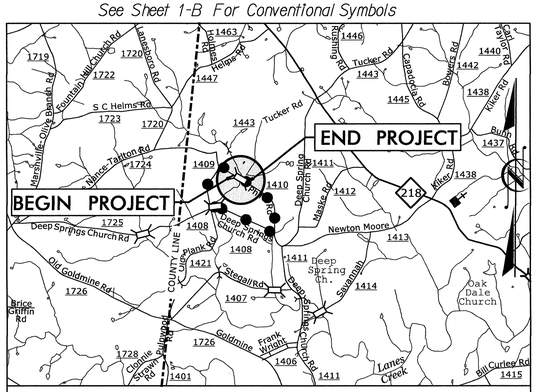
09/08/99

PROJECT: 17BP.10.R.32

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

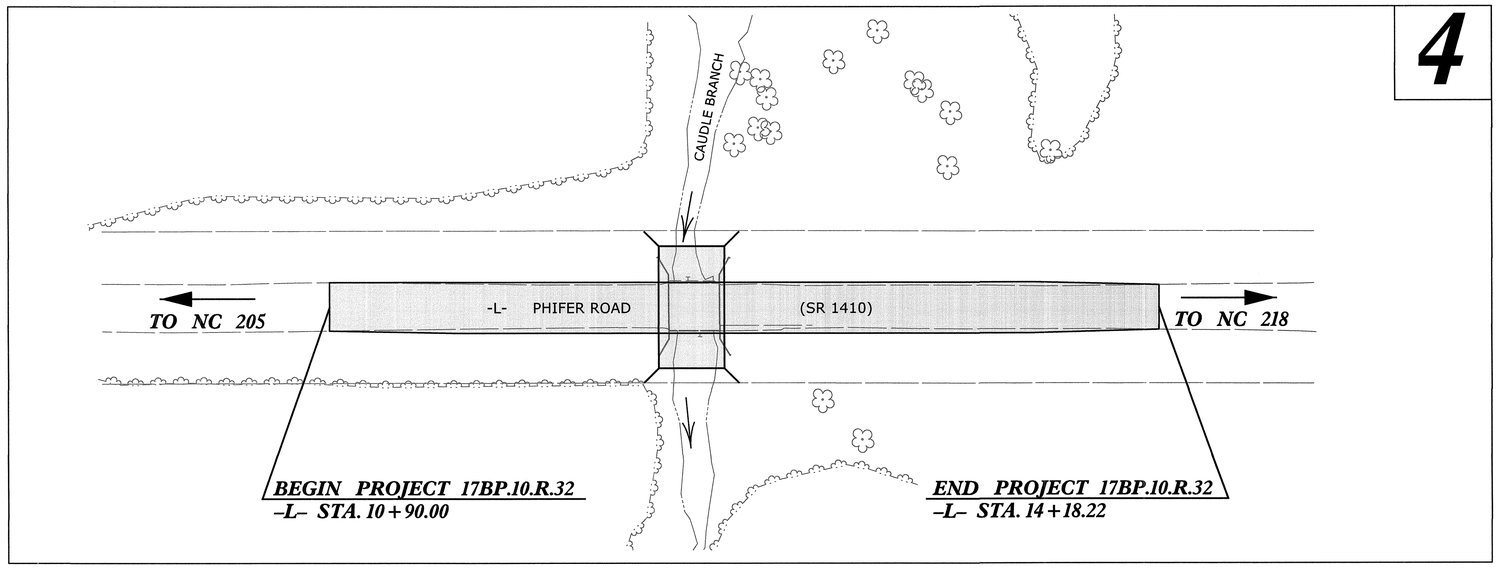
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.32	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.32		PE
17BP.10.R.32		R/W & UTILITIES
17BP.10.R.32		CONST

LOCATION: BRIDGE #030310 OVER CAUDLE BRANCH ON SR 1410 (PHIFER ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

NAD 83/ NSRS 2007



NCDOT CONTACT:
GARLAND HAYWOOD, P.E.
DIVISION 10 BRIDGE PROGRAM MANAGER
(704) 983-4400

THIS PROJECT IS WITHIN THE MUNCIPAL BOUNDARIES OF PEACHLAND.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2012 = NA
ADT 2010 = NA
DHV = NA
D = NA
T = NA *
V = 55 MPH
* TTST = NA DUAL NA
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

TOTAL LENGTH OF PROJECT 17BP.10.R.32 = 0.062 MILES

Prepared for NCDOT In the Office of:

Gannett Fleming

GANNETT FLEMING, INC.
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
PHONE: 704-375-2438 FAX: 704-332-9361
GF PROJECT NO. – 055335.310
NC Lic. No. F-0270

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JAN 2013

LETTING DATE: APRIL 2013

ALLISON C. JOHNSON, P.E.
PROJECT ENGINEER

CANDICE L. LATSON, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEAVER

3/7/13

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

3/7/13

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION · STATE OF NORTH CAROLINA ·

2/13/2013
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10/25/12TBL

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	1C
Location and Surveys	

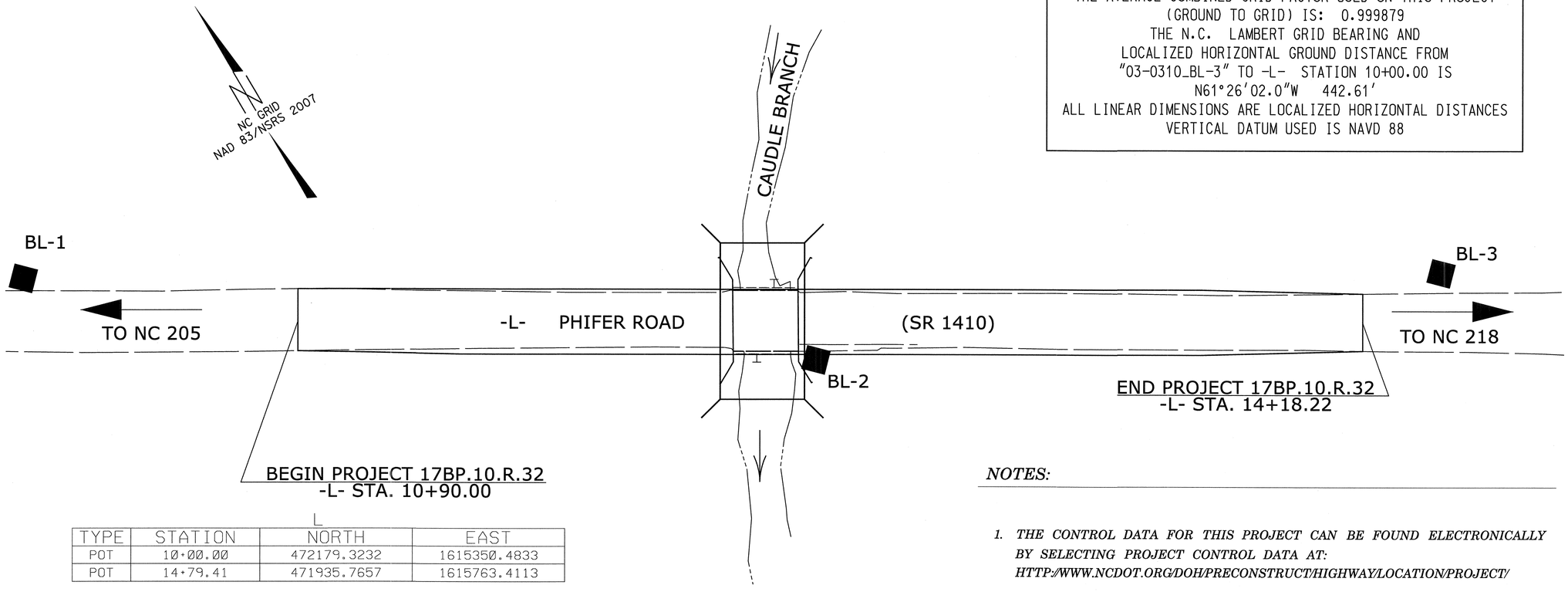
SURVEY CONTROL SHEET
PRELIMINARY PLANS

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L310 STATION	OFFSET
1	BL-1	472187.8760	1615361.6970	469.51	10+05.31	13.06 LT
2	BL-2	472042.4080	1615559.6580	459.75	12+49.73	11.66 RT
3	BL-3	471967.6780	1615739.2150	462.07	14+42.35	15.19 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "03-0310_BL-3"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 471967.678(ft) EASTING: 1615739.215(ft)
ELEVATION: 462.07(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "03-0310_BL-3" TO -L- STATION 10+00.00 IS
N61°26'02.0"W 442.61'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



L

TYPE	STATION	NORTH	EAST
POT	10+00.00	472179.3232	1615350.4833
POT	14+79.41	471935.7657	1615763.4113

PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+60.00	29.75	472072.4112	1615473.1819
L	11+89.19	-40.29	472117.9101	1615533.9079
L	11+89.21	-30.29	472109.2905	1615528.8470
L	12+12.00	50.40	472028.2074	1615507.4807
L	12+54.12	51.73	472005.6632	1615543.0843
L	12+65.00	-30.32	472070.8070	1615594.1397
L	12+65.00	-40.44	472079.5248	1615599.2817
L	13+20.63	29.76	471990.7939	1615611.5315

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: 030310_LS_CONTROL.TXT

2. *SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.*

3. *PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. POSITIONS ESTABLISHED USING NCGS REAL TIME KINEMATIC NETWORK (VRS)*

   MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

- ● *INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL*
- ■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
- ⋈ *INDICATES BENCHMARKS FOR VERTICAL PROJECT CONTROL*

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

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	2

ROADWAY DESIGN ENGINEER

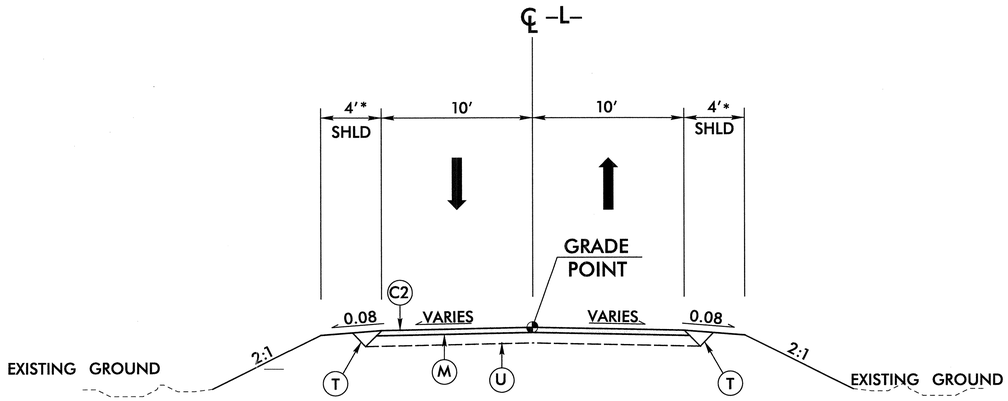
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

Gannett Fleming

301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644

NC Lic. No. F-0270



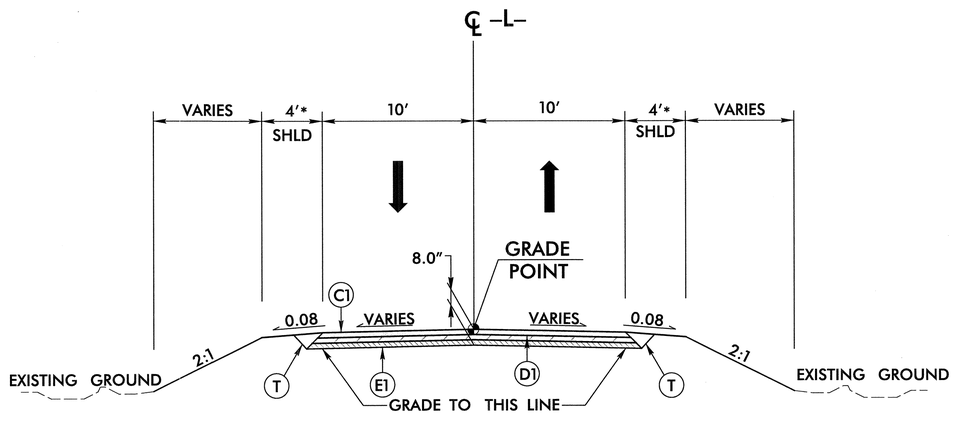
TYPICAL SECTION NO. 1

–L– STA. 10+90.00 TO STA. 11+15.00
–L– STA. 13+93.22 TO STA. 14+18.22

NOTE: SEE PLAN FOR SUPER ELEVATION RATES AND TRANSITIONS
* 7'–0" WITH GUARDRAIL

PAVEMENT SCHEDULE	
ITEM	DESCRIPTION
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
M	MILLING 1.5"
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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



TYPICAL SECTION NO. 2

–L– STA. 11+15.00 TO STA. 13+93.22

NOTE: SEE PLAN FOR SUPER ELEVATION RATES AND TRANSITIONS
* 7'–0" WITH GUARDRAIL

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12/06/07

COMPUTED BY: CLL	DATE: 8/2/12
CHECKED BY: ACJ	DATE: 8/4/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NORTH CAROLINA PROFESSIONAL SEAL 3/6/13 ENGINEER ALLISON C. JOHNSON

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

SUMMARY OF EARTHWORK
(in Cubic Yards)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
10+90.00	14+18.22	9	353	344	
PROJECT TOTALS:		9	353	344	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS				18	
GRAND TOTALS:		9		362	
SAY:					

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

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

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	11+50.00	13+50.00	LT	200			12+51.88	12+14.57	4	7	50	50	1.0	1.0			2													
-L-	11+50.00	13+50.00	RT	200			12+14.57	12+51.88	4	7	50	50	1.0	1.0			2													
			TOTAL:	400													4													
			TOTAL ANCHOR LENGTH:	200																										
			TOTAL GUARDRAIL LENGTH	200																										
			SAY:	200																										

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.	DUAL UTILITY EASE.
1	EDWARD B AND SHIRLEY DAVIS	8.79 AC					480 SF		
2	STEVE S AND MICHELLE N HILL	10.59 AC						323 SF	966 SF
3	MYRON L AND MARCIE A BAUCOM	3.54 AC					271 SF		
4	ELLEHU AND GERLENE H KEESLER	15.66 AC						3,527 SF	1,200 SF

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PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ALLISON C. JOHNSON

3/6/13

HYDRAULICS ENGINEER

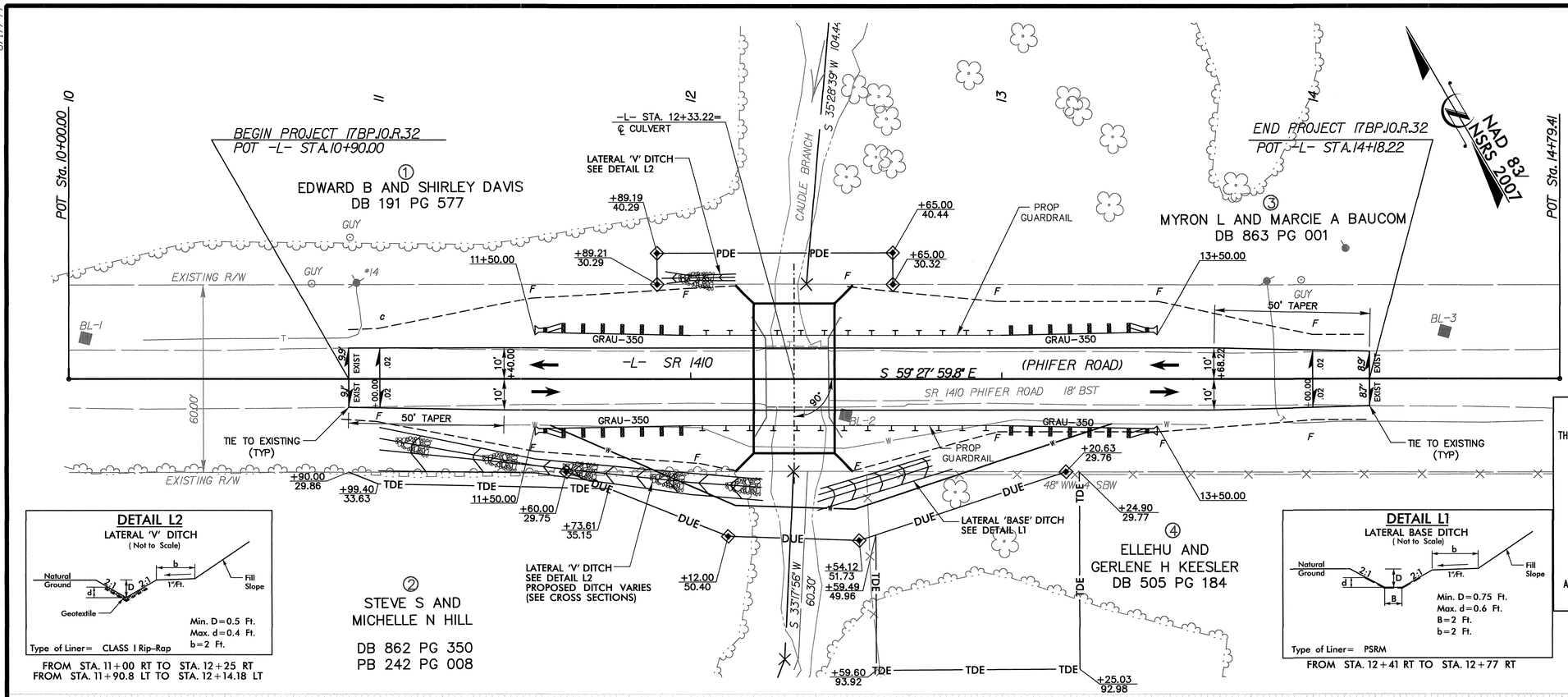
NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEAVER

3/6/13

Gannett Fleming

301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644

NC Lic. No. F-0270



DETAIL L2
LATERAL 'V' DITCH
(Not to Scale)

Min. D=0.5 Ft.
Max. d=0.4 Ft.
b=2 Ft.

Type of Liner= CLASS I Rip-Rap

FROM STA. 11+00 RT TO STA. 12+25 RT
FROM STA. 11+90.8 LT TO STA. 12+14.18 LT

DETAIL L1
LATERAL BASE DITCH
(Not to Scale)

Min. D=0.75 Ft.
Max. d=0.6 Ft.
B=2 Ft.
b=2 Ft.

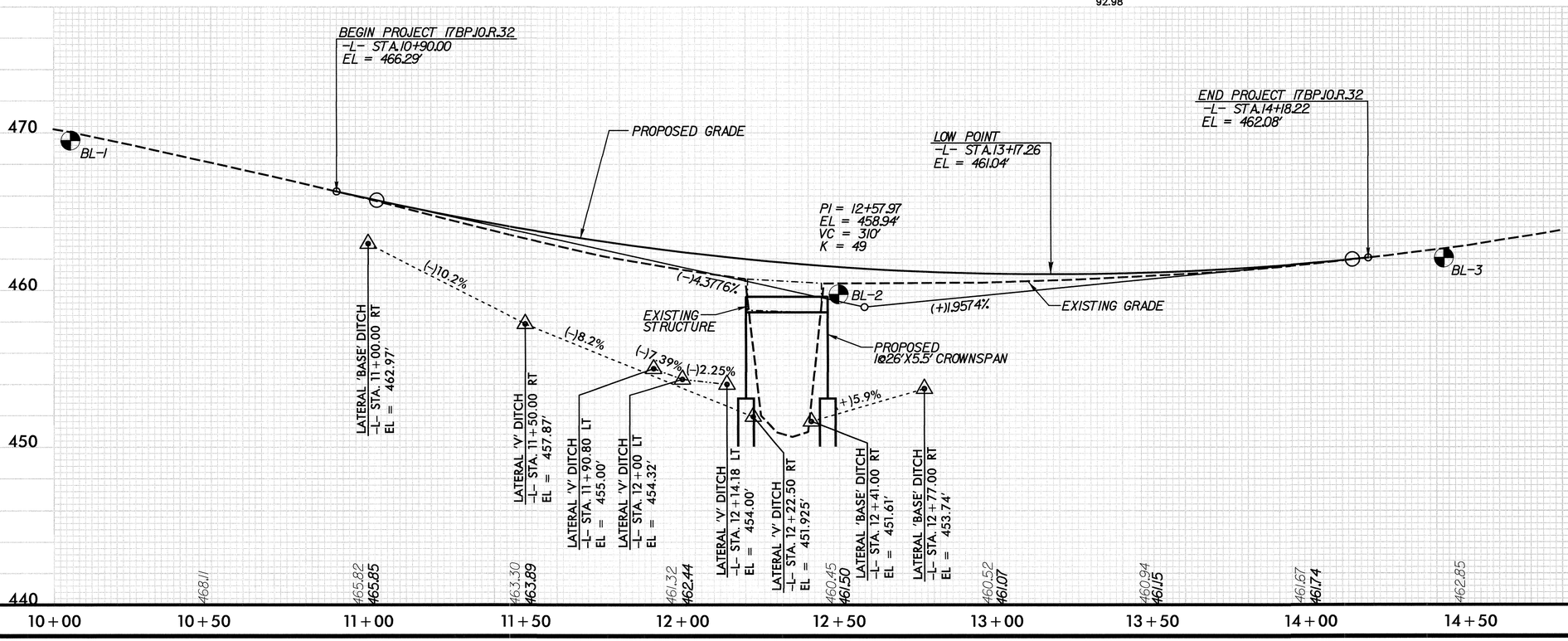
Type of Liner= PSRM

FROM STA. 12+41 RT TO STA. 12+77 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "03-0310_BL-3" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 471967.678(ft) EASTING: 1615739.215(ft)
ELEVATION: 462.07(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "03-0310_BL-3" TO -L- STATION 10+00.00 IS N61°26'02.0"W 442.61'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL-1	N 472187.8760	E 1615361.6970	ELEV 469.51
BL-2	N 472042.4080	E 1615559.6580	ELEV 459.75
BL-3	N 471967.6780	E 1615739.2150	ELEV 462.07



3/6/2013
K:\955335_D\v10\030310\Roadway\Proj\B030310_Rdy_psh_4.dgn
default

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	PM-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25424 ENGINEER ALISON C. JOHNSON

HYDRAULICS ENGINEER

Gannett Fleming

301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644

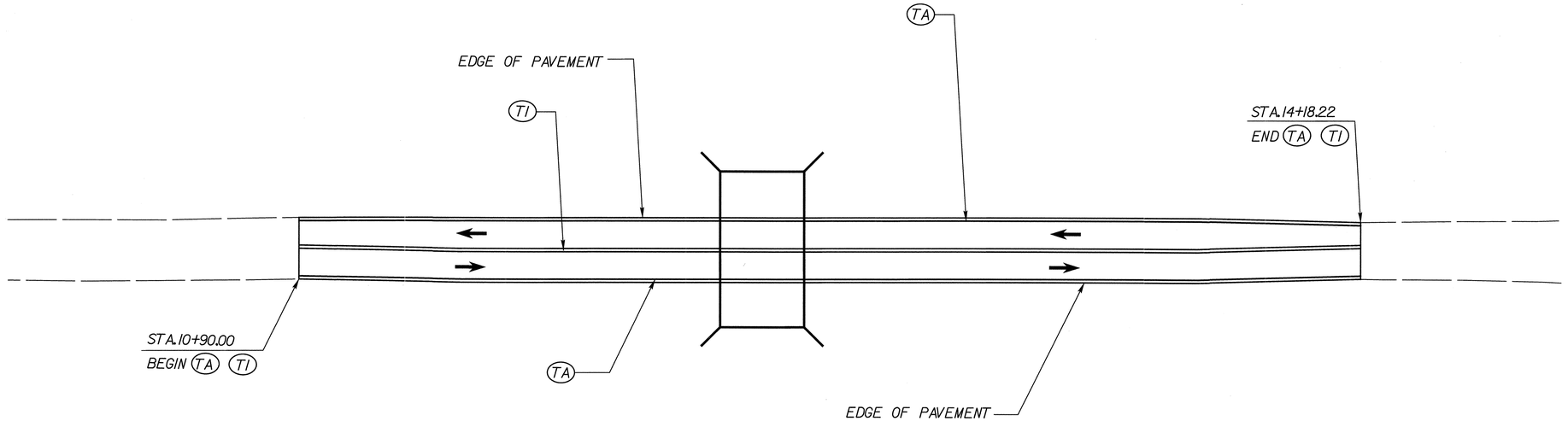
NC Lic. No. F-0270

8/17/99

REVISIONS

PAVEMENT MARKINGS TO BE COMPLETED BY NCDOT





PERMANENT PAVEMENT MARKING SCHEDULE

SYMBOL	WIDTH	COLOR	MATERIAL	DESCRIPTION
TA	4"	WHITE	PAINT	EDGE LINE
TI	4"	YELLOW	PAINT	DOUBLE CENTERLINE

2/13/2013
R:\95335_Div10\030310\Roadway\Proj\B030310_Rdy_psh_PM1.dgn
rmill

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	TCP-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15624 ENGINEER ALLISON C. JOHNSON

10/6/99

Gannett Fleming
301 S. McDOWELL STREET, SUITE 1008
CHARLOTTE, NORTH CAROLINA 28204-2644
NC Lic. No. F-0270

8/17/99

REVISIONS

S C Helms Rd
Lanesboro Rd
1723
1720
Nance-Tarlton Rd
1724
1.88
.34
1.34
1725
Deep Springs Rd
.38
1.95
1726
Old Goldmine Rd
1728
Clonnie Strawn Rd
.90
.40
1405
1401
1409
1421
1408
1410
1411
1412
1413
1414
1406
1407
1438
1445
1446
1447
1443
218
PROJECT

NAD 83/
NSRS 2007

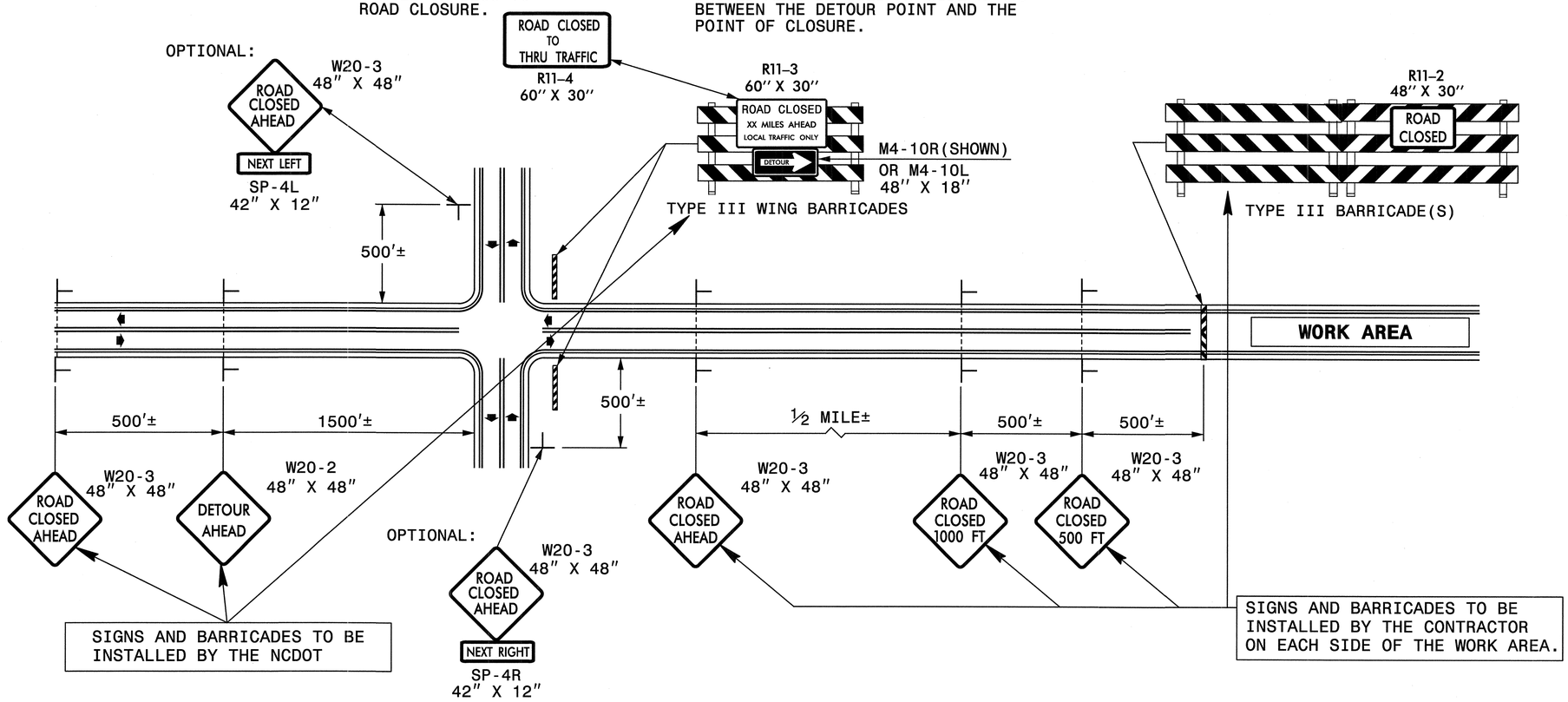
1000 500 0 1000 2000
Scale 1" = 1000'

$$$

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.32	TCP-2	
F.A. PROJECT NO.			

NOTE: USE SIGN R11-4 IF 1 MILE OR LESS TO ROAD CLOSURE.

NOTE: WING BARRICADES WITH SIGN R11-3 SHOULD ALSO BE USED AT SIDE ROADS BETWEEN THE DETOUR POINT AND THE POINT OF CLOSURE.



GENERAL NOTES

1-IF NECESSARY USE THIS STD. FOR TWO-LANE, TWO-WAY, AND MULTILANE DIVIDED AND UNDIVIDED ROADWAYS.

2-INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY NCDOT FORCES UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

3-INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.

4-USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.

5-DO NOT DISPLAY FRACTIONS OR DECIMALS ON SIGN R11-3 "ROAD CLOSED XX MILES AHEAD".

6-POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.

7-USE PORTABLE SIGNS IF ROAD CLOSURE IS TO BE IMPLEMENTED FOR LESS THAN ONE DAY OR FOR EMERGENCIES.

LEGEND

- ├ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

TEMPORARY ROAD CLOSURE
CLOSURE BEYOND DETOUR POINT

		REVISIONS	
SCALE	-NA-		
DATE	1-19-10		
DWG. BY	TWB		
APPROVED	RWB		

8/17/99

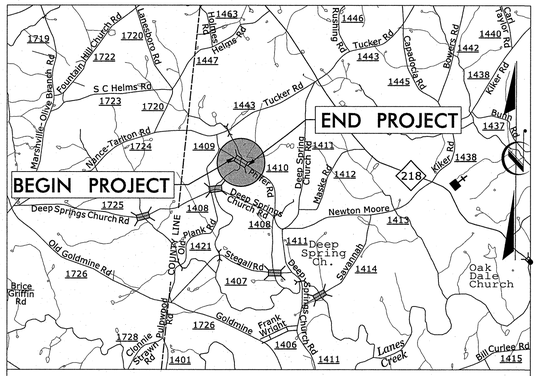
REVISIONS

C:\STIMES\DGN\TCP-2.DGN
9-Jan-2010 15:58:58
tbrown

09/08/99

PROJECT: 17BP.10.R.32

CONTRACT:



VICINITY MAP

N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
ANSON COUNTY

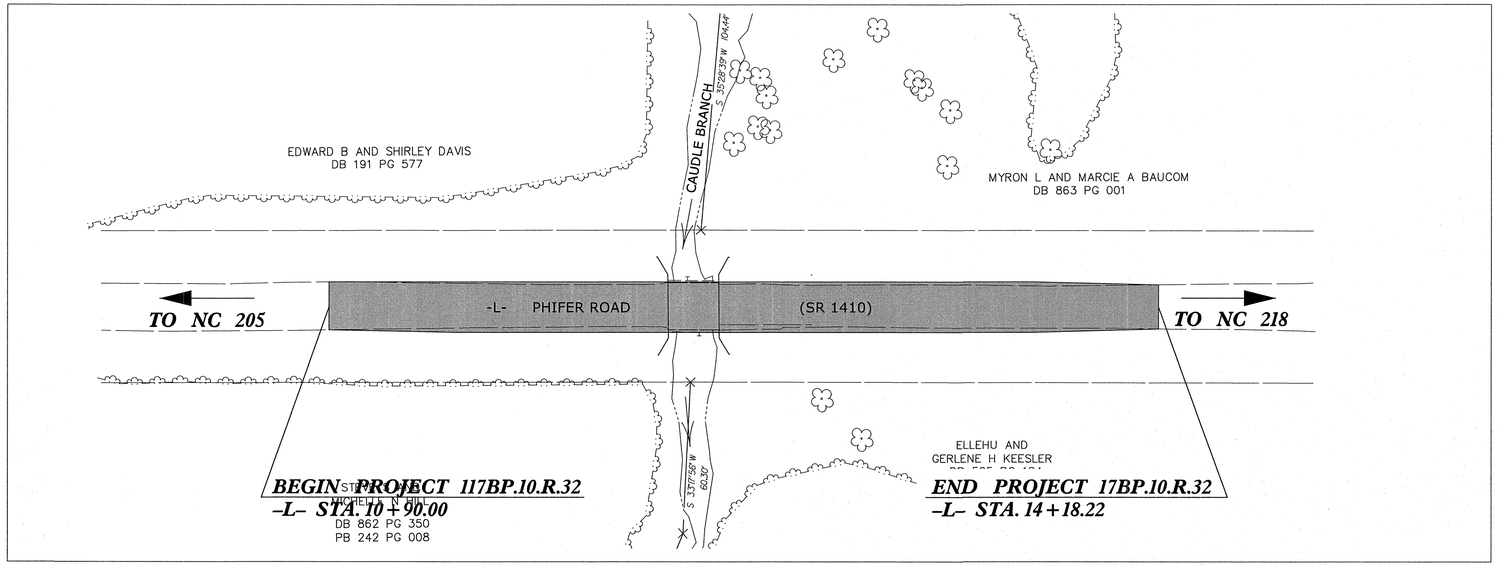
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.32	UC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		PE

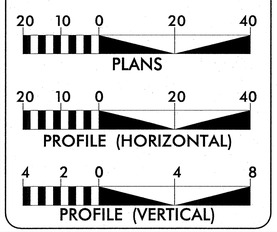
LOCATION: BRIDGE NO. 030310 OVER BRANCH OF LANES CREEK ON SR 1410 (PHIFER ROAD)

TYPE OF WORK: UTILITY CONSTRUCTION

NAD 83/ NSRS 2007



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC–1	TITLE SHEET
UC–2	SYMBOLOGY SHEET
UC–3	UTILITY PLAN AND PROFILE SHEET
UC–4	UTILITY DETAILS AND CONSTRUCTION NOTES

WATER AND SEWER OWNERS ON PROJECT

(1) WATER AND SEWER – ANSON COUNTY UTILITIES

Steve Natoli
PHONE (704) 694–5208

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 029912 ENGINEER ERIC M. TWEED
3-11-13

PLANS PREPARED BY:

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PREPARED FOR THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699–1591
PHONE (919) 250–4128
FAX (919) 250–4119

Roger Worthington, P.E. — *UTILITIES SECTION ENGINEER*
Louis L. Mitchell, P.E. — *DIVISION CONSTRUCTION MANAGER*
Eric Tweed, P.E. — *UTILITIES PROJECT ENGINEER*

3/11/2013
030310_Util_TSH.dgn
ETWEED

5/14/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	UC-2
BRIDGE NO. 030310	

ROADWAY DESIGN ENGINEER

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028812 ENGINEER ERIC M. THIGPEN
3-6-13

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown)
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve (GV)
- Butterfly Valve (BV)
- Tapping Valve (TGV)
- Line Stop (LS)
- Line Stop with Bypass (LS/BP)
- Blow Off (BO)
- Fire Hydrant (PFH)
- Relocate Fire Hydrant (RFH)
- Remove Fire Hydrant (REM FH)
- Water Meter (PWM)
- Relocate Water Meter (RWM)
- Remove Water Meter (REM WM)
- Water Pump Station (PS(W))
- RPZ Backflow Preventer (PRPZ)
- DCV Backflow Preventer (PBFP)
- Relocate RPZ Backflow Preventer (RRPZ)
- Relocate DCV Backflow Preventer (RBFP)

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown)
- Force Main Sewer Line (Sized as Shown)
- Manhole (Sized per Note)
- Sewer Pump Station (PS(SS))

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal (TEL_PED)
- Utility Line by Others (Type as Shown)
- Trenchless Installation
- Encasement by Open Cut
- Encasement
- Thrust Block
- Air Release Valve (AR)
- Utility Vault (UV)
- Concrete Pier (CP)
- Steel Pier (SP)
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

3/6/2013
030310_SYM_UC-2.dgn
ETWELCH

REV: 2/1/2012

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	UC-3
BRIDGE NO.	030310
ROADWAY DESIGN ENGINEER	UTILITY ENGINEER

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

GRAPHIC SCALES
PLANS: 20 10 0 20 40
PROFILE (HORIZONTAL): 20 10 0 20 40
PROFILE (VERTICAL): 4 2 0 4 8

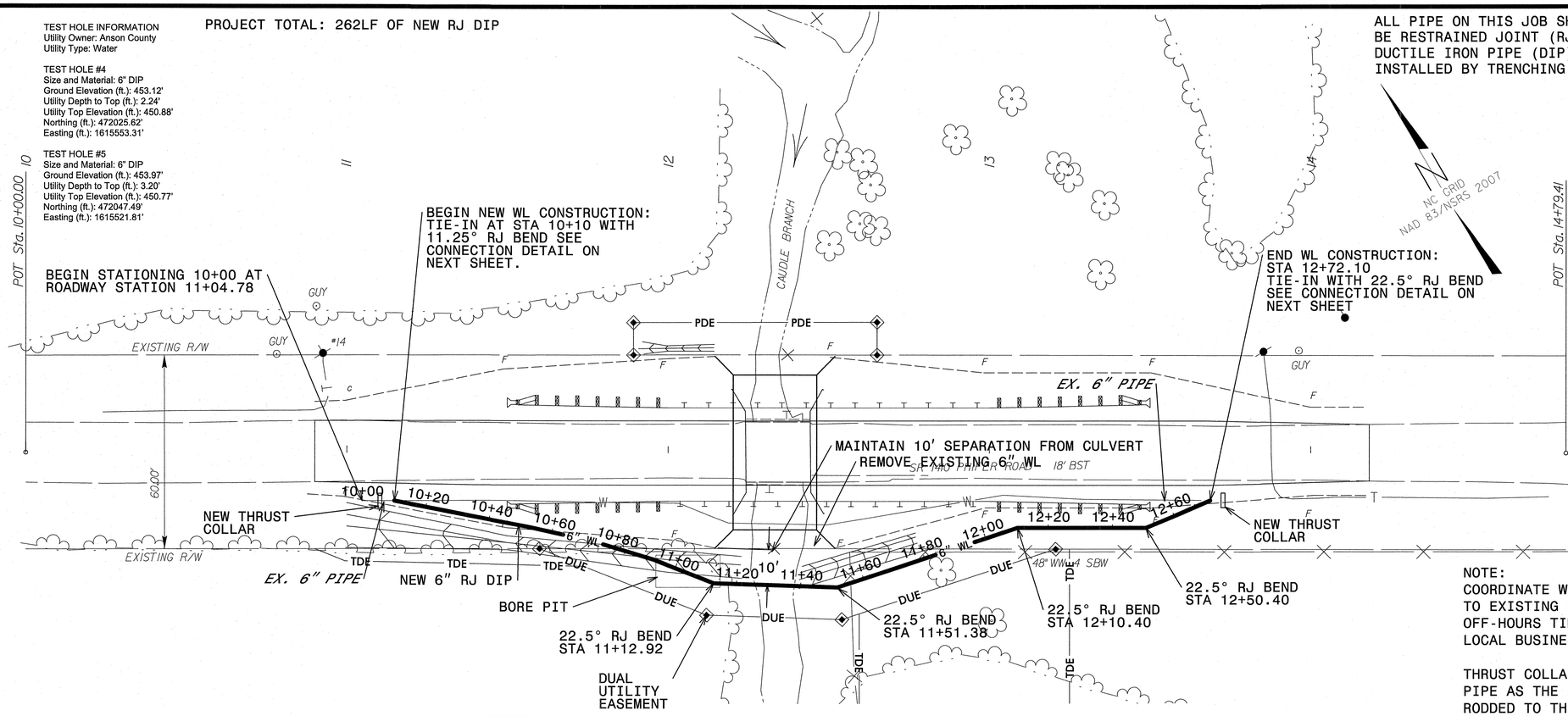
TEST HOLE INFORMATION
Utility Owner: Anson County
Utility Type: Water

TEST HOLE #4
Size and Material: 6" DIP
Ground Elevation (ft.): 453.12'
Utility Depth to Top (ft.): 2.24'
Utility Top Elevation (ft.): 450.88'
Northing (ft.): 472025.62'
Easting (ft.): 1615553.31'

TEST HOLE #5
Size and Material: 6" DIP
Ground Elevation (ft.): 453.97'
Utility Depth to Top (ft.): 3.20'
Utility Top Elevation (ft.): 450.77'
Northing (ft.): 472047.49'
Easting (ft.): 1615521.81'

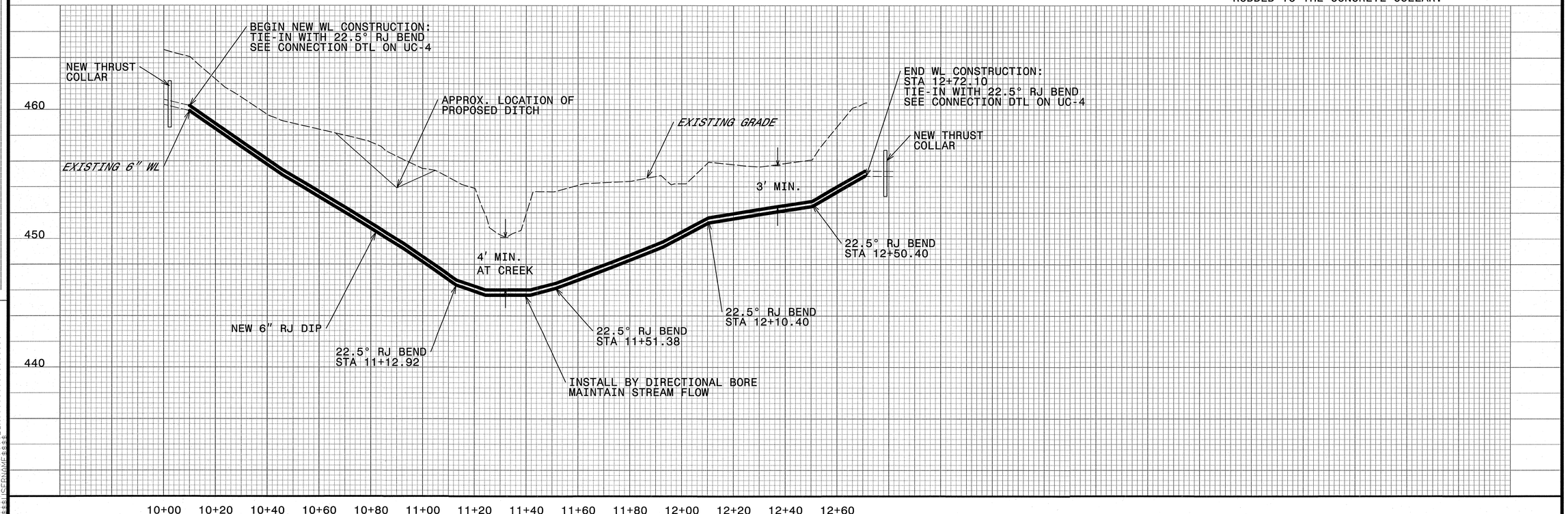
PROJECT TOTAL: 262LF OF NEW RJ DIP

ALL PIPE ON THIS JOB SHALL BE RESTRAINED JOINT (RJ) DUCTILE IRON PIPE (DIP) & INSTALLED BY TRENCHING



NOTE:
COORDINATE WITH UTILITY OWNER FOR MAKING TIES TO EXISTING LINE. UTILITY OWNER MAY REQUEST OFF-HOURS TIMING TO PREVENT DISRUPTIONS TO LOCAL BUSINESSES.

THRUST COLLARS SHALL BE ON THE SAME JOINT OF PIPE AS THE NEW RJ BEND OR THE BEND SHALL BE RODDED TO THE CONCRETE COLLAR.



REVISIONS

8/17/99

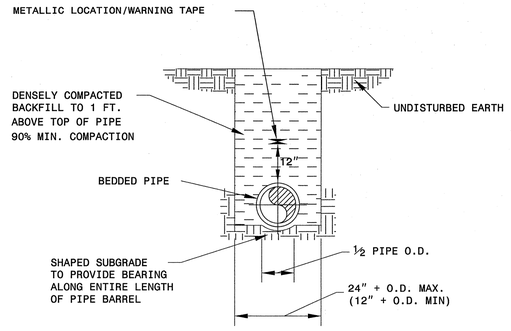
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	UC-4
BRIDGE NO.	030310
ROADWAY DESIGN ENGINEER	UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028912 ENGINEER ERIC M. TWEED 3-6-13

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

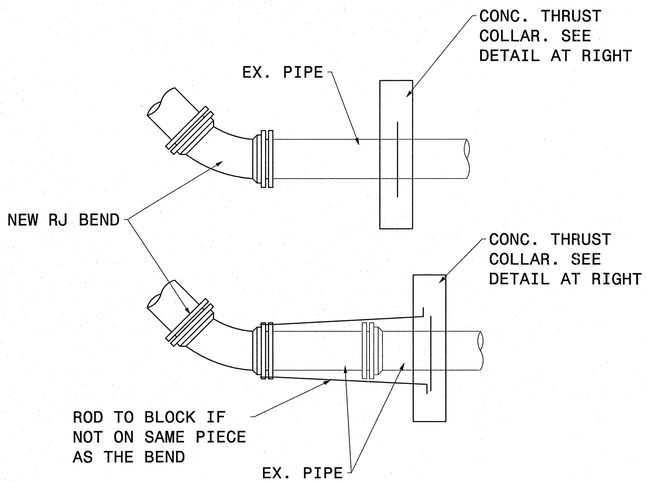
REVISIONS 8/17/99



WATER MAINS 8" AND SMALLER SHALL HAVE A MINIMUM OF 3' OF COVER.

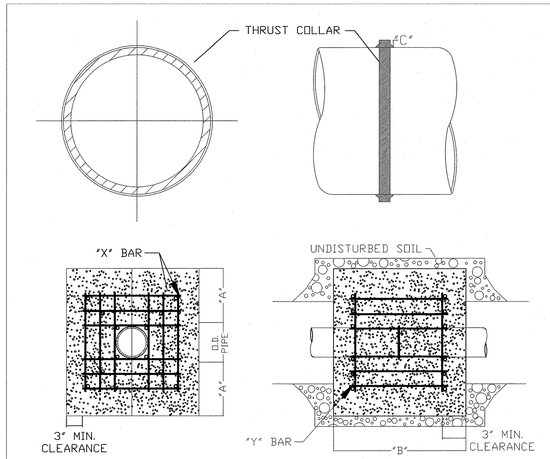
PIPE LAYING CONDITION

NOT TO SCALE



RODS SHALL BE SAME Ø AS BOLTS SUPPLIED WITH THE BEND.

PIPE CONNECTION DETAIL



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

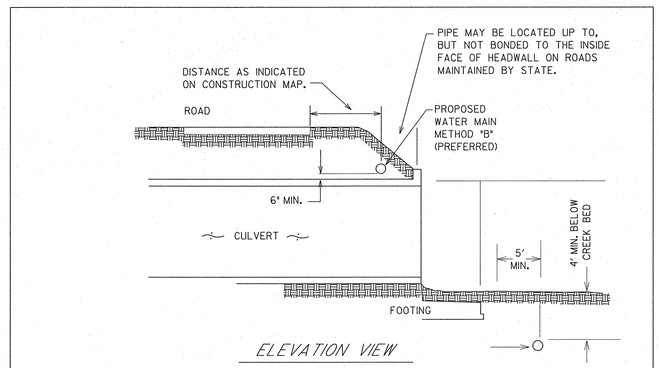
THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"-6"-16", 20"-24", 30"-36", 48"
6" - 36"	1'-4"	1'-7"	2" 3" 4"
48" & greater	1'-8"	1'-9"	6"

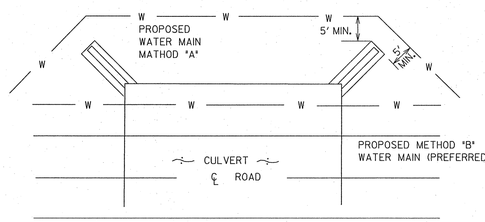
NOTES:

1. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
2. REINFORCING BARS SHALL BE TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH
4. THRUST COLLAR MAY BE JOINED USING RJ COLLAR

THRUST COLLAR DESIGN DATA FOR WATER MAINS



ELEVATION VIEW



PLAN VIEW

NOTES:

1. ALL PIPE LARGER THAN 2-INCH SHALL BE D.I.P. UNLESS SHOWN ON CONSTRUCTION PLANS. 2-INCH PIPE SHALL BE PVC.
2. MINIMUM COVER OVER CULVERT IN ANY DIRECTION SHALL BE 30". IF 30" COVER CANNOT BE MAINTAINED, ENCASE PIPE IN CONCRETE PER STANDARD DETAIL. SEPARATE ENCASEMENT FROM CULVERT WITH BURLAP OR PLASTIC FILM TO PREVENT BONDING.

No.	Date	By	Revision

ANSON COUNTY
UTILITY DEPARTMENT

Job No. File No.
Scales
PLAN NTS
PROFILE
Hor.
Vert.
As Built Date

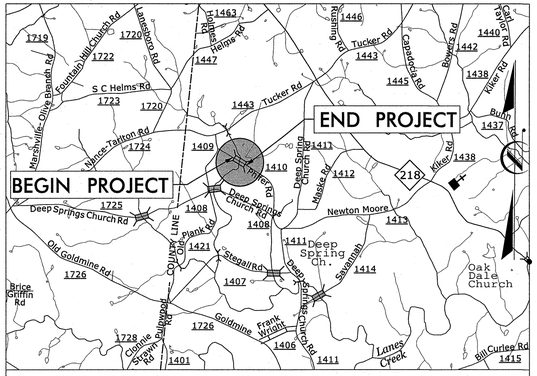
STANDARD DETAIL
WATER
WATER MAIN LOCATIONS AT CULVERTS

Surveyed By	Designed By	Drawn By	Project-Engr	Approved By	Date	Sheet 6	Of

3/6/2013
030310_SHT_UC4_DTLS.dgn
ERIC M. TWEED

09/28/99

PROJECT: 17BP.10.R.32



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
17BP.10.R.32	UO–1

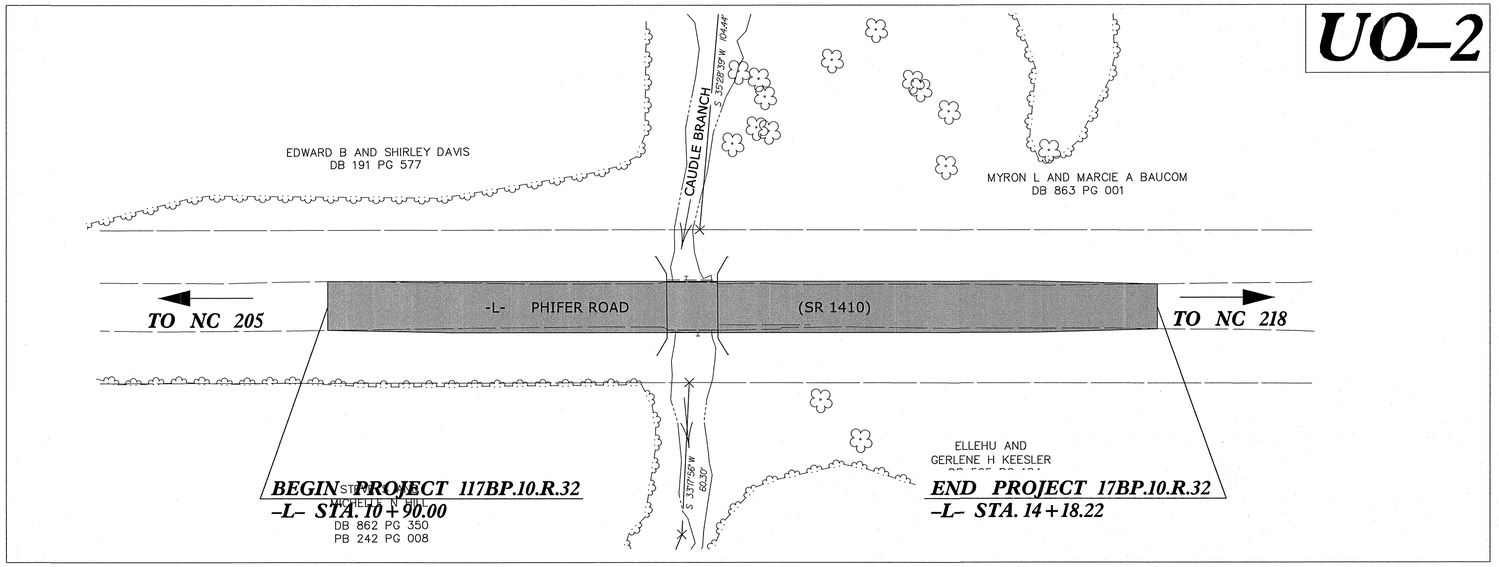
UTILITIES BY OTHERS
ANSON COUNTY

LOCATION: BRIDGE NO. 030310 OVER BRANCH OF LANES CREEK ON SR 1410 (PHIFER ROAD)

TYPE OF WORK: AERIAL UTILITIES

NAD 83/ NSRS 2007

UO–2



GRAPHIC SCALES

20 10 0 20 40
PLANS

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO–1	TITLE SHEET
UO–2	UTILITIES BY OTHERS PLAN SHEET

POWER OWNERS ON PROJECT

(1) POWER – PEE DEE EMC

Travis Wallace
PHONE (910) 997–4441 ext 8842

(2) TELEPHONE – WINDSTREAM

Ross Streater
PHONE (704) 694–4876

PLANS PREPARED BY:

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER

Mary Jo Lee, P.E.

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1591 MAIL SERVICES CENTER
RALEIGH NC 27699–1591
PHONE (919) 707–6690
FAX (919) 250–4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER

3/11/2013
030310_UBO_TSH.dgn
ETWEED

CONTACT INFORMATION FOR UTILITIES

PHONE: WINDSTREAM COMMUNICATIONS;
ROSS STREATER 704-694-4876 ROSS.STREATER@WINDSTREAM.COM

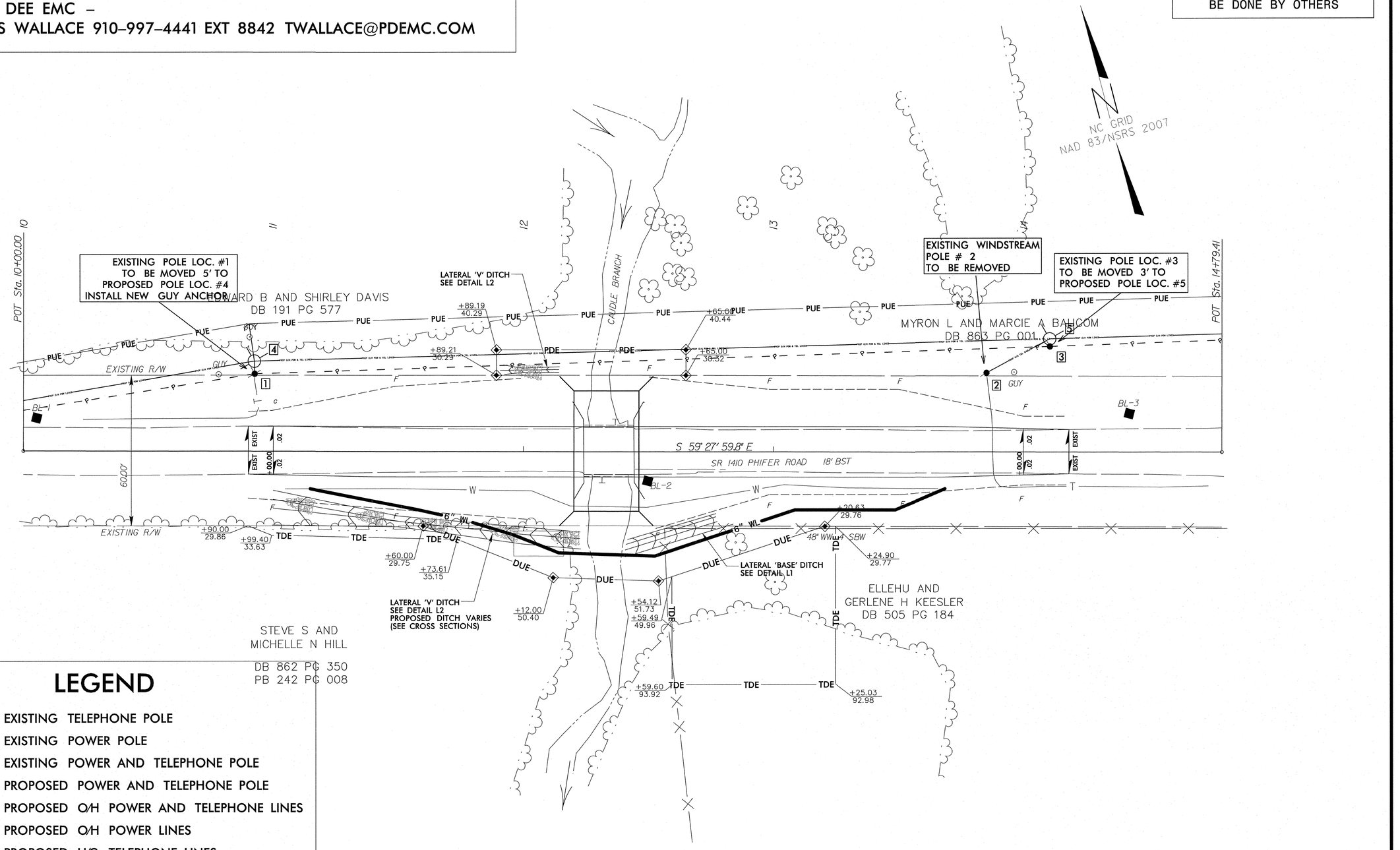
POWER: PEE DEE EMC –
TRAVIS WALLACE 910-997-4441 EXT 8842 TWALLACE@PDEMC.COM

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	UO-2

UTILITIES BY OTHERS

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



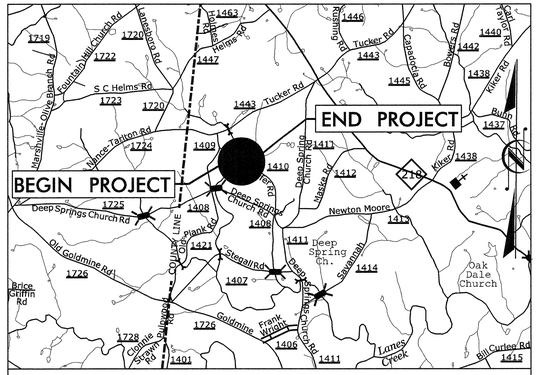
LEGEND

- EXISTING TELEPHONE POLE
- EXISTING POWER POLE
- EXISTING POWER AND TELEPHONE POLE
- PROPOSED POWER AND TELEPHONE POLE
- PROPOSED O/H POWER AND TELEPHONE LINES
- PROPOSED O/H POWER LINES
- PROPOSED U/G TELEPHONE LINES
- EXISTING U/G TELEPHONE LINES
- EXISTING O/H POWER LINES

5/14/99

3/11/2013 30310_UBO.dgn

PROJECT: 17BP.10.R.32



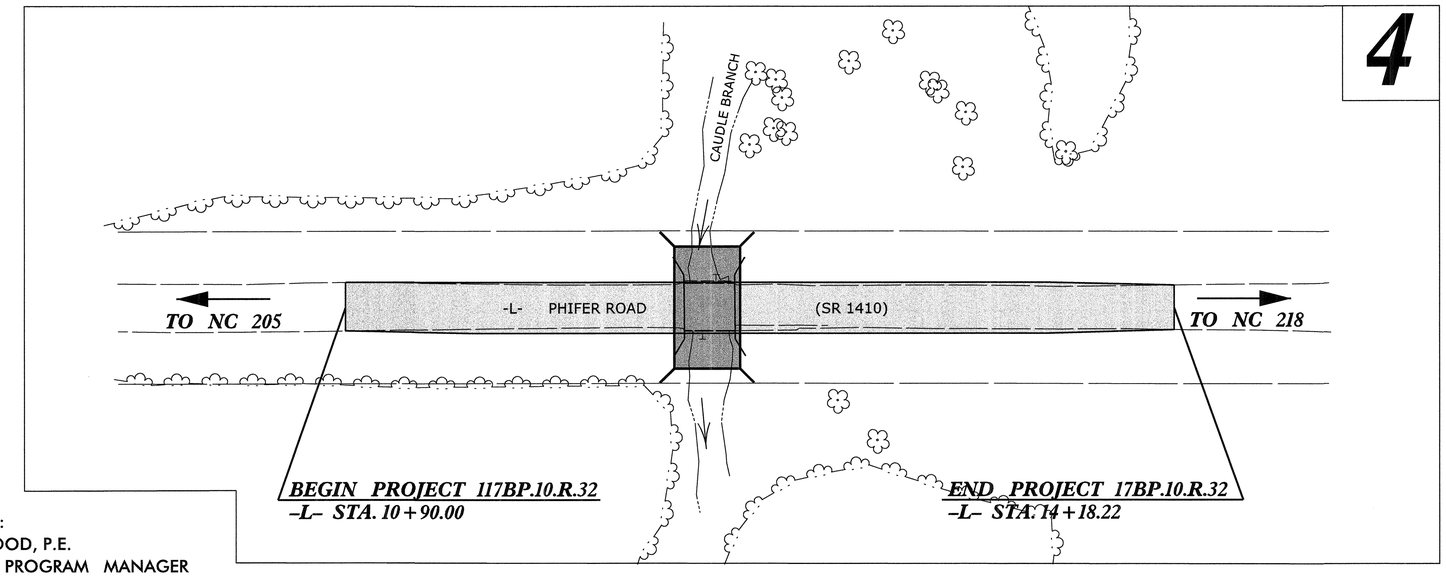
VICINITY MAP N.T.S.

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

LOCATION: BRIDGE #030310 OVER BRANCH OF LANES CREEK ON SR 1410 (PHIFER ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & STRUCTURE

NAD 83 NSRS 2007



NCDOT CONTACT:
GARLAND HAYWOOD, P.E.
DIVISION BRIDGE PROGRAM MANAGER
(704) 983–4400

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.32	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

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	EW CFW
	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.

ROGER WEADON, P.E.
LEVEL IIIA NAME

619
LEVEL IIIA CERTIFICATION NO.

GRAPHIC SCALE

0
PLANS
0
PROFILE (HORIZONTAL)
0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEADON

3/11/13

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

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

3/11/2013
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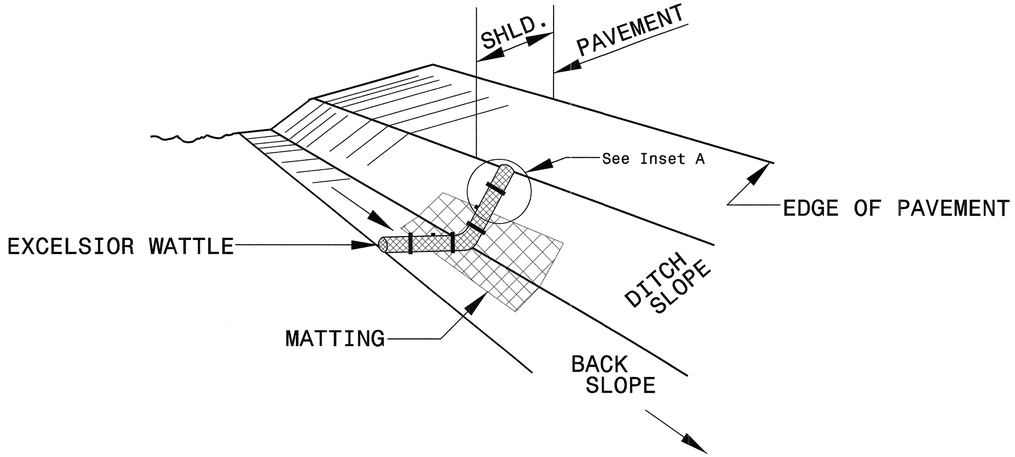
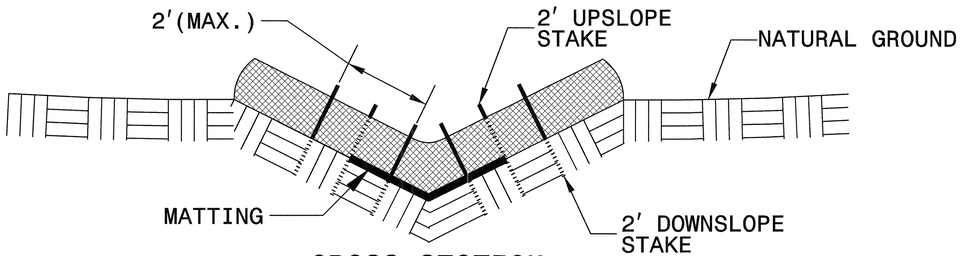
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	EC-2
R/W SHEET NO.	

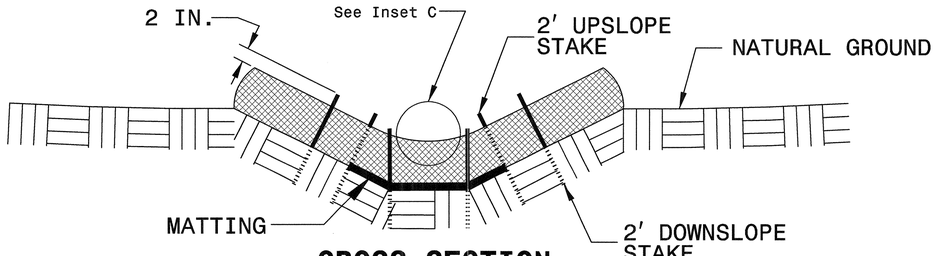
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

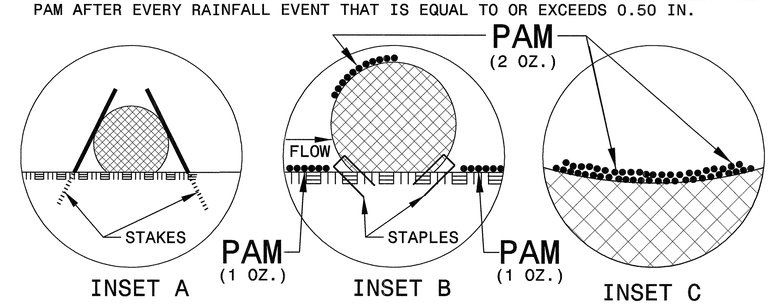
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

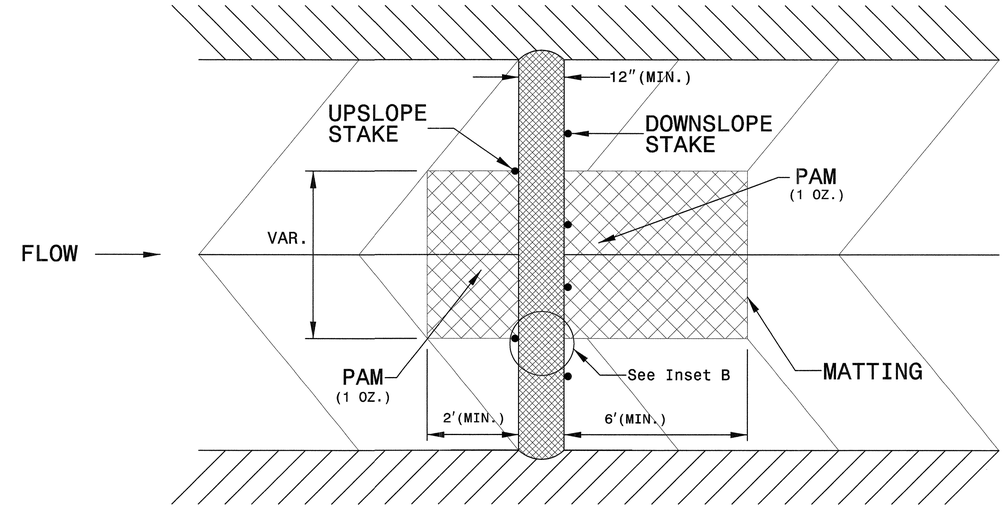
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

REVISIONS

8/17/99

3/7/2013
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PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.32	EC-2A
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEAVER

3/11/13

MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

REVISIONS

8/17/99

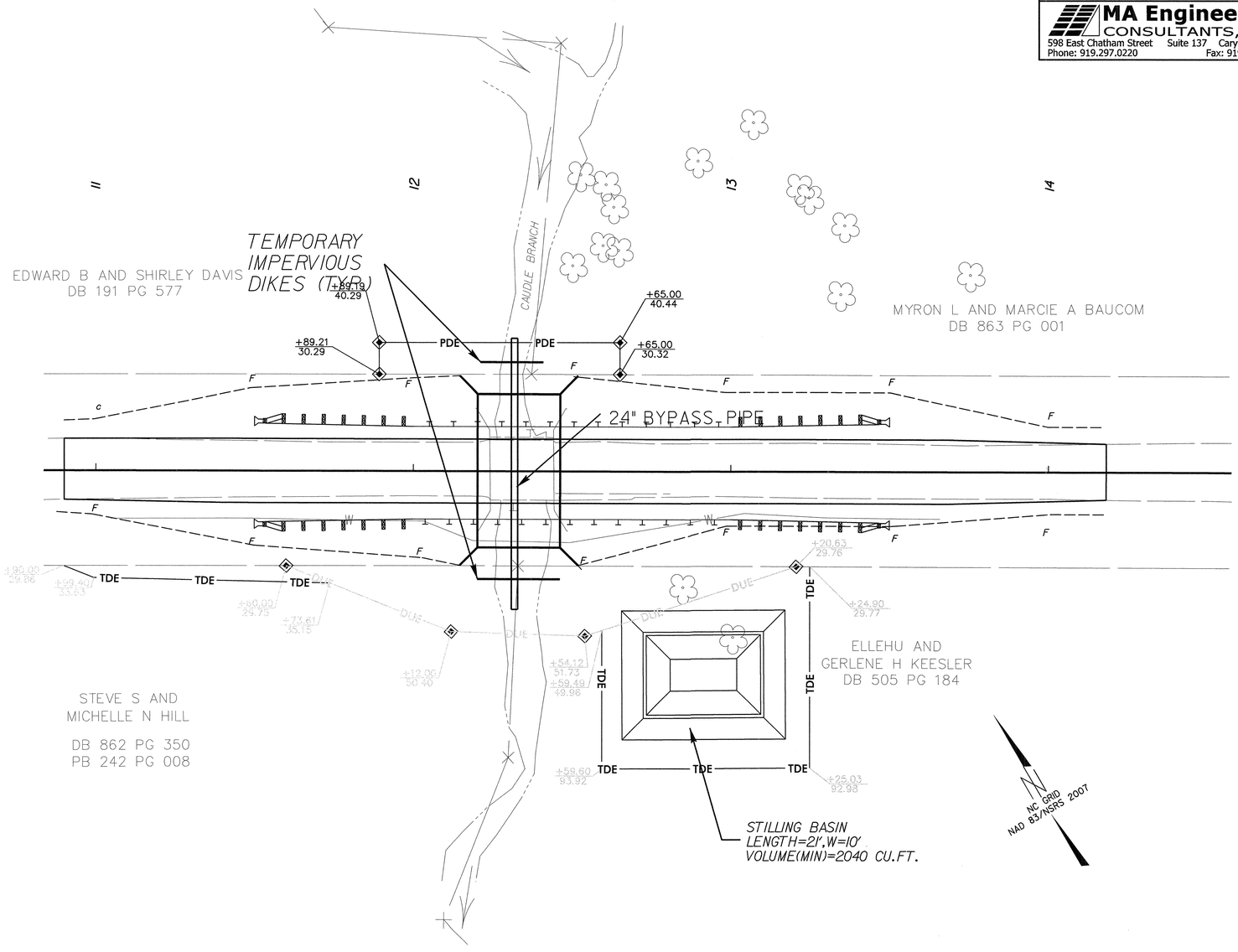
CULVERT CONSTRUCTION SEQUENCE

PHASE 1

1. REMOVE EXISTING BRIDGE
2. CONSTRUCT STILLING BASIN TO SIZE SPECIFIED AND AT LOCATION AS SHOWN.
3. INSTALL TEMPORARY IMPERVIOUS DIKE (CONSTRUCTED OF SAND BAGS) ALONG SOUTHERN BANK OF STREAM AS SHOWN.
4. INSTALL BYPASS PIPE THROUGH THE CENTER OF THE STREAM ** NOTE: THE PUMP AROUND OPTION CAN BE USED AS AN ALTERNATE TO THE BYPASS PIPE.
5. PUMP THE REMAINING WATER FROM THE STREAM INBETWEEN THE DIKES TO THE STILLING BASIN AND OUT TO THE STREAM.
6. INSTALL THE PROPOSED CULVERT (CONSPAN).

PHASE 2

1. STABILIZE STREAM BANKS.
2. REMOVE TEMPERORY DIKE AND BYPASS PIPE.
3. REMOVE STILLING BASIN.



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PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		0
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1090
				TOTAL	1090
				SAY	1100

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.29	EC-3A

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

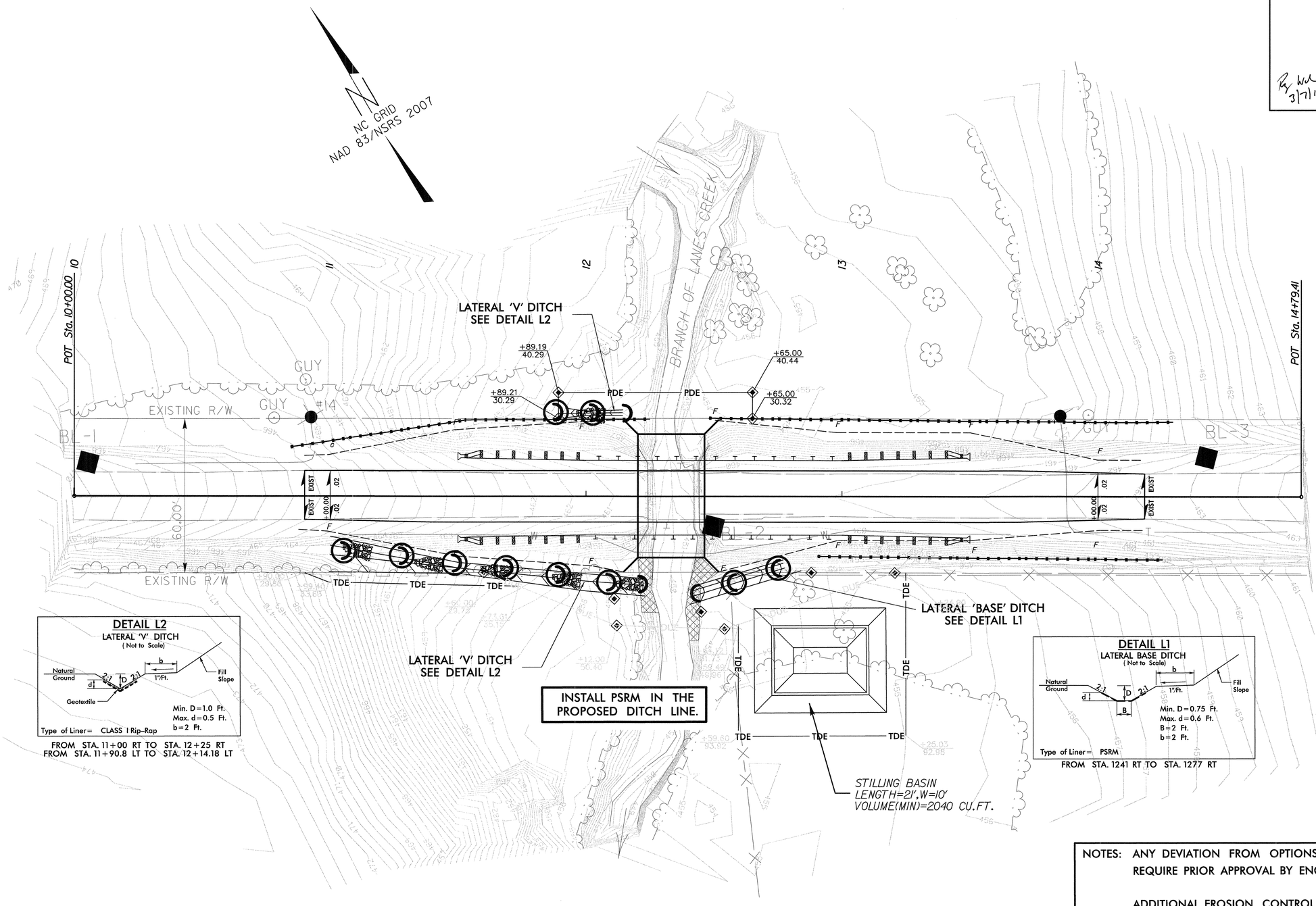
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.32	EC-4
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21656 ENGINEER ROGER S. WEADON

3/7/13



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

REVISIONS

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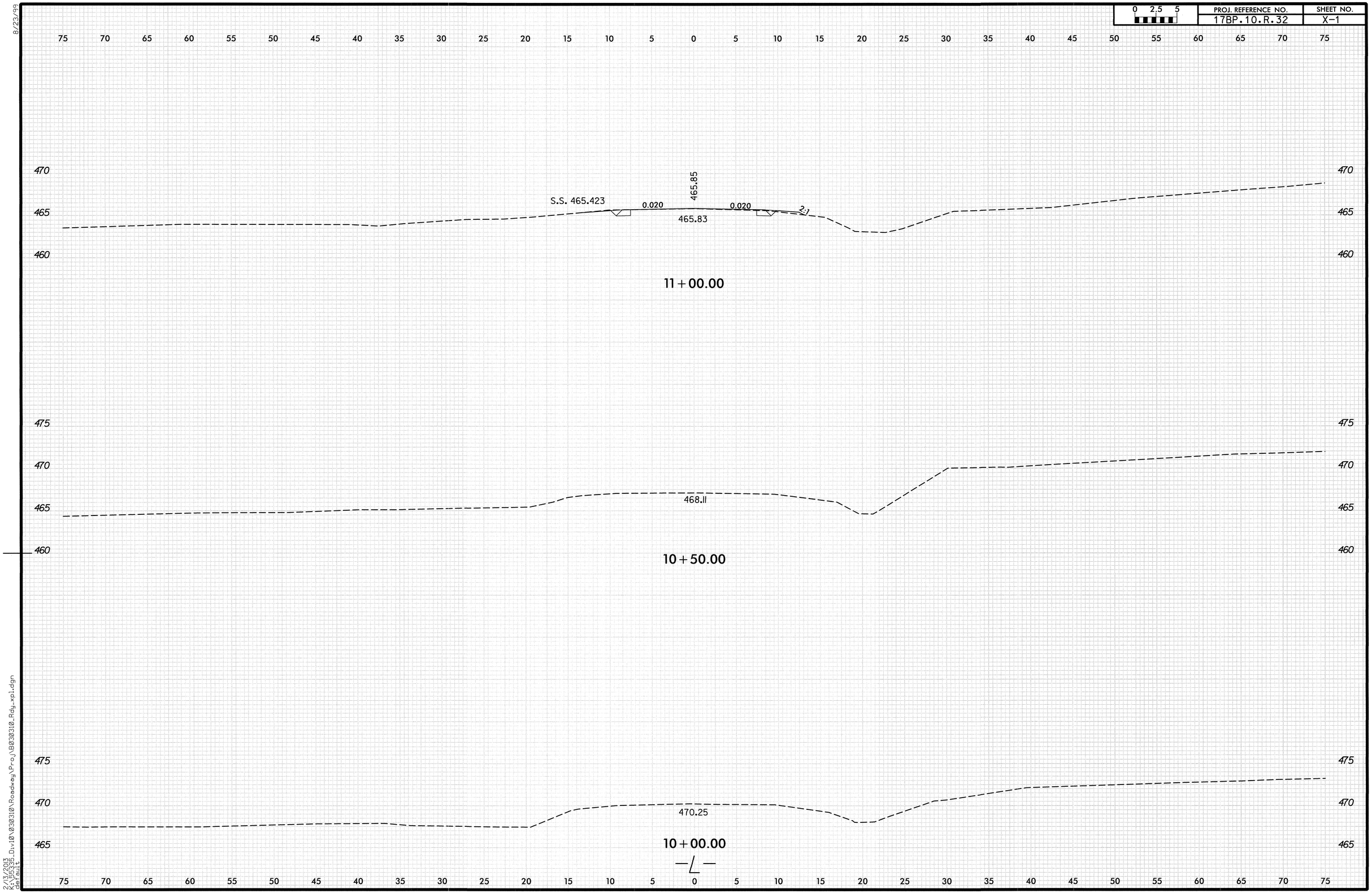

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2/13/2013
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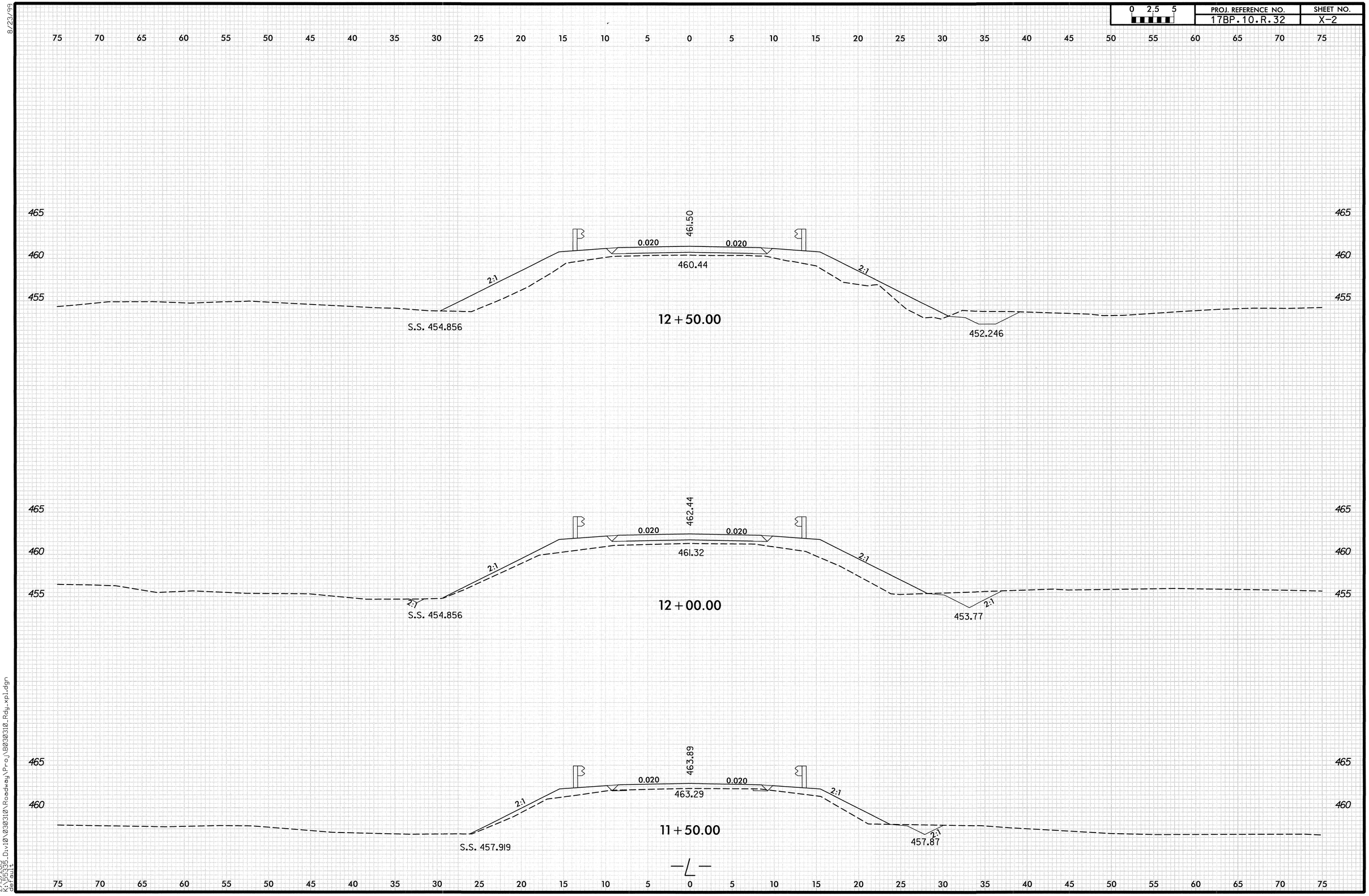
17BP.10.R.32	X-2



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2/13/2013
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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.32	X-3

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460 455

462.85

14+50.00

460 455

461.74

2:1 0.020 0.020 2:1

461.67

S.S. 460.889 S.S. 461.195

14+00.00

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13+50.00

460 455

461.07

2:1 0.020 0.020 2:1

460.52

S.S. 455.250 S.S. 459.689

13+00.00

450

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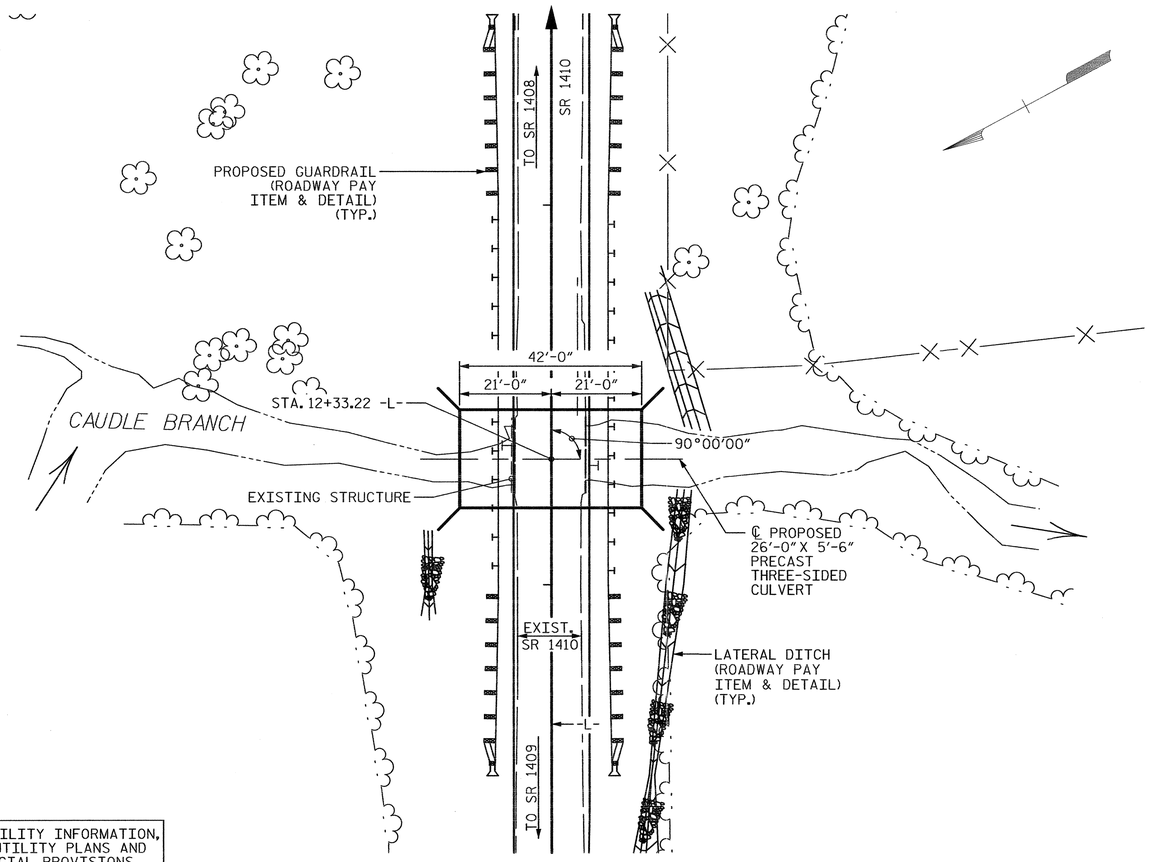
BENCH MARK : IRON NAIL SET IN UTILITY POLE 31.36' LEFT OF STA. 13+85.22 -L- EL. 458.01



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

LOCATION SKETCH

HYDRAULIC DATA

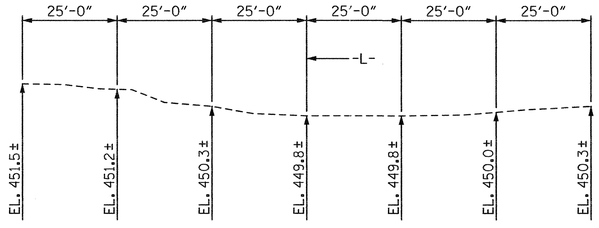
DESIGN DISCHARGE	= 745 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 456.8
DRAINAGE AREA	= 2.0 SQ. MI.
BASE DISCHARGE (Q100)	= 1150 C.F.S.
BASE HIGH WATER ELEVATION	= 458.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1645 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500(-) YRS.
OVERTOPPING FLOOD ELEVATION	= 460.2

GRADE DATA

GRADE POINT ELEV. @ STA. 12+33.22-L-	= 461.76
TOP OF STEM WALL @ STA. 12+33.22	= 452.61
ROADWAY FILL SLOPES	= 2:1



PROFILE ALONG ℄ CULVERT

DRAWN BY : L.M. SAMPLES DATE : 9/14/12
CHECKED BY : R.F. WERTMAN DATE : 10/1/12

NOTES

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

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

CULVERT IS TO BE DESIGNED FOR A MINIMUM FILL DEPTH OF 1'-0" AND A MAXIMUM OF 3'-0".

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.

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

ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2012.

THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS FOR THE PRECAST THREE-SIDED CULVERT, FOUNDATION, AND CAST-IN-PLACE HEADWALLS, WING WALLS AND FOOTINGS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

NO PRECAST WING OR HEADWALL OPTION WILL BE ALLOWED.

THE ENTIRE COST OF THE WORK REQUIRED TO CONSTRUCT THE PRECAST THREE-SIDED CULVERT INCLUDING HEADWALLS, WINGWALLS, AND ALL FOUNDATIONS, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR PRECAST THREE-SIDED CULVERT.

THE PRECAST CULVERT SECTIONS AND CAST-IN-PLACE WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES IN ACCORDANCE WITH THE SPECIFICATIONS SHALL BE LOCATED A MINIMUM HEIGHT OF 6" ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FT.

CAST-IN-PLACE CONCRETE SHALL BE POURED IN THE FOLLOWING ORDER:
1. FOOTINGS
2. STEMWALL
3. HEADWALLS, WINGWALLS

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

THE EXISTING 1 SPAN STRUCTURE (1 @ 20'-5") WITH A CLEAR ROADWAY WIDTH OF 19.2' ON A TIMBER DECK WITH 9 LINES OF W12X27 I-BEAMS ON A SUBSTRUCTURE CONSISTING OF TIMBER CAP END BENTS WITH CONCRETE ENCASED POSTS & SILLS AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+33.22 -L-".

KEY SPREAD FOOTINGS AT LEAST 12" INTO ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 2.5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 5.6 TSF JUST BEFORE INSTALLING FOOTINGS.

THE BOTTOM OF FOOTING ELEVATION MAY BE LOWERED TO SATISY BEARING CAPACITY AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE STANDARD SPECIFICATIONS ARTICLE 410-9.

THE GROUND WATER SHALL BE LOWERED TO A MINIMUM OF 2 FEET BELOW THE FOUNDATION SUBGRADES DURING FOUNDATION AND CULVERT INSTALLATION.

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

THE SCOUR CRITICAL ELEVATION IS THE AS BUILT BOTTOM OF FOOTING ELEVATION. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY BRIDGE MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES
PRECAST REINFORCED CONCRETE THREE SIDED CULVERT @ STA. 12+33.22 --------- LUMP SUM
REMOVAL OF EXISTING STRUCTURE ------- LUMP SUM

PROJECT NO. 17BP.10.R.32

ANSON COUNTY

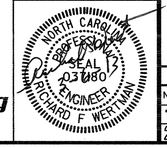
STATION: 12+33.22 -L-

SHEET 1 OF 3 REPLACES BR. #310

PLANS PREPARED BY:

Gannett Fleming

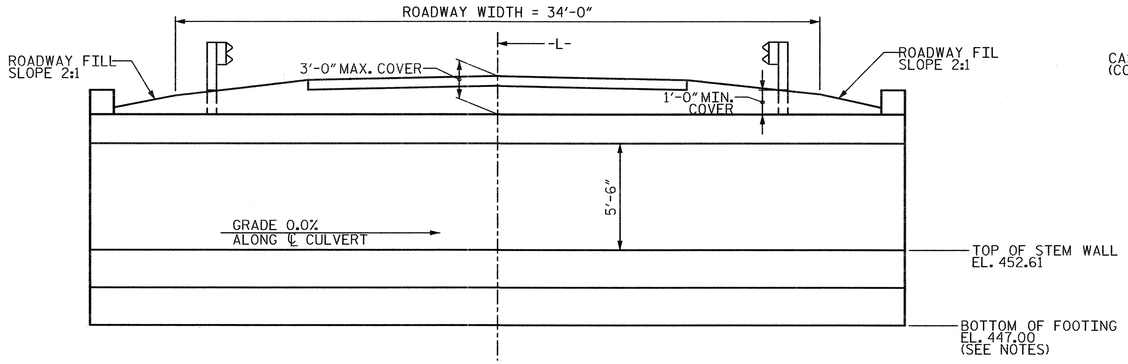
RALEIGH, NORTH CAROLINA



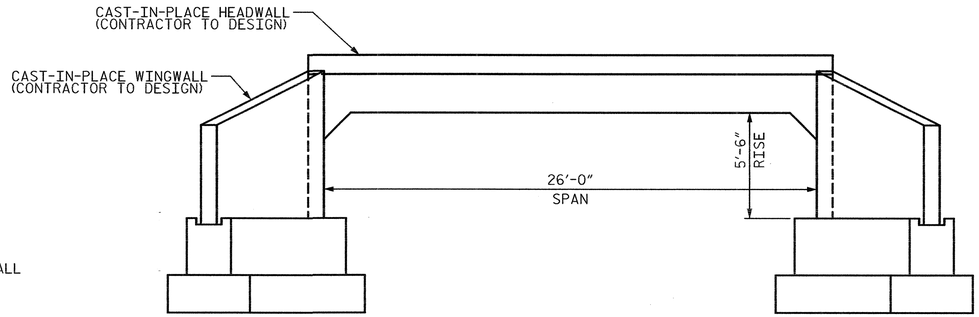
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

26'-0" X 5'-6" PRECAST REINFORCED CONCRETE THREE SIDED CULVERT 90° SKEW

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

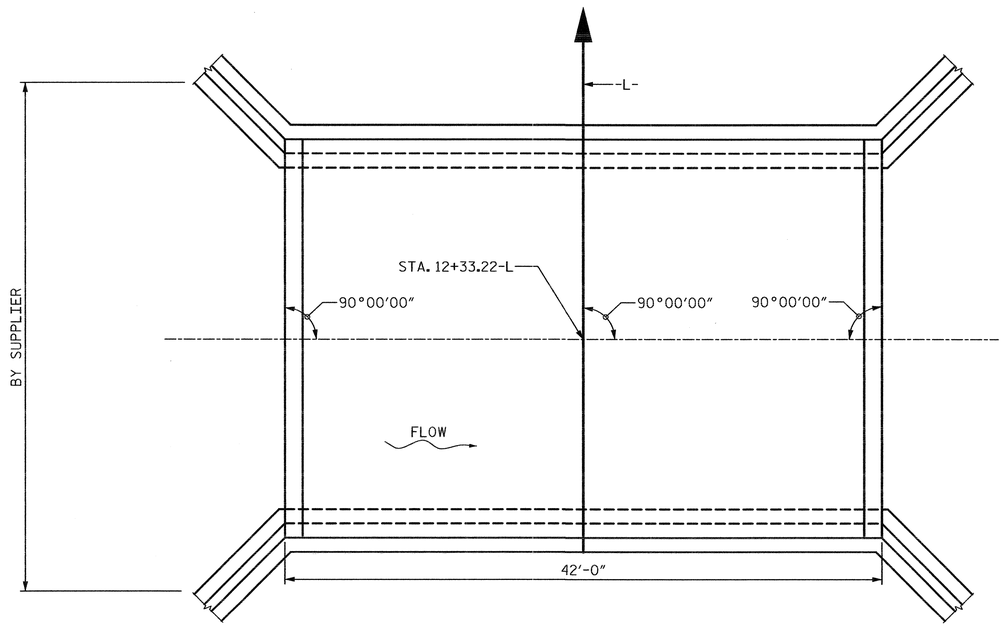


CULVERT SECTION NORMAL TO ROADWAY

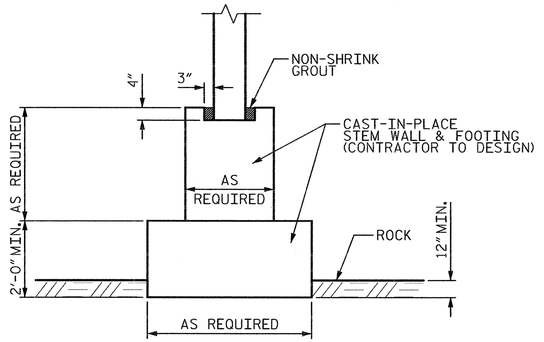


END ELEVATION

(INLET AND OUTLET)



PLAN VIEW



FOOTING DETAIL

(CULVERT AND WINGWALL)

PROJECT NO. 17BP.10.R.32

ANSON COUNTY

STATION: 12+33.22 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

26'-0" X 5'-6" PRECAST REINFORCED CONCRETE THREE SIDED CULVERT 90° SKEW

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

PLANS PREPARED BY:

Gannett Fleming

RALEIGH, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 037180 ENGINEER RICHARD F WERTMAN

DRAWN BY : L.M. SAMPLES DATE : 9/21/12

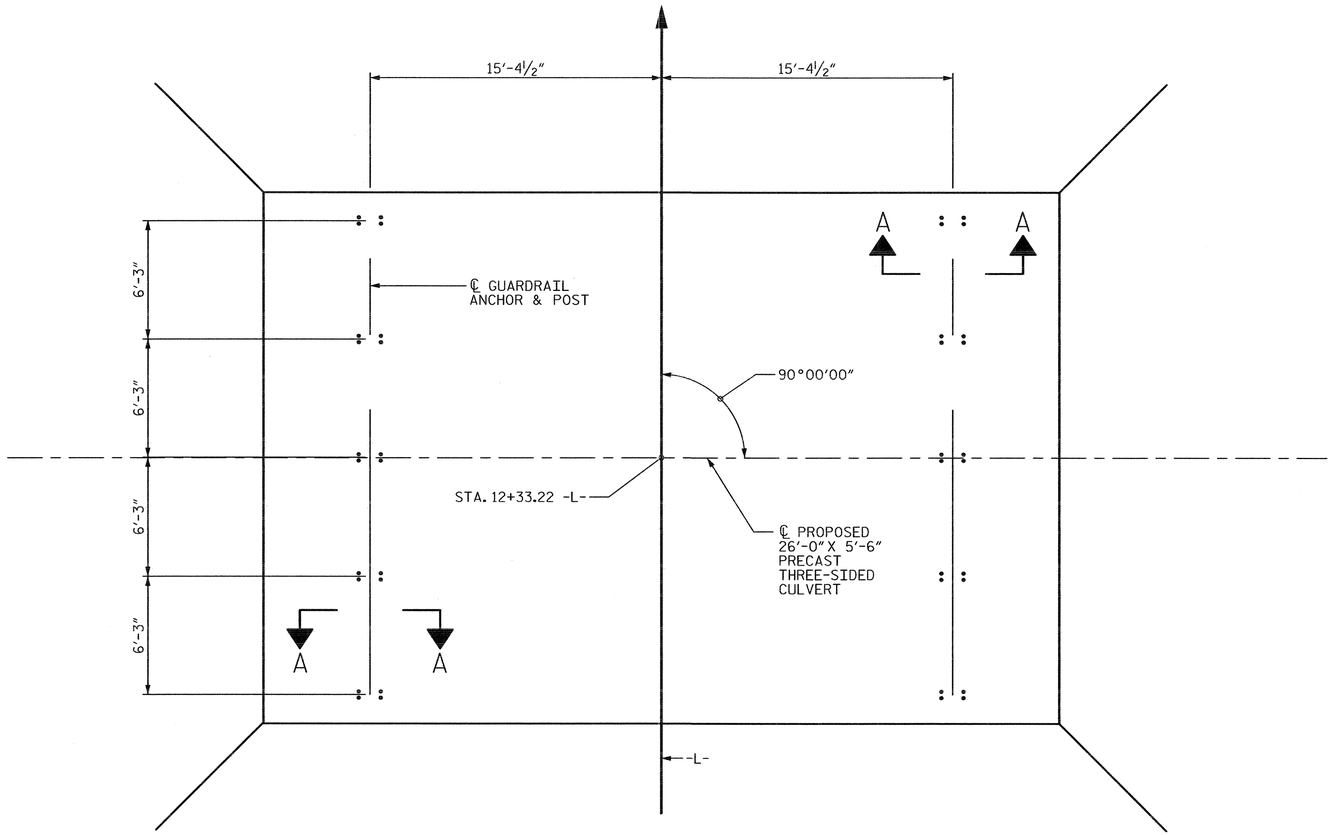
CHECKED BY : R.F. WERTMAN DATE : 10/1/12

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

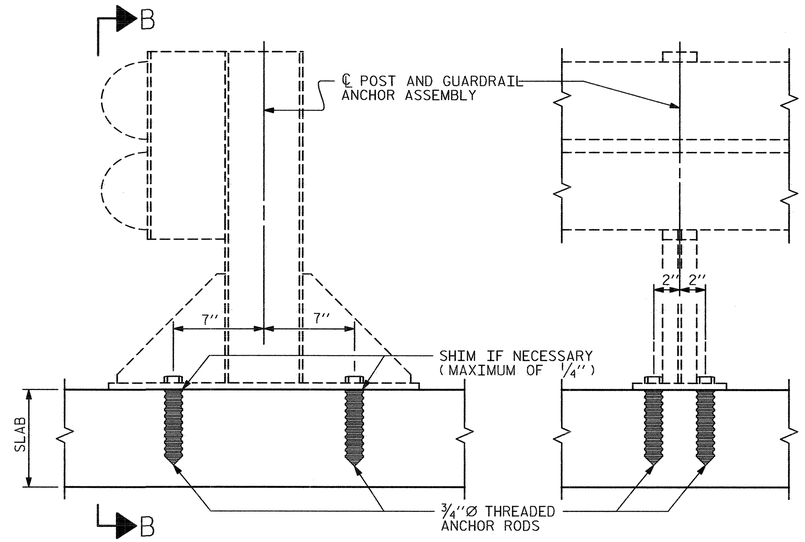
ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE ¾" Ø AND MEET THE REQUIREMENTS OF ASTM A325. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

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



PLAN

NOTE: GUARDRAIL POSTS PLACEMENT AS SHOWN. GUARDRAIL POSTS AND THREADED ANCHOR RODS MUST CLEAR ALL JOINTS OF PRECAST CONCRETE CULVERT UNITS.



SECTION A-A

SECTION B-B

PROJECT NO. 17BP.10.R.32

ANSON COUNTY

STATION: 12+33.22 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

26'-0" X 5'-6" PRECAST REINFORCED CONCRETE THREE SIDED CULVERT 90° SKEW

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

PLANS PREPARED BY:

Gannett Fleming

RALEIGH, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037180 ENGINEER RICHARD F WERTMAN

DRAWN BY : L.M. SAMPLES DATE : 9/20/12

CHECKED BY : R.F. WERTMAN DATE : 10/1/12