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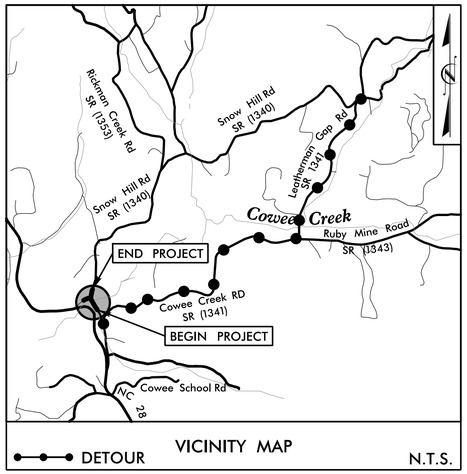
This file or an individual page shall not be considered a certified document.

PROJECT WBS: 17BP.14.R.162

CONTRACT: DN00481

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MACON COUNTY

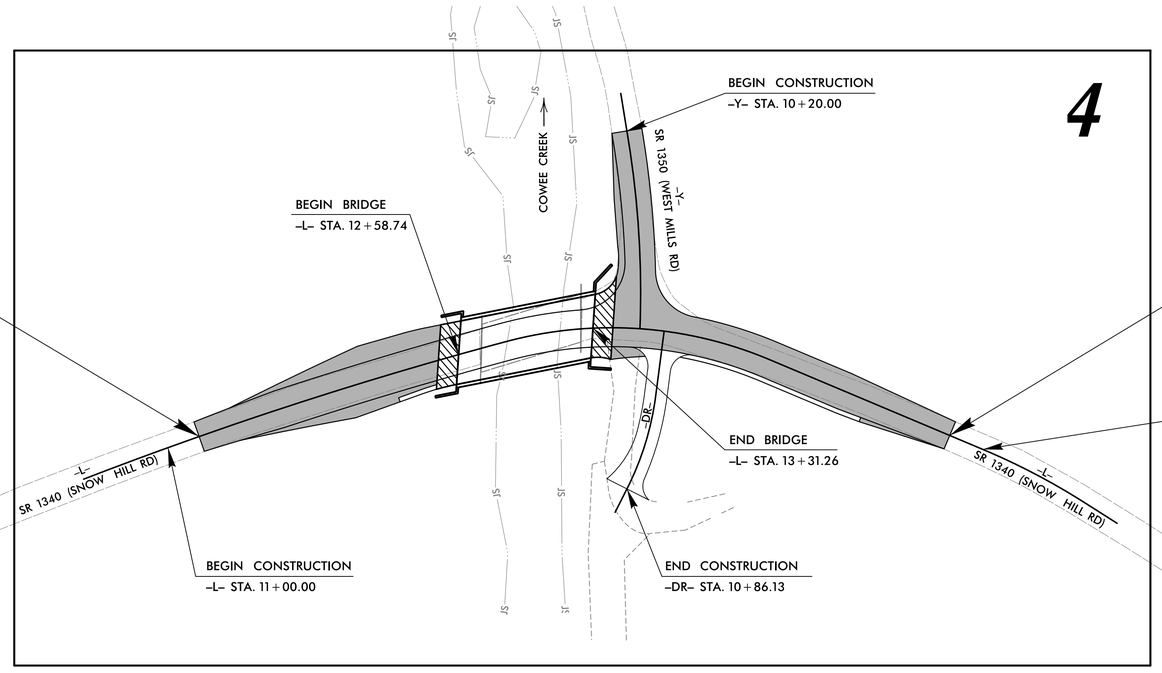
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.162	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.162		P.E.
17BP.14.R.162		ROW & UTILITIES
17BP.14.R.162		CONSTRUCTION

LOCATION: BRIDGE #88 OVER COWEE CREEK ON SR 1340 (SNOW HILL RD)

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

NAD 83 / NA 2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2010 = 660
ADT 2025 = 1320
K = N/A
D = N/A
T = 6%
V = 25 MPH
FUNC. CLASSIFICATION: LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.14.R.162 = 0.065 MILES

LENGTH OF STRUCTURE PROJECT WBS 17BP.14.R.162 = 0.014 MILES

TOTAL LENGTH OF PROJECT WBS 17BP.14.R.162 = 0.079 MILES

NCDOT CONTACT: ADAM DOCKERY
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 26, 2017

LETTING DATE: MARCH 12, 2019

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

CLARK GROVES
PROJECT DESIGNER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040590 ENGINEER SHASHANT SHARMA

DocuSigned by: Shashant Sharma
SIGNATURE: P.E. 2/13/2019

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

DocuSigned by: Nikki T. Honeycutt
SIGNATURE: P.E. 2/13/2019

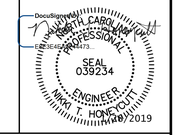
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

2/13/2019
R:\Roadway\Proj\SHT\17BP14R162_rdy_psh01_tsh.dgn
WindowsNA

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	1A
RW SHEET NO.	

ROADWAY DESIGN ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-01-2018

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

END BENTS:

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

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2018

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 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 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I- Standard Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Unit
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.01	Work Zone Advance Warning Signs
1110.02	Temporary Lane Closures
1101.03	Temporary Road Closures
1101.04	Temporary Shoulder Closures
1101.05	Work Zone Vehicle Accesses
1101.11	Traffic Control Design Tables
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1110.02	Portable Work Zone Signs
1130.01	Drum
1135.01	Cones
1145.01	Barricades - Type III
1150.01	Flagging Devices
1165.01	Truck Mounted Attenuator - Delineation
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	Temporary Silt Fence
1607.01	Gravel Construction Entrance
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1635.01	Rock Pipe Inlet Sediment Trap Type B

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.J62	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed 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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

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 & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

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
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (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
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

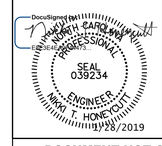
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.RJ.62	2A-1
R/W SHEET NO.	

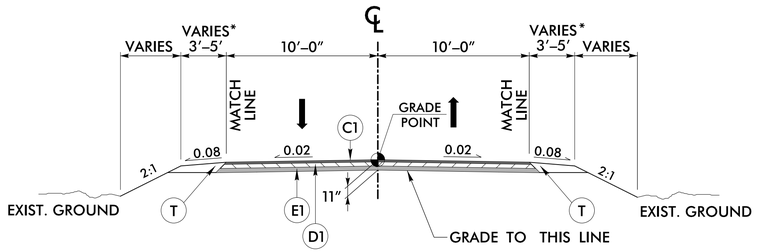
ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER



PAVEMENT DESIGN PROVIDED BY NCDOT

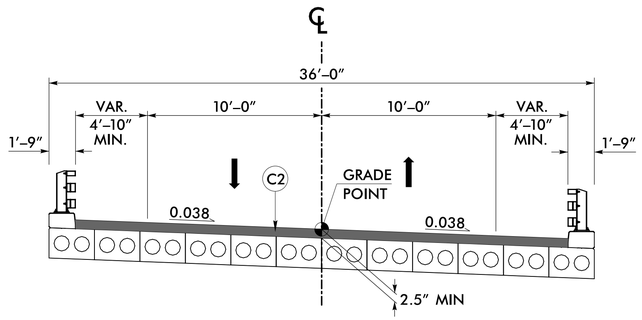
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION 1

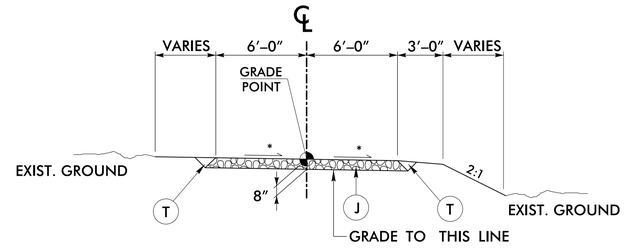
* 7′–0″ WITH GUARDRAIL

–L– STA. 11+15.00 TO 12+58.74 (BEGIN BRIDGE)
–L– STA. 13+31.26 (END BRIDGE) TO 14+50.00



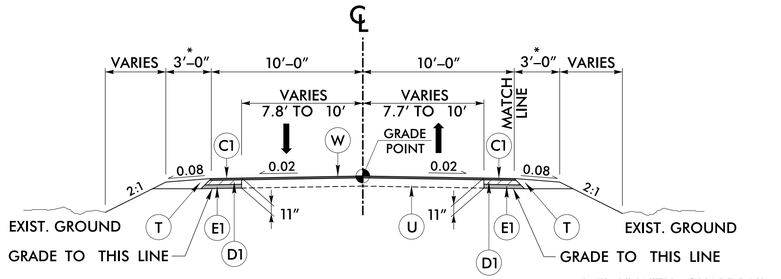
TYPICAL SECTION 2

–L– STA. 12+58.74 (BEGIN BRIDGE) TO 13+31.26 (END BRIDGE)



TYPICAL SECTION 5

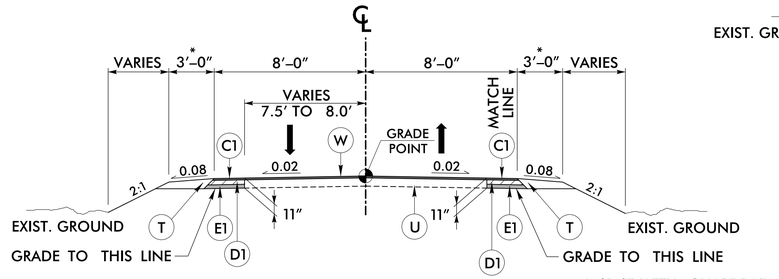
–DR– STA. 10+10± TO 10+86.13
*GRADE TO DRAIN



* 7′–0″ WITH GUARDRAIL

TYPICAL SECTION 3

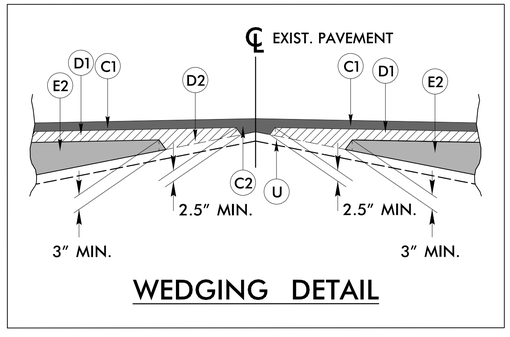
–L– STA. 14+50.00 TO 15+30.00



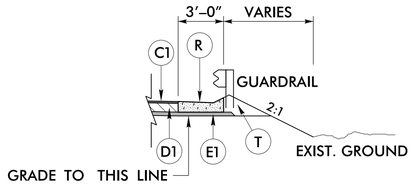
* 6′–6″ WITH GUARDRAIL

TYPICAL SECTION 4

–Y– STA. 10+20.00 TO 11+14.87

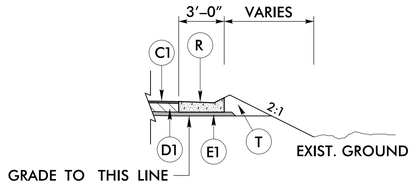


WEDGING DETAIL



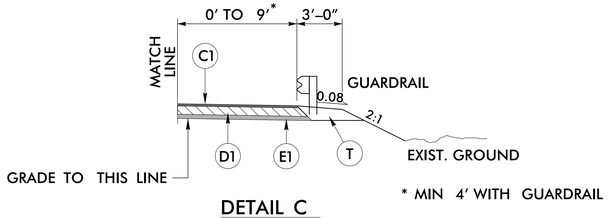
DETAIL A

–L– STA. 12+21.87 TO 12+43.23 (RT)



DETAIL B

–L– STA. 13+80.00 TO 14+83.00 (RT)



* MIN 4′ WITH GUARDRAIL

DETAIL C

–L– STA. 11+35.00 TO 12+44.00 (RT)
–L– STA. 11+35.00 TO 12+51.21 (LT) MIRROR
–L– STA. 14+83.00 TO 15+30 (RT)
–Y– STA. 10+20.00 TO 11+05.30 (RT)

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3.0″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
J	8″ AGGREGATE BASE COURSE
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	PAVEMENT WEDGING

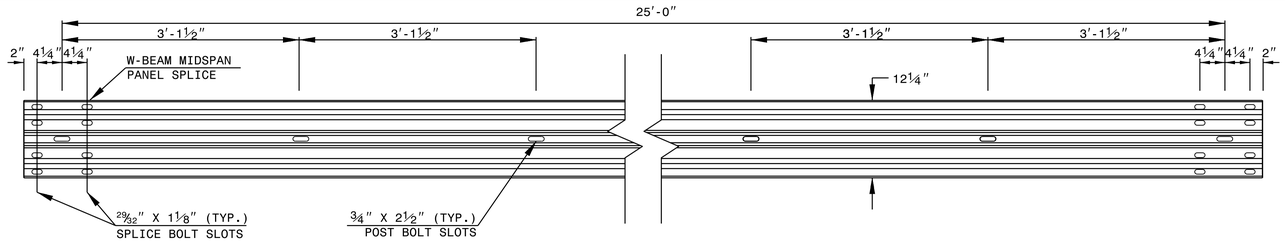
ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	2C-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

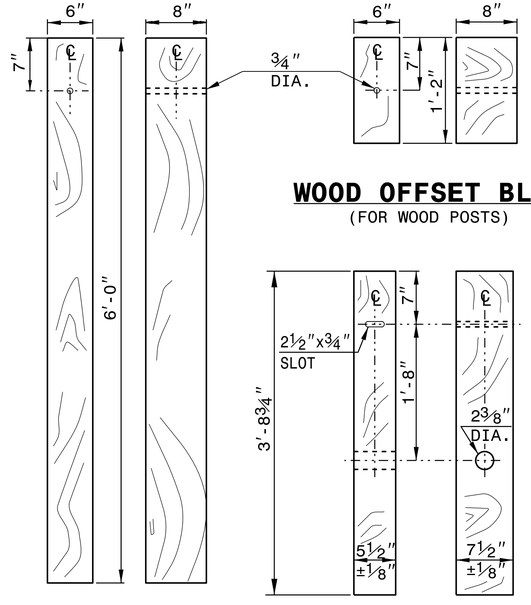
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



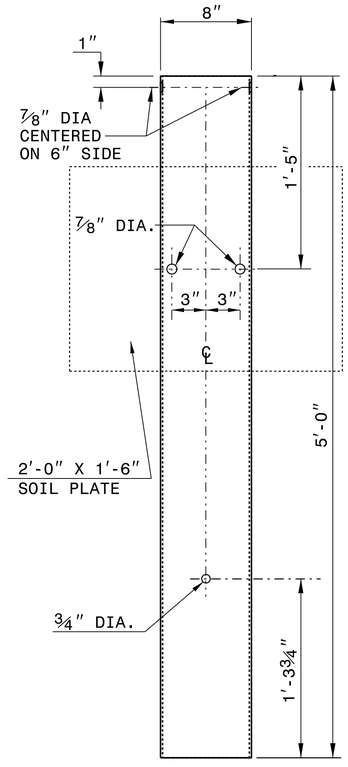
STANDARD W-BEAM GUARDRAIL



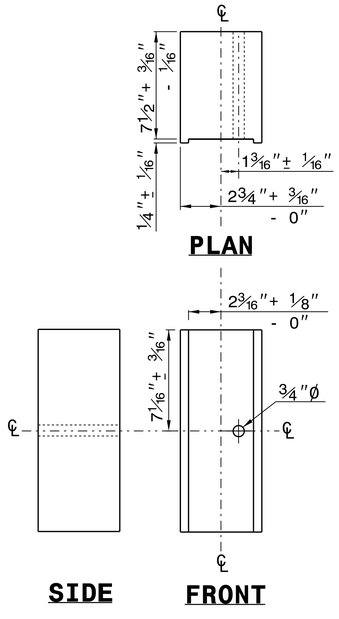
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"

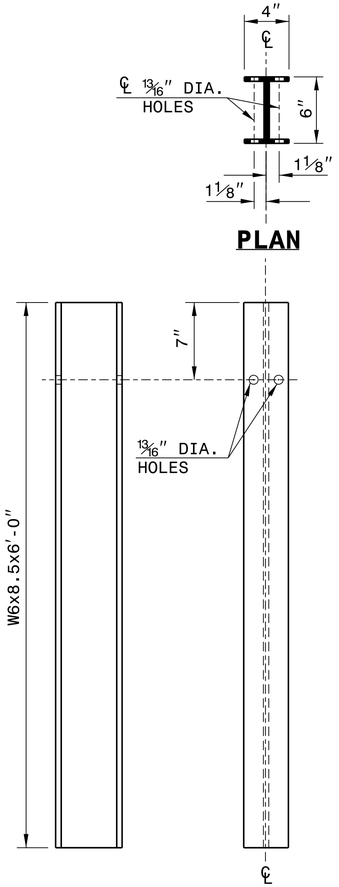


PLAN

SIDE

FRONT

ROUTED OFFSET BLOCK



SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

DocuSigned by: JOHN PHOWERTON NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON
8/7/2019

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

SEE TITLE BLOCK

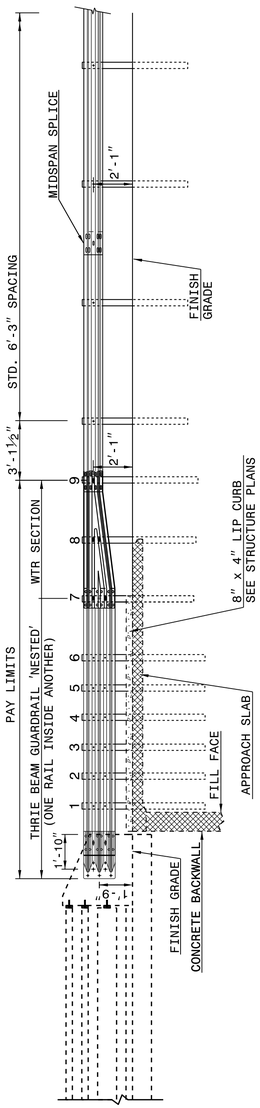
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	2C-2

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

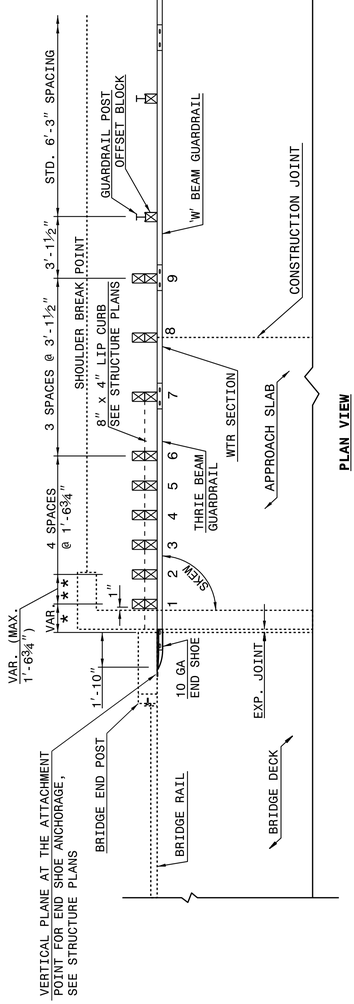
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



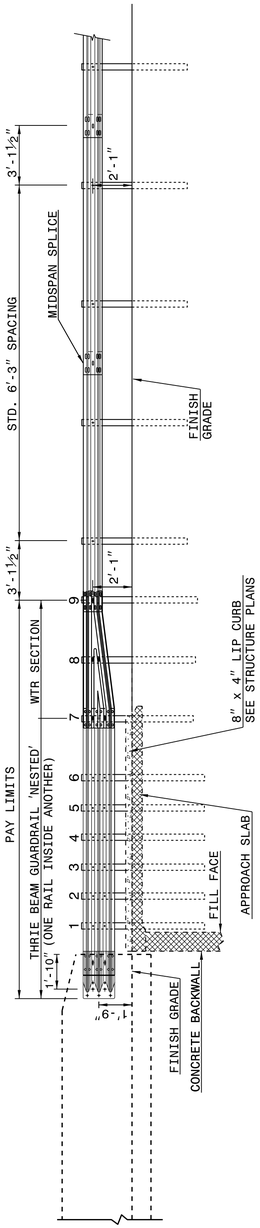
PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

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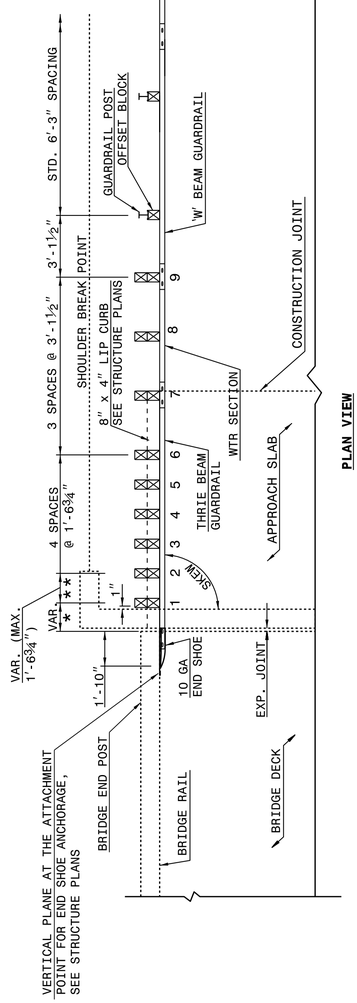
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

DocuSigned by:
Joel S. Howerton
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966
12/9/2019

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

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ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	2C-3

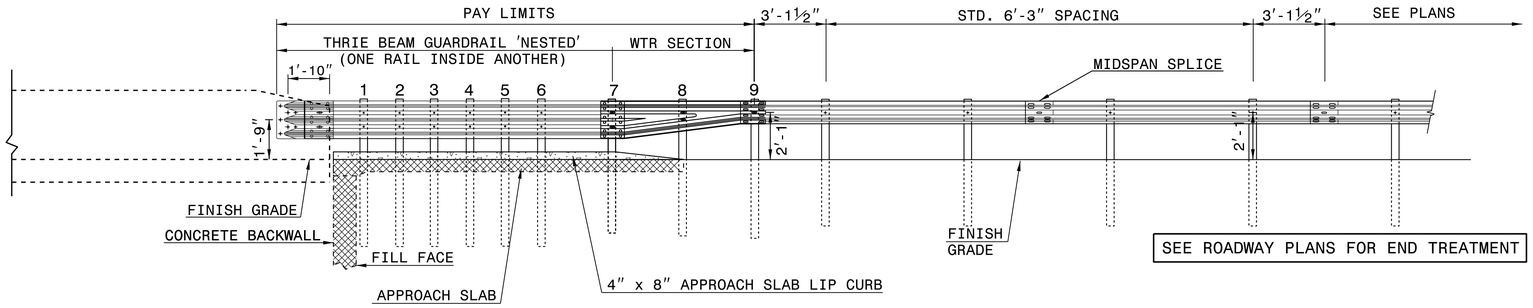
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC



ELEVATION

NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
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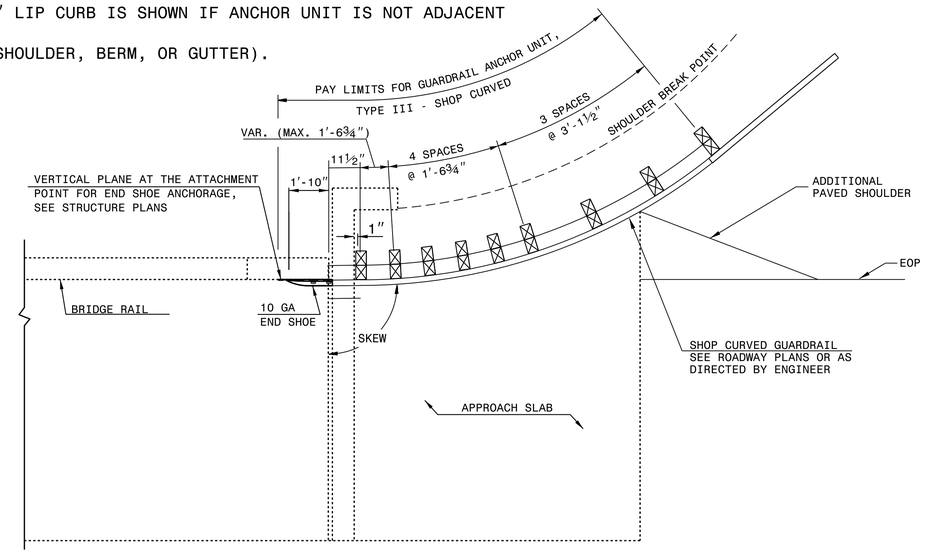
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

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

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

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PROFESSIONAL ENGINEER SEAL 022966
Joel S Howerton
11/25/2019

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AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: _____ DATE: _____
FILE SPEC.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

01-FEB-2018 09:09
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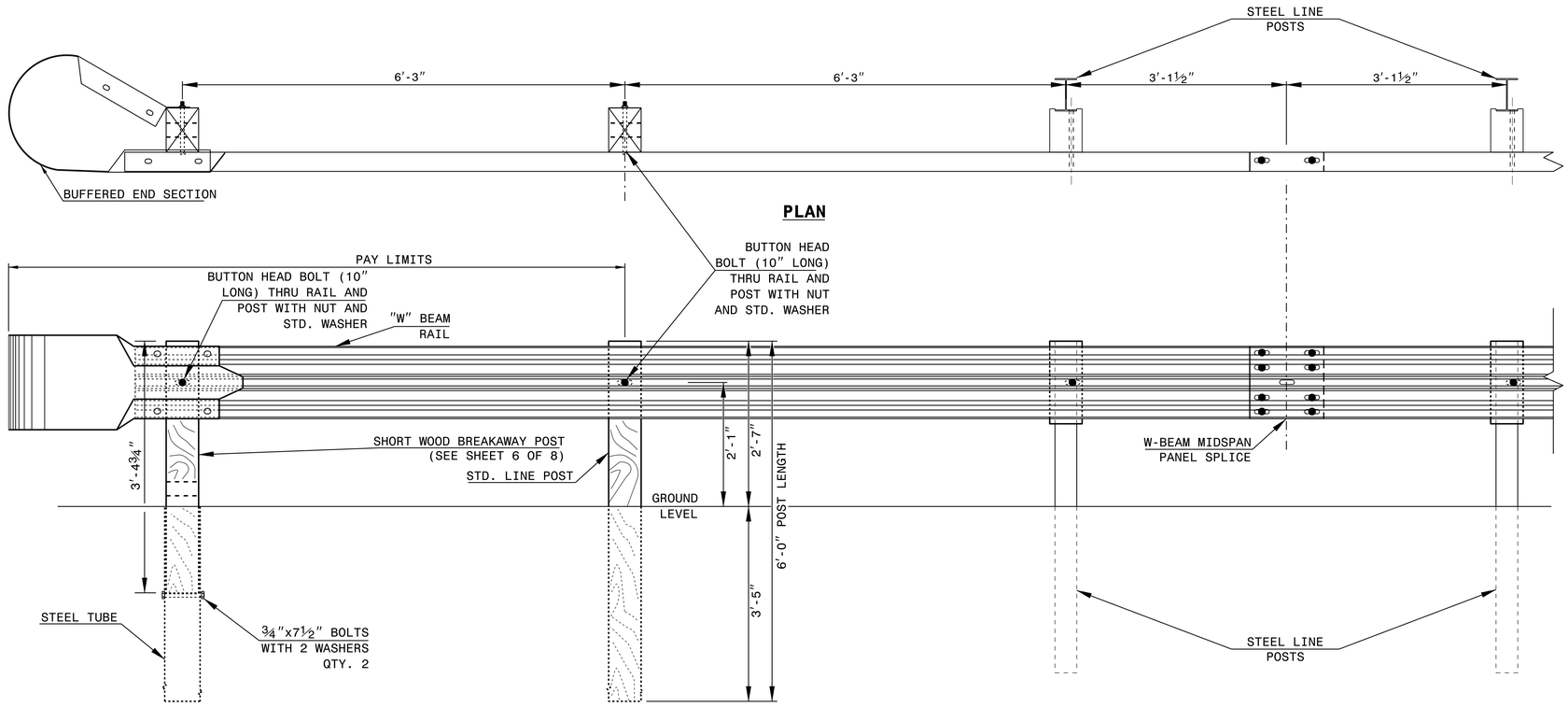
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	2C-4

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
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A.T.-1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
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FILE SPEC.: _____

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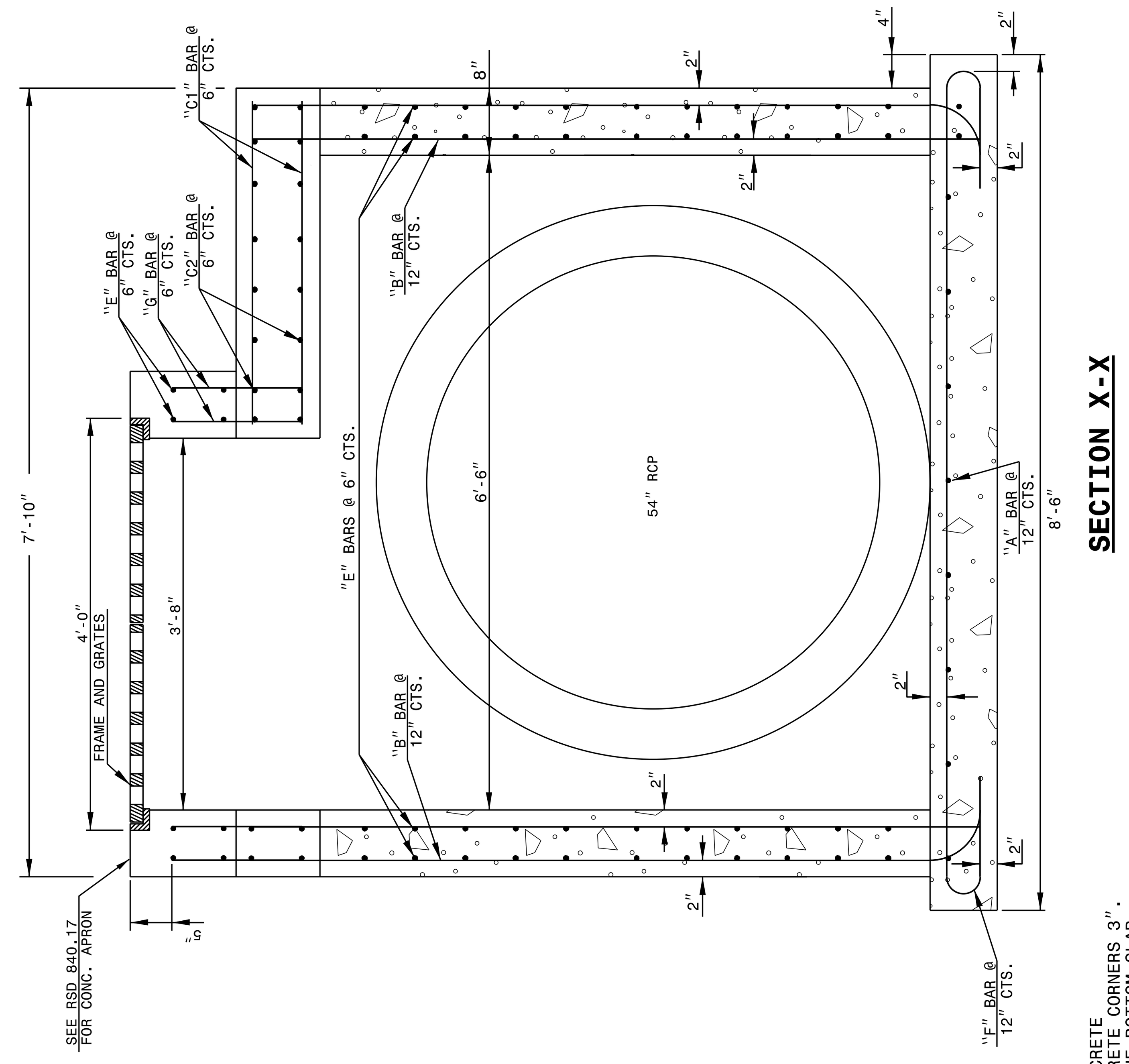
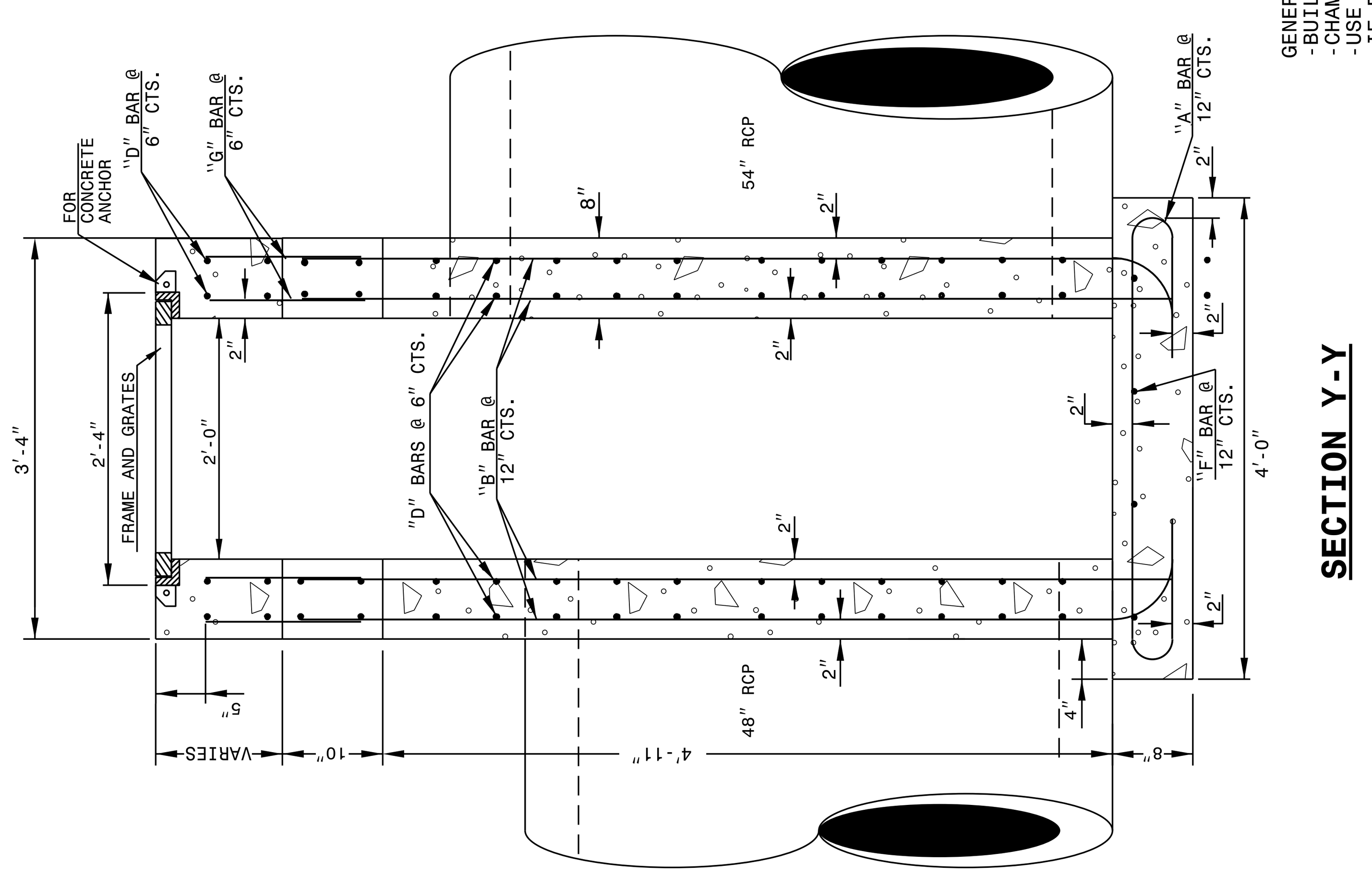
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54″
SHEET 1 OF 2 840D35



SECTION X-X

GENERAL NOTES:
-BUILD WITH CLASS 'AA' CONCRETE
-CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
-USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
-IF PIPES ARE SET IN THE BASE, FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
-PRECAST UNITS CONCRETE MAY BE USED IN LIEU CAST IN PLACE CONCRETE.
-REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
-PROVIDE DROP INLETS OVER 3'-6" DEEP WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
-FRAME AND GRATES ARE SEPARATE CONTRACT ITEM.

NOTES:
-HORIZONTAL (UP TO 10' MAX. IN BOTH DIRECTIONS) AND VERTICAL (UP TO 20' MAX.) DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGNS REQUIRE.
-ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.



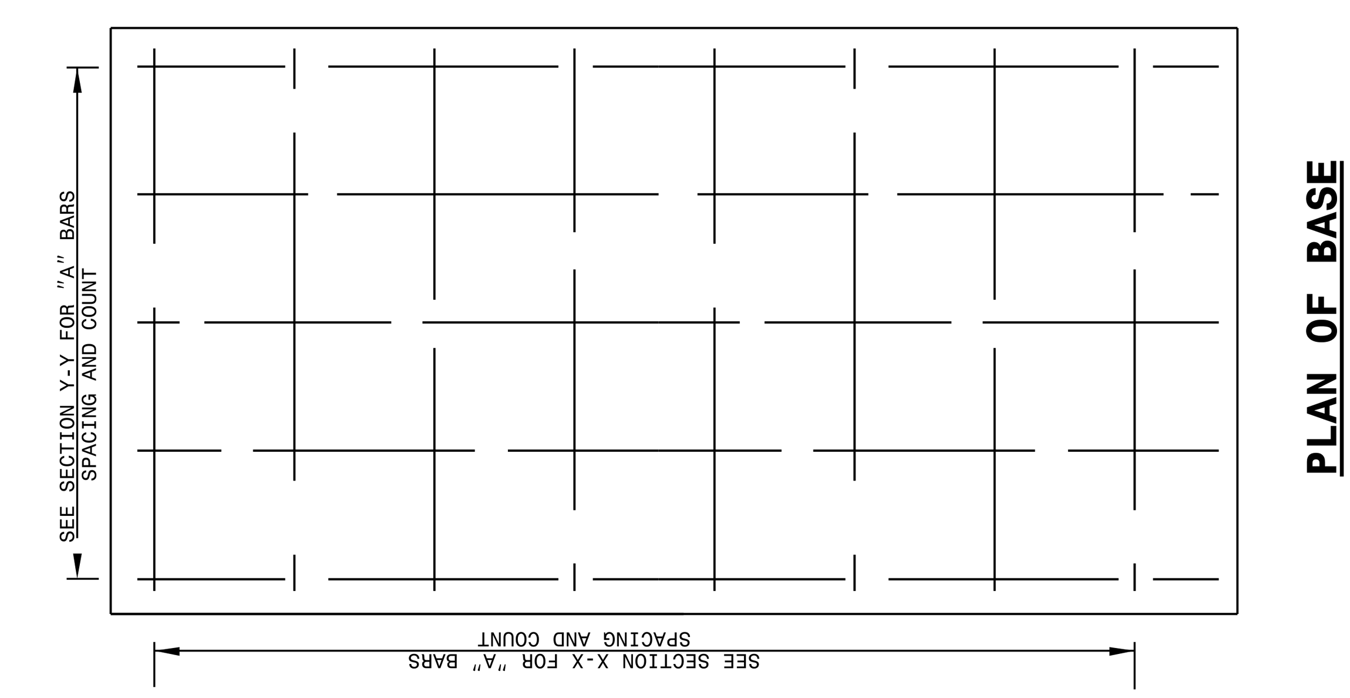
SECTION Y-Y

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54″

SHEET 1 OF 2 **840D35**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR PIPES UP TO 54″
SHEET 2 OF 2 840D35

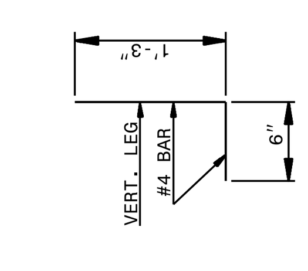


PLAN OF BASE

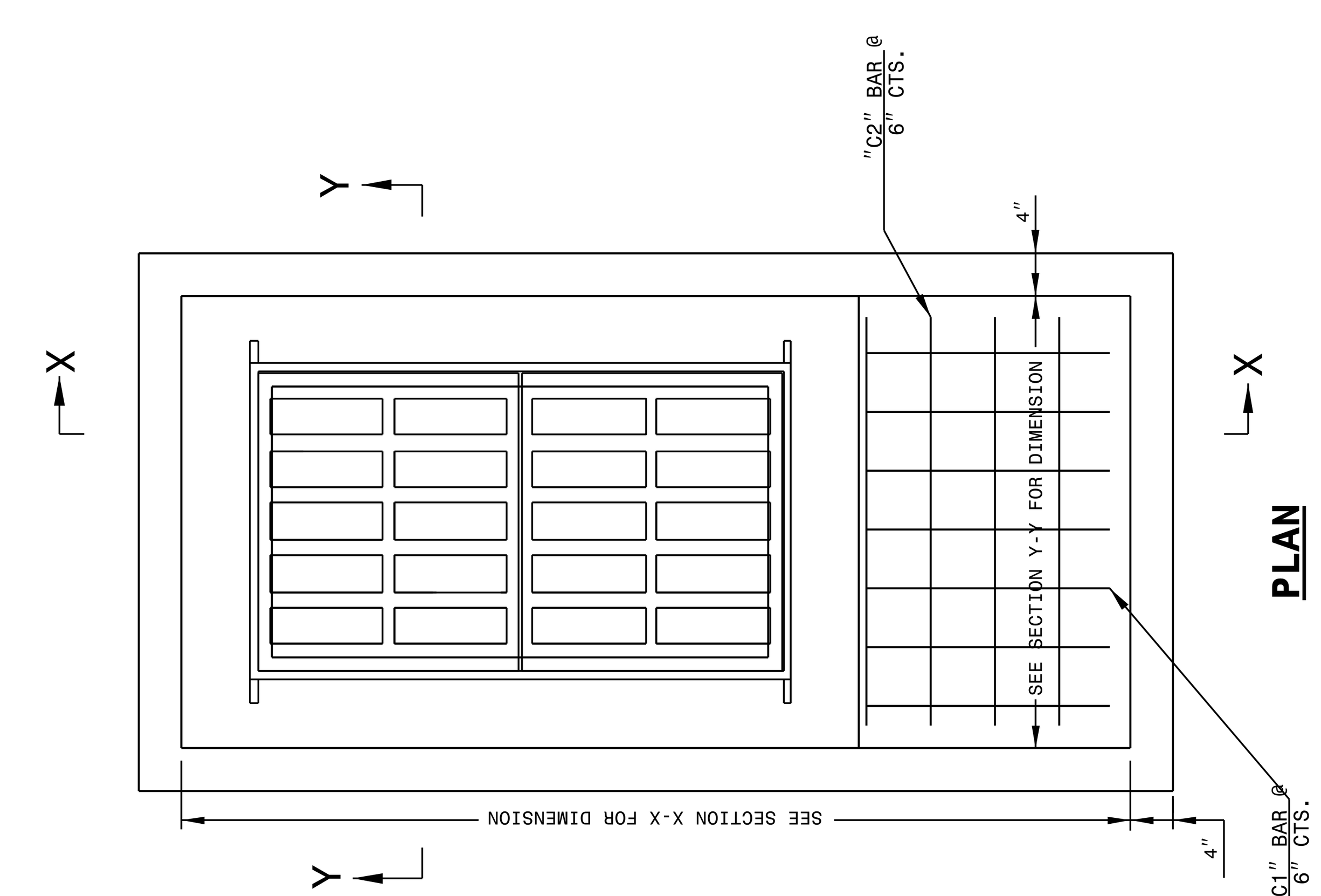
BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	5'-0"	42	47
B	#5	7'-6"	104	780
C1	#5	3'-4"	9	32
C2	#5	3'-0"	6	19
D	#5	7'-6"	48	376
E	#5	3'-0"	48	151
F	#5	10'-0"	4	42
G	#5	1'-8"	104	181
REINF. STEEL (TOTAL WEIGHT LBS.)				1628
CONCRETE TOTAL (CU.YDS.) CLASS 'AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

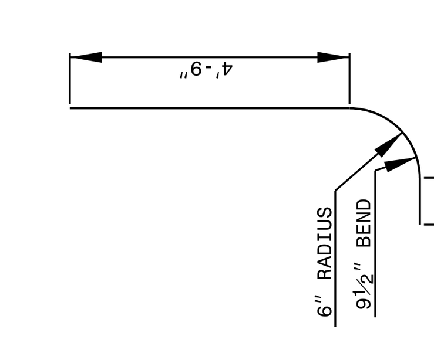
FOR EVERY 1 FOOT OF RISER USE 0.41 CU.YDS CONCRETE AND 390 LBS STEEL.



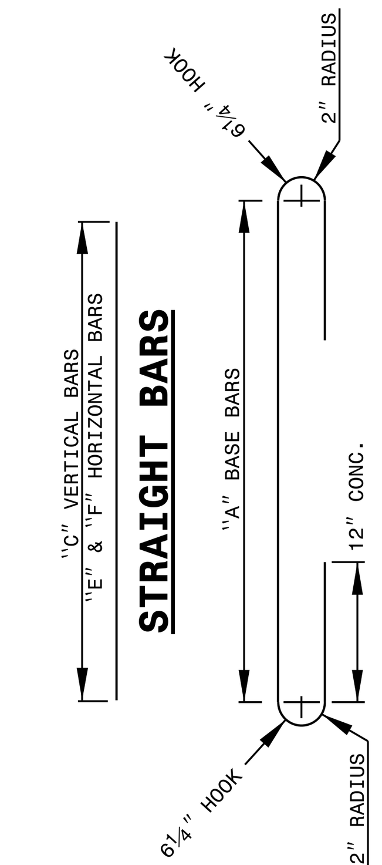
DOWEL-H



PLAN



CORNER BARS



STRAIGHT BARS

BASE BARS

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54″

SHEET 2 OF 2 **840D35**

DocuSigned by: Joel S. Howerton 873F2D17DCDC49F...
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
1/25/2019

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

SEE PLATE FOR TITLE

ORIGINAL BY: K. KEMPF DATE: 03-03-2015
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/840d35 TBDI Up to 54in.dgn

13-AUG-2018 09:00
S:\Contracts\Contracts\Special Details\jhowerton\840d35 TBDI Up to 54in.dgn
jhowerton AT CSD-292595

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	3B-1
R/W SHEET NO.	

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EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
–L–	11+15.00	12+58.74	LT & RT	215		5		210
–L–	13+31.26	15+30.00	LT & RT	298		20		278
–Y–	10+20.00	11+14.87	LT & RT	1		10	9	
TOTAL				514		35	9	488
LOSS DUE TO CLEARING AND GRUBBING								
WASTE IN LIEU OF BORROW							–9	–9
PROJECT TOTAL				514		38		479
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS								
GRAND TOTAL				514		38		479
SAY								500

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, 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."

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	11+15.00	12+58.74	LT/RT	274
–L–	13+31.26	14+50.00	LT/RT	210
			TOTAL:	484
			SAY:	490

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS IV R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
–L– STA. 15+00	LT	0506	0507		1971.9'	1963.3'	0.17								
–L– STA. 14+50	LT /RT	0507	0503	1967.8'	1963.3'	1962.8'	0.02				28'				
–L– STA. 15+00	RT	0505	0503		1971.2'	1965.0'	0.12								
–L– STA. 14+50	RT	0503	0502	1969.1'	1962.3'	1960.2'	0.04					56'			
–L– STA. 13+88	LT /RT	0501	0502		1962.5'	1961.2'	0.05			24'					
–L– STA. 13+88	RT	0502	0500	1965.1'	1960.2'	1957.5'	0.05					60'			
–L– STA. 12+30	RT	0601	0600	1962.9'	1959.4'	1958.4'	0.03								
–Y– STA. 10+31	LT /RT	0401	0400	1962.8'	1959.4'	1958.0'	0.04			40'					
TOTAL										64'	28'	116'			

STATION	C.S. PIPE (16 GAUGE) (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"						CLASS III R.C. PIPE 12"	15"	18"	24"	30"	36"	42"	48"
–L– STA. 15+00				48'																	
–L– STA. 14+50																					
–L– STA. 15+00			48'																		
–L– STA. 14+50																					
–L– STA. 13+88																					
–L– STA. 13+88																					
–L– STA. 12+30															40'						
–Y– STA. 10+31																					
TOTAL			48'	48'											40'						

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A: 5.0' THRU 10.0'	B: 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		
–L– STA. 15+00														
–L– STA. 14+50						1								
–L– STA. 15+00														
–L– STA. 14+50						1	1.75							
–L– STA. 13+88														
–L– STA. 13+88						1								
–L– STA. 12+30						1								
–Y– STA. 10+31						1								
TOTAL						5	1.75							

STATION	D.I. STD. 840.14	D.I. FRAME AND GRATE STD. 840.24	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	TRAFFIC BEARING G.D.I. STD. 840.35	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	SPECIAL DESIGN TRAFFIC BEARING 2GI					CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
–L– STA. 15+00																					
–L– STA. 14+50			1					1													
–L– STA. 15+00																					
–L– STA. 14+50						1		1				1									SEE DETAIL SHEET 2C–5
–L– STA. 13+88																					
–L– STA. 13+88						1		1				1									SEE DETAIL SHEET 2C–5
–L– STA. 12+30						1		1													
–Y– STA. 10+31	1	1																			
TOTAL	1	1	1			3		4				2									

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

* W MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
"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 STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W* APPROACH END	W* TRAILING END	ANCHORS XI MOD	B–77	GREU TL–2	M–350	TYPE III	CAT–1	VI MOD	BIC	AT–1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	11+96.85	12+53.43	RT	56.25			12+53.43		4	7	25		0.5				1		1											BROWN POWDER COATED
–L–	12+08.95	12+64.66	LT	56.25				12+64.66	4	7		25		0.5			1		1											BROWN POWDER COATED
–L–	13+29.35	13+56.94	RT	6.25	31.25			13+29.35	4	7									1				1							BROWN POWDER COATED
–Y–	10+55.30	11+07.29	LT	25.00	31.25		11+07.29		3.5	6.5	25		0.5				1		1											BROWN POWDER COATED
TOTAL:				143.75	62.50												3 EA		4 EA				1 EA							
TOTAL ANCHOR LENGTH:				118.75	37.50		3 GREU @ 25' = 75', 2 TYPE III @ 18.75' = 37.5', 2 TYPE III SHOP CURVE @ 18.75' = 37.50', 1 AT–1 @ 6.25' = 6.25'																							
TOTAL GUARDRAIL LENGTH:				25.00	25.00																									
SAY:				25.00 LF	25.00 LF																									

1/25/2019
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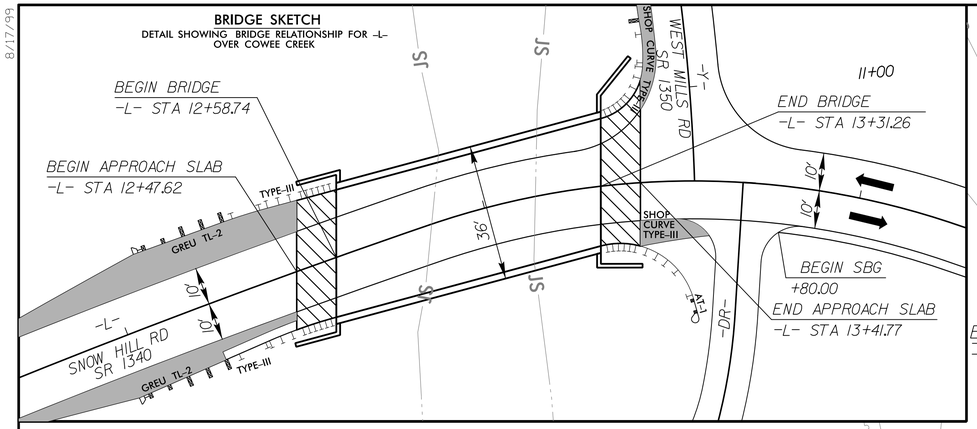
WindsoWA

8/17/99

BRIDGE SKETCH
DETAIL SHOWING BRIDGE RELATIONSHIP FOR –L– OVER COWEE CREEK



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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — DocuSigned by: NIKKI T. HONEYCUTT, NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER, 11/26/2019

HYDRAULICS ENGINEER — DocuSigned by: CHINMAY SHARMA, NORTH CAROLINA PROFESSIONAL SEAL 040590 ENGINEER, 11/26/2019

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NAD 83 NA 2011

–Y– PI Sta 10+75.74
Δ = 11° 35' 19.2" (RT)
D = 11° 27' 33.0"
L = 101.13'
T = 50.74'
R = 500.00'

–POLEROAD– PI Sta 10+75.31
Δ = 38° 09' 13.8" (LT)
D = 74° 24' 36.4"
L = 51.28'
T = 26.63'
R = 77.00'

–L– PI Sta 13+58.40
Δ = 37° 46' 39.9" (RT)
D = 26° 38' 57.1"
L = 141.76'
T = 73.56'
R = 215.00'
SE = .038

–L– PI Sta 11+42.62
Δ = 7° 25' 05.2" (RT)
D = 2° 36' 15.7"
L = 284.83'
T = 142.62'
R = 2,200.00'
SE = .038

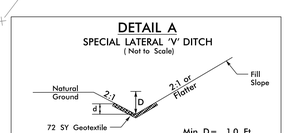
–L– PI Sta 15+79.07
Δ = 9° 34' 15.0" (RT)
D = 15° 54' 55.8"
L = 60.14'
T = 30.14'
R = 360.00'

–DR– PI Sta 10+60.55
Δ = 19° 28' 30.2" (RT)
D = 38° 11' 49.9"
L = 50.99'
T = 25.74'
R = 150.00'

BEGIN CONSTRUCTION –Y– STA 10+20.00
POT Sta. 10+00.00
PC Sta. 10+25.00
PT Sta. 14+26.59
PC Sta. 15+49.93
PT Sta. 16+30.00
POC Sta. 10+50.00
POC Sta. 12+84.83
BEGIN PROJECT WBS 17BP.14.R.162 –L– STA 11+15.00
BEGIN CONSTRUCTION –L– STA 11+00.00
BEGIN BRIDGE –L– STA 12+58.74
BEGIN APPROACH SLAB –L– STA 12+47.62
END BRIDGE –L– STA 13+31.26
END APPROACH SLAB –L– STA 13+41.77
END CONSTRUCTION –L– STA 15+42.51
END PROJECT WBS 17BP.14.R.162 –L– STA 15+30.00
END CONSTRUCTION –DR– STA 10+86.13
BEGIN FENCE +24.00
END FENCE +38.00
BEGIN FENCE +58.78
END FENCE +47.77
BEGIN FENCE +85.00
END FENCE +30.65
BEGIN SBG +21.87, 13.07'
END SBG +83.00
PT Sta. 10+85.79
PT Sta. 11+00.00
PC Sta. 10+34.81
–L– Sta. 13+68.90 = –DR– Sta. 10+00.00
–L– Sta. 13+56.06 = –Y– Sta. 11+24.88
SAFETY FENCE
DO NOT DISTURB HEDGEROW 11+00
REMOVE
UNCLASSIFIED STRUCTURE EXCAVATION
CLASS II RIP RAP EST 95 TONS GEOTEXTILE FABRIC EST 232 S.Y.
CLASS II RIP RAP EST 102 TONS GEOTEXTILE FABRIC EST 268 S.Y.
SNOW HILL RD SR 1340
WEST MILLS RD SR 1350
COWEE CREEK
GREU TL-2
TYPE-III
SHOP CURVE TYPE-III
15" RCP-III
18" RCP-IV
30" RCP-IV
24" CSP
18" CSP
2-S-W&R-D
2-S-D
5' WW & 2 S BW
5' WW & 2 S BW.
45' TAPER (LT & RT)
60' TAPER (LT & RT)
15' (TYP)
8:1
20:1
10:1
2:1
GRAVEL DRIVE
VAN GUNDY GRADING
DRAIN FIELD
EXISTING R/W
4' WD RAIL
I-S-F-B FORMER P.O.
BY I-4
WOODS
LP GAS
GRADE TO DRAIN
FS
OPEN END PIPE
TB 2GI SPE. DSN, SEE DETAIL SHEET 2C-5
2GI-A
FALSE SUMP SEE DETAIL B
SPECIAL LATERAL V DITCH SEE DETAIL A
MAINTAINED R/W
16'+/- ASPH.
18'+/- SOIL RD.
WEST MILLS RD.
N 24°40'27" W 154.37'
N 24°40'27" W 3.83'
S 70°56'41" W 139.49'
N 69°07'00" E
N 11°08'15.0" E
S 74°45'59.2" E
S 65°42'29" E 215.80'
N 06° 177.

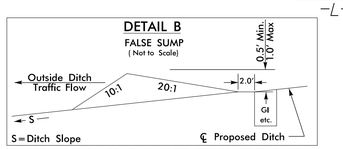
(1) D. E. THOMPSON DB Z-19 PG 1926
(2) JODY L. BARROWS AND WIFE TIFFANY L. BARROWS DB I-37 PG 1277 DB I-37 PG 1299
(3) DANIEL CAREY AND WIFE DARLENE CAREY DB Z-36 PG 1954-1965 PB 4 CARD# 7546
(4) D. E. THOMPSON DB Z-19 PG 1926
(5) THE LAND AND TRUST FOR LITTLE TENNESSEE DB P-35 PG 2467 PB 4 CARD# 7546

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 14+00 –L– LT TO STA. 15+00 –L– LT

DETAIL B
FALSE SUMP
(Not to Scale)



FROM STA. 14+39.67 –L– LT TO STA. 14+93.81 –L– LT

SEE SHEET 5 FOR PROFILE
SEE SHEETS S-1 THRU S-5 FOR STRUCTURE PLANS

NOTES:
1. DURING CONSTRUCTION TAKE NECESSARY PRECAUTIONS TO NOT IMPACT EXISTING SEWER LINES ON PARCEL #3.
2. DRIVEWAY (–DR–) SHALL BE CONSTRUCTED IN A MANNER SO THAT EXISTING DRAINAGE PATTERN IS MAINTAINED.
3. PAVE FIRST 5' OF DRIVEWAY (–DR–) WITH 6" CONCRETE FROM 13+51.25 TO 13+86.57.
4. INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

1/25/2019
17bp14r162_rdy_psht04.dgn
WindowsUser

8/17/99

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	5
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

DocuSigned by: Nikki T. Honeycutt
NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT
4/26/2019

HYDRAULICS ENGINEER

DocuSigned by: Shashank Sharma
NORTH CAROLINA PROFESSIONAL SEAL 040590 ENGINEER SHASHANK SHARMA
4/26/2019

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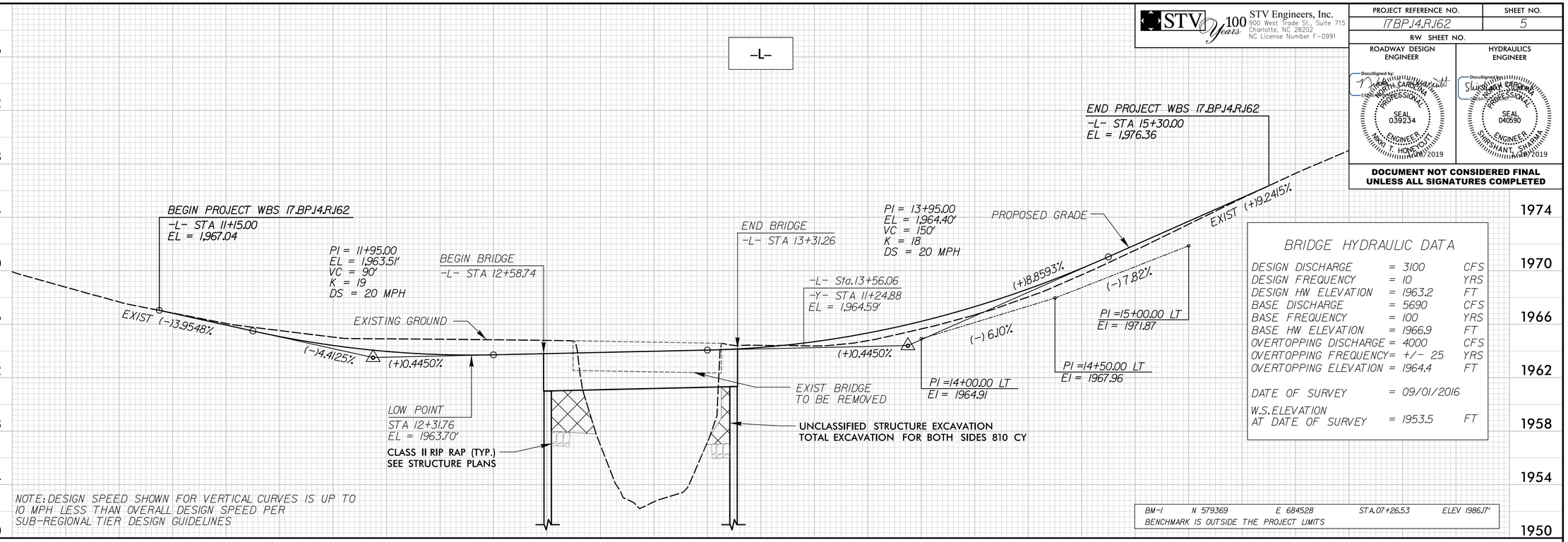
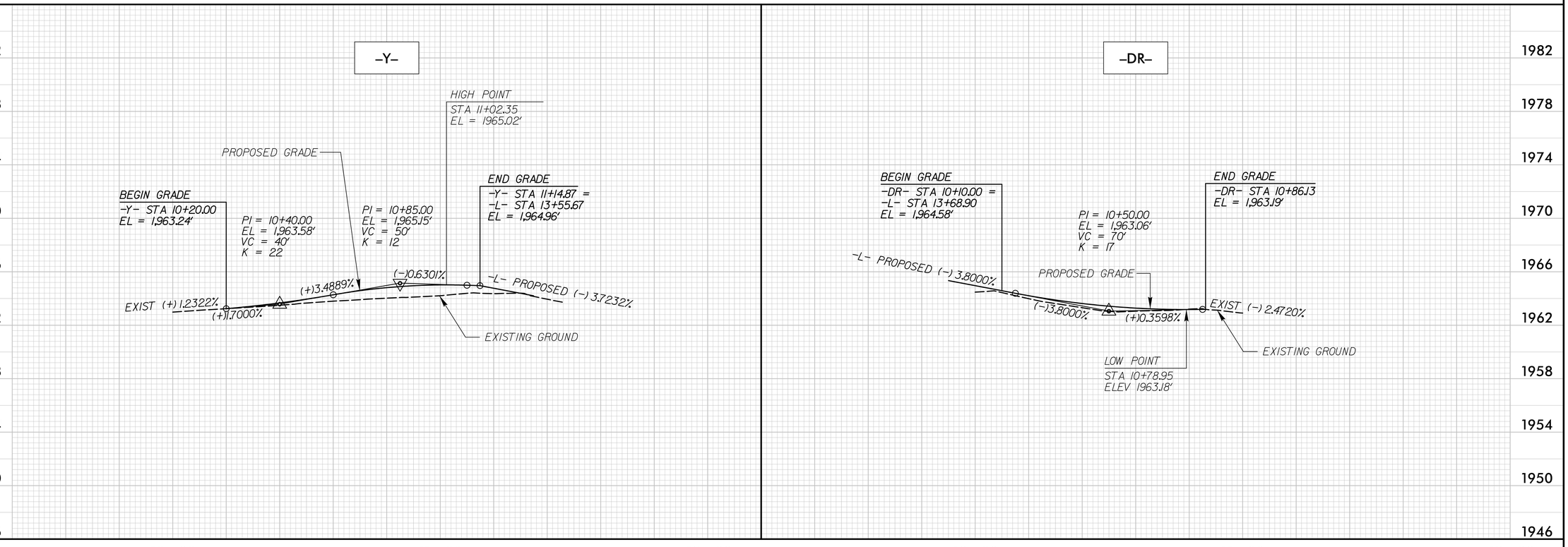


NOTE: DESIGN SPEED SHOWN FOR VERTICAL CURVES IS UP TO 10 MPH LESS THAN OVERALL DESIGN SPEED PER SUB-REGIONAL TIER DESIGN GUIDELINES

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 3100	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 1963.2	FT
BASE DISCHARGE	= 5690	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1966.9	FT
OVERTOPPING DISCHARGE	= 4000	CFS
OVERTOPPING FREQUENCY	= +/- 25	YRS
OVERTOPPING ELEVATION	= 1964.4	FT
DATE OF SURVEY	= 09/01/2016	
W.S.ELEVATION AT DATE OF SURVEY	= 1953.5	FT

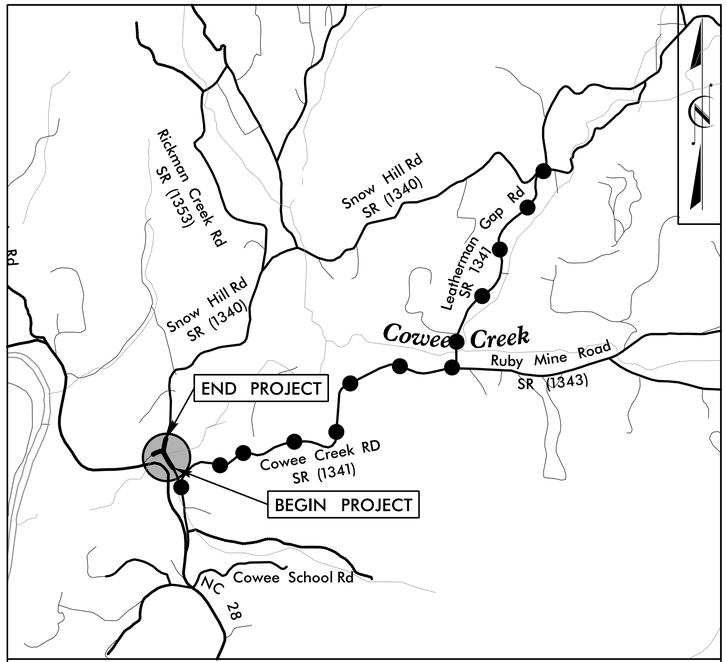
BM-1 N 579369 E 684528 STA.07+26.53 ELEV 1986.17'
BENCHMARK IS OUTSIDE THE PROJECT LIMITS



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MACON COUNTY



VICINITY MAP FOR BRIDGE #550088

OFFSITE DETOUR N.T.S.

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN
TMP-2	OFFSITE DETOUR SIGNING AND ROAD CLOSURE SIGNING
TMP-3	SPECIAL SIGN DESIGN

SHEET NO.
TMP-1

WBS PROJECT: 17BP.14.R.162

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

JOSEPH E. HUMMER, PE STATE TRAFFIC MANAGEMENT ENGINEER

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

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Charlotte, NC 28202
NC License Number F-0991

NIKKI T. HONEYCUTT, PE
TRAFFIC ENGINEER

CLARK GROVES
TRANSPORTATION DESIGNER

APPROVED: DocuSigned by: Nikki T. Honeycutt
DATE: 1/28/2019

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

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1/25/2019

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.162	TMP-1A

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BRIDGE #550088

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 JANAUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANES CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED ATTENUATOR - DELINEATION

LEGEND

GENERAL

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

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED: DocuSigned by: Nikki T. Honeycutt E8E3E4EA9F4447J...

DATE: 1/28/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

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

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS & LEGEND

1/25/2019
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PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.162	TMP-1B

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BRIDGE #550088

PROJECT NOTES

MANAGEMENT STRATEGIES

- CLOSE SR 1340 (SNOW HILL ROAD).
- DETOUR THRU TRAFFIC OFFSITE.
- MAINTAIN LOCAL TRAFFIC.

PHASING NOTES

STEP 1: USING RSD 1101.03 SHEET 1 OF 9, AND TMP-2, INSTALL DETOUR SIGNS AND PLACE TYPE III BARRICADES TO CLOSE SR 1340 (SNOW HILL RD) TO THRU TRAFFIC AND DETOUR ONTO PROPSED DETOUR

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

REMOVE EXISTING STRUCTURE 550088 AND CONSTRUCT PROPOSED STRUCTURE FROM -L- STATION 12+58.74 TO -L- STATION 13+31.26. (SEE ROADWAY AND STRUCTURE PLANS)

STEP 3: PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS FROM -L- STATION 11+15 TO -L- STATION 15+30, AND FROM -Y- STATION 10+20 TO -Y- STATION 11+05. TIE PROPOSED PAVEMENT MARKINGS TO THE EXISTING PAVEMENT MARKINGS (SEE PAVEMENT MARKING PLAN).

STEP 4: REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.

OPEN SR 1340 (SNOW HILL RD) TO FINAL TRAFFIC PATTERN.

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) CALENDER 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.

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

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

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

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

TRAFFIC CONTROL DEVICES

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

LOCAL NOTES

1. NOTIFY THE ENGINEER, MACON COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

APPROVED: DocuSigned by: [signature] — E8E3E4EA0F44473...

DATE: 1/28/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

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

TRANSPORTATION OPERATIONS PLAN

1/25/2019
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WindsorWA

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.162	TMP-2

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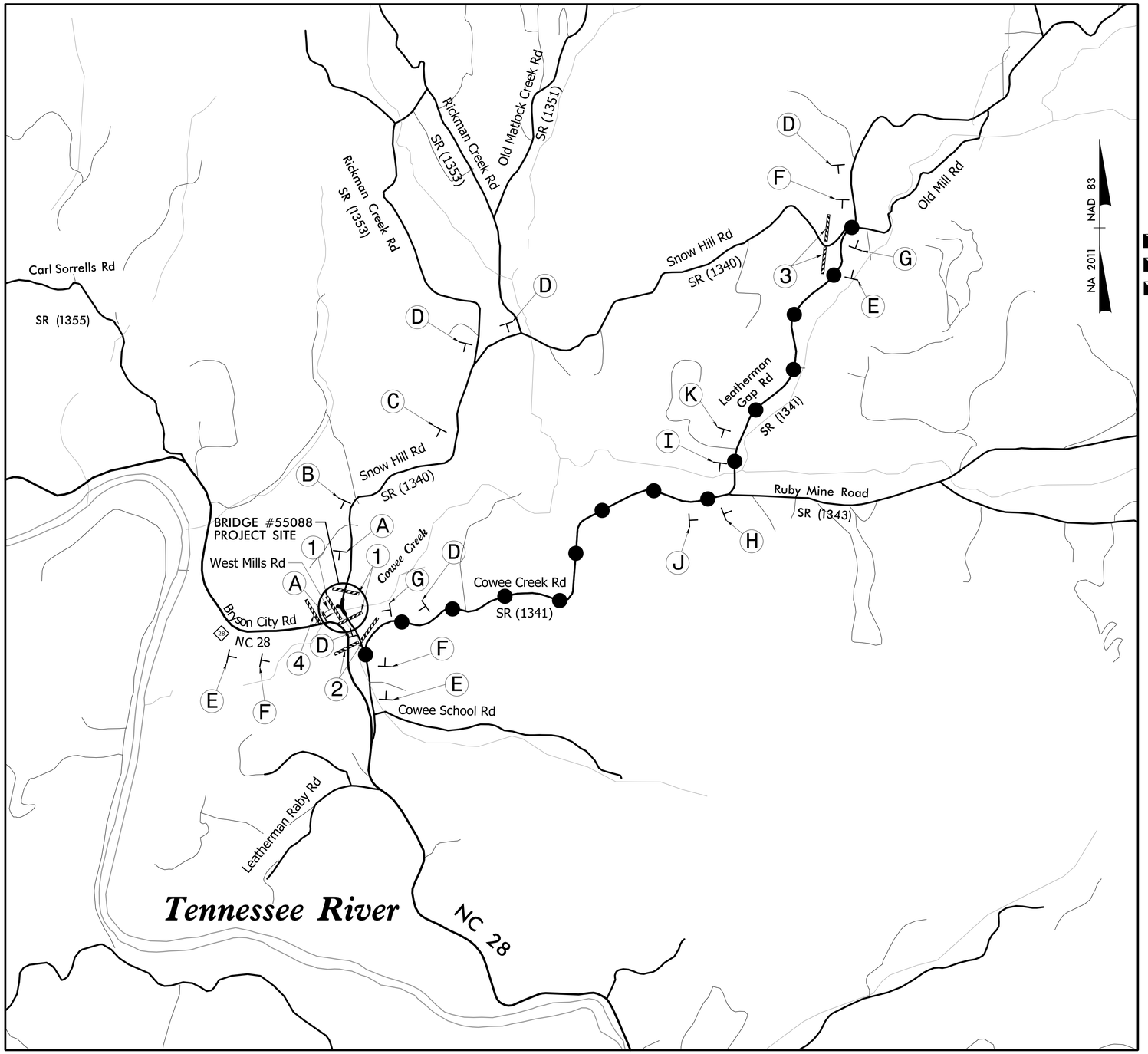
ROADWAY DESIGN ENGINEER

DocuSigned by: Kevin T. Honeycutt
NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER KEVIN T. HONEYCUTT
4/26/2019



R11-2
48" X 30"
ROAD CLOSED
TYPE III BARRICADE(S)
1

R11-4
60" x 30"
ROAD CLOSED TO THRU TRAFFIC
DETOUR
M4-10R
48" x 18"
TYPE III BARRICADE
2

R11-3
60" x 30"
ROAD CLOSED 2 MILES AHEAD LOCAL TRAFFIC ONLY
DETOUR
M4-10L
48" x 18"
TYPE III BARRICADE
3

R11-4
60" x 30"
ROAD CLOSED TO THRU TRAFFIC
TYPE III BARRICADE
4

ROAD CLOSED 500 FT
W20-3
48" X 48"
A

ROAD CLOSED 1000 FT
W20-3
48" X 48"
B

ROAD CLOSED AHEAD
W20-3
48" X 48"
C

ROAD CLOSED AHEAD
W20-3
48" X 48"
NEXT RIGHT
SP-4R
42" X 12"
D

ROAD CLOSED AHEAD
W20-3
48" X 48"
NEXT LEFT
SP-4L
42" X 12"
E

SNOW HILL RD
DETOUR AHEAD
W20-2
48" X 48"
F

SNOW HILL RD
END DETOUR
M4-8 A
24" X 18"
G

SNOW HILL RD
DETOUR
M4-8
24" X 12"
M6-1 L
21" X 15"
H

SNOW HILL RD
DETOUR
M4-8
24" X 12"
M6-1
21" X 15"
I

SNOW HILL RD
DETOUR
M4-8
24" X 12"
M5-1 L
21" X 15"
J

SNOW HILL RD
DETOUR
M4-8
24" X 12"
M5-1 R
21" X 15"
K

ACCESS MUST BE MAINTAINED TO RESIDENTS OF PARCEL #3 AND #4. DETAILS OF ACCESS IS TO BE DETERMINED BY THE CONTRACTOR, DISTRICT 3 RESIDENT ENGINEER'S OFFICE, AND THE RESIDENTS/HOMEOWNERS.

SEE ROADWAY STD DWG 1101.03, SHEET 1 OF 9 FOR ADVANCE WARNING AND BARRICADE PLACEMENT.

800 400 0 800 1600
Scale: 1" = 800'

1/25/2019
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WindowsA

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.162	TMP-3

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BRIDGE #550088

SIGN NUMBER: SP-1 BACKG COLOR: Orange
TYPE: STATIONARY COPY COLOR: Black
QUANTITY: 9

SIGN WIDTH: 36″
HEIGHT: 24″
TOTAL AREA: 6.0 Sq.Ft.

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

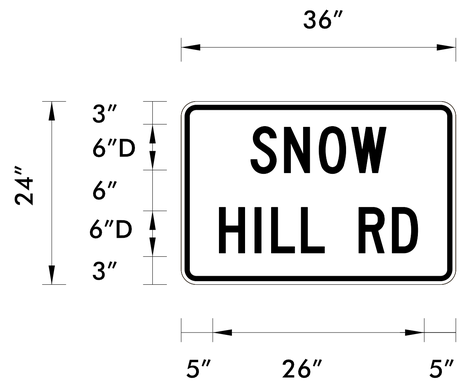
NO. Z BARS:
LENGTH:

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 encapsulated lens reflective sheeting.
2. Background shall be NC Grade B fluorescent.

DESIGN BY: ERW CHECKED BY: **
PROJECT ID: 17BP.14.R.162 DIV: 14 DATE: Nov 29, 2017



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter positions are to the lower left corners

																										Series/Size Text Length
	S	N	O	W																						C 2000 / 6
	9.1	13.5	18.1	22.3																						17.8
	H	I	L	L		R	D																			C 2000 / 6
	5	9.7	11.8	15.7	18.8	23.3	27.7																			26

NORTH CAROLINA D.O.T. SIGN DETAIL

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APPROVED DocuSigned by: [signature] DATE: 1/28/2019
E5E5E4EA5F44473...

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

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

TRAFFIC MANAGEMENT PLANS

1/25/2019
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PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.162	PMP-1

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PAVEMENT MARKING PLAN

BRIDGE #550088

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANAUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL & BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

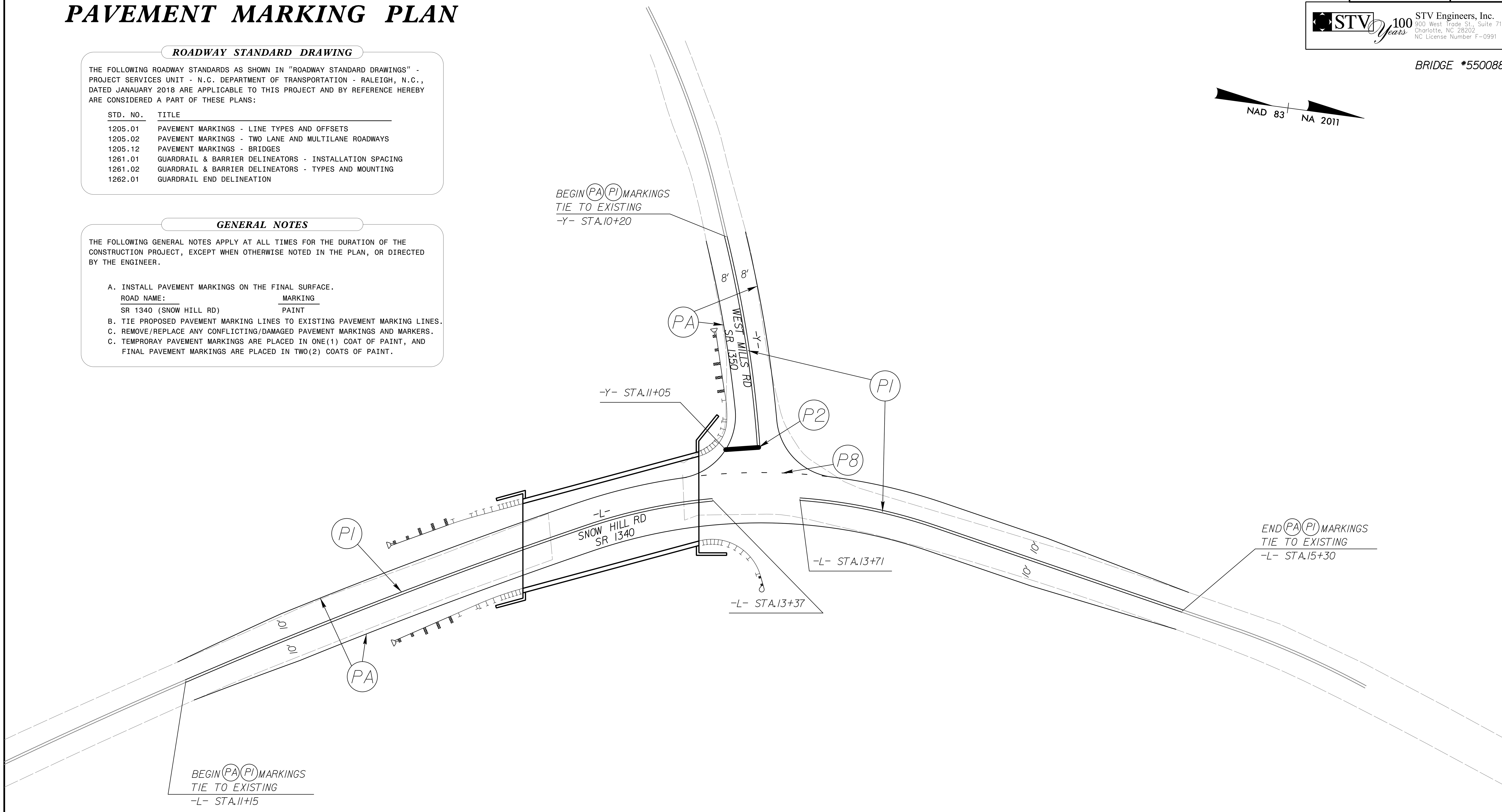
GENERAL NOTES

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.

A. INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

ROAD NAME:	MARKING
SR 1340 (SNOW HILL RD)	PAINT

B. TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
C. REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
C. TEMPRORAY PAVEMENT MARKINGS ARE PLACED IN ONE(1) COAT OF PAINT, AND FINAL PAVEMENT MARKINGS ARE PLACED IN TWO(2) COATS OF PAINT.



PAVEMENT MARKING SCHEDULE

P2 - PAINT (24" WHITE)	WHITE STOPBAR	13 LF
P8 - PAINT (4" WHITE)	2FT. - 6 FT./SP	15 LF
PA - PAINT (4" WHITE)	WHITE EDGELINE	987 LF
PI - PAINT (4" YELLOW)	DOUBLE YELLOW CENTER LINE	930 LF

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APPROVED: DATE: 1/28/2019

NORTH CAROLINA PROFESSIONAL SEAL 039234 ENGINEER NIKKI T. HONEYCUTT

PAVEMENT MARKING DETAIL

SCALE:	20
DATE:	11/29/17
DWG. BY:	ERW
DESIGN BY:	ERW
REVIEWED BY:	- - -

REVISIONS

R:\Traffic\TrafficControl\PMP\17BP14R162_rdy_pmp01.dgn

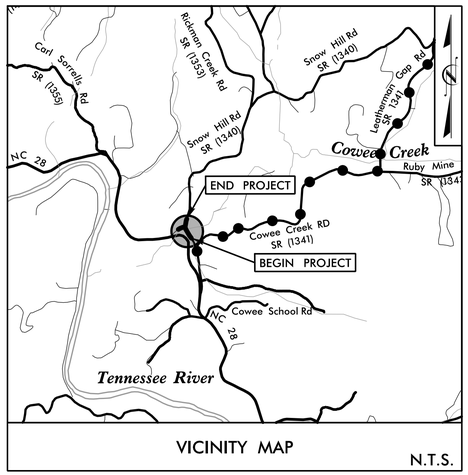
1/25/2019

WBS: 17BP.14.R.162

PROJECT NO.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.162	EC-1	9

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.162		P.E.
17BP.14.R.162		R/W & UTILITIES
17BP.14.R.162		CONSTRUCTION



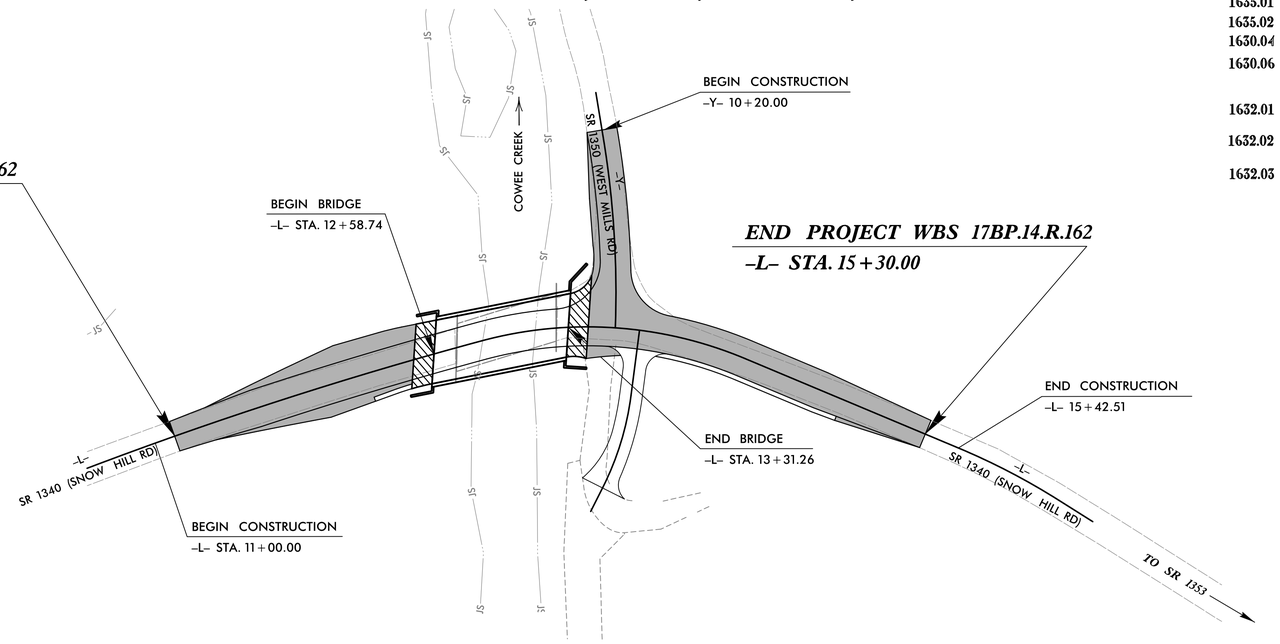
VICINITY MAP N.T.S.

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

NAD 83 NA 2011

LOCATION: BRIDGE #088 OVER COWEE CREEK ON ST 1340 (SNOW HILL RD)

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



BEGIN PROJECT WBS 17BP.14.R.162
–L– STA. 11+15.00

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

TO SR 1453

THIS PROJECT IS NOT WITHIN A MUNICIPAL BOUNDARY. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

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	Guide for 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.

GRAPHIC SCALE

0 20

PLANS

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:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F–0991

2018 STANDARD SPECIFICATIONS

Designed by:

EDWARD VANCE, PE ***161***

NAME *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
693 Mountain Rd
Hendersonville, NC 28791

2018 STANDARD SPECIFICATIONS

Reviewed by:

REID WHITEHEAD, CPESC

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 2018 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	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	Guide for 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 For Pumped Effluent	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		

1/25/2019
H:\Projects\Macon\CADD\PSH\EC\17BP14R162_hyd_EC_tsh.dgn
kwhitehead

PROJECT REFERENCE NO.	SHEET NO.
17.BPJ4.R162	EC-2
R/W SHEET NO.	

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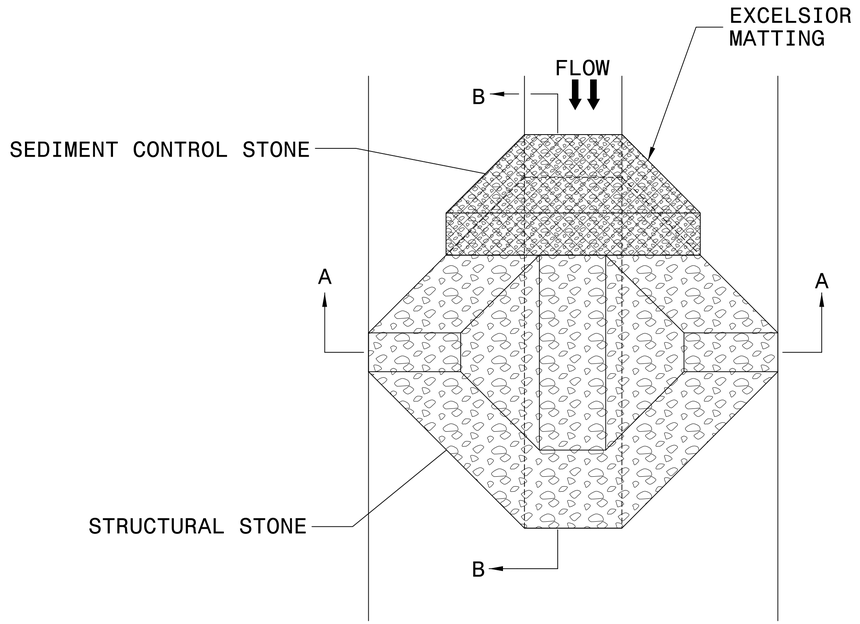
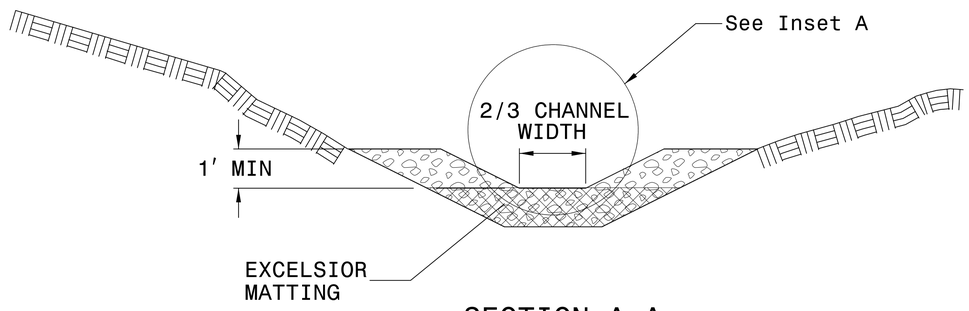
TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

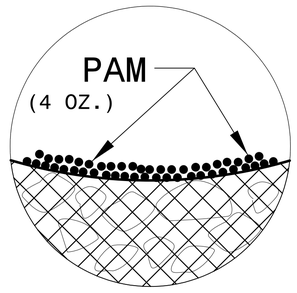
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

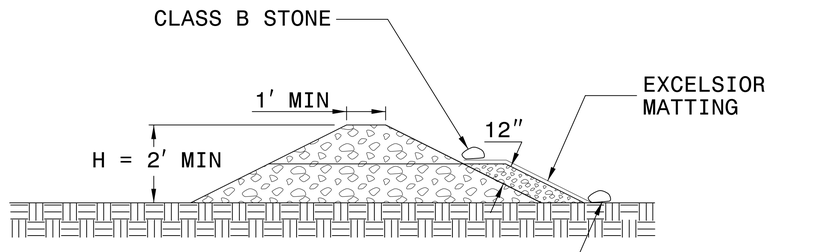
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.62	EC-2A
R/W SHEET NO.	

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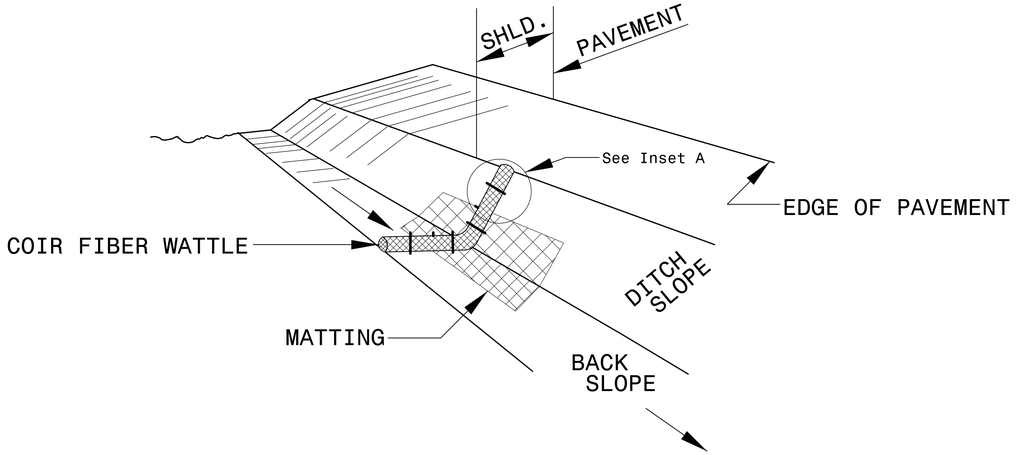
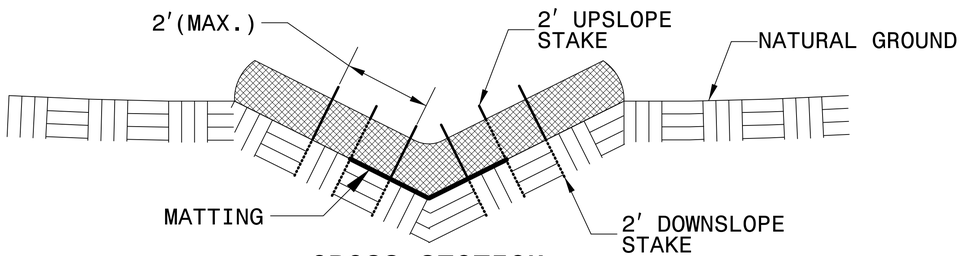
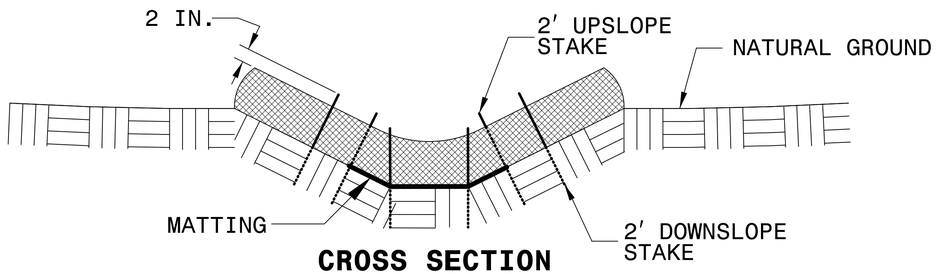
COIR FIBER WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

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

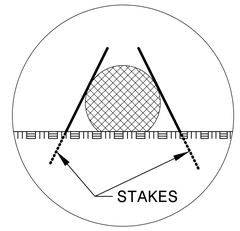
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

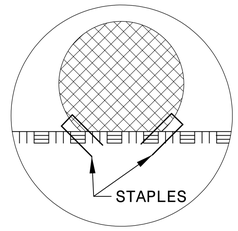
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

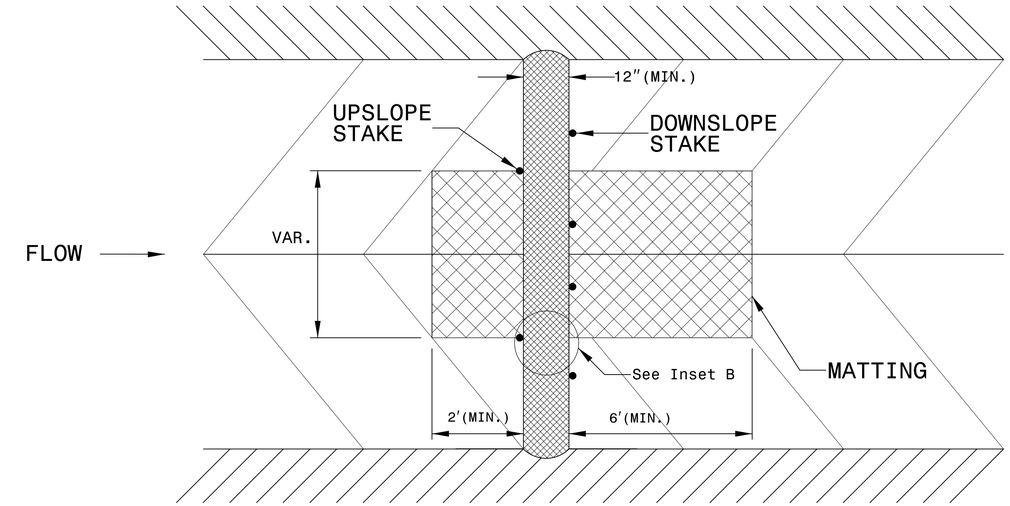
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R162	EC-2B
R/W SHEET NO.	

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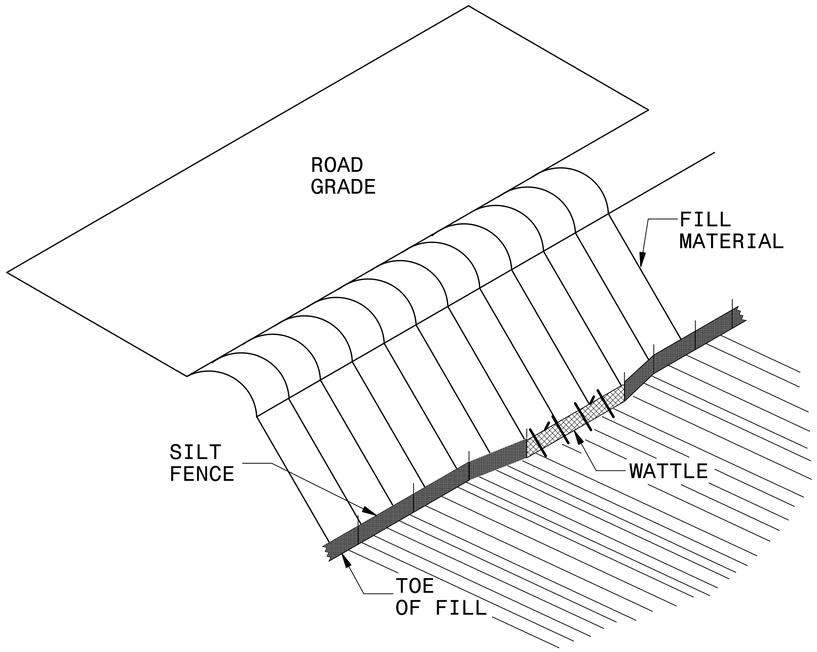
SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

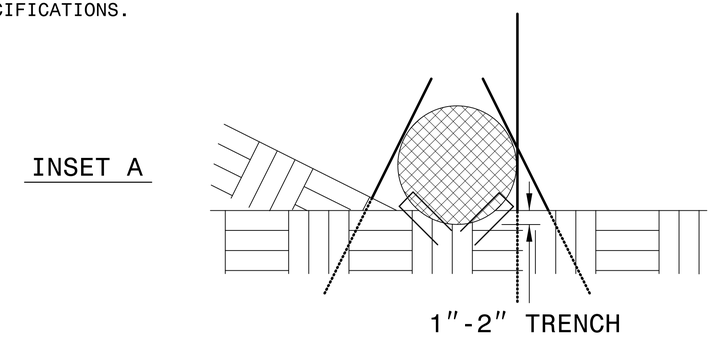
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

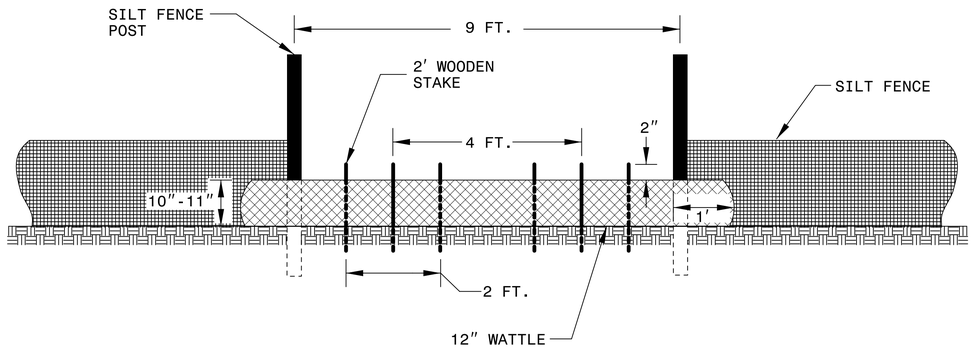
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

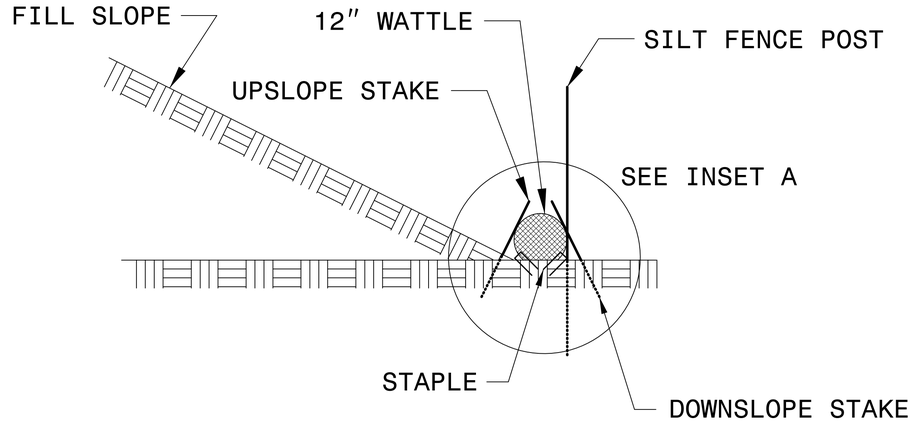
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.





VIEW FROM SLOPE



SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.162	EC-3

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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.

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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	DISTURBED AREAS	BEGIN	END	LT/RT	1900
			SUBTOTAL		1900
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					0
				TOTAL	1900
				SAY	1900

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.RJ62	EC-4/CONST.4
R/W SHEET NO.	

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ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

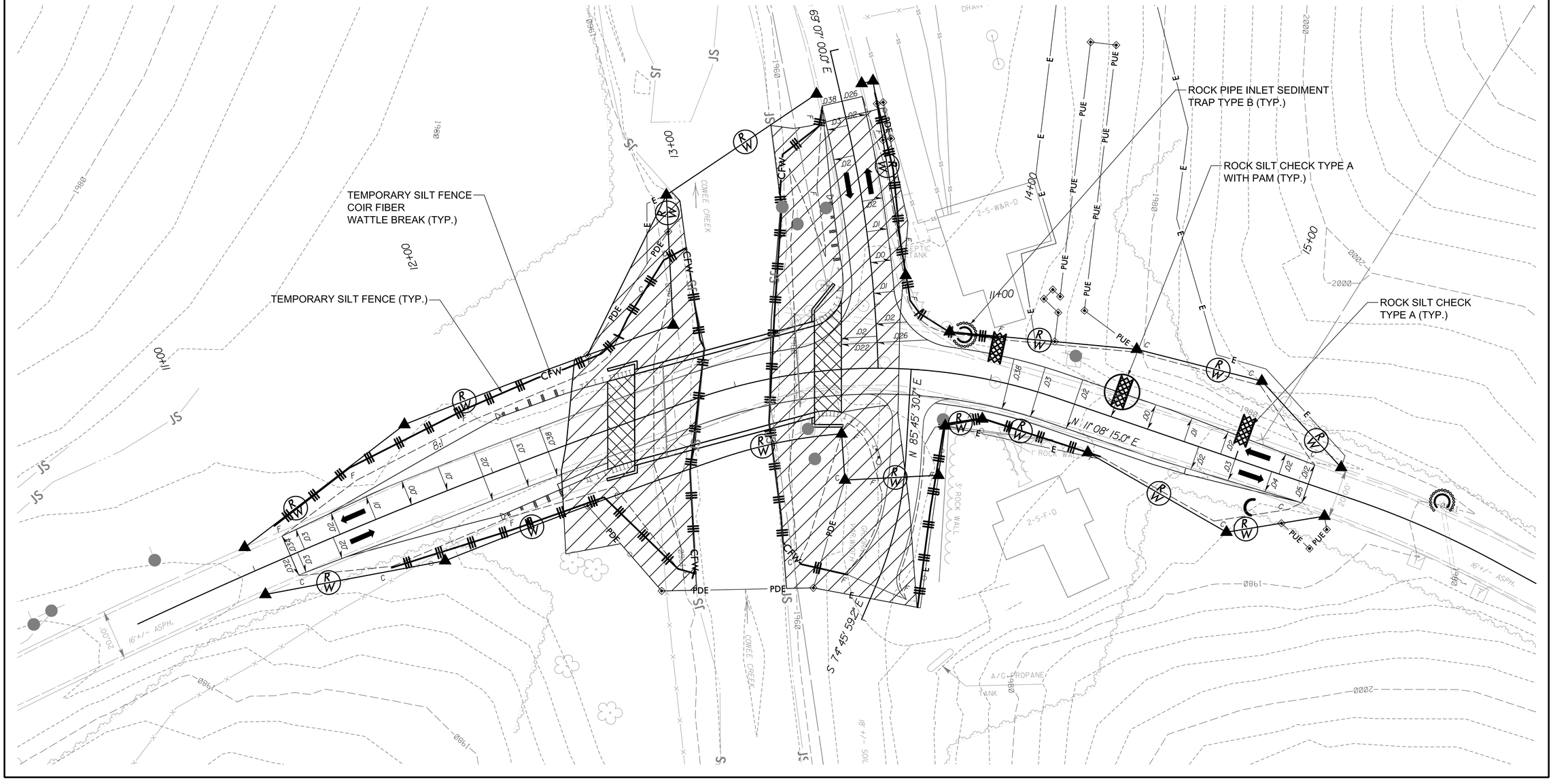
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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

NOTE:
EXCAVATE TO ELEVATION 1958.0' ON BEGIN BRIDGE SIDE AND 1957.0' ON END BRIDGE SIDE.

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

NC GRID
NAD 83/2011



FINAL
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
EXCAVATE TO ELEVATION 1958.0' ON BEGIN BRIDGE SIDE AND 1957.0' ON END BRIDGE SIDE.

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.RJ62	EC-5/CONST.4
R/W SHEET NO.	

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NC GRID
NAD 83/2011

TEMPORARY SILT FENCE
COIR FIBER
WATTLE BREAK (TYP.)

TEMPORARY SILT FENCE (TYP.)

ROCK SILT CHECK
TYPE A (TYP.)

ROCK PIPE INLET SEDIMENT
TRAP TYPE B (TYP.)

ROCK INLET SEDIMENT
TRAP TYPE C (TYP.)

12+00
13+00
14+00
15+00
11+00
11+00

S 69° 07' 00.0" E
N 85° 45' 30.7" E
N 11° 08' 15.0" E
S 74° 45' 59.2" E

COWEE CREEK
COWEE CREEK

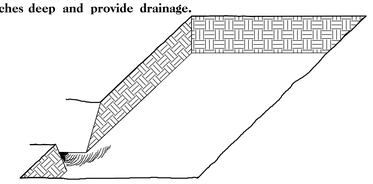
2-S-W&R-D
2-S-F-D
SEPTIC TANK
3' ROCK WALL
3' ROCK WALL
GR. DITCH VARIDIT
16'+/- ASPH.
16'+/- ASPH.
18'+/- SOIL
20.00'
CFW
PDE
PUE
JS

PLANTING DETAILS

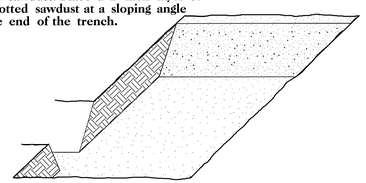
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

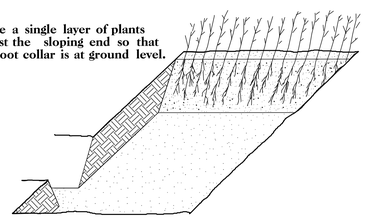
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



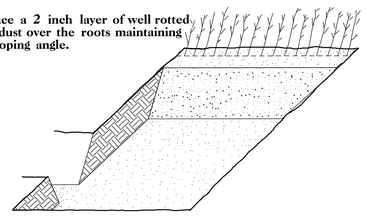
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

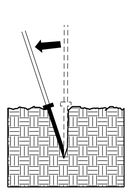


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

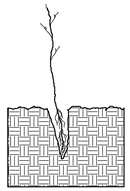


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

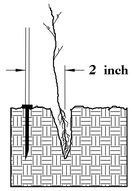
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



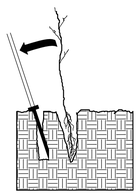
1. Insert planting bar as shown and pull handle toward planter.



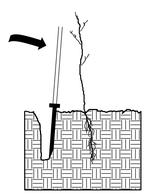
2. Remove planting bar and place seedling at correct depth.



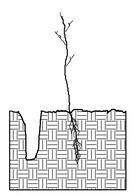
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.162	RF-1	1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

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REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25 %	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25 %	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25 %	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25 %	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

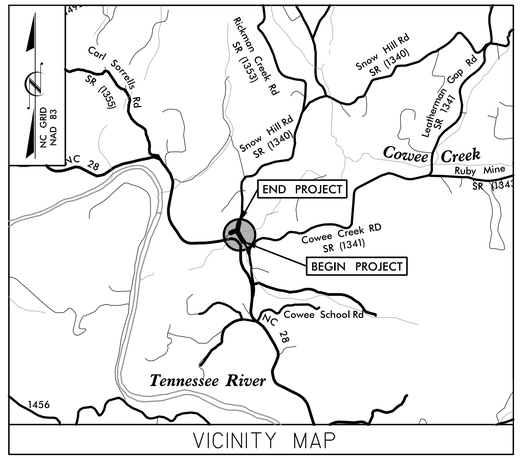
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

6/2/17

PROJECT WBS: 17BP.14.R.162

CONTRACT:



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

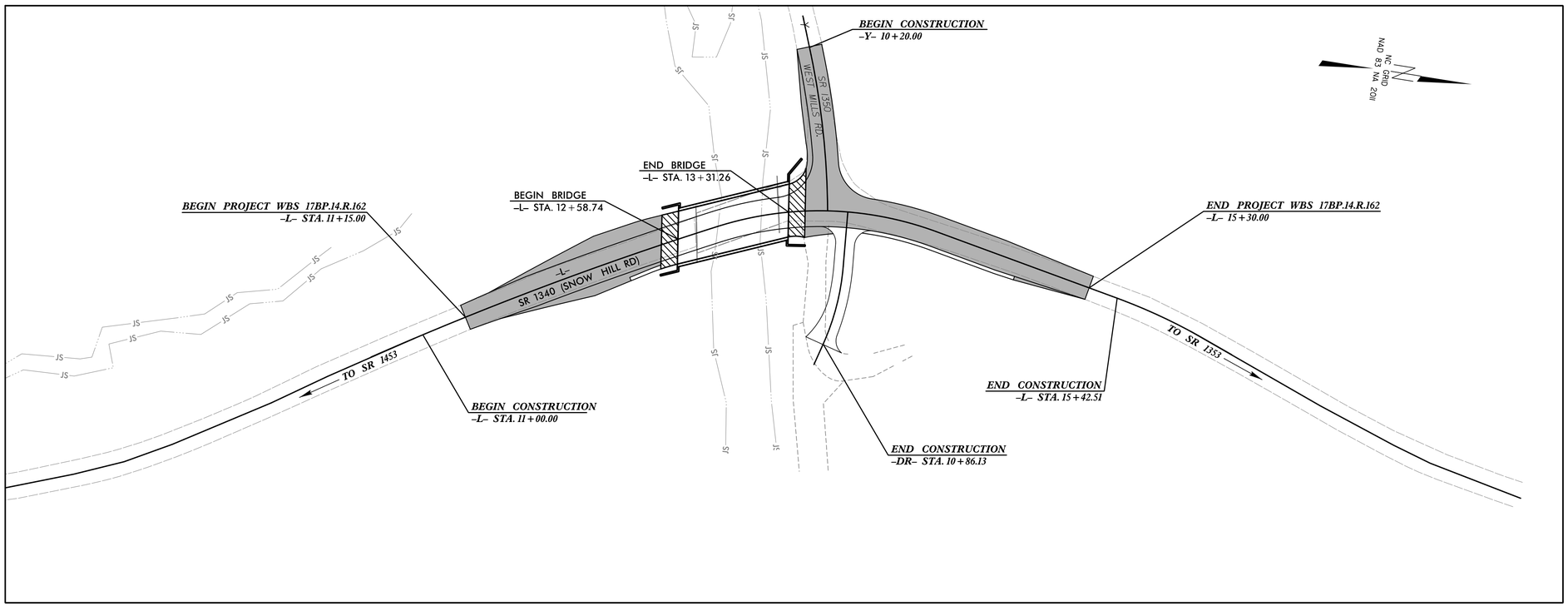
UTILITIES BY OTHERS
MACON COUNTY

PROJECT REFERNCE NO.	SHEET NO.
17BP.14.R.162	UO–1

LOCATION: BRIDGE NO. 550088 OVER COWEE CREEK ON SR 1340 (SNOW HILL ROAD)

TYPE OF WORK: AERIAL POWER & TELEPHONE, BURIED TELEPHONE

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775



GRAPHIC SCALES

30 15 0 30 60
PLANS

INDEX OF SHEETS

UTILITY OWNERS ON PROJECT

(1) POWER – DUKE ENERGY

(2) TELEPHONE – FRONTIER COMMUNICATIONS

PLANS PREPARED BY:

V&M Vaughn & Melton Consulting Engineers
1318-F Patton Ave.
Asheville, NC 28806
828-253-2796
F-1088

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

Robert Golding	*DIVISION 14 UTILITY COORDINATOR*
Lynn Mann, P.G.	*UTILITIES PROJECT COORDINATOR*

V&M PROJECT #3614-01
TRANSPORTATION\3614-01••\17BP14R162_MACON 88\UTILITIES\UO-1.DGN

3/31/17
5/22/17

PROJECT: 17BP.14.R.162

CONTRACT:

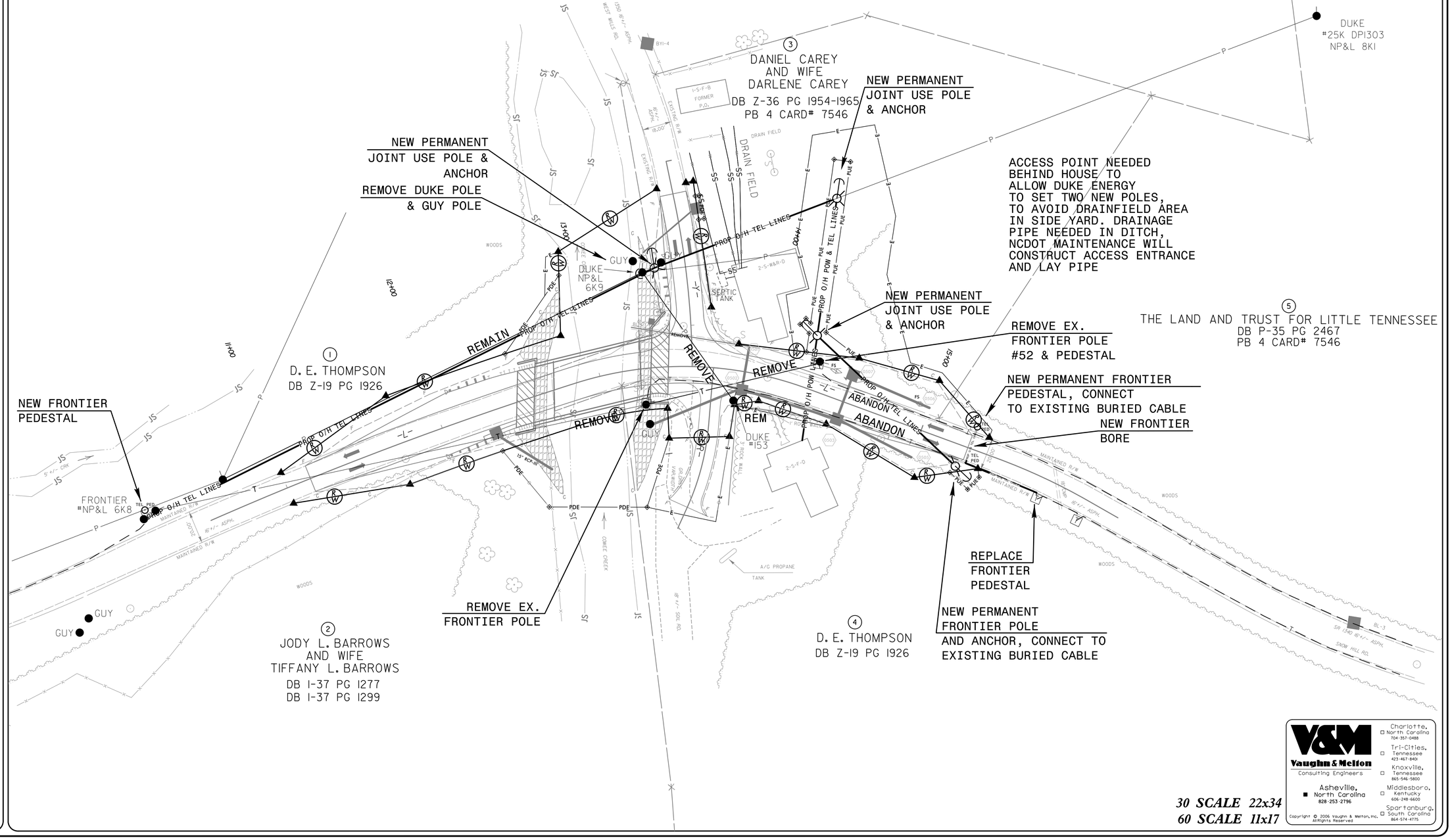
STRUCTURE 550088
MACON COUNTY

PROJECT REFERENCE NO.	SHEET NO.
617BP.14.R.162	U0-2

UTILITIES BY OTHERS

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

NAD 83
NA 2011



30 SCALE 22x34
60 SCALE 11x17

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775