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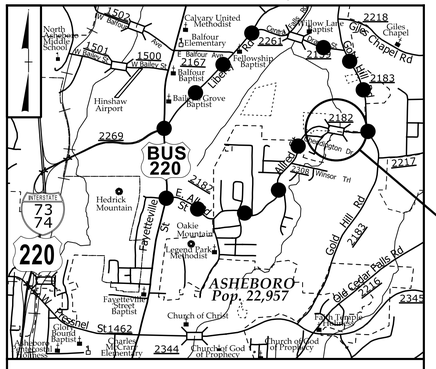
09/08/99

TIP PROJECT: 17BP.8.R.101

CONTRACT: DH00220

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.101	1	

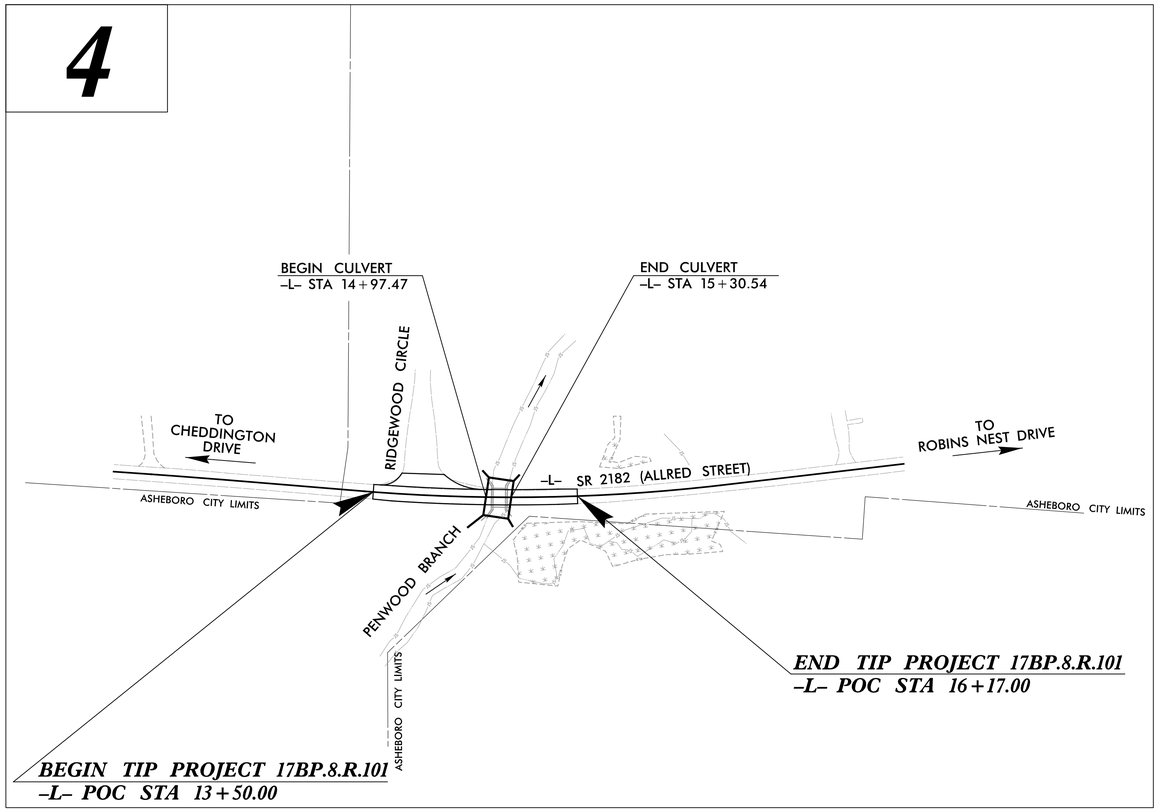
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.8.R.101		P.E.

LOCATION: REPLACE BRIDGE NO. 371 OVER PENWOOD BRANCH ON SR 2182 (ALLRED STREET)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

NAD 83/NA 2011

4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT (2016) = 815
ADT (2036) = 1365
K = %
D = %
T = 7 % *
V = 40 MPH
* TTST = % DUAL %
FUNC CLASS = COLLECTOR
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.8.R.101 = 0.051 MILES

TOTAL LENGTH TIP PROJECT 17BP.8.R.101 = 0.051 MILES

Prepared for the North Carolina Department of Transportation In the office of:

HDR | ICA

ICA Engineering, Inc.
5121 Kingdom Way, Suite 100
Raleigh, NC 27607
NC License No: F–0258

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 17, 2016

LETTING DATE: JANUARY 24, 2017

DENA C. SNEAD, PE
PROJECT ENGINEER

ALEXANDER D. SNIDER, PE
PROJECT DESIGN ENGINEER

TIM WELCH, PE
NCDOT CONTACT
DIV 8 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

TRENTON J. CORMIER
DocuSigned by: 12/14/2016
SIGNATURE: P.E.

SEAL 034364 ENGINEER TRENTON J. CORMIER

ROADWAY DESIGN ENGINEER

ALEXANDER D. SNIDER
DocuSigned by: 12/14/2016
SIGNATURE: P.E.

SEAL 041473 ENGINEER ALEXANDER D. SNIDER

DEPARTMENT OF TRANSPORTATION • STATE OF NORTH CAROLINA •

12/14/2016
RANDJ37RDY_TSH.dgn
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PROJECT REFERENCE NO.	SHEET NO.
17BP.8.RJ01	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D SNIDER
DocuSigned by: Alexander D. Snider
12/15/2016

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INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, CenturyLink,

Piedmont Natural Gas, Time Warner Cable and City of Asheboro

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

12/15/2016
K:\Projects\Pro\RAND371_RDY_TSH_01A.dgn
ICA ENGINEERING,INC.

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.RJ01	1B

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

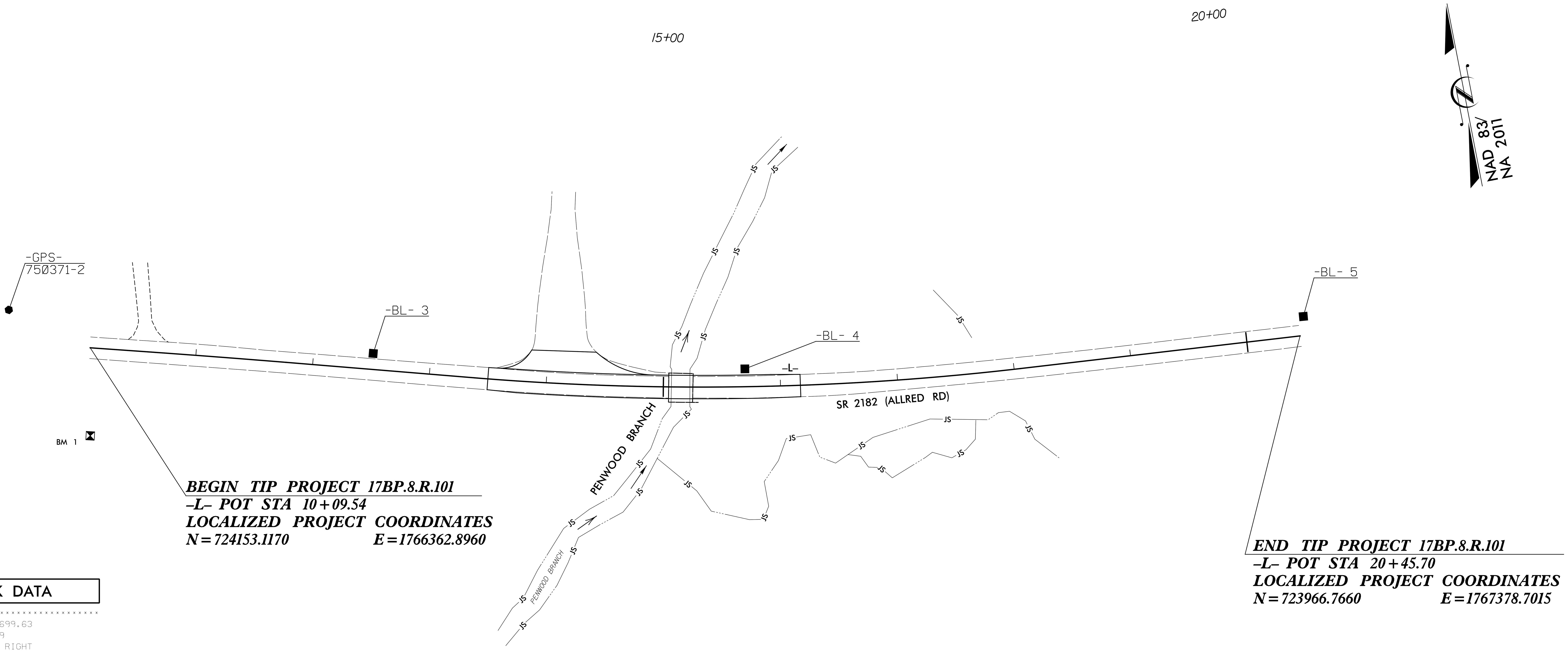
SANITARY SEWER:

- 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.

17BP.8.R.101 SURVEY CONTROL SHEET



BENCHMARK DATA

BM1 ELEVATION = 699.63
N 724079 E 1766349
BL STATION 11+20.00 98 RIGHT
RR SPIKE IN 20" POPLAR

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "750371-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 724198.070(ft) EASTING: 1766300.839(ft)
ELEVATION: 709.87(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879204
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "750371-2" TO -L- STATION 10+09.54 IS
S 54°04'51.92" E 76.63'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS 750371-1	724081.5099	1765775.6516	738.33	OUTSIDE PROJECT LIMITS	
2	GPS 750371-2	724198.0700	1766300.8390	709.87	OUTSIDE PROJECT LIMITS	
3	BL-3	724102.4190	1766599.0987	695.23	12+50.67	13.63 LT
4	BL-4	724029.2182	1766908.1116	675.00	15+69.84	15.22 LT
5	BL-5	723982.5535	1767384.6213	696.00	OUTSIDE PROJECT LIMITS	

NOTES

1. *THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY NCDOT. CONTROL POINTS PROVIDED ARE AS FOLLOWS:*

750371-1	*N=724081.5099*	*E=1765775.6515*	*ELEV.=738.330*
750371-2	*N=724198.0700*	*E=1766300.8390*	*ELEV.=709.870*

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

⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.*

◆ *INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.*

NOTE: DRAWING NOT TO SCALE

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PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D. SNIDER

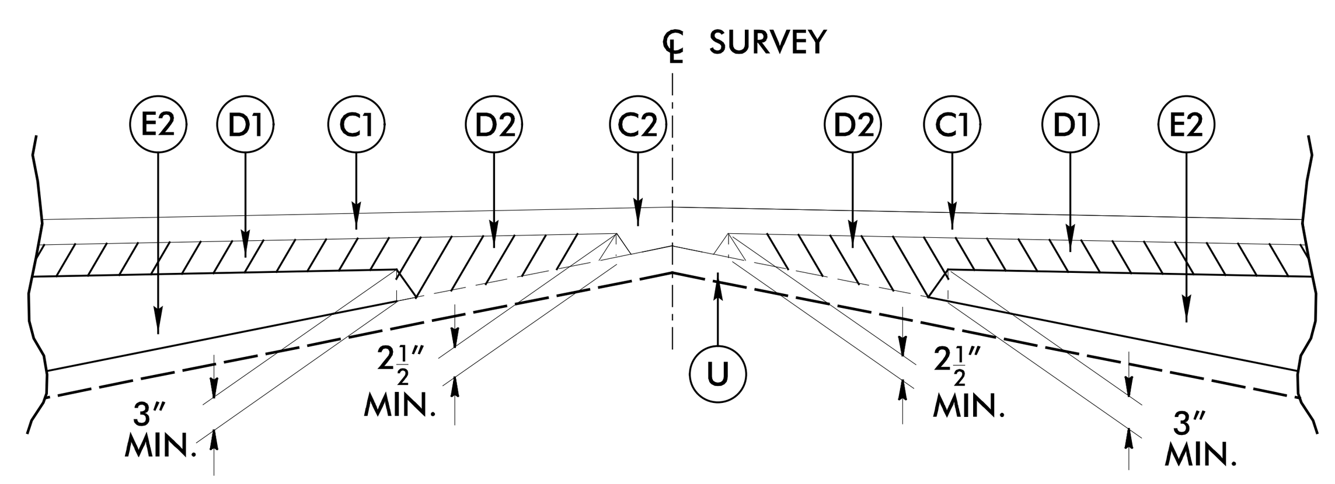
DocuSigned by: Alexander D. Snider 12/14/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

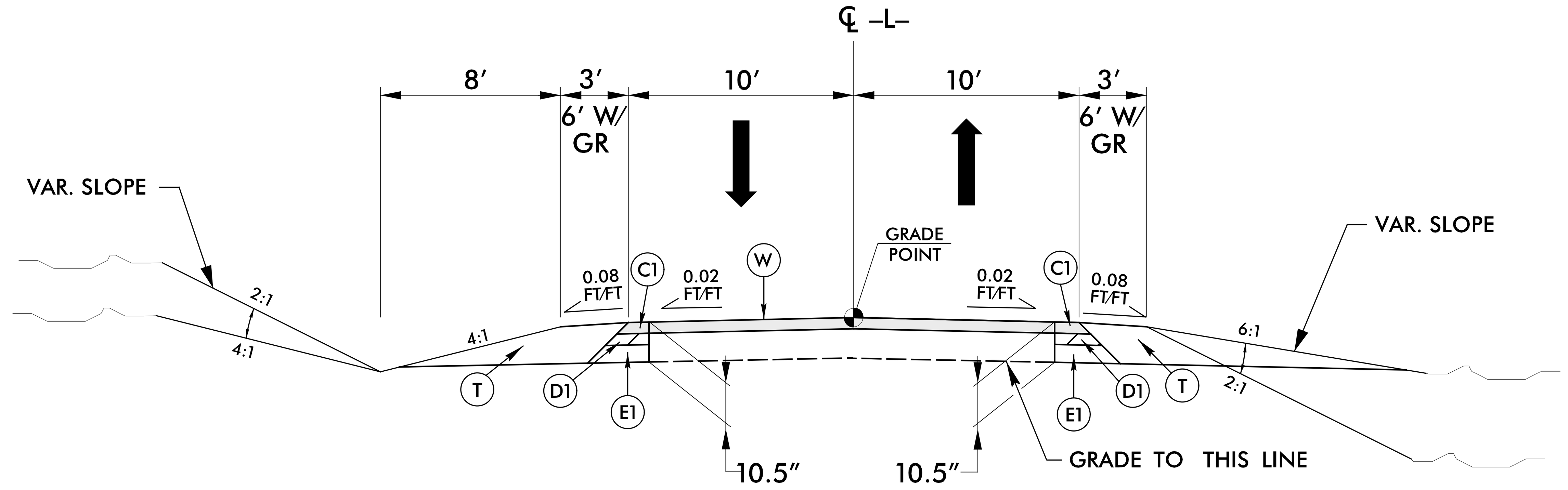
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0X, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING)

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



Detail Showing Method of Wedging
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

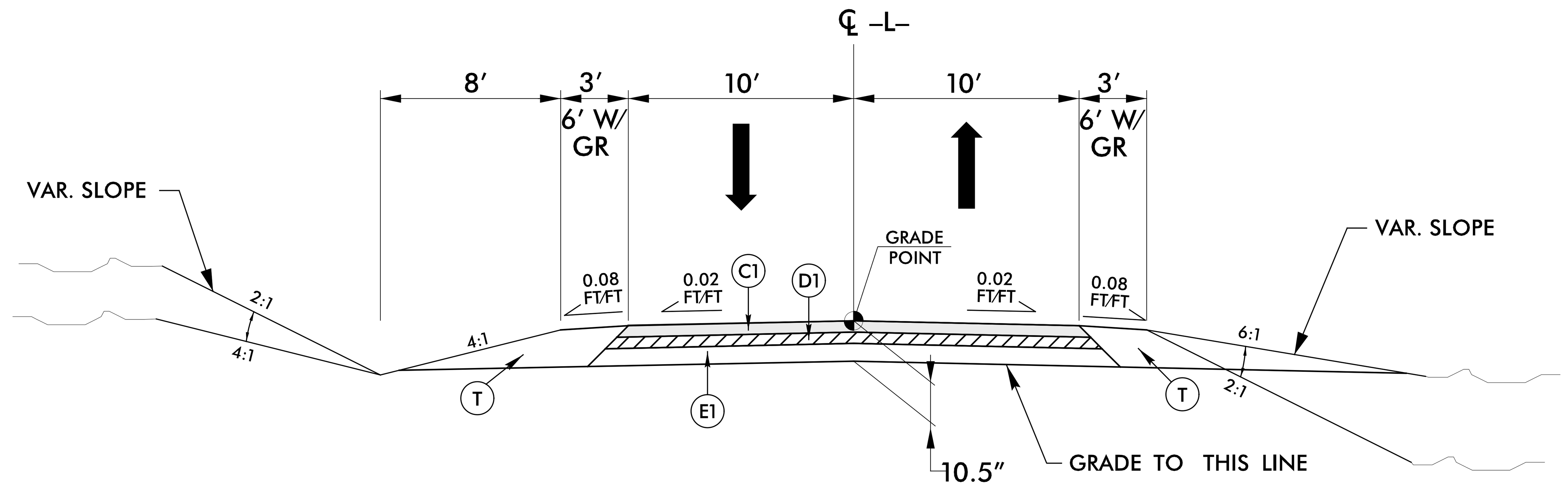


TYPICAL SECTION NO. 1

-L-

USE TYPICAL SECTION NO. 1 FROM:

-L- STA 13+50.00 TO -L- STA 14+90.00
-L- STA 15+40.00 TO -L- STA 16+17.00

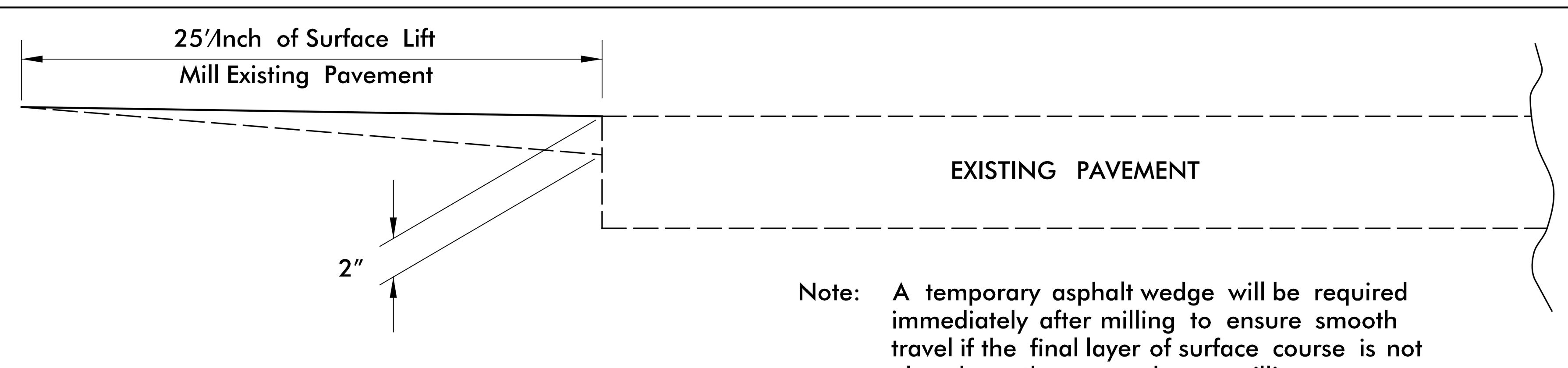


TYPICAL SECTION NO. 2

-L-

USE TYPICAL SECTION NO. 2 FROM:

-L- STA 14+90.00 TO -L- STA 15+40.00



Note: A temporary asphalt wedge will be required immediately after milling to ensure smooth travel if the final layer of surface course is not placed on the same day as milling.

Incidental Milling Pavement Key-In Detail (Tie-In)

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
13+50.00	16+17.00	17	239	222	
SUBTOTALS:		16	239	222	
SHOULDER MATERIAL			20	20	
PROJECT TOTALS:		17		242	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				12	
GRAND TOTALS:		17		254	
SAY:		20		300	

DDE (CY) = 120

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	14+90.00	15+05.00	CL	30
-L-	15+25.00	15+40.00	CL	31
			TOTAL:	61
			SAY:	70

"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 TL-2	M-350	XIII	CAT-1	VI MOD	B-77	TES	EA	G	NG				
-L-	14+45.00	15+85.00	RT	145			15+35.00	15+35.00	3	6	25	25	1	1			2													
-L-	14+50.00	15+85.00	LT	130			15+35.00	15+35.00	3	6	25	25	1	1			2													
	TOTAL			275													4													
	DEDUCTIONS FOR	ANCHOR UNITS		100																										
	SAY			175													4													NOTE: 5 EACH ADDITIONAL GUARDRAIL POSTS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.RJ01	4
R/W SHEET NO.	

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NC License No: F-0258

ROADWAY DESIGN ENGINEER
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DocuSigned by: Alexander D. Snider FD61A6 12/14/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034364 ENGINEER TRENTON J. CORMIER
DocuSigned by: Trenton J. Cormier 12/14/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

-L-	
PI Sta 11+18.23	PI Sta 15+72.79
△ = 0° 39' 17.3" (RT)	△ = 11° 19' 52.0" (LT)
D = 0° 33' 13.8"	D = 2° 25' 40.0"
L = 118.23'	L = 466.73'
T = 59.11'	T = 234.13'
R = 10,345.10'	R = 2,360.00'
	SE = SEE PLANS

CLASS II RIP RAP 2' THICK W/ GEOTEXTILE (TYP.)

1' (TYP.) 2:1(MAX.) 1' 2:1(MAX.) SILL WITH NOTCH

CULVERT BURIED 1' BACKFILL WITH NATIVE MATERIAL PER SPEC. 0'-5' 21'-26' 0'-8' 32'-9"

20+00

OUTLET CHANNEL (LOOKING DOWNSTREAM)

EXCAVATION DDE = 58 CY

CHARLES E. MOORE DB 1733 PG 1451 PB 80 PG 50

CLARENCE RAY EVANS JR. AND MARGARET EVENA DB 1938 PG 297 PB 80 PG 50

MICHAEL A. DAVIS AND ANNIE H. DAVIS DB 1838 PG 921 PB 80 PG 50

-GPS- 750371-2

-L- PC 13+38.67

-L- POT 10+09.54

-L- PC 10+59.11

-L- PT 11+77.34

15+00

-L- PT 18+05.39

20 LF OF OUTLET CHANNEL IMPROVEMENT EST. 40 TONS CL II RIP RAP EST. 40 SY GEOTEXTILE

4 MCDOWELL TIMBER COMPANY DB 2406 PG 1000 PB 70 PG 73

3 D.L. BUNCE DB 2188 PG 1826 PB 79 PG 95

JIMMY EUGENE LUCAS AND GAIL H. LUCAS DB 1501 PG 500

1 JTP PROPERTIES, LLC DB 1692 PG 992

2 LLOYD J. HAMLET DB 683 PG 138 PB 14 PG 20

SHARON M. VOGT DB 2068 PG 1849 PB 103 PG 74

OSCAR ORTIZ SAUREZ AND HILDA BAHENA DECORTEZ DB 2136 PG 188 PB 103 PG 74

-L- POT 20+45.70

-BL- 5

ASHEBORO CITY LIMITS

-BL- 3

-BL- 4

BM 1

BEGIN TIP PROJECT 17BP.8.R.101
-L- POC STA 13+50.00

BEGIN CULVERT
-L- POC STA 14+97.47

20 LF OF INLET CHANNEL IMPROVEMENT EST. 65 TONS CL II RIP RAP EST. 80 SY GEOTEXTILE

END CULVERT
-L- POC STA 15+30.54

END TIP PROJECT 17BP.8.R.101
-L- POC STA 16+17.00

DAVID S. WHITAKER AND BARBARA H. WHITAKER DB 1953 PG 1321 PB 14 PG 20

LINDSDOWNE LAKES LANE

CHEDDINGTON DRIVE

32'-9" x 12'-0" ALUMINUM BOX CULVERT

2' (TYP.) 2:1 1' 2:1 SILL WITH NOTCH AT INLET AND OUTLET

6' APPROX. 21' LOW FLOW CHANNEL 6' APPROX.

INTERNAL BOX CULVERT SECTION

CLASS II RIP RAP 2' THICK W/ GEOTEXTILE (TYP.)

1' (TYP.) 2:1(MAX.) 1' 2:1 2:1(MAX.) SILL WITH NOTCH

CULVERT BURIED 1' BACKFILL WITH NATIVE MATERIAL PER SPEC. 0'-5' 18'-21' 0'-8' 32'-9"

EXCAVATION DDE = 54 CY

INLET CHANNEL (LOOKING DOWNSTREAM)

NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOOD BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.

FOR -L- PROFILE, SEE SHEET 5

12/14/2016
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ICA ENGINEERING, INC.

8/17/99

–L–

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5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.RJ01	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041473 ENGINEER ALEXANDER D SNIDER

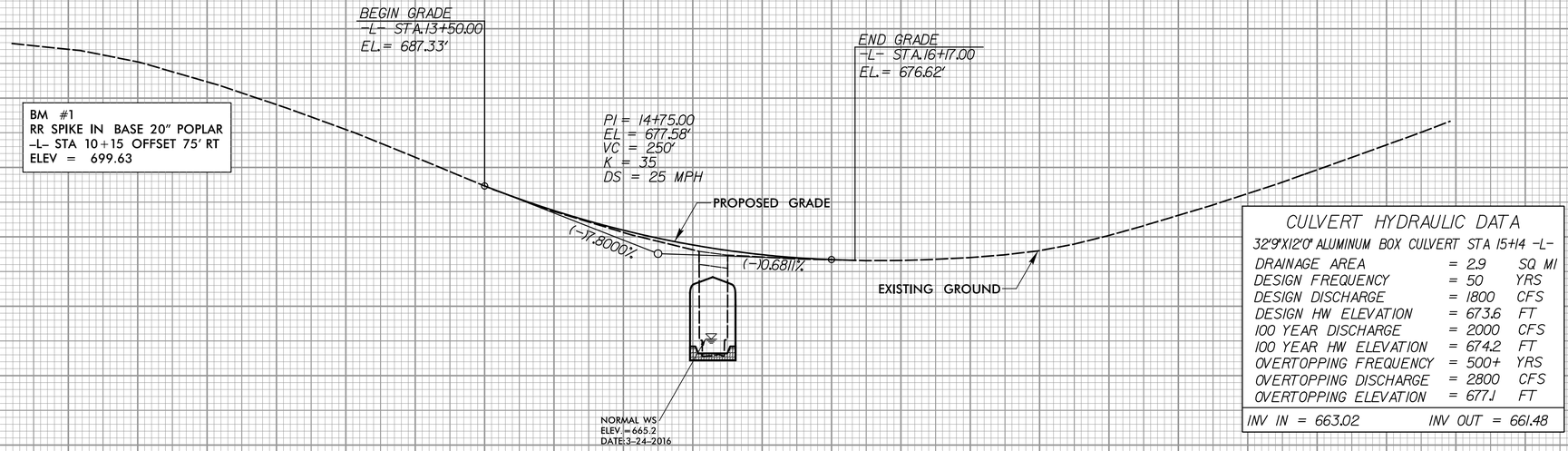
DocuSigned by: Alexander D. Snider 12/14/2016
FD61A6

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034364 ENGINEER TRENTON J CORMIER

DocuSigned by: Trenton J. Cormier 12/14/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CULVERT HYDRAULIC DATA

32'9"X12'0" ALUMINUM BOX CULVERT STA 15+14 –L–

DRAINAGE AREA	= 2.9	SQ MI
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 1800	CFS
DESIGN HW ELEVATION	= 673.6	FT
100 YEAR DISCHARGE	= 2000	CFS
100 YEAR HW ELEVATION	= 674.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 2800	CFS
OVERTOPPING ELEVATION	= 677.1	FT

INV IN = 663.02 INV OUT = 661.48

FOR –L– PLAN, SEE SHEET 4

12/13/2016
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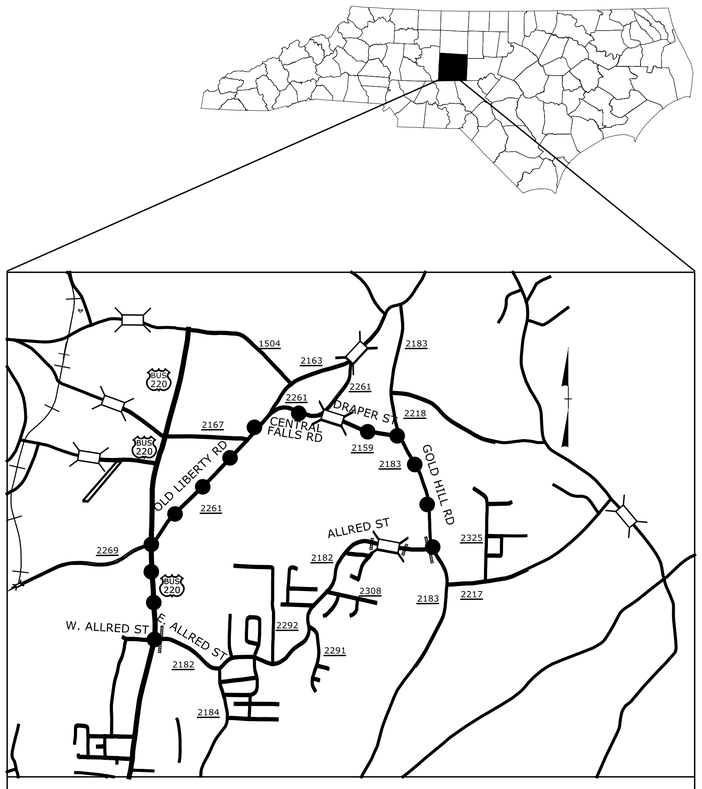
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

RANDOLPH COUNTY



VICINITY MAP

DETOUR ROUTE

LOCATION: *REPLACE BRIDGE NO. 371 OVER PENWOOD BRANCH ON SR 2182 (ALLRED ST)*

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

INDEX OF SHEETS

SHEET NO.
TMP-1

17BP.8.R.101

TIP PROJECT:

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
M. STEELMAN — *TRAFFIC CONTROL PROJECT ENGINEER*
M. T. RZEPKA, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
_____ — *TRAFFIC CONTROL DESIGN ENGINEER*

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

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APPROVED: DocuSigned by: Michael T. Rzepka — 018C3480C26049D...

DATE: 12/14/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

12/12/2016
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ICA Engineering

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

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PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.101	TMP-1A

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C26049D...

DATE: 12/14/2016

SEAL

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

ROADWAY STANDARD DRAWINGS & LEGEND

12/12/2016
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NC License No: F-0258

PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.101	TMP-1B

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

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

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

LOCAL NOTES

1) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

MANAGEMENT STRATEGY

THIS PROJECT CONSISTS OF REPLACING BRIDGE NO. 371 OVER PENWOOD BRANCH ON SR 2182 (ALLRED ST). DURING CONSTRUCITON, SR 2182 (ALLRED ST) WILL BE CLOSED AT THE CONSTRUCTION LIMITS AND TRAFFIC WILL BE PLACED ON AN OFF-SITE DETOUR ALONG US 220 BUS, OLD LIBERTY RD, CENTRAL FALLS RD, DRAPER ST AND GOLD HILL RD.

SR 2182 (ALLRED ST) WILL BE REOPENED TO 2-LANE/2-WAY TRAFFIC UPON COMPLETION OF CONSTRUCTION.

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9), INSTALL ROAD CLOSURE AND DETOUR SIGNS. CLOSE SR 2182 (ALLRED ST) AND DETOUR TRAFFIC.

STEP 2

REMOVE EXISTING BRIDGE.

STEP 3

CONSTRUCT PROPOSED STRUCTURE AND ROADWAY.

STEP 4

PLACE FINAL PAVEMENT MARKINGS AND MARKERS ON SR 2182 (ALLRED ST) AND OPEN ROAD TO TRAFFIC.

STEP 5

REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

APPROVED: DocuSigned by: Michael T. Rzepka 010C3480C26049D...

DATE: 12/14/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

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

TRANSPORTATION OPERATIONS PLAN

12/12/2016
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PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.101	TMP-2

SIGN NUMBER: ALLRED STREET BACKG COLOR: Fluorescent Orange
TYPE: STATIONARY COPY COLOR: Black
QUANTITY: SEE PLANS

SIGN WIDTH: 2′-6″
HEIGHT: 2′-0″
TOTAL AREA: 5.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

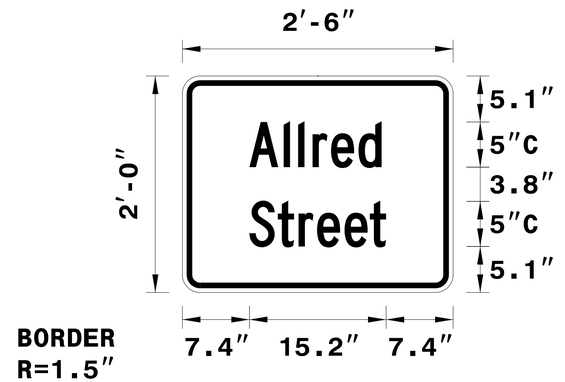
MAT′L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

DESIGN BY: MTR CHECKED BY:
PROJECT ID: 17BP.8.R.101 DIV: 8

DATE: Jul 18, 2016



BORDER
R=1.5″
TH=0.63″
IN=0.47″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																									Series/Size Text Length
		A	l	l	r	e	d																		C 2000
	7.4	3.8	1.6	1.6	2.1	3.1	2.6	7.9																	14.7
		S	t	r	e	e	t																		C 2000
	7.4	3.2	2.3	2	3.1	2.8	1.8	7.4																	15.2

FILENAME: rand371_tmp_spec_sign_2

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C260490...
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SEAL

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

ALLRED STREET
SIGN DESIGN

12/12/2016
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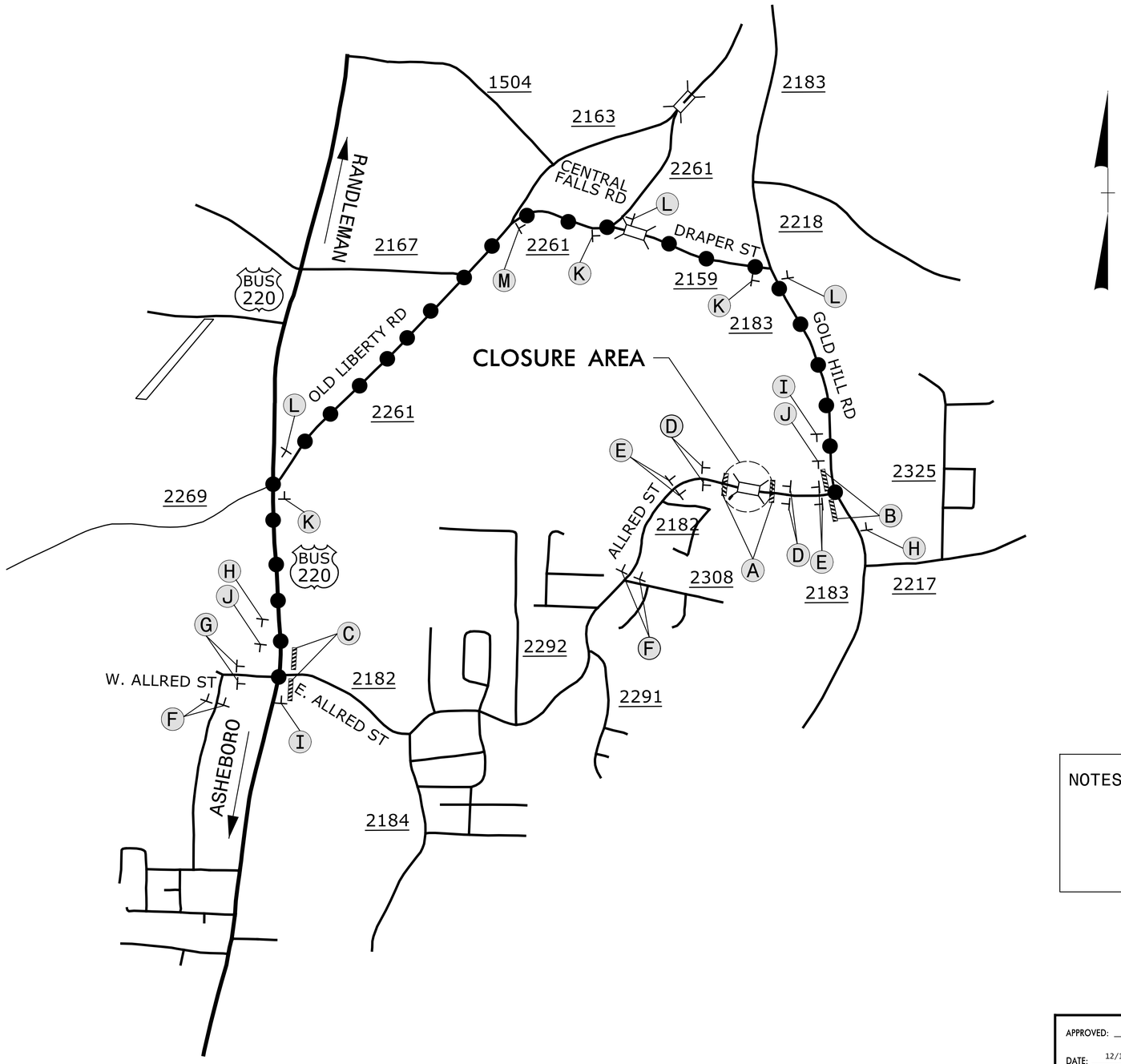
PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.101	TMP-3



DETOUR ROUTE

NOTES: SEE SHEET TMP-4 FOR ROAD CLOSURE SIGNS AND DETOUR SIGNS

REFER TO RSD 1101.03 (SHEET 1 OF 9) FOR APPLICABLE NOTES

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DATE: 12/14/2016

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NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T RZEPKA

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

DETOUR FOR ALLRED ST.

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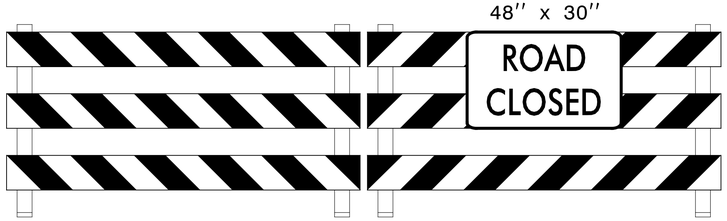
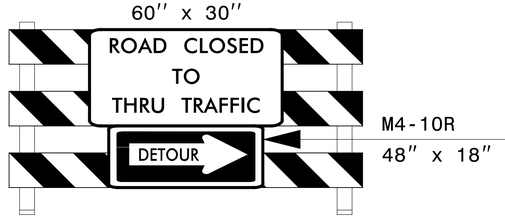
PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.101	TMP-4



TYPE III BARRICADE(S)

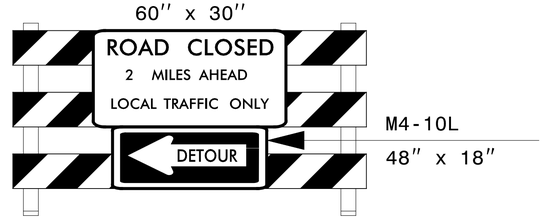
A

-L- STA 13+50±
-L- STA 20+50±



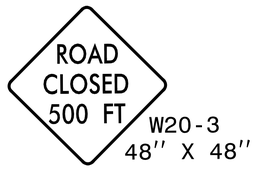
TYPE III BARRICADE

B



TYPE III BARRICADE

C



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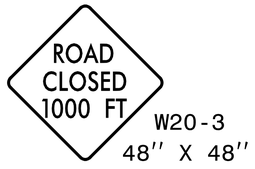

E

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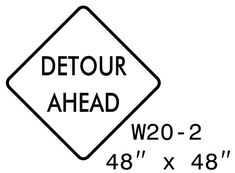

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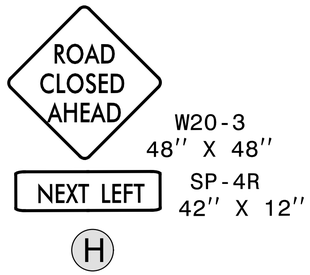

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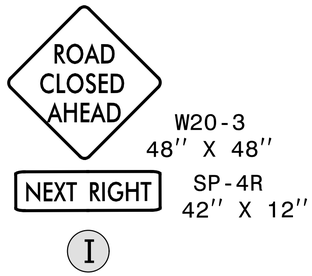

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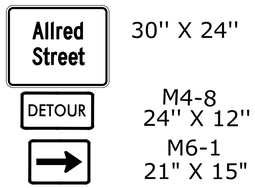

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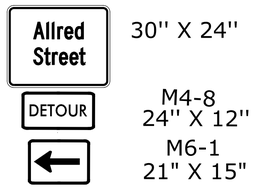

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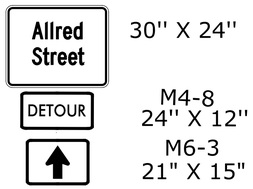

M

NOTE: SEE SHEET TMP-2 FOR ALLRED STREET SIGN DESIGN

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C26049D...

DATE: 12/14/2016

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ROAD CLOSURE SIGNS AND DETOUR SIGNS

12/14/2016
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ICA Engineering

TIP PROJECT: 17BP.8.R.101

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.101	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

RANDOLPH COUNTY

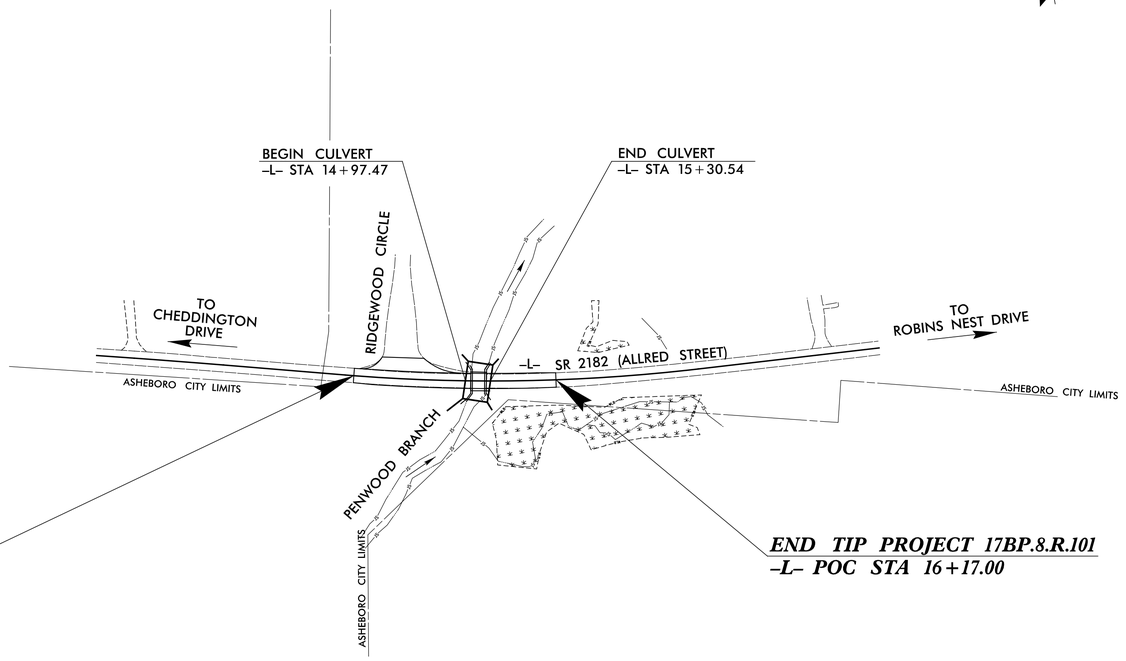
BRIDGE NO. 371 OVER PENWOOD BRANCH ON SR 2182 (ALLRED STREET)

TRENTON J. CORMIER, PE
ROADSIDE ENVIRONMENTAL ENGINEER

3377
LEVEL III CERTIFICATION NUMBER

ALEXANDER D. SNIDER, PE
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

3064
LEVEL III CERTIFICATION NUMBER



NAD 83/NA 2011

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	SW 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.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

HDR | ICA

ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

Designed by:

TRENTON J. CORMIER, PE *3377*
NAME *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

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

2012 STANDARD SPECIFICATIONS

Reviewed by:

BARRY HARRINGTON, P.E.

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		

12/14/2016
17BP8R101_erosion_tsh.dgn
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PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	EC-2

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.

8/17/99

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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Suite 100
Raleigh, NC 27607
NC License No: F-0258

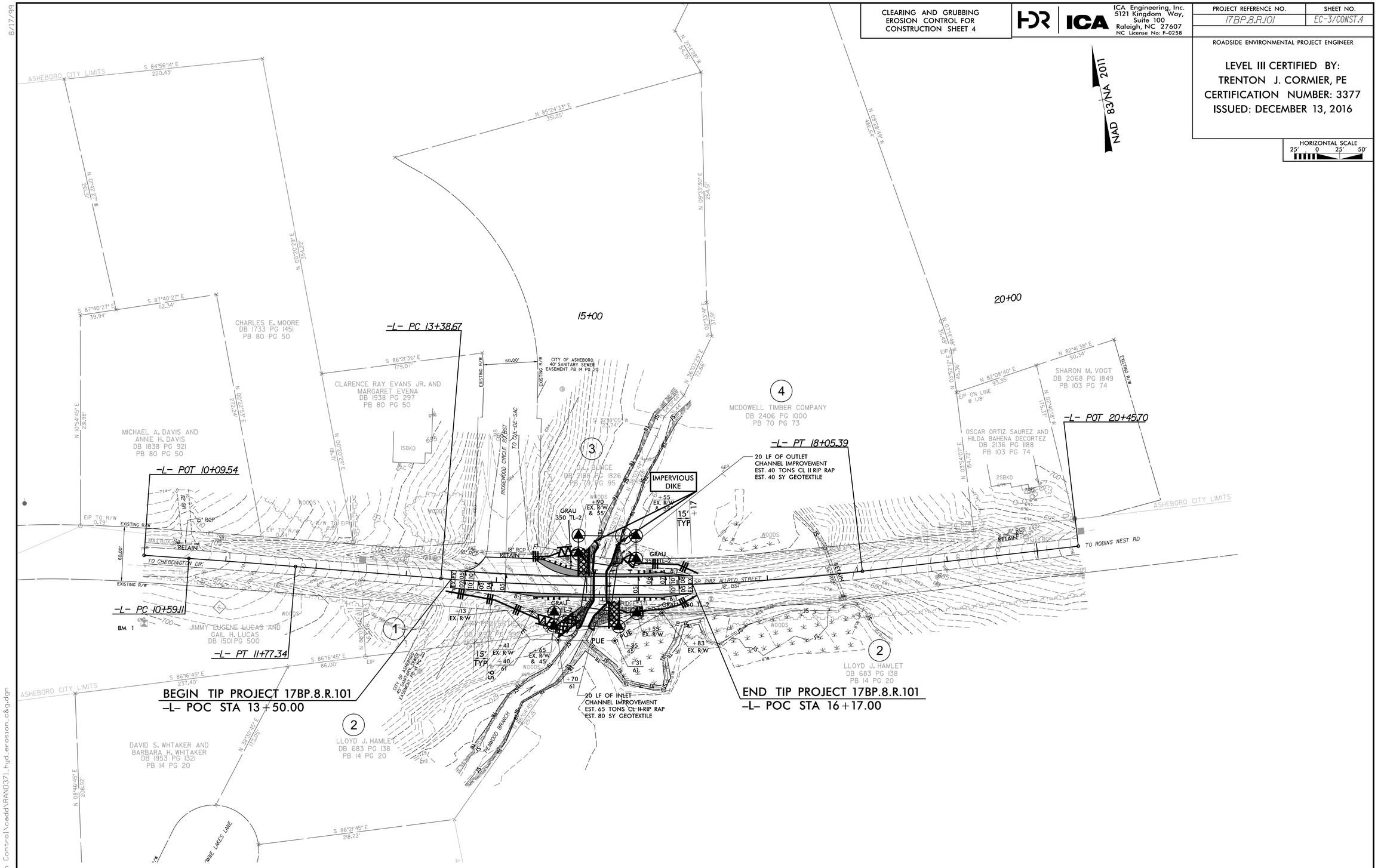
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	EC-3/CONST.4

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
TRENTON J. CORMIER, PE
CERTIFICATION NUMBER: 3377
ISSUED: DECEMBER 13, 2016

NAD 83/NA 2011

HORIZONTAL SCALE
25' 0 25' 50'



NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

FOR –L– PROFILE, SEE SHEET 5

12/14/2016
R:\HydroProjects\Erosion Control\cadd\RAND371_hyd_erosion_c&g.dgn
ICA ENGINEERING, INC.

HDR | ICA
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

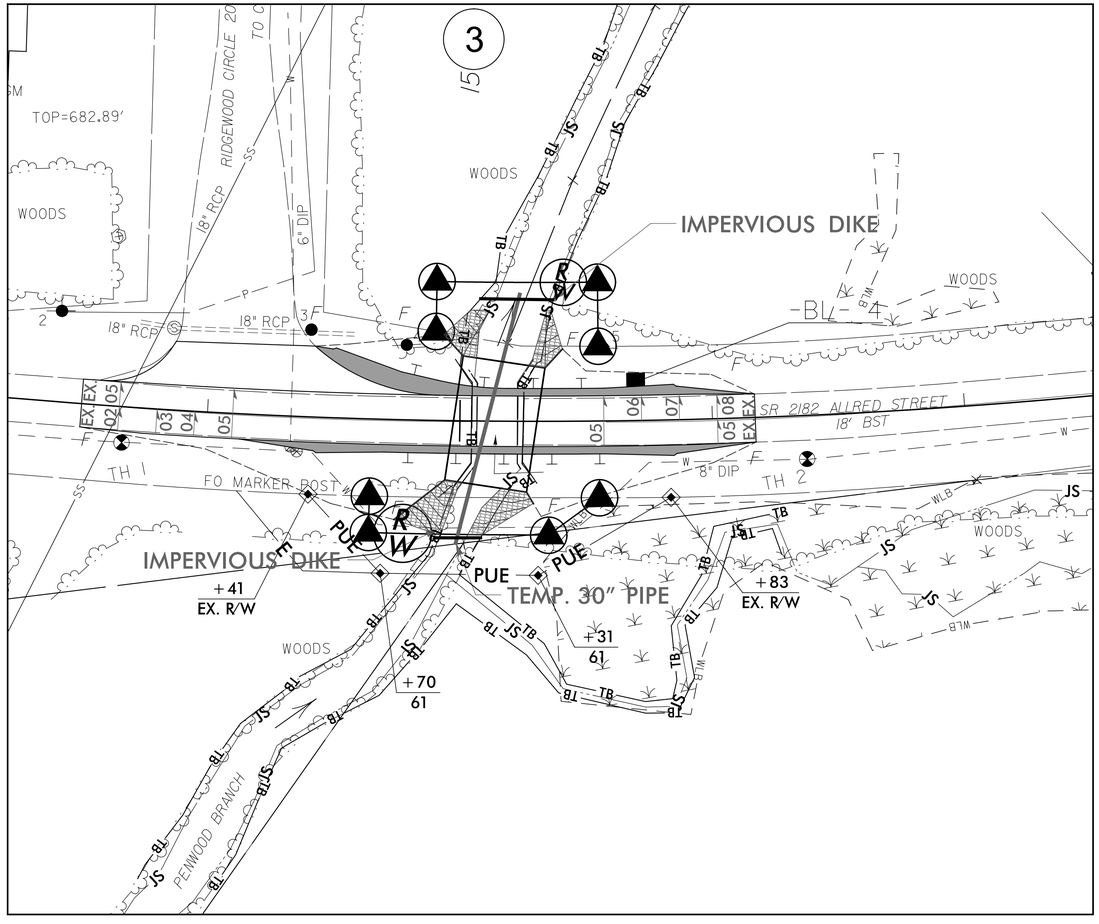
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	EC-3A/CONST.4

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
TRENTON J. CORMIER, PE
CERTIFICATION NUMBER: 3377
ISSUED: DECEMBER 13, 2016

NAD 83/NA 2011

GRAPHIC SCALE
30 0 30 60



CULVERT PHASING
SF–750371

PHASE 1

1.) INSTALL ALL TEMPORARY SEDIMENT CONTROL DEVICES NECESSARY FOR CULVERT CONSTRUCTION.

2.) INSTALL SPECIAL STILLING BASIN WITHIN FOOTPRINT OF PROPOSED ROADWAY. SPECIAL STILLING BASIN CAPACITY SHOULD ALLOW FOR A MINIMUM OF 114 CUBIC YARDS OF EFFLUENT WHICH IS HALF OF THE VOLUME FROM THE PROPOSED CULVERT. PUMP ALL EFFLUENT INTO SPECIAL STILLING BASIN.

3.) INSTALL IMPERVIOUS DIKES AND INSTALL 30" TEMP. PIPE.

4.) DE–WATER EFFLUENT FROM WORK SITE INTO SPECIAL STILLING BASIN.

5.) CONSTRUCT PROPOSED 32'9" x 12'0" ALUMINUM BOX CULVERT AND FLOOD BENCH PER PLANS.

6.) STABILIZE CHANNEL BANKS.

PHASE 2

6.) REMOVE TEMPORARY IMPERVIOUS DIKES AND TEMP. PIPE TO ALLOW FLOW THROUGH NEWLY CONSTRUCTED CULVERT.

7.) UPON STABILIZATION OF ALL DISTURBED AREAS, REMOVE ALL TEMPORARY SEDIMENT CONTROL DEVICES.

8/17/99

12/13/2016
RANDJ371 hyd_construction_seq.dgn
ICA ENGINEERING, INC.

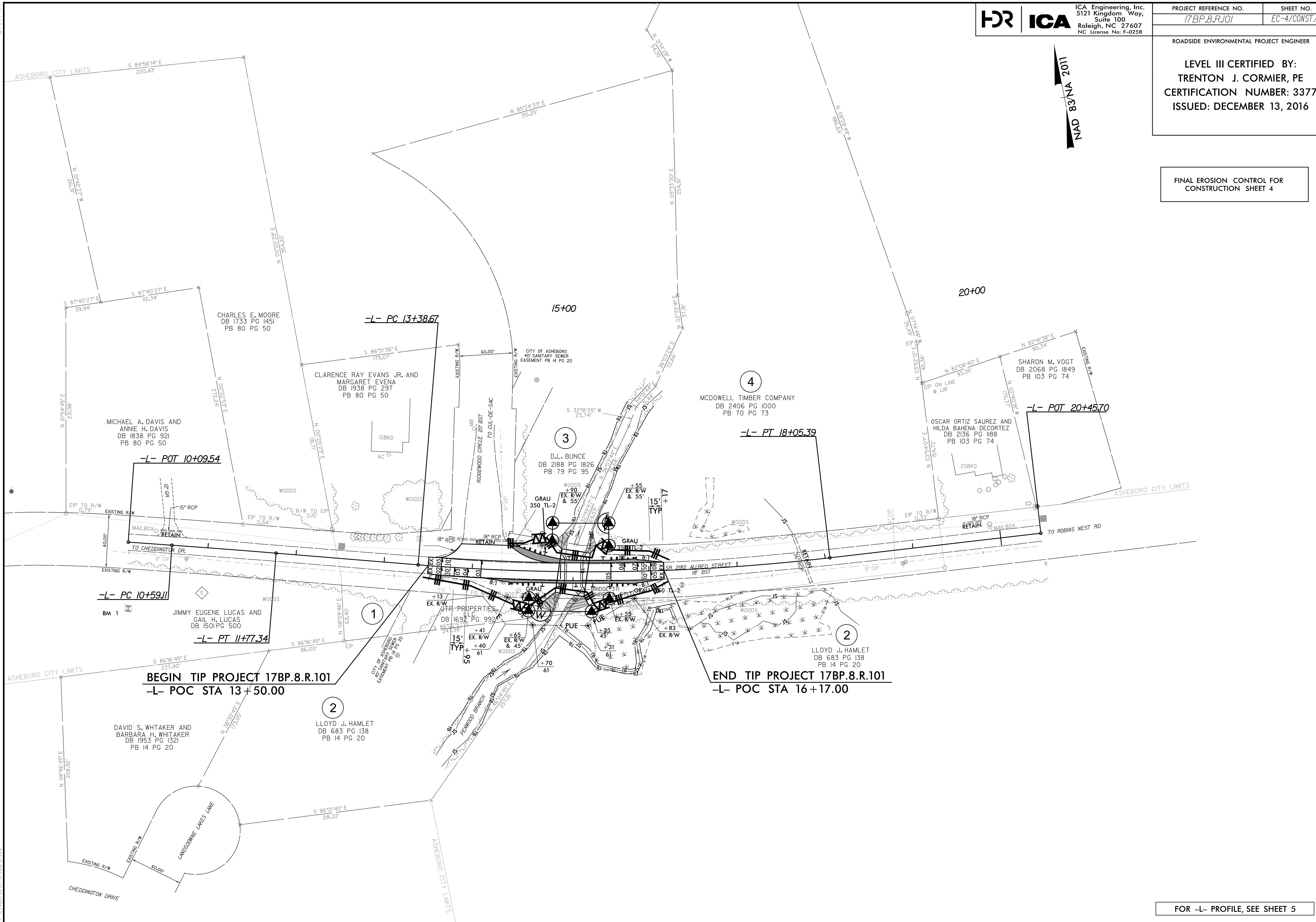
ICA Engineering, Inc.
5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	EC-4/CONST.4

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
TRENTON J. CORMIER, PE
CERTIFICATION NUMBER: 3377
ISSUED: DECEMBER 13, 2016

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 4



NAD 83/NA 2011
ASHEBORO CITY LIMITS
S 84°56'14" E
220.43'
N 85°24'33" E
351.25'
CHARLES E. MOORE
DB 1733 PG 1451
PB 80 PG 50
CLARENCE RAY EVANS JR. AND
MARGARET EVENA
DB 1938 PG 297
PB 80 PG 50
MICHAEL A. DAVIS AND
ANNIE H. DAVIS
DB 1838 PG 921
PB 80 PG 50
-L- PC 13+38.67
-L- POT 10+09.54
-L- PC 10+59.11
-L- PT 11+77.34
15+00
20+00
CITY OF ASHEBORO
40' SANITARY SEWER
EASEMENT PB 14 PG 20
D.L. BUNCE
DB 2188 PG 1826
PB 79 PG 95
MCDOWELL TIMBER COMPANY
DB 2406 PG 1000
PB 70 PG 73
-L- PT 18+05.39
SHARON M. VOGT
DB 2068 PG 1849
PB 103 PG 74
-L- POT 20+45.70
OSCAR ORTIZ SAUREZ AND
HILDA BAHENA DECORTEZ
DB 2136 PG 1188
PB 103 PG 74
RIDGEWOOD CIRCLE 20' BST
TO CUL-DE-SAC
TO CHEDDINGTON DR.
TO ROBINS NEST RD
SR 2182 ALLRED STREET
18' BST
GRAU
350 TL-2
RETAIN
EXISTING R/W
WOODS
MAILBOX
BM 1
JIMMY EUGENE LUCAS AND
GAIL H. LUCAS
DB 1501 PG 500
UTP PROPERTIES
LLC
DB 1692 PG 992
PUE
15' TYP
LLOYD J. HAMLET
DB 683 PG 138
PB 14 PG 20
BEGIN TIP PROJECT 17BP.8.R.101
-L- POC STA 13+50.00
END TIP PROJECT 17BP.8.R.101
-L- POC STA 16+17.00
PENWOOD BRANCH
DAVID S. WHTAKER AND
BARBARA H. WHITAKER
DB 1953 PG 1321
PB 14 PG 20
LANSDOWNE LAKES LANE
CHEDDINGTON DRIVE
S 86°21'45" E
218.22'

FOR -L- PROFILE, SEE SHEET 5

8/17/99

12/14/2016
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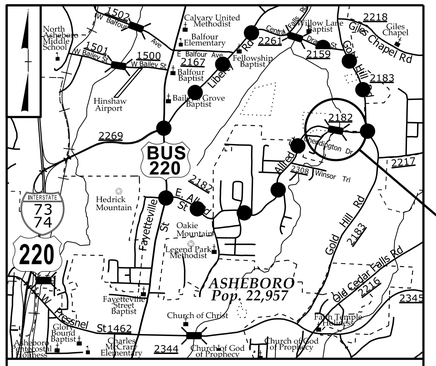
ICA ENGINEERING, INC.

09/08/99

TIP PROJECT: 17BP.8.R.101



PROJECT LOCATION

VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
RANDOLPH COUNTY

T.I.P. NO.	SHEET NO.
17BP.8.R.101	UO–01

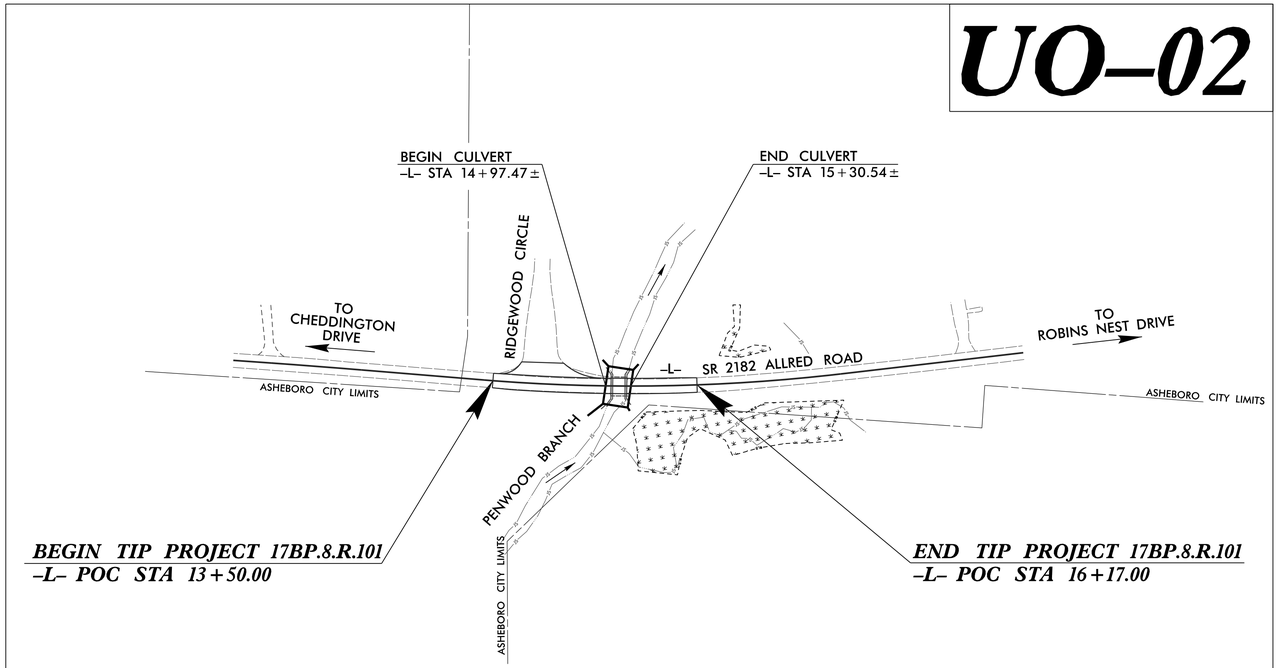
NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

NAD 83/NA 2011

LOCATION: REPLACE BRIDGE NO. 371 OVER PENWOOD BRANCH ON SR 2182 (ALLRED RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

UO–02



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO–01	*TITLE SHEET*
UO–02	*UBO PLAN SHEET*

UTILITY OWNERS WITH CONFLICTS

(A) DUKE ENERGY PROGRESS – POWER
(B) CENTURYLINK – TELEPHONE
(C) PIEDMONT NATURAL GAS – GAS
(D) CHARTER COMMUNICATIONS – CATV
(E) CITY OF ASHEBORO – WATER & SEWER

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.

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

	UTILITIES REGIONAL ENGINEER
	UTILITIES ENGINEER
JAMIE YOW	*DIV. UTILITIES COORDINATOR*
	UTILITIES COORDINATOR

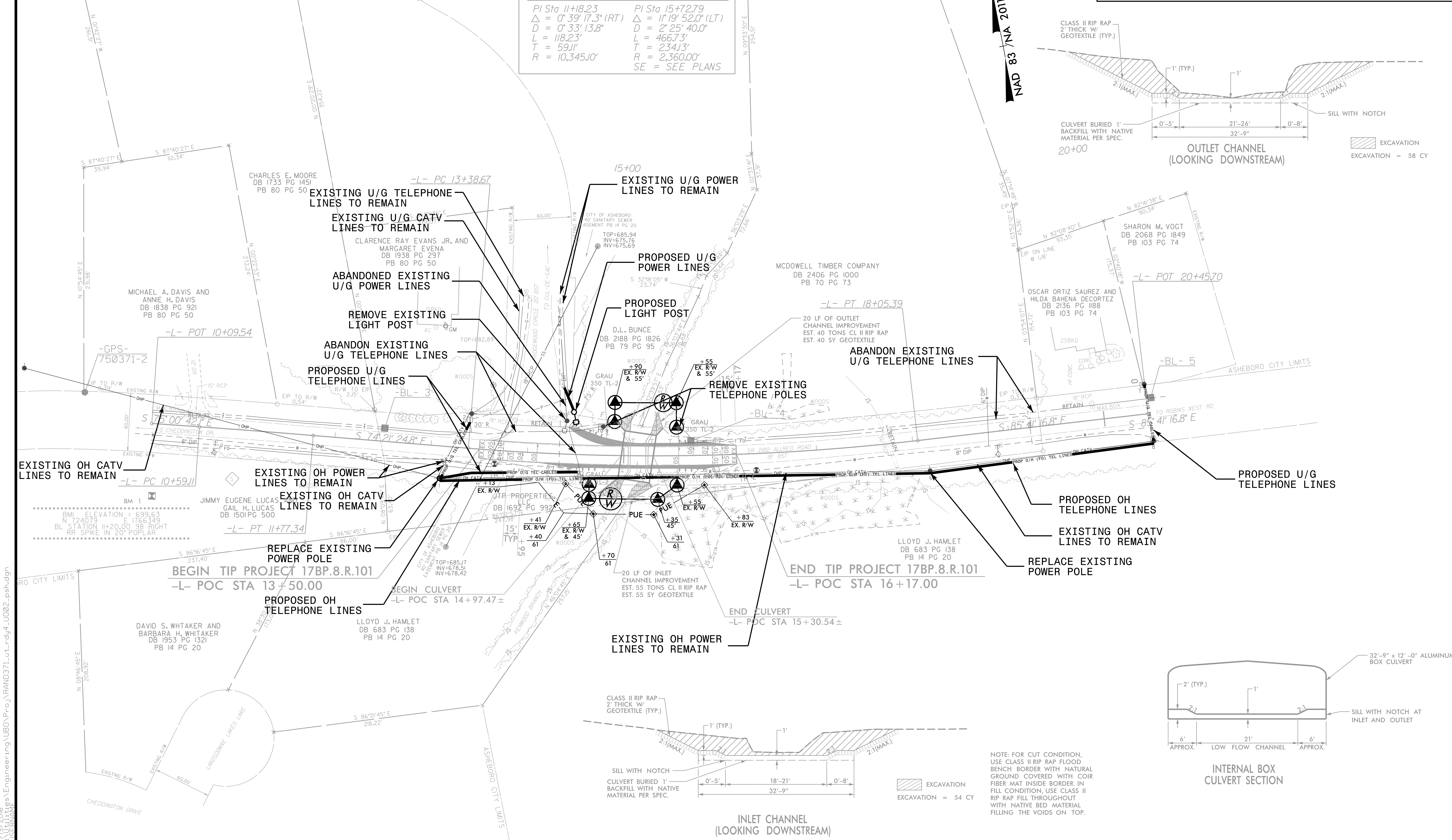
10/19/2016
R:\Utilities\Engineering\UBO\Proj\RAND37\Lut_tsh_U001_psh.dgn
USERNAME

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.101	U0-02

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

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.


NAD 83 /NA 2011
EXISTING U/G TELEPHONE LINES TO REMAIN
EXISTING U/G CATV LINES TO REMAIN
EXISTING U/G POWER LINES TO REMAIN
PROPOSED U/G POWER LINES
ABANDONED EXISTING U/G POWER LINES
PROPOSED LIGHT POST
REMOVE EXISTING LIGHT POST
ABANDON EXISTING U/G TELEPHONE LINES
PROPOSED U/G TELEPHONE LINES
REMOVE EXISTING TELEPHONE POLES
EXISTING OH CATV LINES TO REMAIN
EXISTING OH POWER LINES TO REMAIN
EXISTING OH CATV LINES TO REMAIN
REPLACE EXISTING POWER POLE
PROPOSED OH TELEPHONE LINES
EXISTING OH POWER LINES TO REMAIN
PROPOSED OH TELEPHONE LINES
EXISTING OH CATV LINES TO REMAIN
REPLACE EXISTING POWER POLE
PROPOSED U/G TELEPHONE LINES
BEGIN TIP PROJECT 17BP.8.R.101
-L- POC STA 13+50.00
END TIP PROJECT 17BP.8.R.101
-L- POC STA 16+17.00
BEGIN CULVERT -L- POC STA 14+97.47±
END CULVERT -L- POC STA 15+30.54±
-L-
PI Sta 11+18.23
Δ = 0° 39' 17.3" (RT)
D = 0° 33' 13.8"
L = 118.23'
T = 59.11'
R = 10,345.10'
PI Sta 15+72.79
Δ = 11° 19' 52.0" (LT)
D = 2° 25' 40.0"
L = 466.73'
T = 234.13'
R = 2,360.00'
SE = SEE PLANS
OUTLET CHANNEL (LOOKING DOWNSTREAM)
EXCAVATION = 58 CY
INLET CHANNEL (LOOKING DOWNSTREAM)
EXCAVATION = 54 CY
INTERNAL BOX CULVERT SECTION
32'-9" x 12'-0" ALUMINUM BOX CULVERT
SILL WITH NOTCH AT INLET AND OUTLET
NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOOD BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.
20 LF OF OUTLET CHANNEL IMPROVEMENT EST. 40 TONS CL II RIP RAP EST. 40 SY GEOTEXTILE
20 LF OF INLET CHANNEL IMPROVEMENT EST. 55 TONS CL II RIP RAP EST. 55 SY GEOTEXTILE
10/19/2016

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.101	X-1

10/18/2016
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8/23/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.101	X-2

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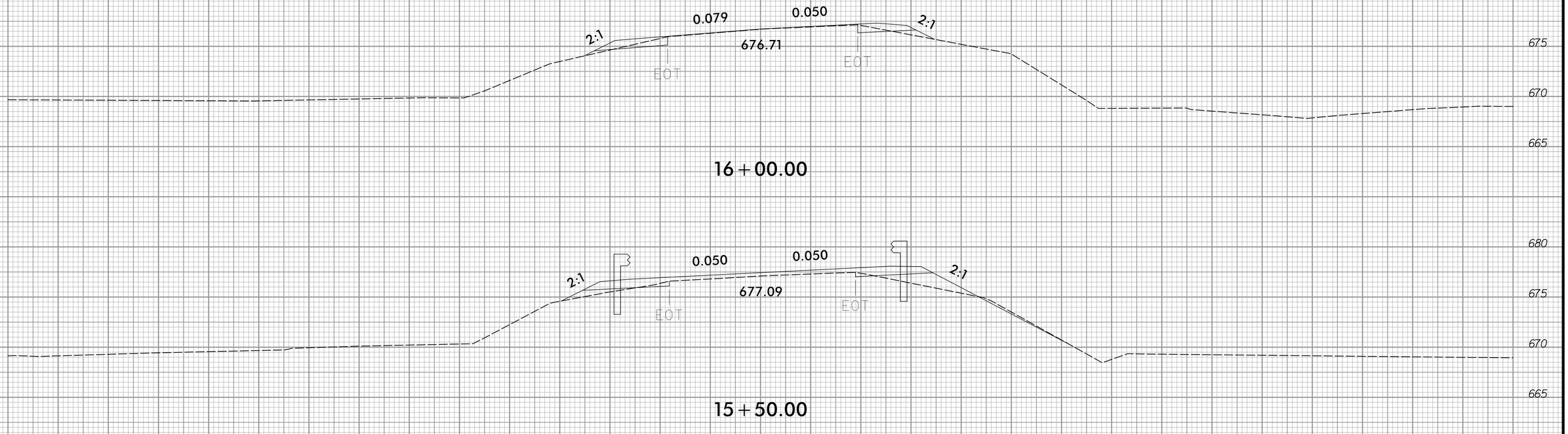


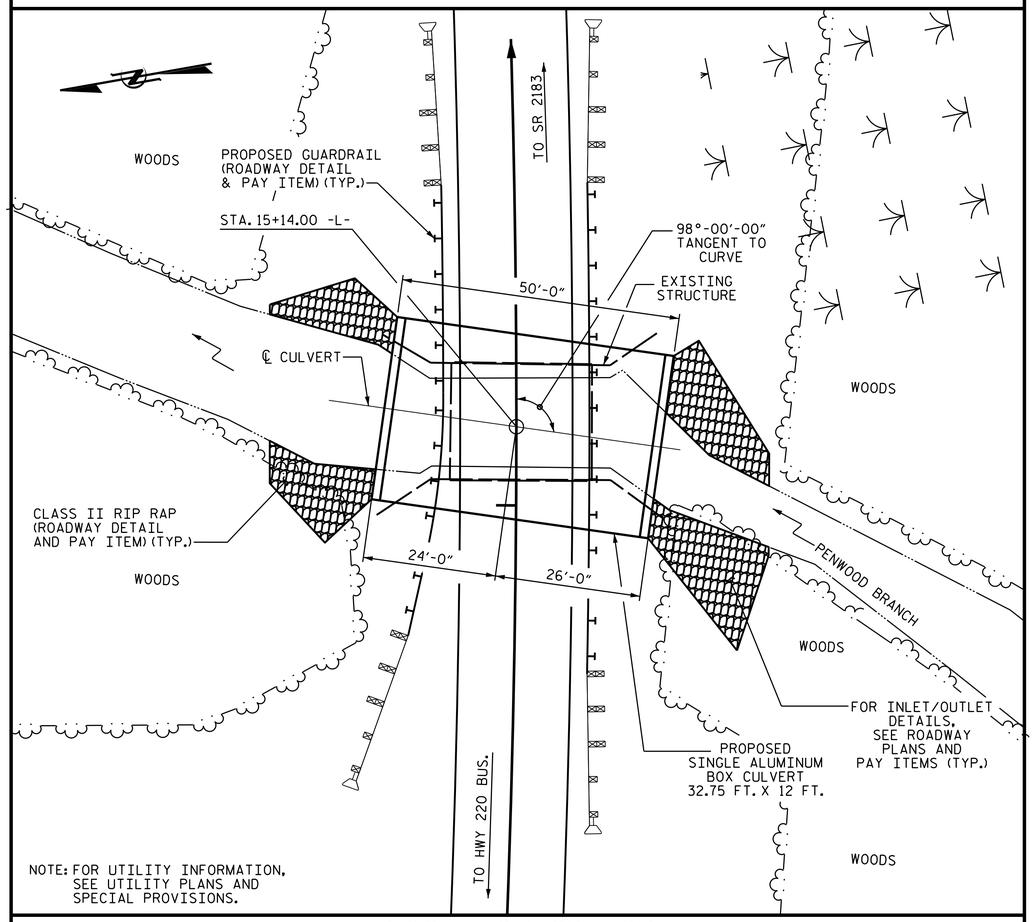
10/18/2016
R:\Projects\CorridorModeling\Rand_371_RDY_XPL_L.dgn
TEXAS DEPARTMENT OF TRANSPORTATION
ENGINEERING, INC.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	17BP.8.R.101	X-3

8/23/99

10/18/2016
R:\Roadway\CorridorModeling\Rand_371_RDY_XPL_L.dgn
ICA ENGINEERING, INC.

BM #1: RR SPIKE IN 20" POPLAR, 75' RT. OF STA. 10+15.00 -L-, EL. 699.63



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

ROADWAY DATA

GRADE POINT EL. @ STA. 15+14.00 -L-	= 678.37
BED ELEVATION @ STA. 15+14.00 -L-	= 662.21
ROADWAY SLOPES	= 2 :1

HYDRAULIC DATA

DESIGN DISCHARGE	= 1800 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YRS
DESIGN HIGH WATER ELEVATION	= 673.6
DRAINAGE AREA	= 2.9 SQ. MI.
BASE DISCHARGE (Q100)	= 2000 C.F.S.
BASE HIGH WATER ELEVATION	= 674.16

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2800 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS
OVERTOPPING FLOOD ELEVATION	= 677.1

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	132 TONS
CLASS A CONCRETE	7.5 C.Y.
REINFORCING STEEL	789 LBS.
ASBESTOS ASSESSMENT	LUMP SUM
ALUMINUM BOX CULVERT	LUMP SUM
PLACEMENT OF NATURAL STREAM BED MATERIAL	LUMP SUM
CULVERT BACKFILL	670 TONS

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 4.91' MAXIMUM AND 3.50' MINIMUM ABOVE THE CROWN OF THE CULVERT.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

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.

THE EXISTING STRUCTURE CONSISTING OF ONE SPAN @ 20'-10" WITH A TIMBER DECK ON STEEL GIRDER/FLOOR BEAM SYSTEM AND A CLEAR ROADWAY OF 24'-10" ON TIMBER CAPS AND TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR 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 HE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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 15+14.00 -L-

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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 DIFFRENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

SEE SECTION 414 OF THE STANDARD SPECIFICATION FOR CULVERT EXCAVATION AND BACKFILLING.

NATIVE MATERIAL SHALL BE USED TO BACKFILLTHE CULVERT BETWEEN THE SILLS. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT NATIVE MATERIAL IN THE HIGH FLOW BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

FOR ALUMINUM BOX CULVERT, SEE SPECIAL PROVISIONS

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

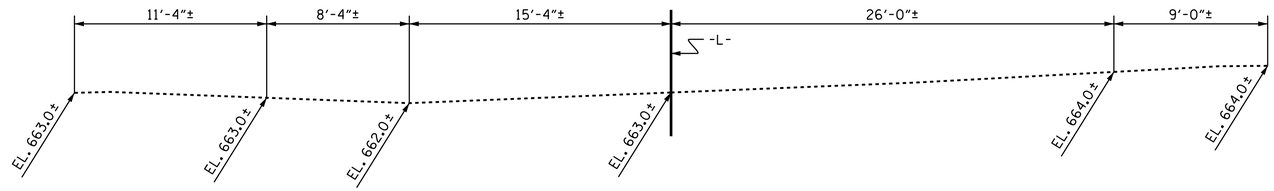
THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

UNLESS OTHERWISE INDICATED, THE SUPPLIER SHALL DESIGN DETAIL, AND FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.

GUARDRAIL POST LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER TO ENSURE ADEQUATE COVER FOR ISTALLATION.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



PROFILE ALONG ℄ CULVERT

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.8.R.101

RANDOLPH COUNTY

STATION: 15+14.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 371

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

32'-9" x 12'-0" ALUMINUM BOX CULVERT 98° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29048 ENGINEER RAMAN P. PATEL

DocuSigned by: Raman Patel 11/1/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY : H. B. DESAI DATE : 9/13/16
CHECKED BY : H. LOCKLEAR DATE : 9-21-16
DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 9-21-16

31-OCT-2016 16:24
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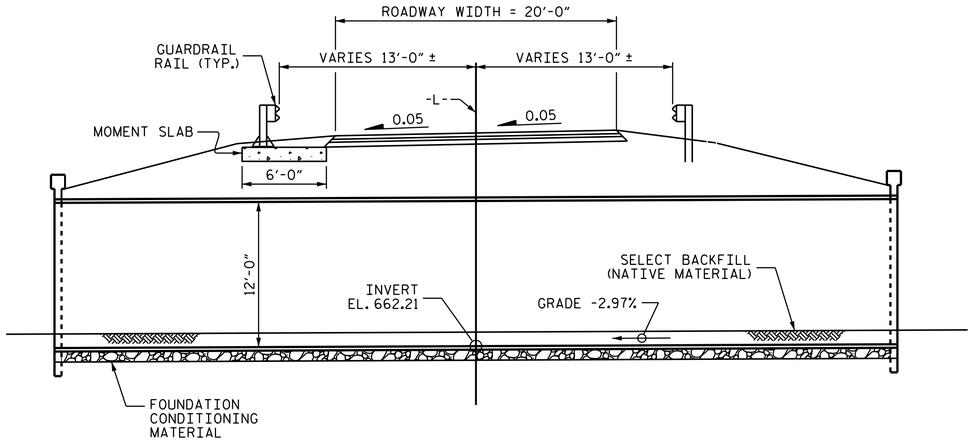
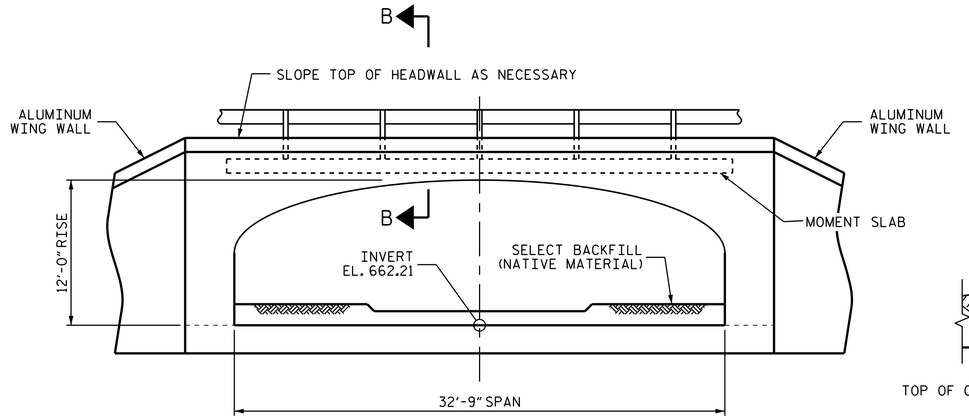
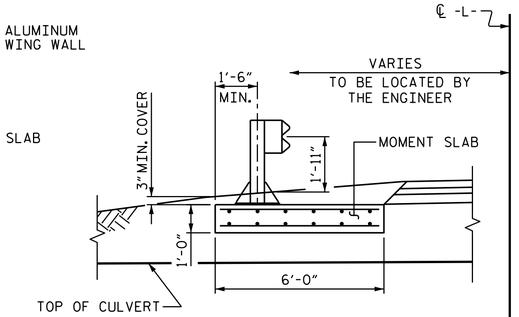
rppatel



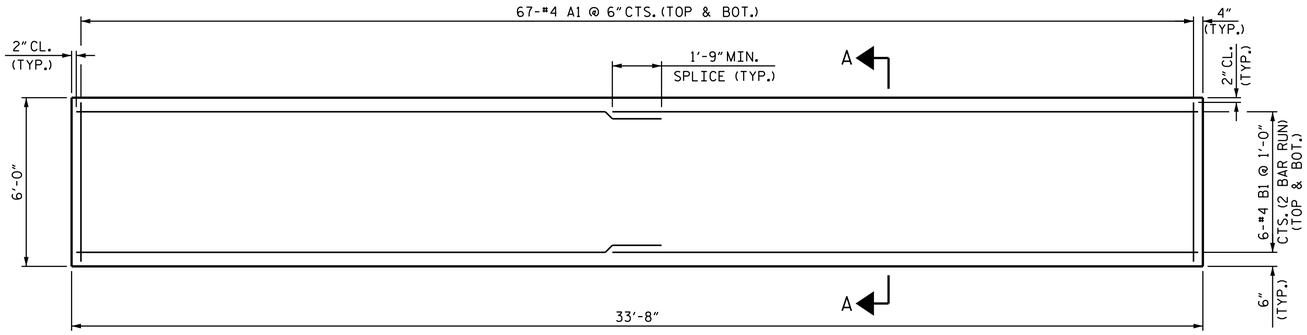
CULVERT SECTION NORMAL TO ROADWAY



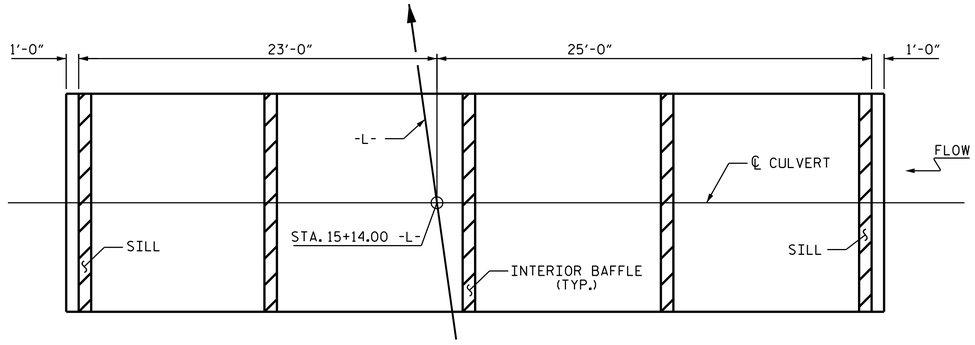
END ELEVATION



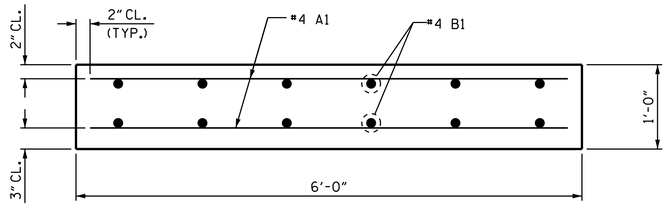
SECTION B-B



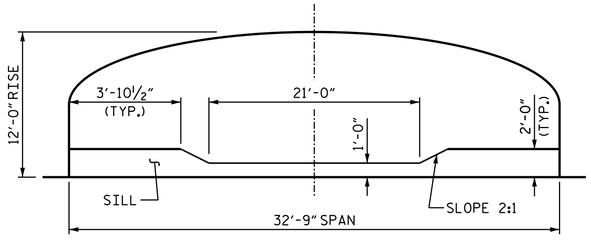
PLAN OF MOMENT SLAB



FLOOR SILL/BAFFLE LAYOUT



ELEVATION SECTION A-A



FLOOR SILL ELEVATION

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	134	#4	STR	5'-8"	507
B1	24	#4	STR	17'-7"	282
REINFORCING STEEL					789 LBS.
CLASS A CONCRETE					7.5 C.Y.

PROJECT NO. 17BP.8.R.101
RANDOLPH COUNTY
STATION: 15+14.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 29048 ENGINEER RAMAN P. PATEL
Docusigned by: Raman Patel 11/1/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

32'-9" x 12'-0" ALUMINUM BOX CULVERT 98° SKEW

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : R. P. PATEL DATE : 9-20-16
CHECKED BY : H. LOCKLEAR DATE : 9-21-16
DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 9-21-16

31-OCT-2016 16:24
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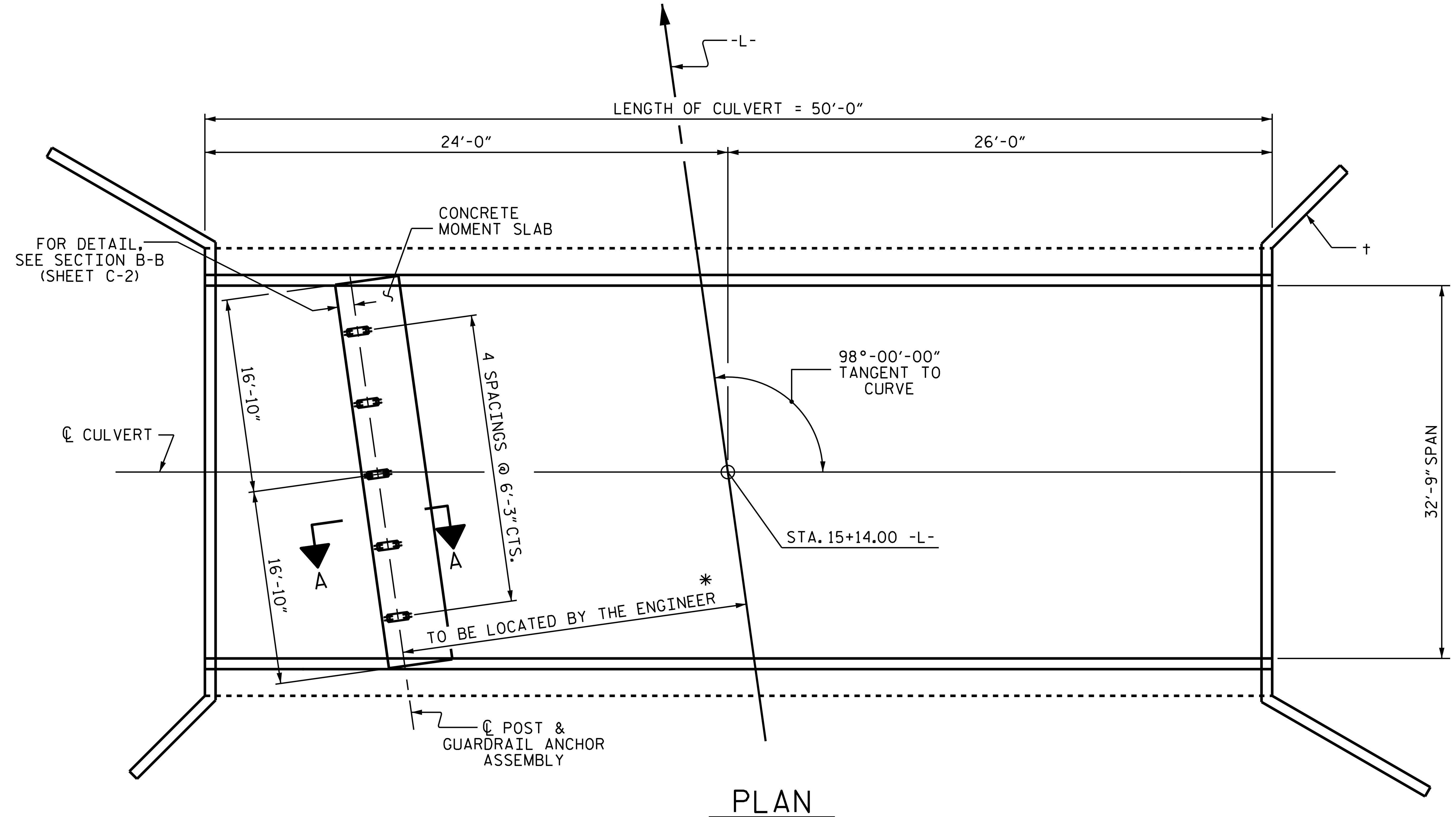
rppatel



PLAN

† ALUMINUM WING WALL DIMENSIONS TO BE DETERMINED BY THE ENGINEER

✱ THIS DIMENSION TO BE CONFIRMED BY THE ENGINEER IN THE FIELD.

NOTES

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

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF $2\frac{1}{2}$".

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

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

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

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

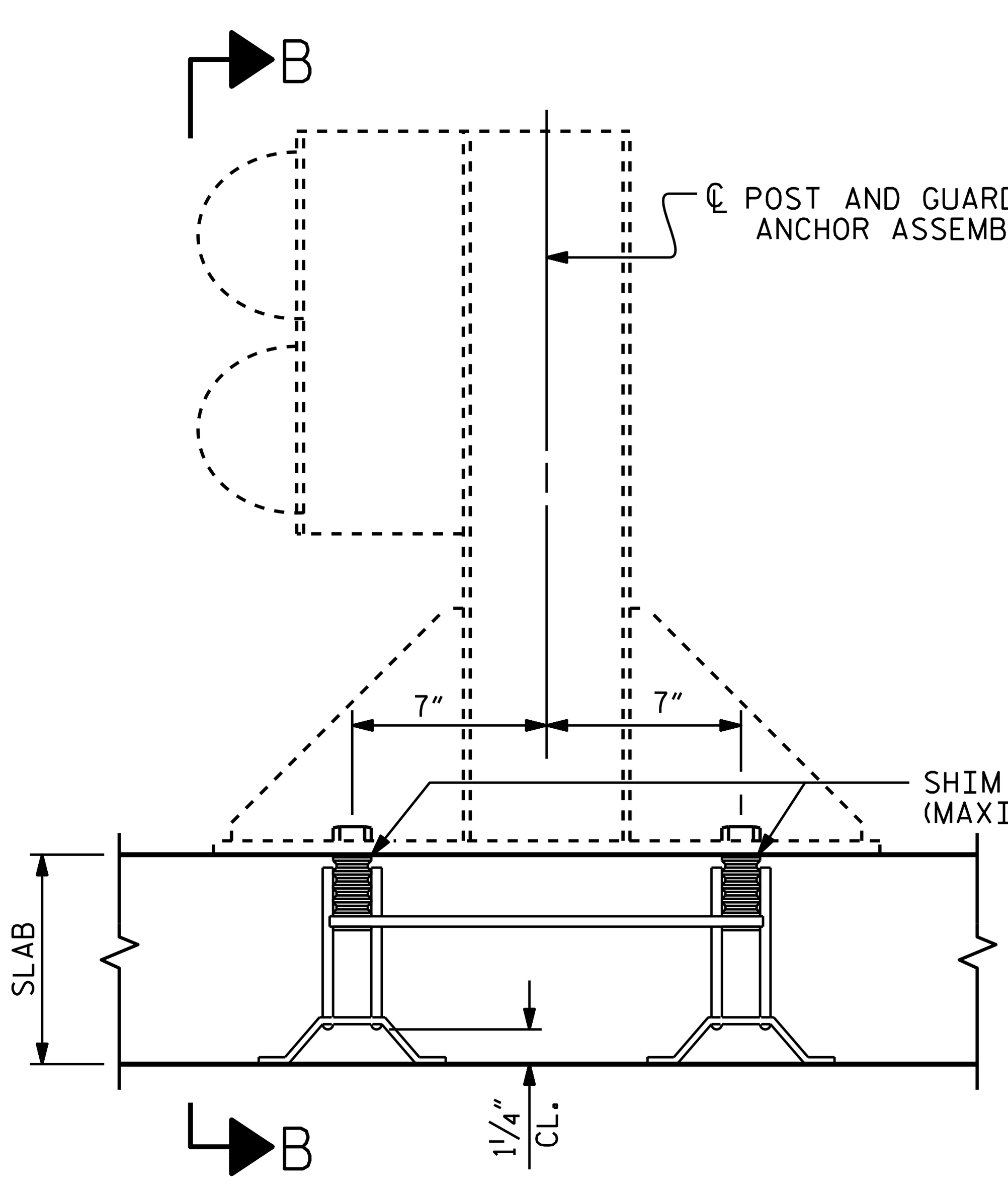
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

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

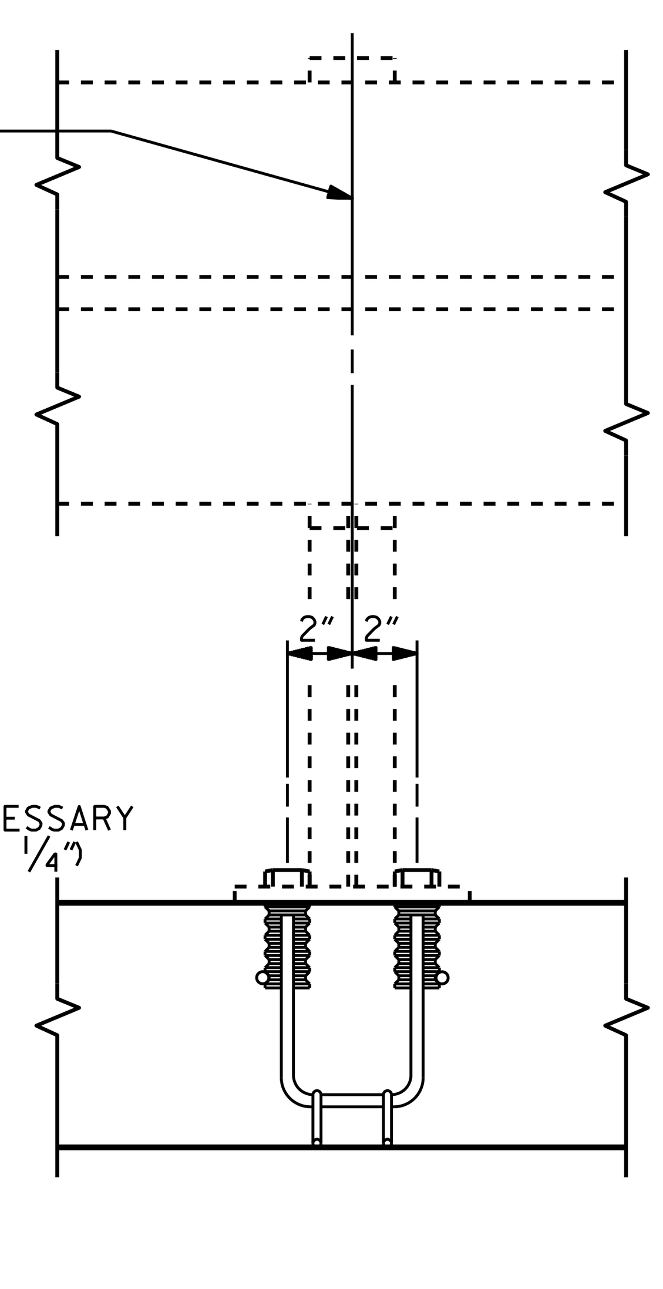
PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

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

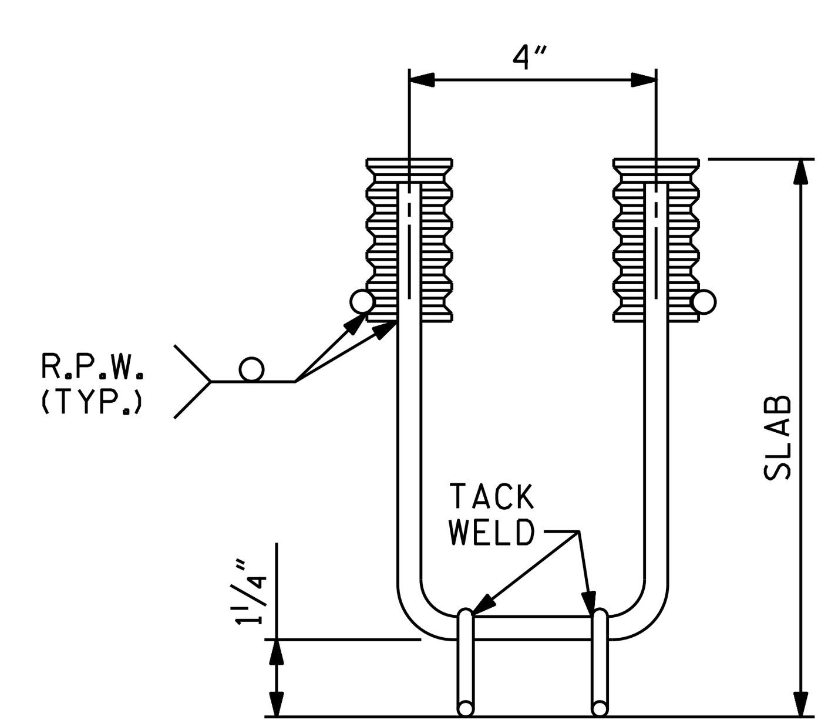
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



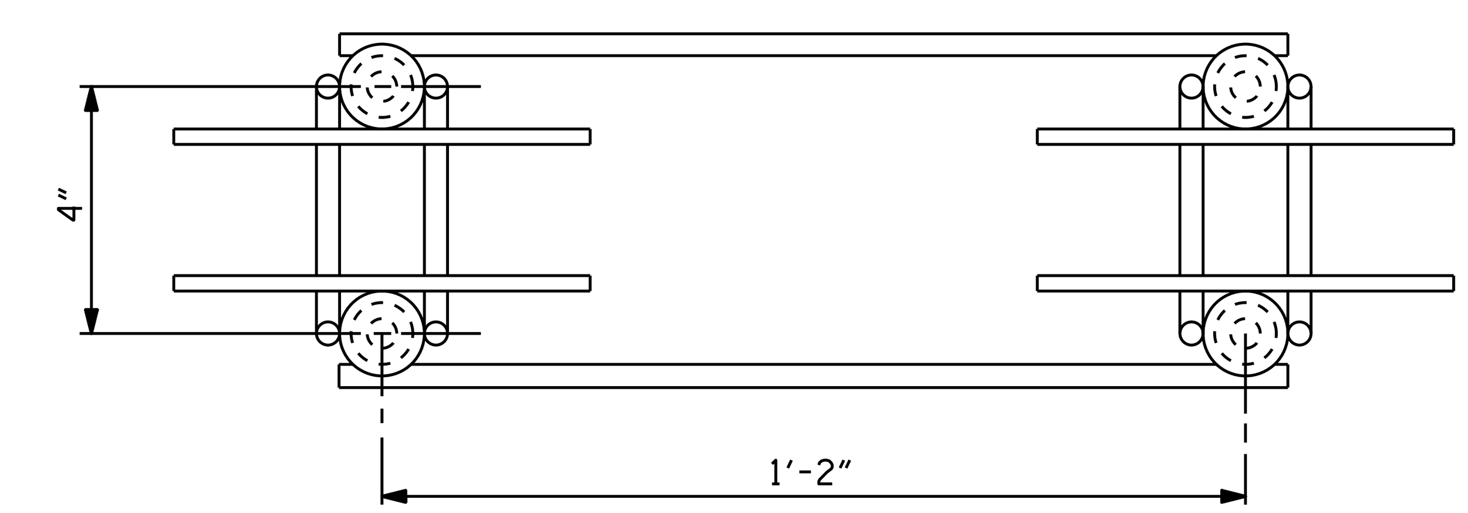
SECTION A-A



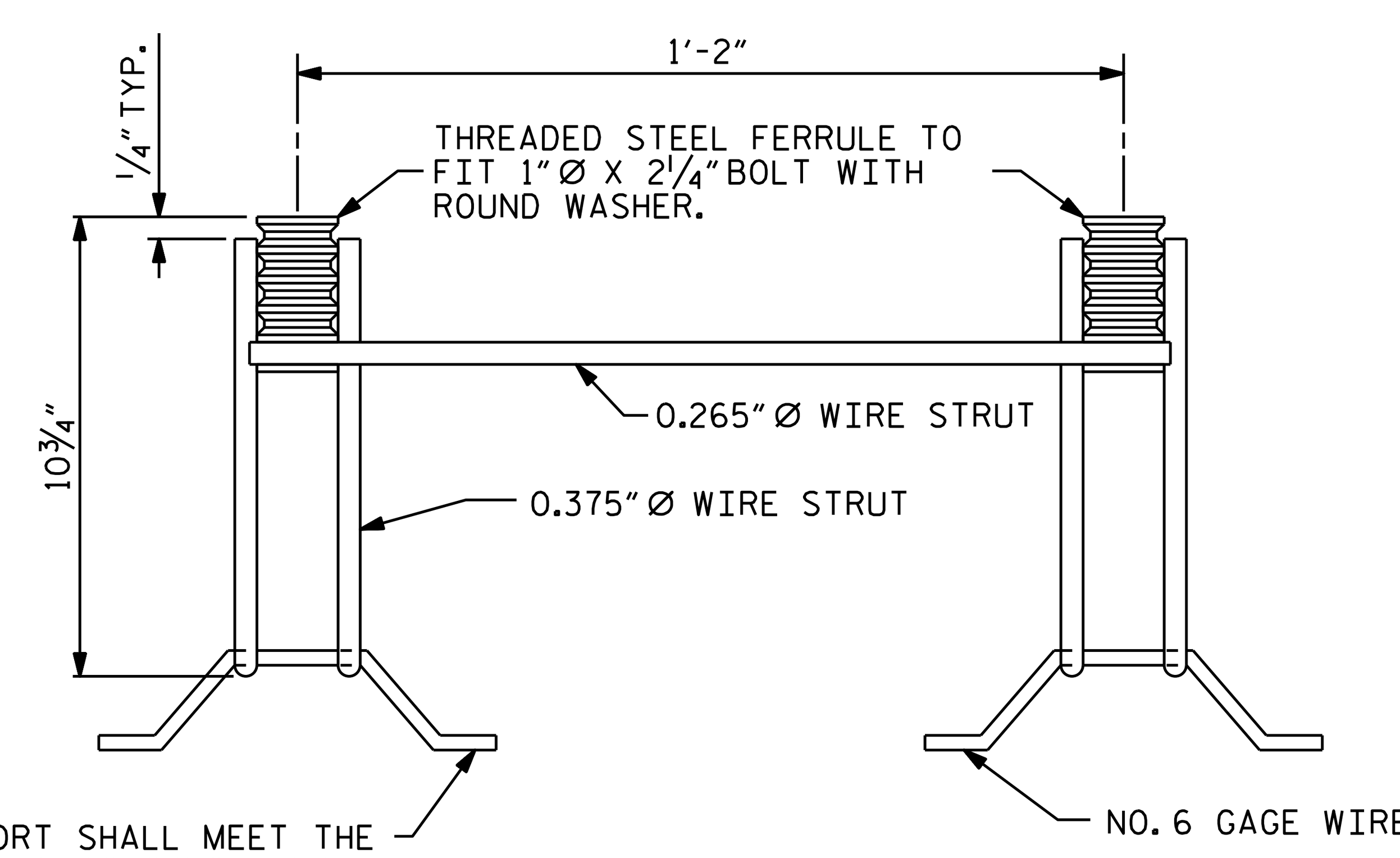
SECTION B-B



ELEVATION



PLAN



THIS SUPPORT SHALL MEET THE REQUIREMENTS AS SPECIFIED FOR SUPPORTS FOR REINFORCING STEEL. SEE SPECIFICATIONS.

SIDE VIEW

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

PROJECT NO. 17BP.8.R.101

RANDOLPH COUNTY

STATION: 15+14.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

ANCHORAGE DETAILS FOR GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

NORTH CAROLINA PROFESSIONAL SEAL 29048 ENGINEER RAMAN P. PATEL

DocuSigned by: Raman Patel 11/1/2016

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STD. NO. GRA1

ASSEMBLED BY : R. P. PATEL	DATE : 9-20-16
CHECKED BY : H. LOCKLEAR	DATE : 9-21-16

DRAWN BY : FCJ 6/88	REV. 5/7/03	RWW/JTE
CHECKED BY : ARB 6/88	REV. 5/1/06R	KMM/GM
	REV. 10/1/11	MAA/GM

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

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

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