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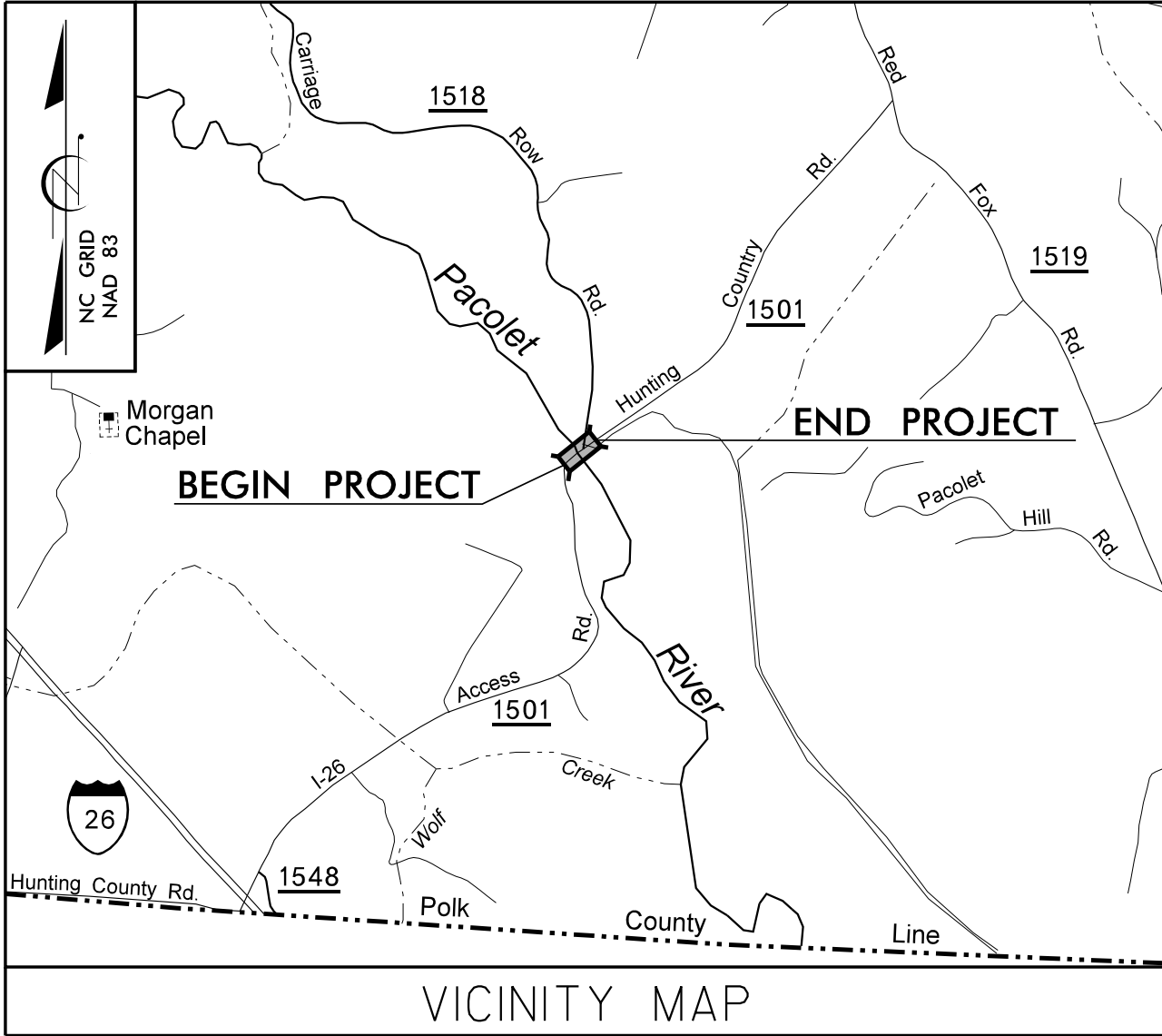
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08/22/13

V&M PROJECT #31333-01  
TRANSPORTATION\31333-01\RDY\PROJECT\BUNC222TSH.DGN

PROJECT: 17BP.14.R.141

CONTRACT: DN00121



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

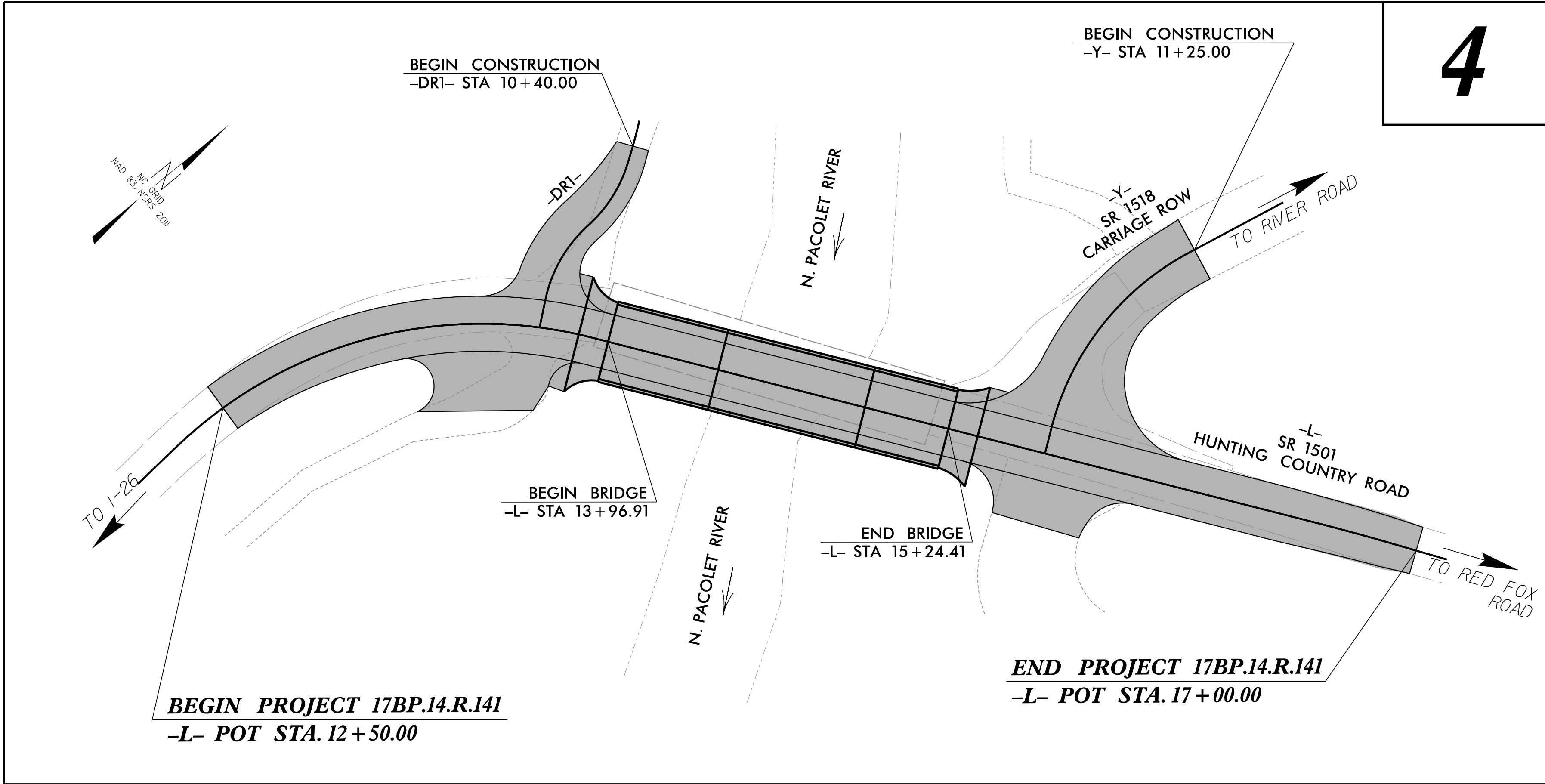
POLK COUNTY

LOCATION: BRIDGE NO. 021 OVER N. PACOLET RIVER  
ON SR 1501 (HUNTING COUNTRY ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.141	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45360.1.34	BRZ-1501(15)	PE	
45360.2.34	BRZ-1501(15)	RW, UTILITIES	
17BP.14.R.141		CONST.	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



4

**Vaughn & Melton**  
Consulting Engineers

Asheville,  
■ North Carolina  
828-253-2796

☐ Raleigh, NC    ☐ Charlotte, NC  
919-977-9455    704-357-0488

☐ Boone, NC    828-355-9933  
☐ Tri-Cities, TN    423-467-8401  
☐ Knoxville, TN    865-546-5800  
☐ Spartanburg, SC    864-574-4775  
☐ Charleston, SC    843-974-5650  
☐ Middlesboro, KY    606-248-6600  
☐ Atlanta, GA    770-627-3509

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**GRAPHIC SCALES**

30 15 0 30 60  
PLANS

30 15 0 30 60  
PROFILE (HORIZONTAL)

6 3 0 6 12  
PROFILE (VERTICAL)

**DESIGN DATA**

ADT 2010 = 580  
ADT 2025 = 1160

T = 6%  
V = 25 MPH

FUNCT. CLASS = RURAL LOCAL  
SUB-REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 17BP.14.R.141 = 0.061 MI  
LENGTH STRUCTURE PROJECT 17BP.14.R.141 = 0.024 MI  
TOTAL LENGTH OF PROJECT 17BP.14.R.141 = 0.085 MI

Prepared in the Office of:  
**VAUGHN & MELTON**  
1318-F PATTON AVE.  
ASHEVILLE NC, 28806  
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
FEBRUARY 2, 2015

**LETTING DATE:**

HARDY WILLIS, PE  
PROJECT ENGINEER

REECE SCHULER, PE  
PROJECT DESIGN ENGINEER

NCDOT CONTACT:  
JOSH DEYTON, PE  
DIVISION 14 BRIDGE PROGRAM MANAGER

**HYDRAULICS ENGINEER**

DocuSigned by:  
Bradley S. Ridgour  
SIGNATURE:

11/17/2016

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
Reece M. Schuler  
SIGNATURE:

11/17/2016

P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

I:\6/2016\SX\Transportation\31235-12 14AH Polk 21\Roadway\Proj\bd5114ah\_Rdy\_sum\_1a.dgn  
User: jldavies

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			PROJECT REFERENCE NO. 17BPJ4RJ41	SHEET NO. 1A		
<div>ROADWAY DESIGN ENGINEER</div> <div><div><div></div><div>NORTH CAROLINA PROFESSIONAL SEAL 26960</div><div>11/17/2016</div></div><div><div>DESIGNED BY R. KIMBER</div><div>CHECKED BY R. KIMBER</div><div>DATE 11/17/2016</div></div></div>						
INDEX OF SHEETS						
SHEET NUMBER	SHEET	GENERAL NOTES:	2012 SPECIFICATIONS EFFECTIVE: 01-17-12	2012 ROADWAY ENGLISH STANDARD DRAWINGS		
1	TITLE SHEET	The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:				
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS	GRADE LINE: GRADING AND SURFACING OR RESURFACING AND WIDENING:				
1B	CONVENTIONAL SYMBOLS	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.				
1C-1	SURVEY CONTROL SHEET					
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS					
2A-2	MODIFIED CONCRETE FLUME DETAIL	CLEARING:				
3B-1	EARTHWORK SUMMARY, SUMMARY OF GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARY	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.				
3D-1	DRAINAGE SUMMARY	SUPERELEVATION:				
4	PLAN AND PROFILE SHEET	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.				
TMP-1 THRU TMP-4	TRAFFIC CONTROL PLANS					
PMP-1	PAVEMENT MARKING PLAN	SHOULDER CONSTRUCTION:				
SIG-1	SIGNAL PLAN	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.				
EC-1 THRU EC-5	EROSION CONTROL PLANS					
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS	SIDE ROADS:				
X-1A	CROSS-SECTION SUMMARY	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.				
X-1 THRU X-9	CROSS-SECTIONS					
S-1 THRU S-35	STRUCTURE PLANS	GUARDRAIL:				
		THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.				
		TEMPORARY SHORING:				
		SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".				
		END BENTS:				
		THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.				
		UTILITIES:				
		UTILITY OWNERS ON THIS PROJECT ARE: DUKE ENERGY AND WINDSTREAM COMMUNICATIONS.				
		ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS				
		RIGHT-OF-WAY MARKERS:				
		ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2012 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.				



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS  
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.RJ4I	1B

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY:

Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite RW Marker	
Proposed Control of Access Line with Concrete CA Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	
Proposed Permanent Easement with Iron Pin and Cap Marker	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
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	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

MISCELLANEOUS:

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

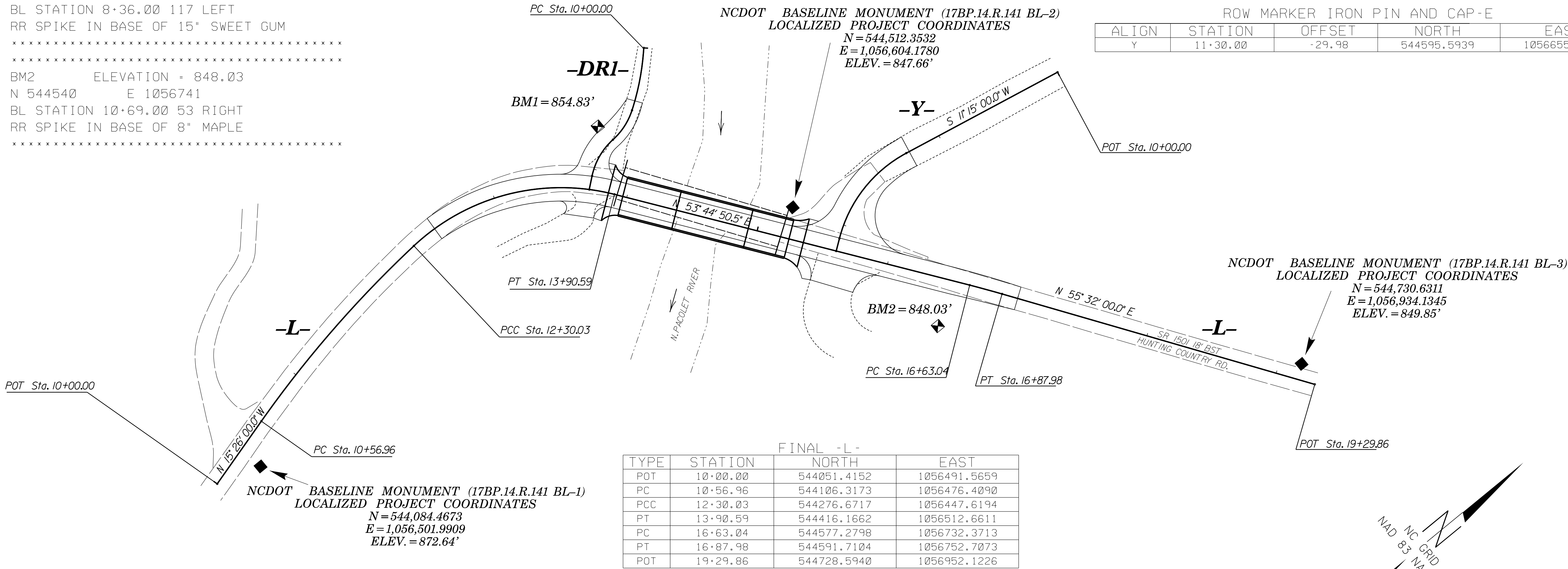
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150326

SURVEY CONTROL SHEET 17BP.14.R.141

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.141	1C-1
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	1	BL-1	544084.4673	1056501.9909	872.64	10+29.09	18.84 RT
	2	BL-2	544512.3532	1056604.1780	847.66	15+21.27	23.45 LT
	3	BL-3	544730.6311	1056934.1345	849.85	19+16.18	11.86 LT

\*\*\*\*\*  
BM1 ELEVATION = 854.83  
N 544439 E 1056466  
BL STATION 8+36.00 117 LEFT  
RR SPIKE IN BASE OF 15" SWEET GUM  
\*\*\*\*\*  
BM2 ELEVATION = 848.03  
N 544540 E 1056741  
BL STATION 10+69.00 53 RIGHT  
RR SPIKE IN BASE OF 8" MAPLE  
\*\*\*\*\*



ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+00.00	26.48	544335.6556	1056482.8816
L	14+00.00	-38.61	544452.8619	1056497.4191
L	14+00.00	-45.00	544458.0186	1056493.6376
L	15+00.00	45.00	525103.6025	1056627.5006
L	15+23.25	-45.00	544530.8994	1056593.0250
L	16+00.00	27.66	544517.2058	1056697.1777
L	16+10.00	-32.06	544571.7642	1056670.6389

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
Y	11+30.00	-29.98	544595.5939	1056655.6904

FINAL -L-			
TYPE	STATION	NORTH	EAST
POT	10+00.00	544051.4152	1056491.5659
PC	10+56.96	544106.3173	1056476.4090
PCC	12+30.03	544276.6717	1056447.6194
PT	13+90.59	544416.1662	1056512.6611
PC	16+63.04	544577.2798	1056732.3713
PT	16+87.98	544591.7104	1056752.7073
POT	19+29.86	544728.5940	1056952.1226

FINAL -Y-			
TYPE	STATION	NORTH	EAST
POT	10+00.00	544728.2028	1056651.4803
PC	11+27.46	544603.1883	1056626.6133
PT	12+10.37	544524.5446	1056644.0501
POT	12+20.07	544516.7209	1056649.7872

FINAL -DR1-			
TYPE	STATION	NORTH	EAST
PC	10+00.00	544502.0750	1056442.3378
PCC	10+47.32	544465.8812	1056472.6309
PRC	10+73.61	544441.1137	1056480.5052
PT	11+05.22	544412.0324	1056491.4847
POT	11+15.56	544403.9742	1056497.9623

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "17BP.14.R.141 BL-3" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 544730.6311(±) EASTING: 1056934.1345(±) ELEVATION: 849.85(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99979400

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "17BP.14.R.141 BL-3" TO -L- STATION 10+00.00 IS S 33°05'16" W 810.68'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
BD5114AD\_LS\_CONTROL\_150312.TXT

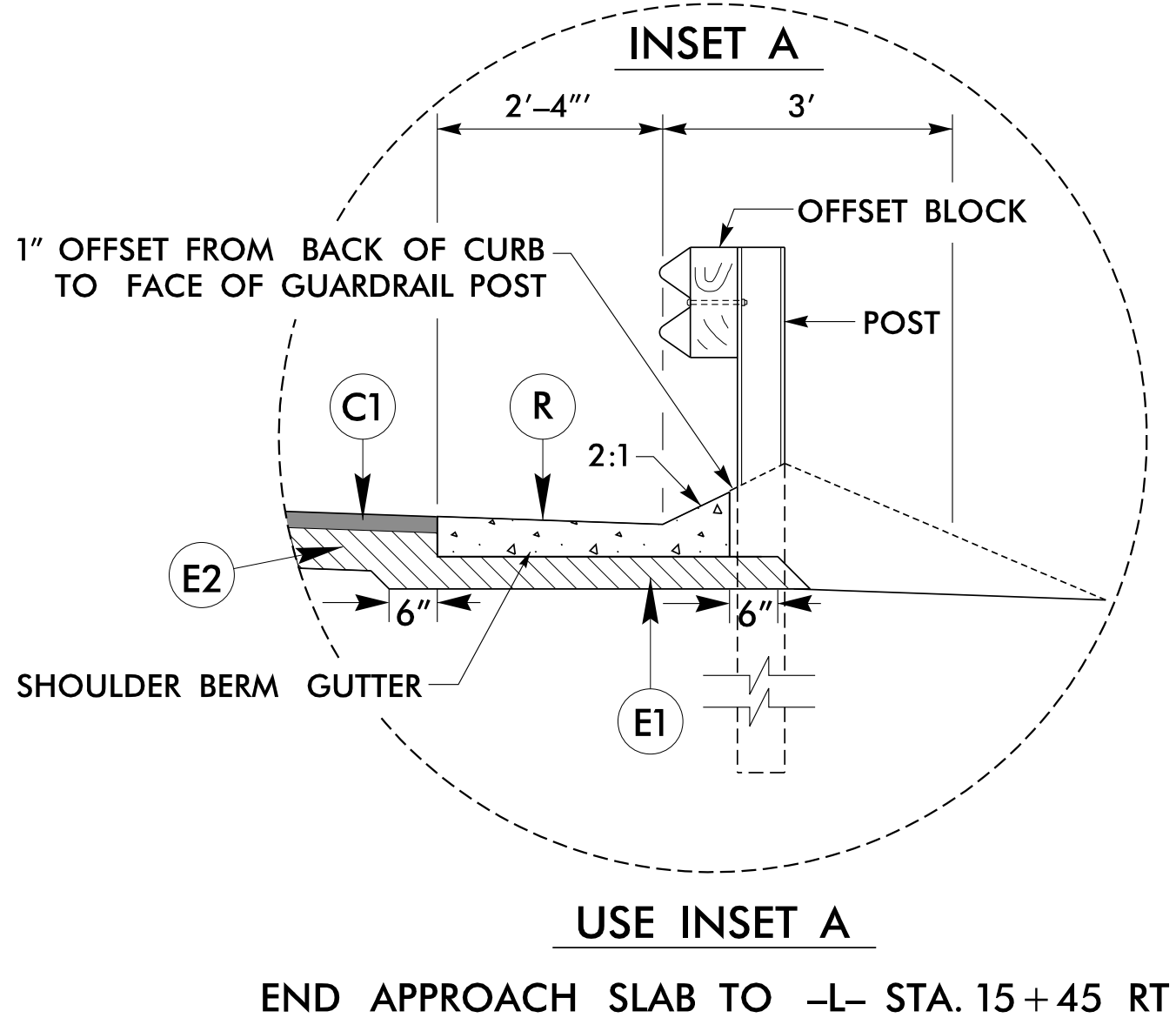
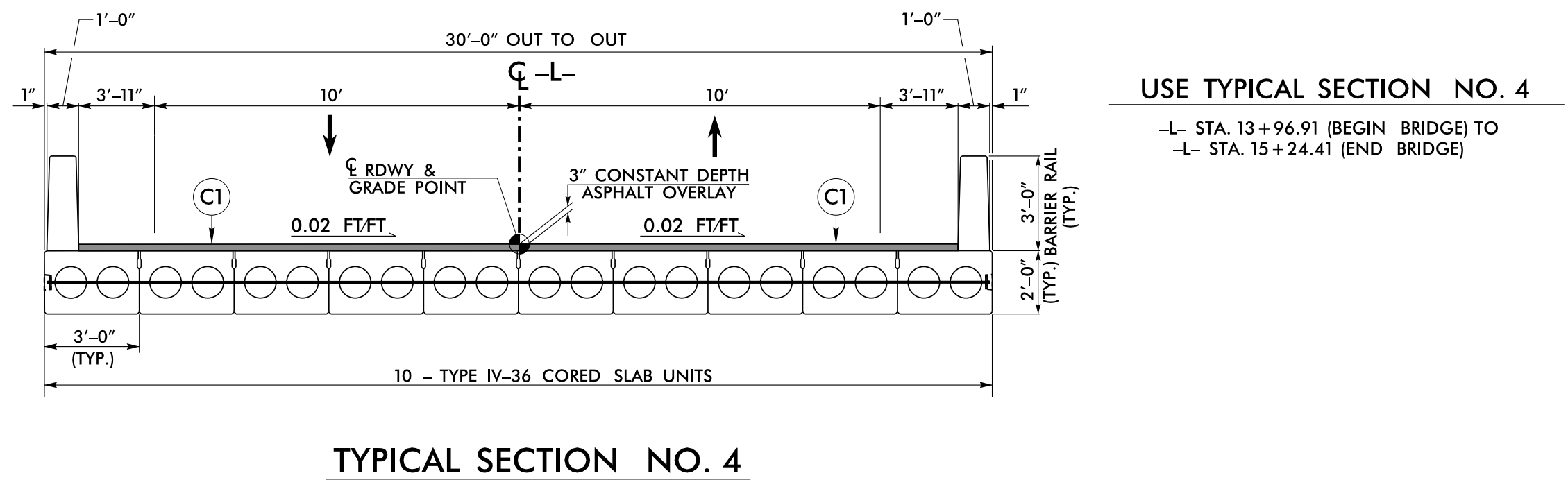
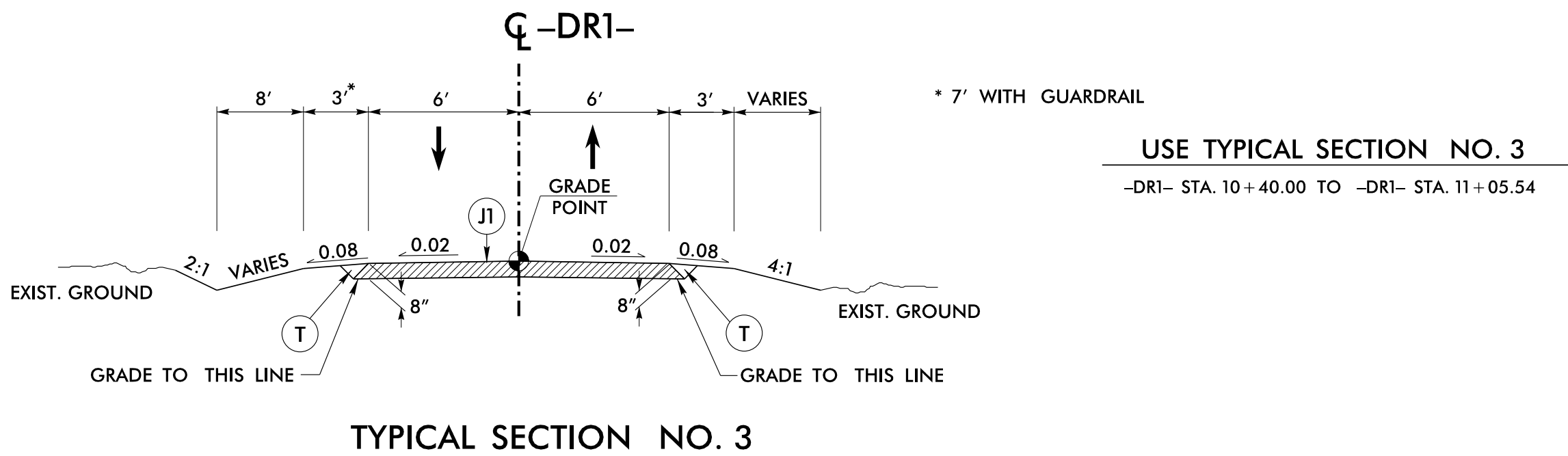
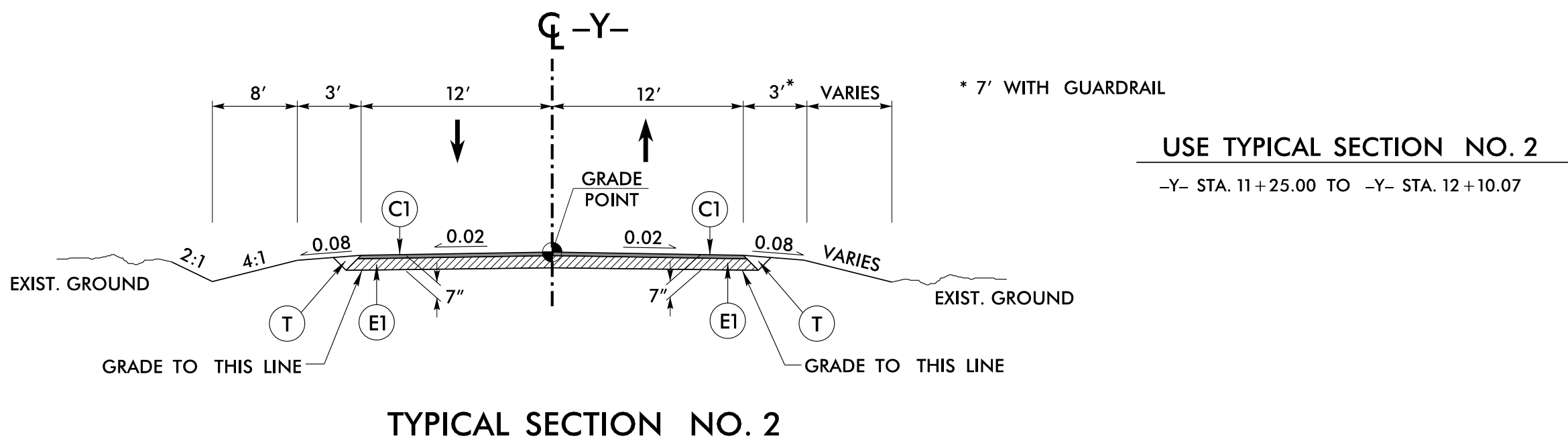
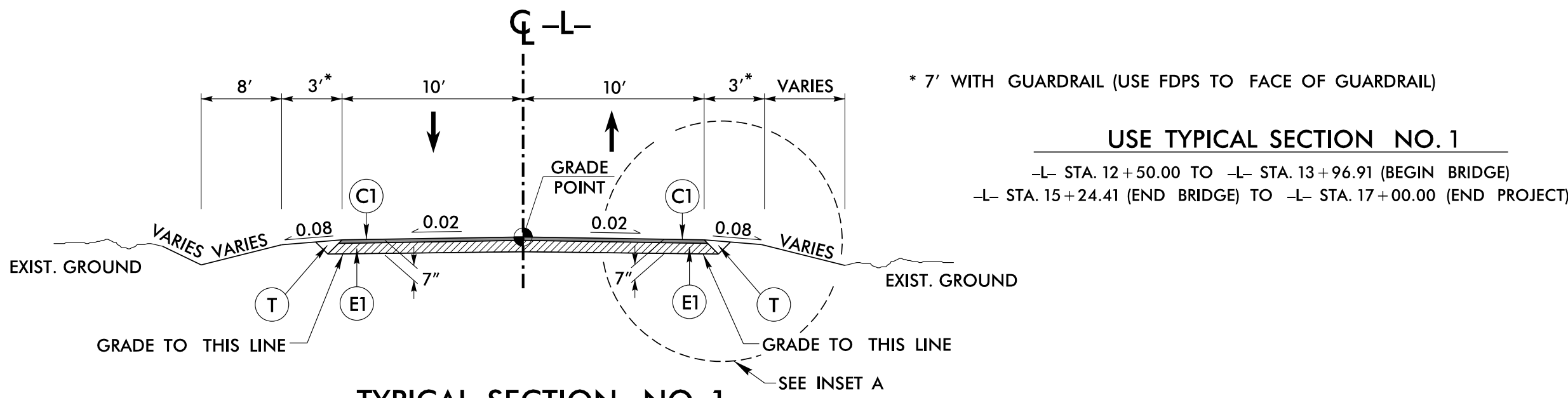
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

■ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

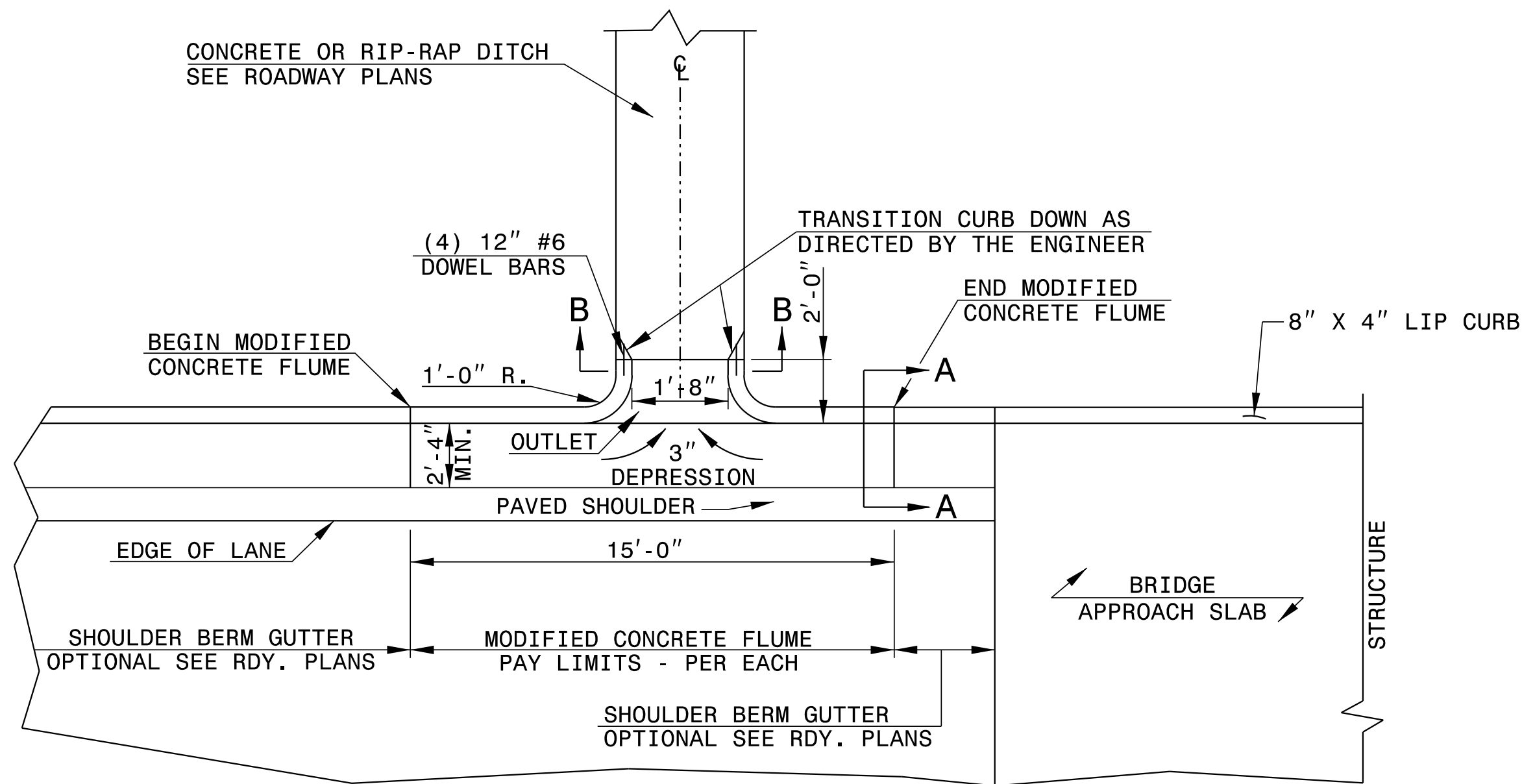
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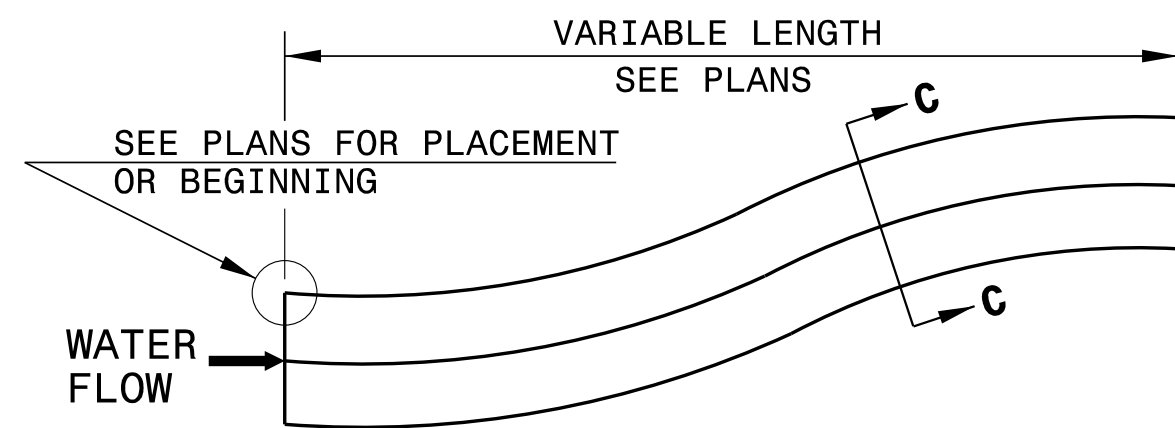


PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	8" AGGREGATE BASE COURSE
R	PROP. SHOULDER BERM GUTTER. NCDOT STD. DWG. 846.01
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	PROPOSED WEDGING (SEE APPROPRIATE DETAILS)

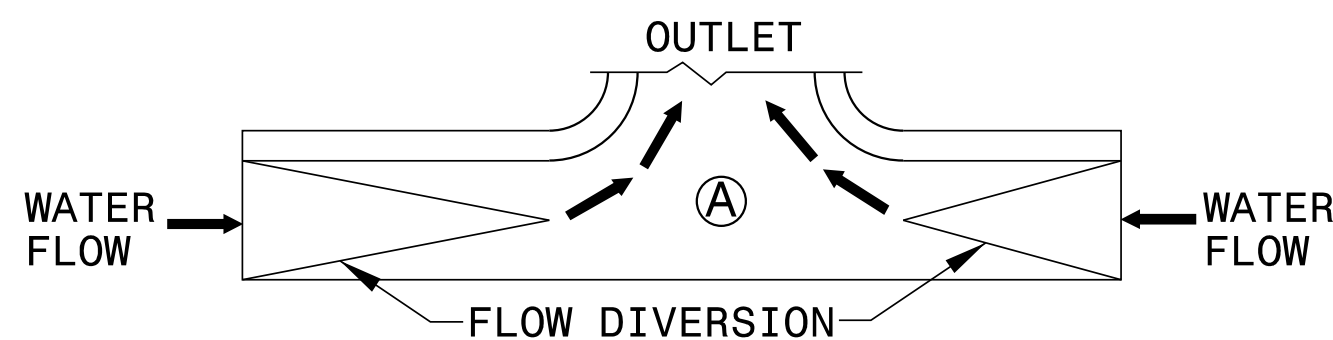
NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



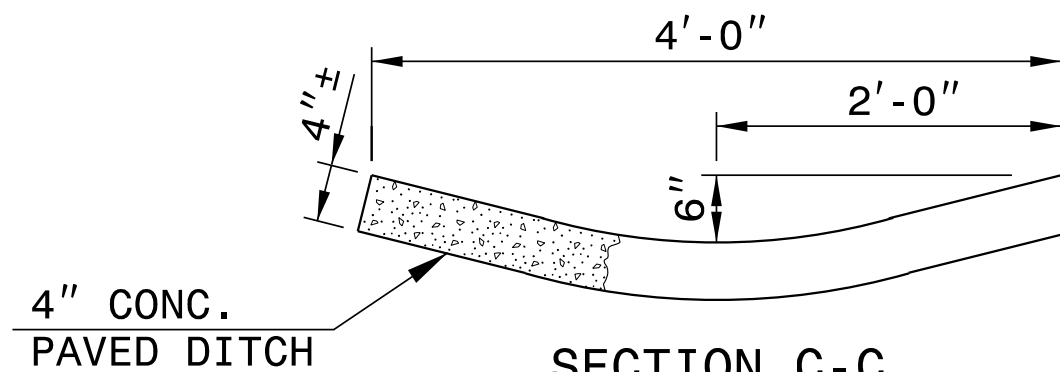
PLAN VIEW



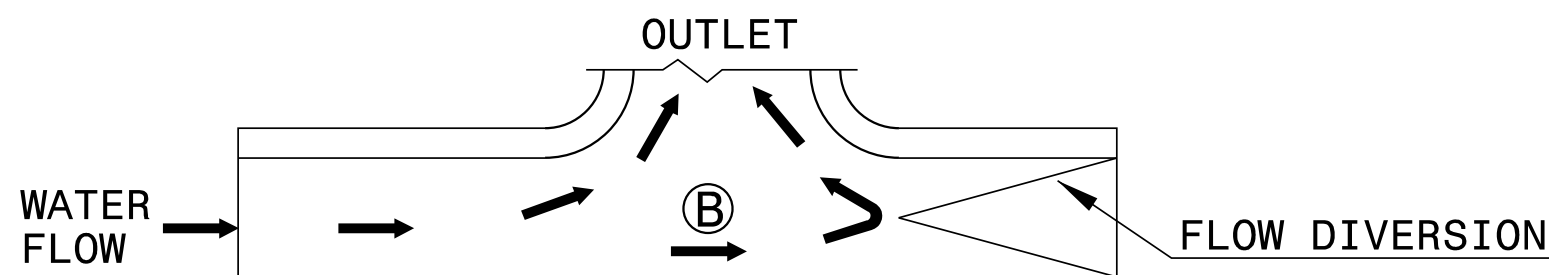
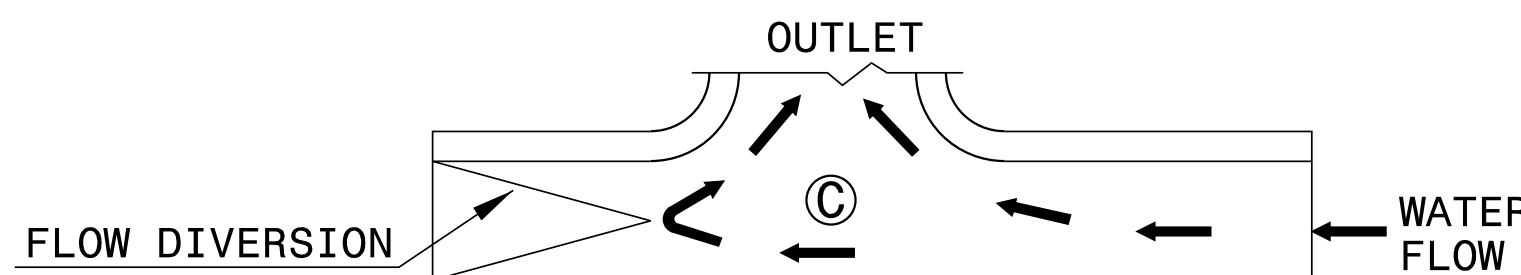
DOWNGRADE OR SAG



SAG

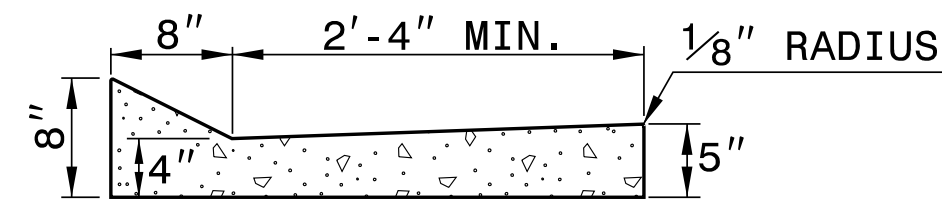


SECTION C-C

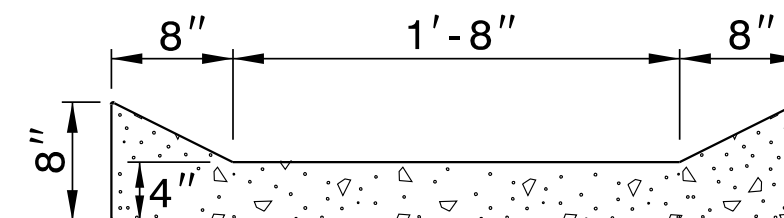


DOWN GRADE

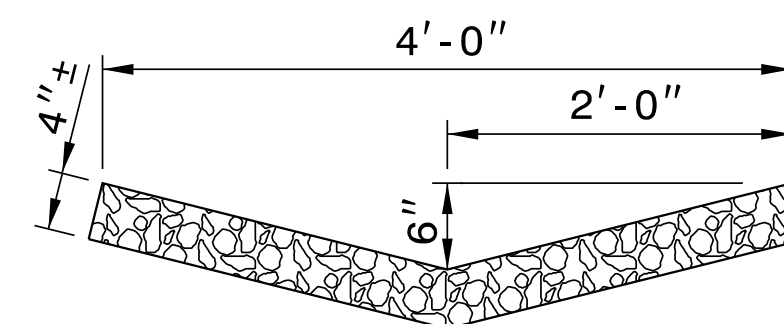
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

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

MODIFIED CONCRETE FLUME



## PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS					
LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE REMOVAL
-L-	13 + 00 TO 13 + 93	210			
-L-	15 + 18 TO 17 + 00	364			
-Y-	11 + 25 TO 12 + 10	301			
	TOTAL	875			
	SAY	880			

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
PHASE 1: BEFORE BRIDGE SUMMARY					
–L– STA. 12+50 RT TO STA. 13+96.61 RT (BEG. BRIDGE)	13		47	34	
SUBTOTAL PHASE 1: BEFORE BRIDGE SUMMARY	13		47	34	
PHASE 1: AFTER BRIDGE SUMMARY					
–L– STA. 15+24.41 RT (END BRIDGE) TO STA. 17+00.00 RT	21		2		19
SUBTOTAL PHASE 1: AFTER BRIDGE SUMMARY	21		2		19
PHASE 2: BEFORE BRIDGE SUMMARY					
–L– STA. 12+50 LT TO STA. 13+96.61 LT (BEG. BRIDGE)	23		23		
–DRI– STA. 10+40.00 TO STA. 11+05.25	54		18		36
SUBTOTAL PHASE 2: BEFORE BRIDGE SUMMARY	77		41		36
PHASE 2: AFTER BRIDGE SUMMARY					
–L– STA. 15+24.41 LT (END BRIDGE) TO STA. 17+00.00 LT	20		3		17
–Y– STA. 11+25.00 TO STA. 12+00.00	20		37	17	
SUBTOTAL PHASE 2: AFTER BRIDGE SUMMARY	40		40	17	17
PHASE 1 TOTAL	34		49	34	19
PHASE 2 TOTAL	117		81	17	53
WASTE IN LIEU OF BORROW				–51	–51
GRAND TOTAL	151		130	0	21
SAY	160				

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."

CONTINGENCY ITEMS:

INCIDENTAL STONE = 50 TONS

UNDERCUT EXCAVATION = 50 CY

SELECT GRANULAR MATERIAL = 50 CY

CLASS IV SUBGRADE STABILIZATION = 50 TONS

GEOTEXTILE FOR SOIL STABILIZATION = 50 SY

## GUARDRAIL SUMMARY

"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

[illegible]

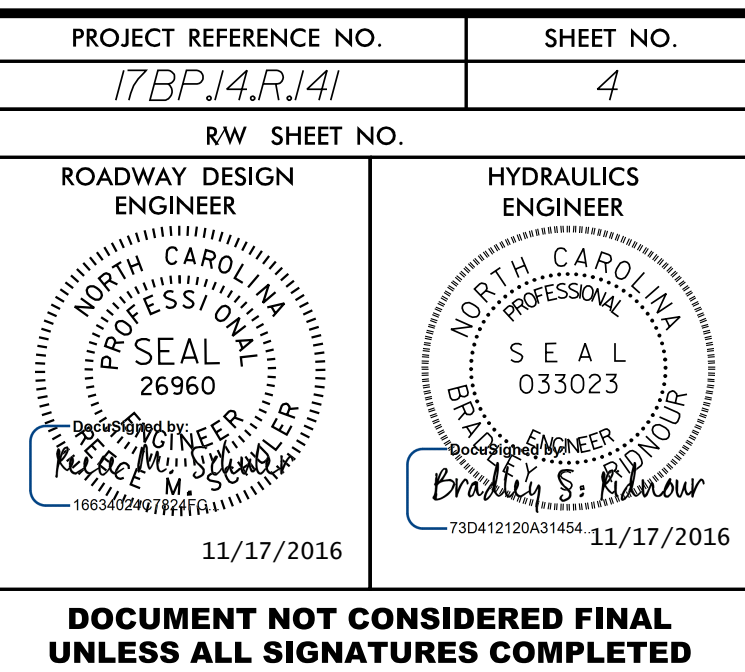


PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.141	3D-1

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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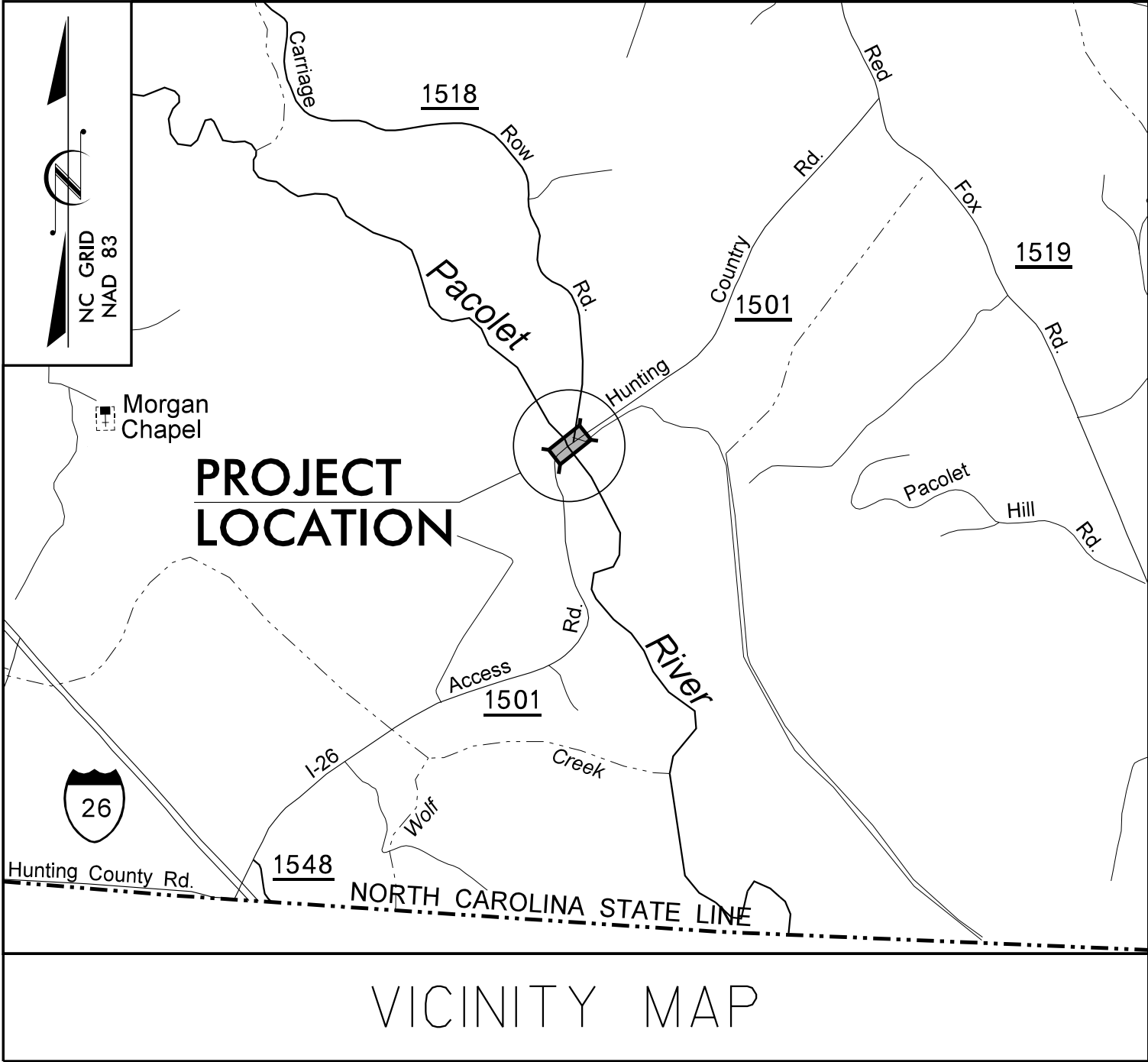
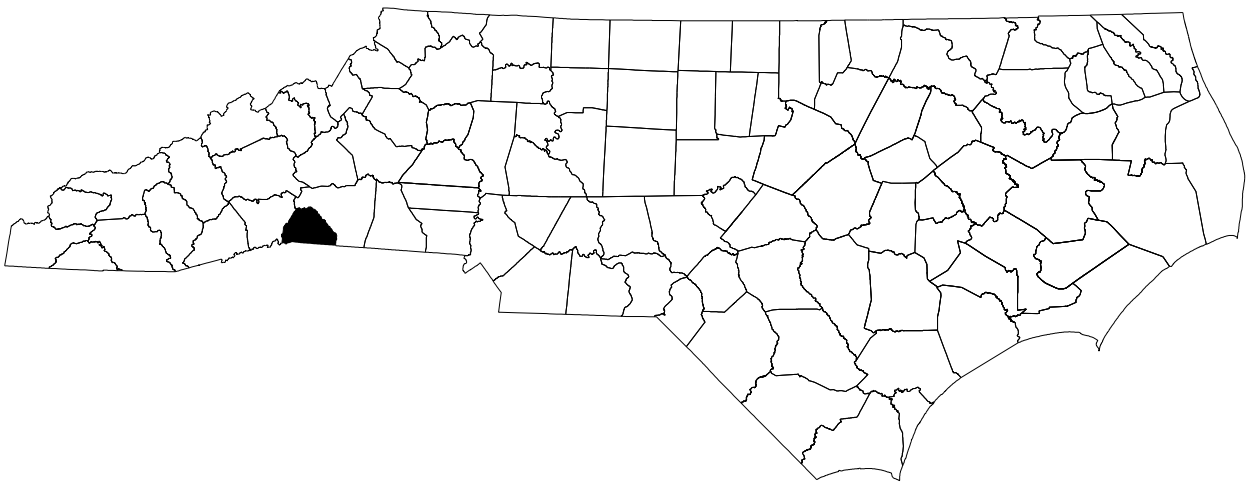


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

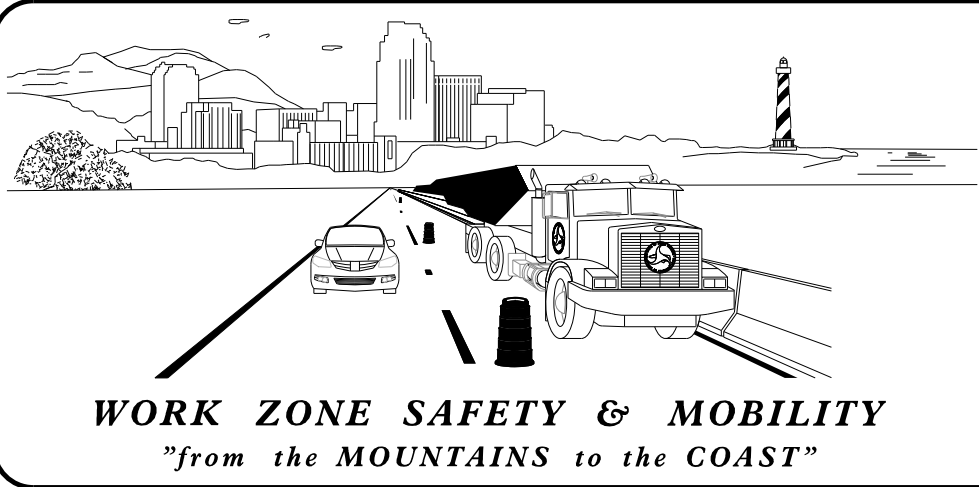
TRANSPORTATION MANAGEMENT PLAN

POLK COUNTY

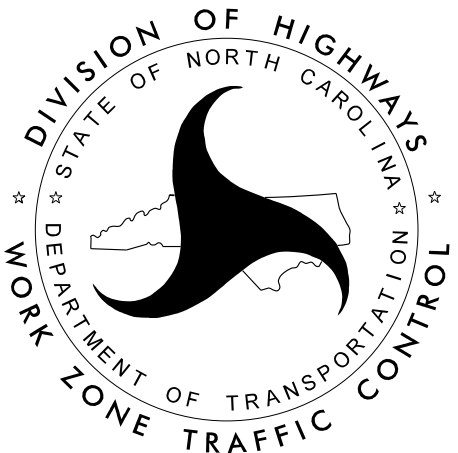
DIVISION 14



LOCATION: BRIDGE NO. 021 OVER N. PACOLET RIVER  
ON SR 1501 (HUNTING COUNTRY ROAD)



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1580 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1580 1020 BIRCH RIDGE DRIVE, RALEIGH, NC 27610 (DELIVERY) PHONE: (919) 250-4094 FAX: (919) 250-4098	
J. S. BOURNE, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
LLOYD D. BROWN, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
C. GONZALEZ-MARTELL	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
C. GONZALEZ-MARTELL	TRAFFIC CONTROL DESIGN ENGINEER



Asheville, North Carolina 828-253-2796

Charlotte, North Carolina 704-837-7815

APPROVED: Lloyd D. Brown

DATE: 11/17/2016

SEAL

PROJECT ENGINEER LLOYD D. BROWN, P.E.

DESIGN ENGINEER C. GONZALEZ-MARTELL

SHEET NO.  
TMP-1

PROJECT: 17BP.14.R.141

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User:ldobbes




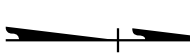

# ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

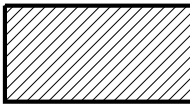
# LEGEND

## GENERAL

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



WORK AREA







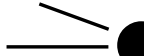






TEMPORARY PAVEMENT




## TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT
PA	WHITE EDGE LINE (4")
PI	YELLOW DOUBLE CENTER (4")
P2	WHITE STOPBAR (24")



## 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

## SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY
-  PORTABLE TRAFFIC SIGNAL

## PAVEMENT MARKINGS

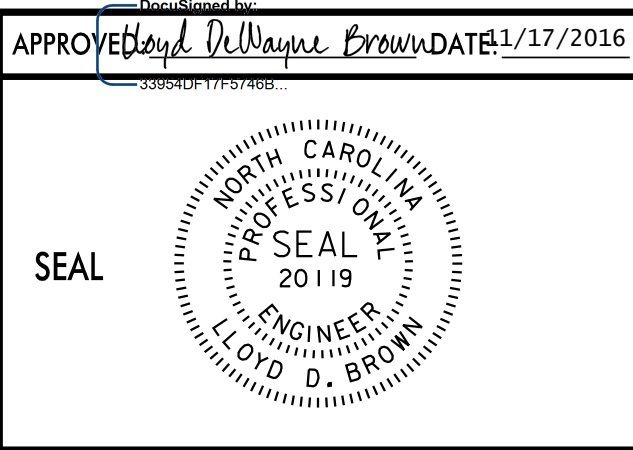
-  EXISTING LINES
-  TEMPORARY LINES

## PAVEMENT MARKING SYMBOLS

- 
- 
- 
- PAVEMENT MARKING SYMBOLS

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.141	TMP-1A

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UNLESS ALL SIGNATURES COMPLETED



ROADWAY STANDARD  
DRAWINGS & LEGEND



GENERAL NOTES / LOCAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.141	TMP-1B

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 UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKING

- N) INSTALL TEMPORARY PAVEMENT MARKINGS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR1501 (HUNTING COUNTRY ROAD)	PAINT	NONE

- O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

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

MANAGEMENT STRATEGIES

PHASE I SHOWS TRAFFIC TO BE MAINTAINED ON THE EXISTING ROAD, BUT REDUCED TO ONE LANE USING TEMPORARY SIGNALS AND PAVEMENT MARKINGS AS NEW ALIGNMENT IS CONSTRUCTED.

PHASE 2 SHOWS TRAFFIC SHIFTED TO ONE LANE ON THE NEW ALIGNMENT USING TEMPORARY SIGNALS AND PAVEMENT MARKINGS WHILE THE REMAINDER IS CONSTRUCTED. A FLAGGING OPERATION WILL BE USED TO CONSTRUCT THE NEW TIE-INS.

LOCAL NOTES:

- 1) EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.
- 2) NOTIFY THE POLK COUNTY SCHOOL BOARD 30 DAYS PRIOR TO ANY LANE CLOSURES.

DOCUMENT NOT CONSIDERED FINAL  
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Consulting Engineers

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Middlesboro,  
Kentucky  
606-248-6600

Spartanburg,  
South Carolina  
864-574-4775

APPROVED *Lloyd D. Brown* DATE 1/17/2016

SEAL

TRANSPORTATION OPERATIONS  
PLAN  
(MANAGEMENT STRATEGIES & GENERAL NOTES)

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User:ldbrown

PROJECT PHASING

PHASE I

- STEP 1: - ERECT WORK ZONE ADVANCED WARNING SIGNS USING DETAIL DRAWINGS FOR WORK ZONE SIGNS. (SEE RDWY STD. 1101.01)
- INSTALL PORTABLE TRAFFIC SIGNALS AS REQUIRED IN THE SIGNAL PLANS. (SEE SHEET SIG-1)
- NOTE: STEP 2 SHALL BE COMPLETED IN A CONTINUOUS OPERATION.
- STEP 2: - USING RDWY STD 1101.02 SHEET 1 OF 15, PERFORM THE FOLLOWING ON SR 1501:
- REMOVE, AS NECESSARY, EXISTING PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) FROM -L- STA 12+50 +/- TO STA 17+00 +/-.(SEE TMP-3)
- ACTIVATE PORTABLE TRAFFIC SIGNALS AND DIRECT SR 1501(HUNTING COUNTRY ROAD) TRAFFIC INTO A ONE LANE, TWO-WAY PATTERN IN THE EXISTING WESTBOUND LANE OF SR 1501(HUNTING COUNTRY ROAD)(SEE TMP-3)
- STEP 3: - REMOVE EXISTING BRIDGE RAIL(RIGHT SIDE), SAW CUT AND REMOVE RIGHT SIDE OF EXISTING BRIDGE NECESSARY TO CONSTRUCT PHASE I (SEE STRUCTURE PLANS), AND INSTALL TEMPORARY GUARDRAIL FROM -L- STA 13+56 +/- TO STA 15+65 +/-.(SEE TMP-3)
- INSTALL TEMPORARY SHORING NO.1 BEHIND TEMPORARY GUARDRAIL FROM -L- STA 13+79 +/- TO STA 13+93 +/-.(SEE TMP-3)
- INSTALL TEMPORARY SHORING NO. 2 BEHIND TEMPORARY GUARDRAIL FROM -L- STA 15+18 +/- TO STA 15+42 +/-.(SEE TMP-3)
- STEP 4: - CONSTRUCT STRUCTURES PER THE STRUCTURE PLANS STAGE 1.
- CONSTRUCT -L- (SR 1501 HUNTING COUNTRY ROAD) FROM STA 12+50 TO STA 17+00 EASTBOUND LANE (RIGHT SIDE) EXCLUDING FINAL PAVEMENT LAYER.

PHASE II

- NOTE: STEP 1 SHALL BE COMPLETED IN A CONTINUOUS OPERATION.
- STEP 1: - USING ROWY STD 1101.02 SHEET 1 OF 15, PERFORM THE FOLLOWING ON SR 1501:
- REMOVE, AS NECESSARY, PAVEMENT MARKINGS PLACED IN STEP 2 PHASE I, AND PLACE TMPORARY PAVEMENT MARKINGS(PAINT) FROM -L- STA 12+50 +/- TO STA 17+00 +/-.(SEE TMP-4)
- INSTALL TEMPORARY GUARDRAIL FROM -L- STA 13+78 +/- TO STA 15+65 +/-.(SEE TMP-4), AND REMOVE GUARDRAIL PLACED IN STEP 2 PHASE 1.
- ACTIVATE PORTABLE TRAFFIC SIGNALS AND DIRECT SR 1501(HUNTING COUNTRY ROAD) TRAFFIC INTO A ONE LANE, TWO-WAY PATTERN IN THE EASTBOUND LANE OF SR 1501(HUNTING COUNTRY ROAD)(SEE TMP-4)
- STEP 2: - REMOVE WESTBOUND SIDE OF EXISTING STRUCTURES(SEE STRUCTURE PLANS).
- INSTALL TEMPORARY SHORING NO.1 BEHIND TEMPORARY GUARDRAIL FROM -L- STA 13+79 +/- TO STA 13+97 +/-.(SEE TMP-4)
- INSTALL TEMPORARY SHORING NO. 2 BEHIND TEMPORARY GUARDRAIL FROM -L- STA 15+24 +/- TO STA 15+42 +/-.(SEE TMP-4)
- STEP 3: - CONSTRUCT STRUCTURES PER THE STRUCTURE PLANS STAGE 2.
- CONSTRUCT -L- (SR 1501 HUNTING COUNTRY ROAD) FROM STA 12+50 TO STA 17+00 WESTBOUND LANE EXCLUDING FINAL PAVEMENT LAYER.
- STEP 4: - USING RDWY STD 1101.02 SHEET 1 OF 15, CONSTRUCT GUARDRAIL. REMOVE TEMPORARY GUARDRAIL PLACED IN STEP 1, PHASE II. PLACE THE FINAL LAYER OF SURFACE COURSE, AND THE FINAL PAVEMENT MARKINGS (PAINT) ON THE ENTRE PROJECT (SEE SHEET PMP-1).
- STEP 5: - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES.
- OPEN SR 1501(HUNTING COUNTRY ROAD) TO 2-LANE, 2-WAY TRAFFIC.

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APPROVED  
1/17/2016  
DATE

SEAL  
NORTH CAROLINA  
PROFESSIONAL  
ENGINEER  
LLOYD D. BROWN

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

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PHASING

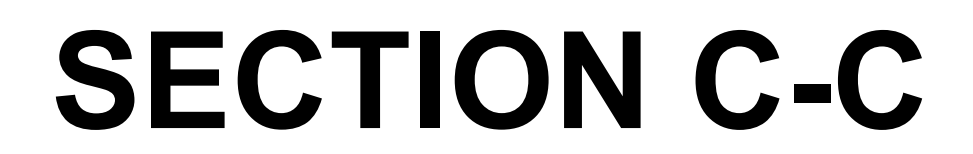




-L- STA 13+50



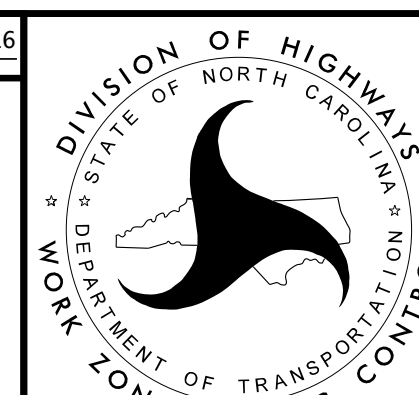
-L- STA 14+50



-L- STA 16+00



APPROVED: Wayne DeWayne Brown DATE: 11/17/2016



## PHASE I



## SECTION B-B

## SECTION C-C

PROPOSED  
CONSTRUCTION

PROPOSED  
CONSTRUCTION

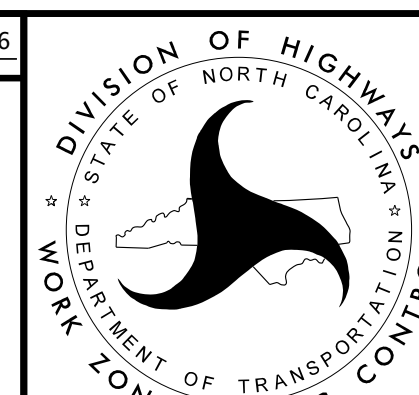
NEWLY CONSTRUCTED  
BRIDGE

PROPOSED  
CONSTRUCTION

## PHASE II

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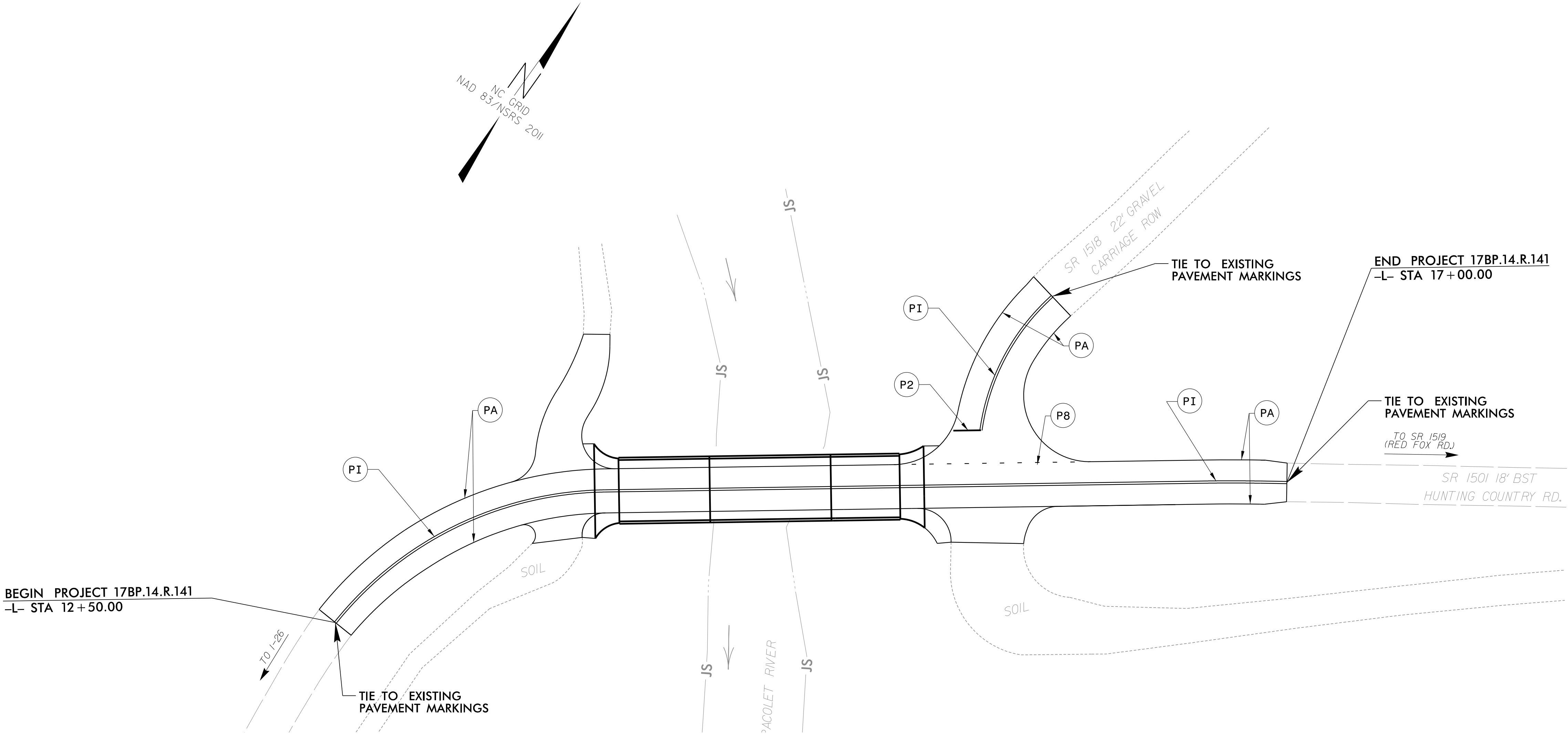
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APPROVED: Hoyd DeWayne Brown DATE: 1/17/2016



# PHASE II



PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.141	PMP-1



NOTE: TEMPORARY PAVEMENT MARKINGS = 1 COAT OF PAINT  
FINAL PAVEMENT MARKINGS = 2 COATS OF PAINT

### TEMPORARY PAVEMENT MARKING LINES

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
PA	WHITE SOLID EDGE LINE (4")	1140 FT	4810000000-E	1140 FT
P2	WHITE STOPBAR (24")	25 FT	4835000000-E	25 FT

### REMOVAL OF PAVEMENT MARKING LINES

DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
REMOVAL OF PAVEMENT MARKING LINES (4")	840 FT	4850000000-E	840 FT
REMOVAL OF PAVEMENT MARKING LINES (24")	25 FT	4870000000-E	25 FT

### FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
PA	WHITE SOLID EDGE LINE (4")	1068 FT	4810000000-E	2136 FT
PI	YELLOW DOUBLE CENTER LINE (4")	1442 FT	4810000000-E	2884 FT
P8	2 FT. - 6 FT./SP WHITE MINISKIP (4")	20 FT	4810000000-E	40 FT
P2	WHITE STOPBAR (24")	13 FT	4835000000-E	26 FT



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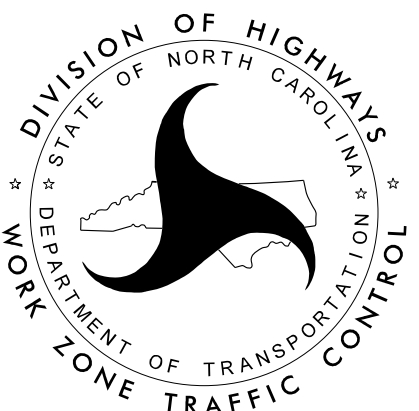
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APPROVED  
1/17/2016

SEAL  
2019

ENGINEER  
LLOYD D. BROWN



PERMANENT PAVEMENT  
MARKING PLAN

# EROSION CONTROL PLAN

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

PROJECT REFERENCE NO.  
17BP14.R.141

SHEET NO.  
EC-1/CONS-4

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Boone, NC  
828-355-9933

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Level III-A: Designer of Erosion and Sediment Control Plans

MICHAEL CLARK  
Date Issued: June 29, 2016  
Date Expires: December 31, 2019  
Certification Number: 3376

The diagram illustrates the erosion control plan for Project 17BP.14.R.141, which involves replacing Bridge No. 021 on SR 1501 over the N. Pacolet River. The plan shows the project limits from station 12+50.00 to 17+00.00. Key features include: an impervious dike, various erosion control structures like silt fences, sediment control fences, and rock inlet sediment traps, and areas of rip rap placement. Elevation points and stationing are marked throughout the plan. A north arrow indicates the orientation, and a note specifies the NAD 83/NSRS 2011 datum.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence .....	
1606.01	Special Sediment Control Fence .....	
1632.03	Rock Inlet Sediment Trap Type C .....	
1633.01	Temporary Rock Silt Check Type-A .....	
1633.01	Wattle .....	
1633.01	Wattle with Polyacrylamide (PAM) .....	

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

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

ROADSIDE ENVIRONMENTAL UNIT  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

## 2012 STANDARD DRAWINGS

- 1605.01 Temporary Silt Fence
- 1622.01 Temporary Berms and Slope Drains
- 1631.01 Matting Installation
- 1632.03 Rock Inlet Sediment Trap Type C
- 1633.01 Temporary Rock Silt Check Type A

CLEARING & GRUBBING AND  
FINAL EROSION CONTROL MEASURES  
FOR CONSTRUCTION SHEET 4

PROJECT NO. 17BP.14.R.141  
COUNTY POLK  
STATION: 14+60.66 -L-  
REPLACES BRIDGE NO. 021

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STRUCTURE #021 ON SR 1501  
OVER N. PACOLET RIVER

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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.





# WATTLE WITH POLYACRYLAMIDE DETAIL

## WATTLES WITH POLYACRYLAMIDE (PAM):

### Description

Wattles are tubular products consisting of excelsior fibers encased in synthetic netting. Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of wattles, matting installation, PAM application, and removing wattles.

### Materials

Wattle shall meet the following specifications:

100% Curled Wood(Excelsior) Fibers  
Minimum Diameter - 12 in.  
Minimum Density - 2.6 lb/ft<sup>3</sup> +/- 10%  
Net Material - Synthetic  
Net Openings - 1 in. x 1 in.  
Net Configuration - Totally Encased  
Minimum Weight - 20 lb. +/- 10% per 10 ft. length

Anchors: Stakes shall be used as anchors.

### Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of section 1060-8 of the Standard Specifications, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a u shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle.

### Construction Methods

Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

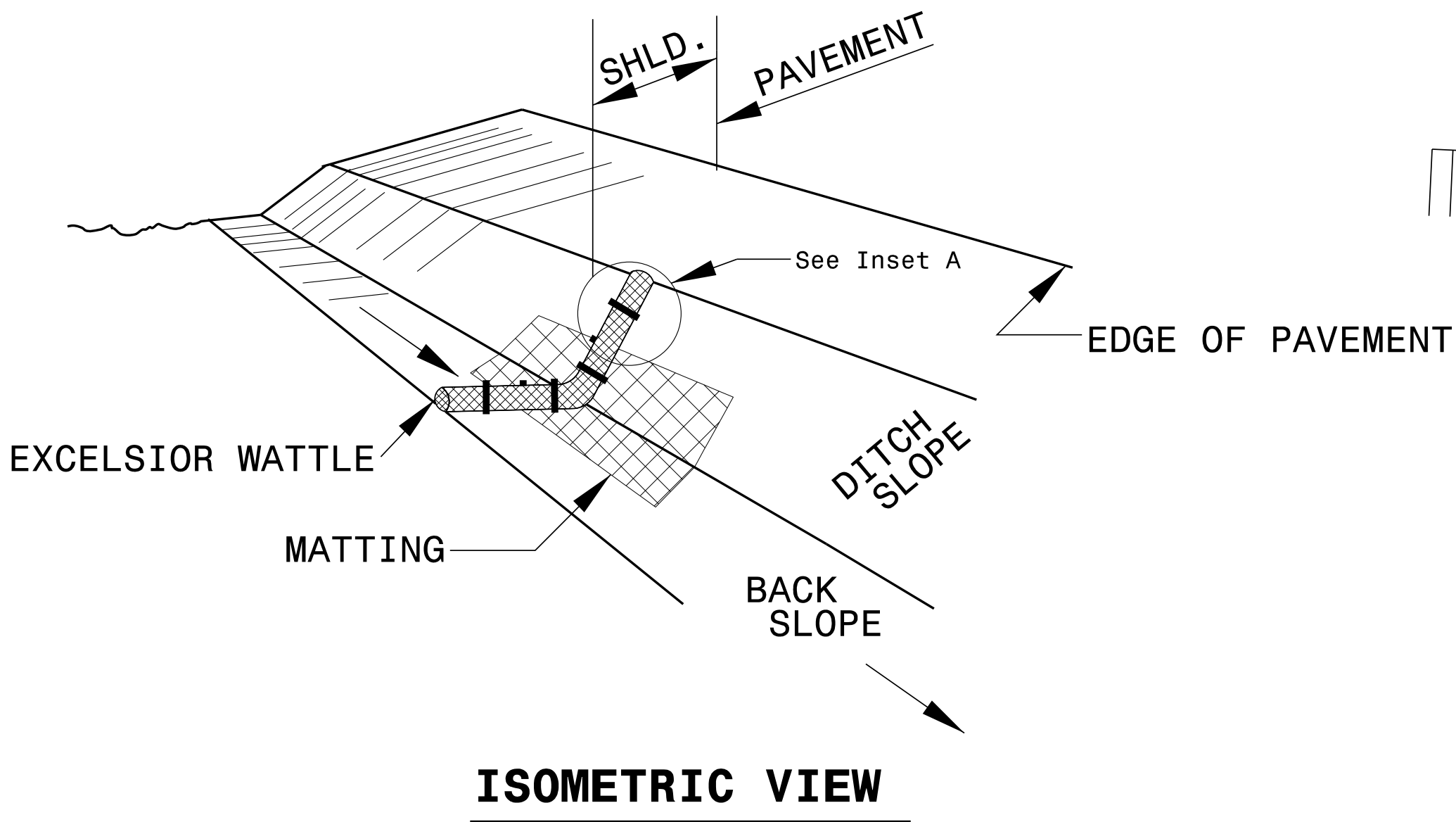
Install wattles to the top of the ditch according to the detail provided in the plans. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with section 1631-3(B) of the Standard Specifications, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the wattle where the water is going to flow over at a rate of 3.5 ounces per wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the Standard Specifications.

The quantity of wattle(s), wooden stakes, staples, matting and PAM as measured above will be paid for at contract price for "Lump Sum for Erosion Control". Such price and payment will be full compensation for all work covered by this provision, including but not limited to, furnishing all materials, placing and maintaining the wattle(s), and removal and disposal of silt accumulations and wattle.



### NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

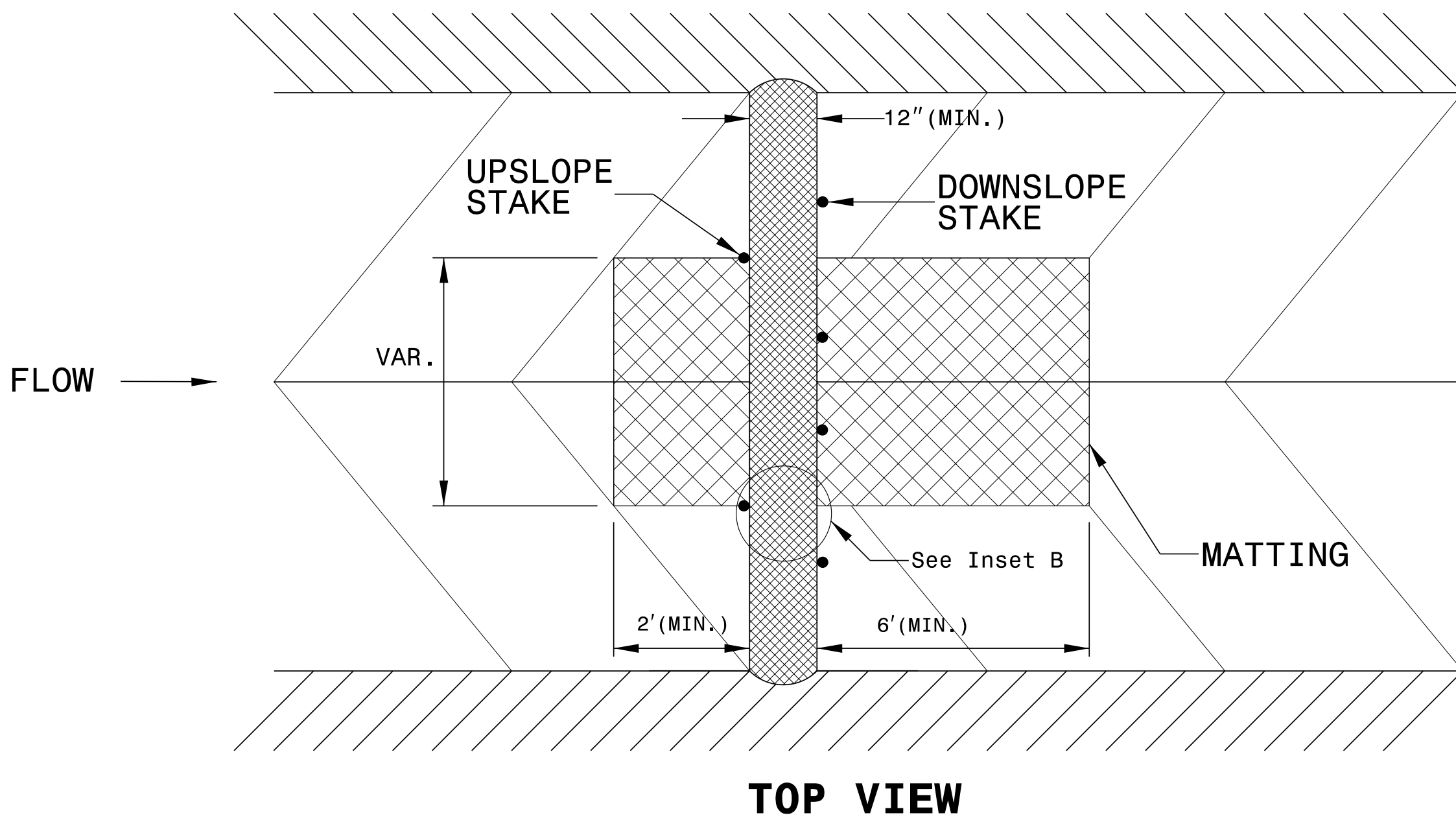
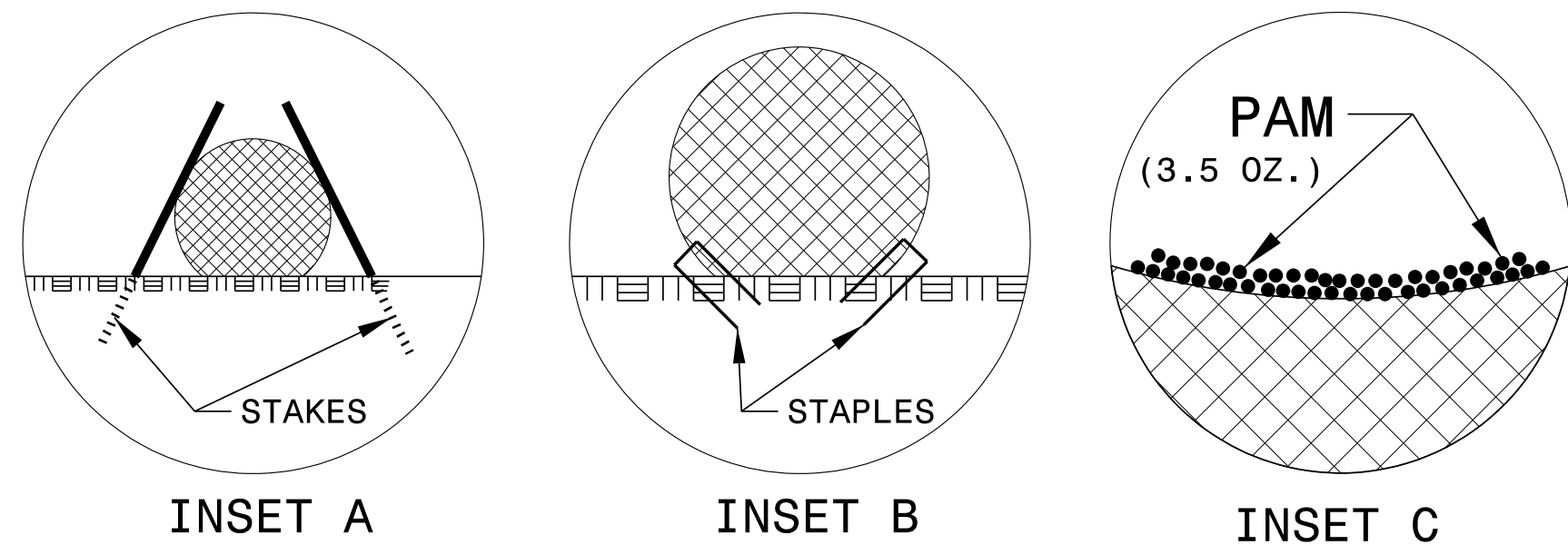
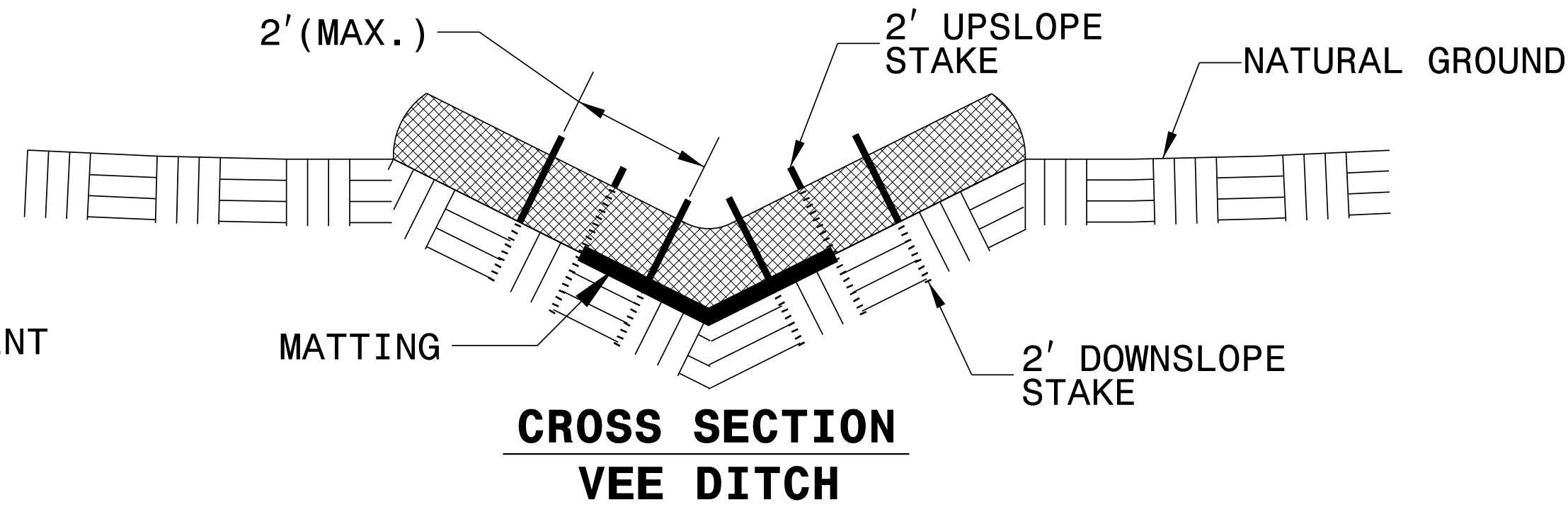
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

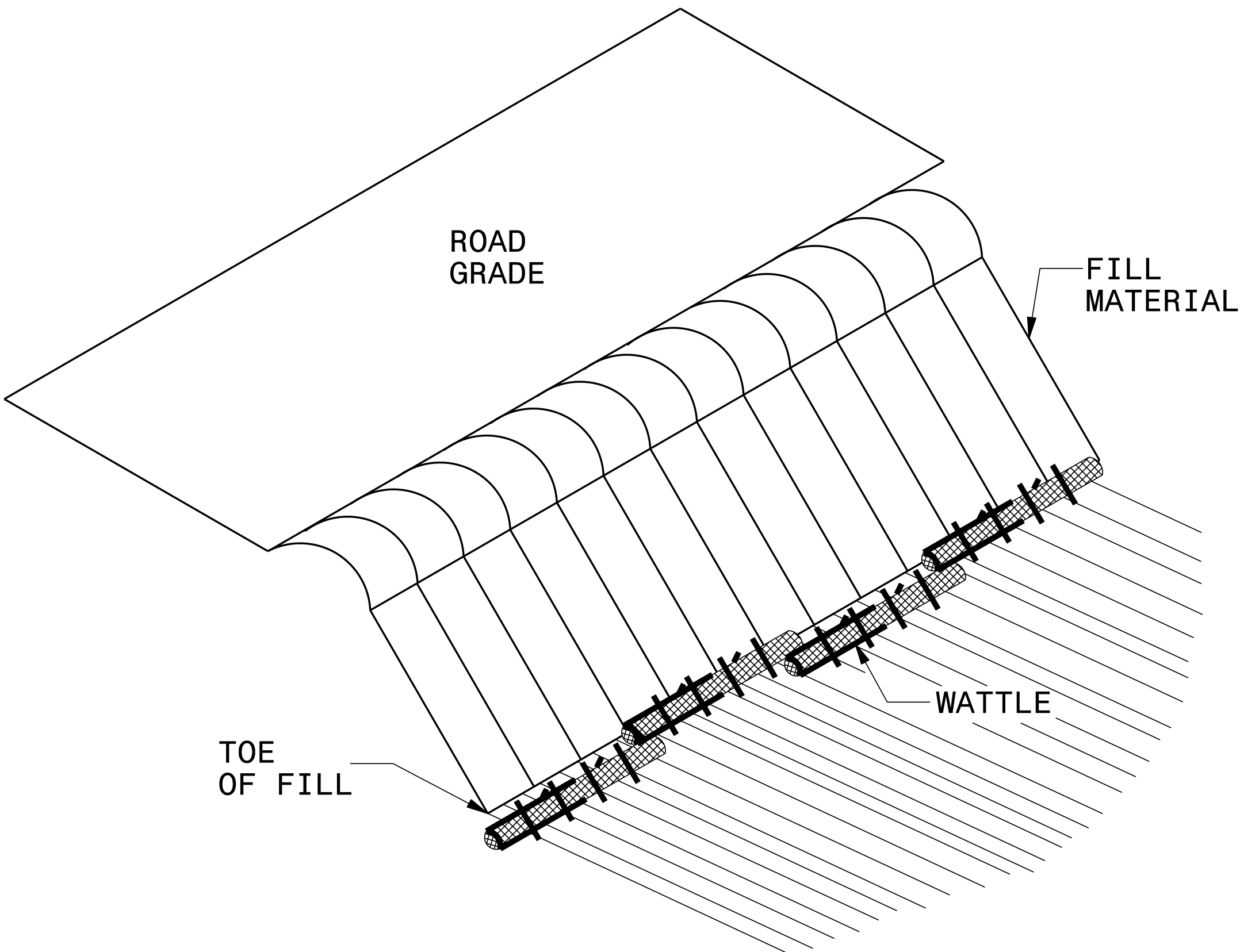
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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

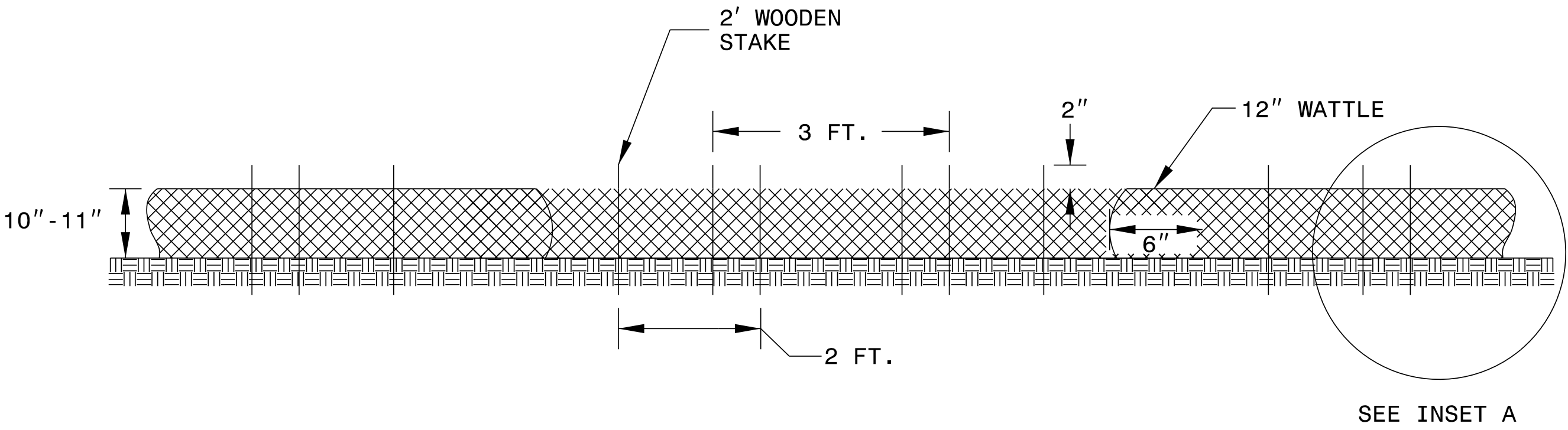
INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



# WATTLE BARRIER DETAIL



**ISOMETRIC VIEW**



**FRONT VIEW**

**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.

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

DO NOT PLACE WATTLES ON TOE OF SLOPE.

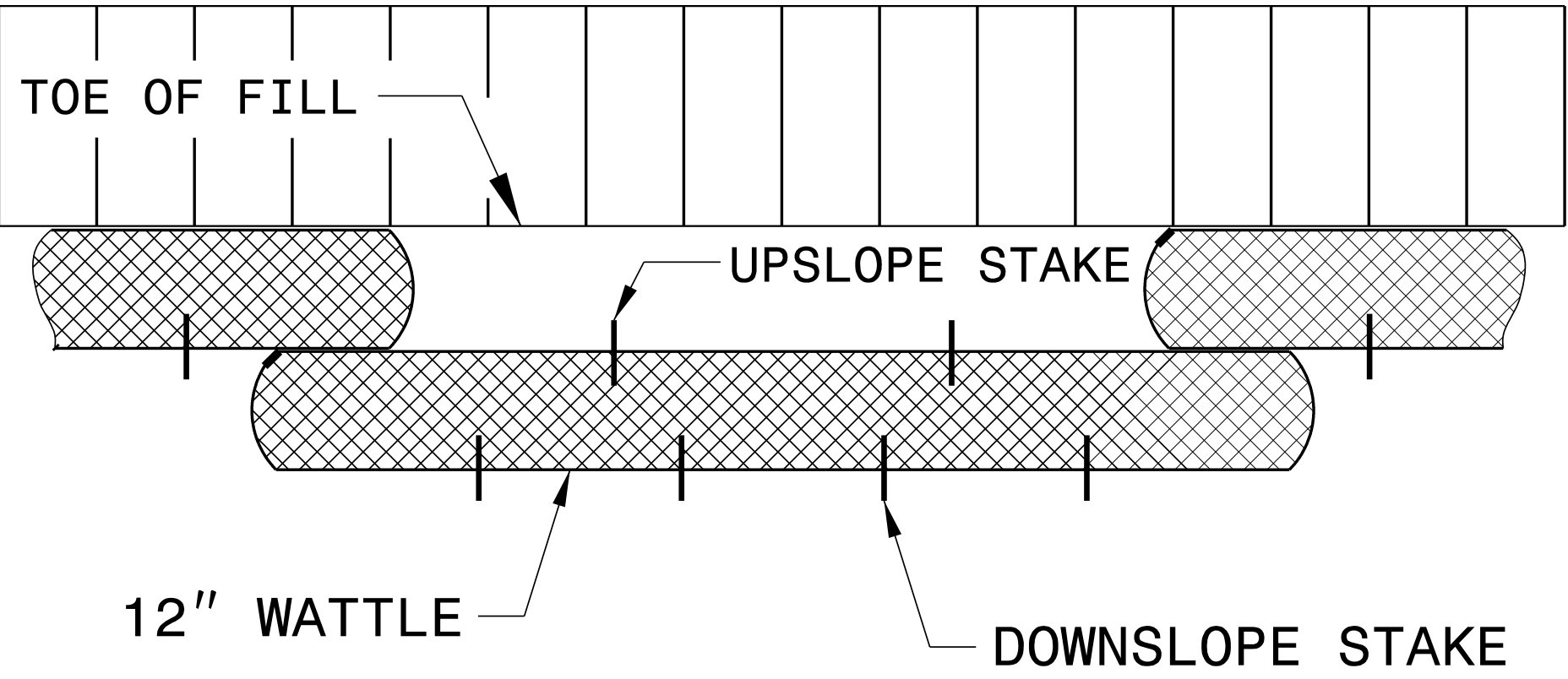
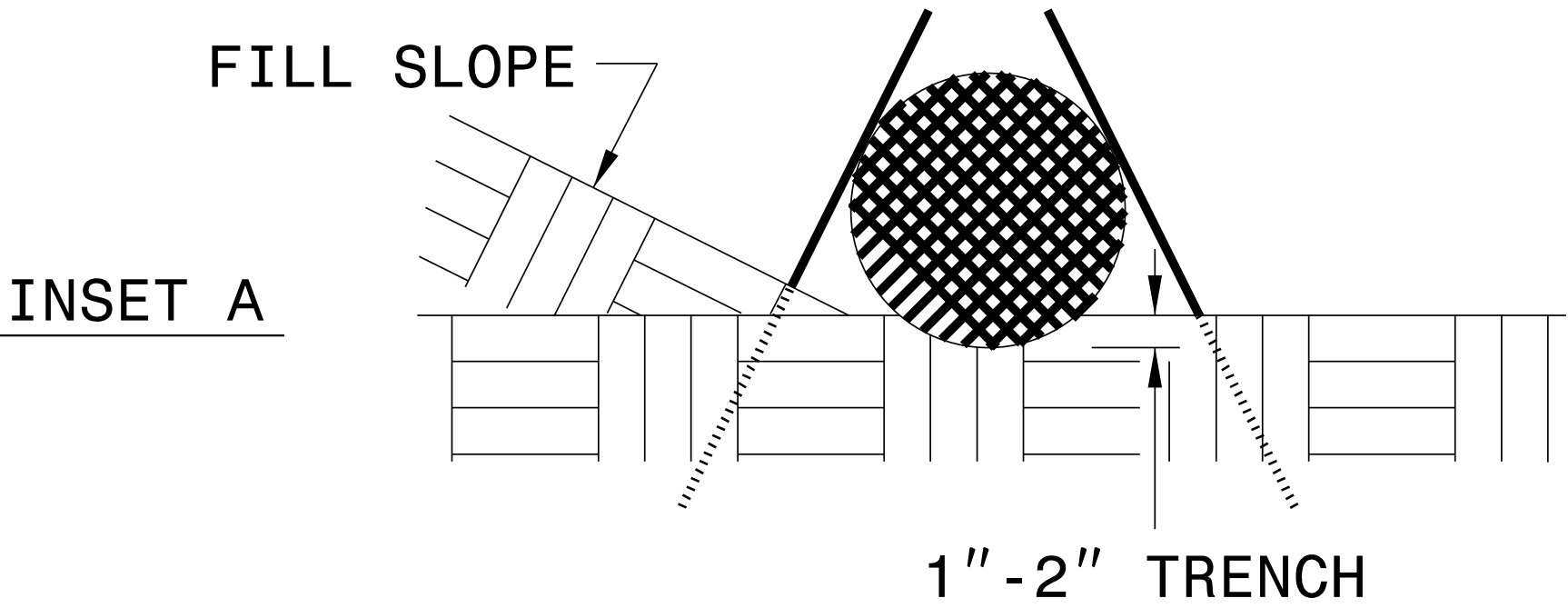
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

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.

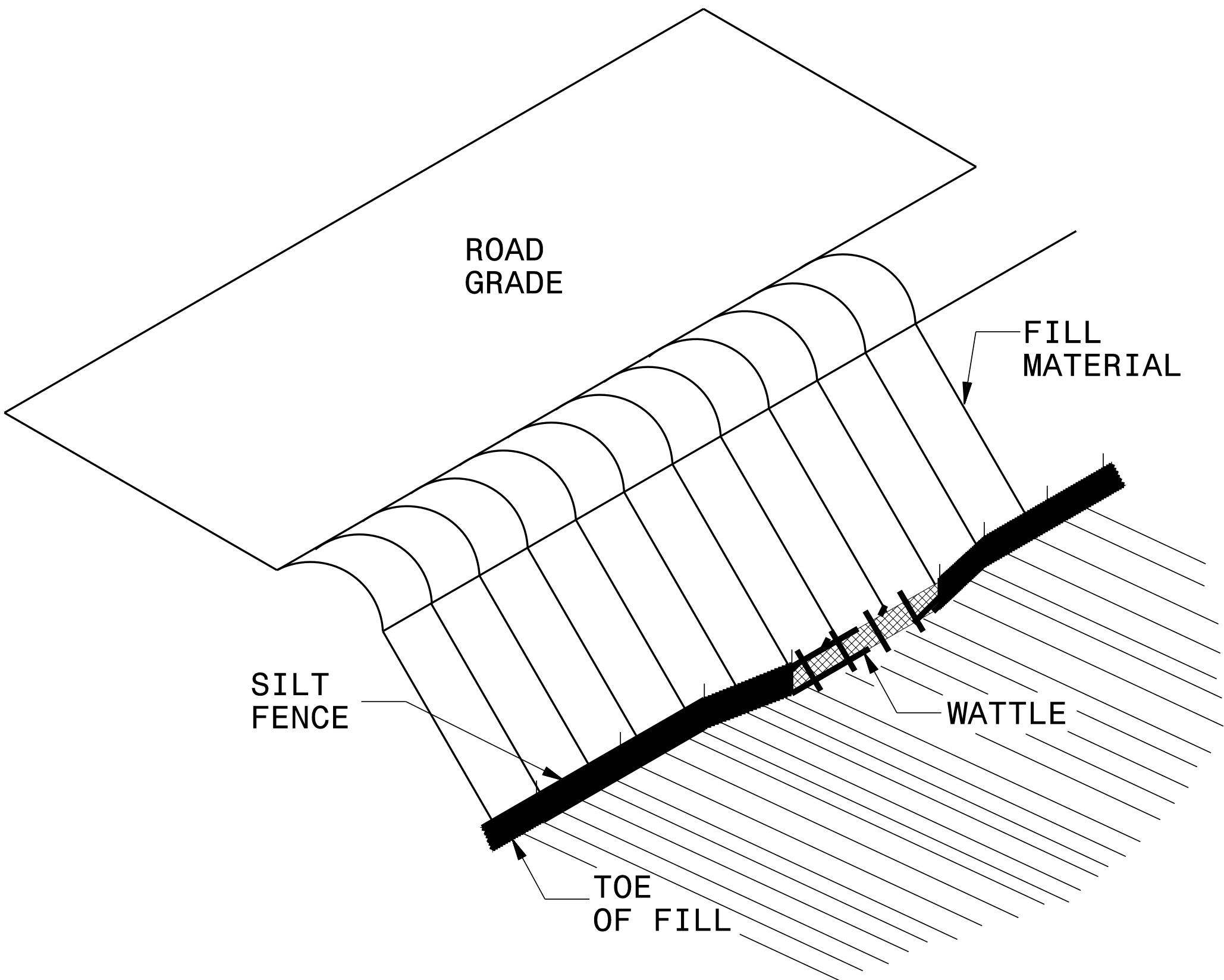
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.

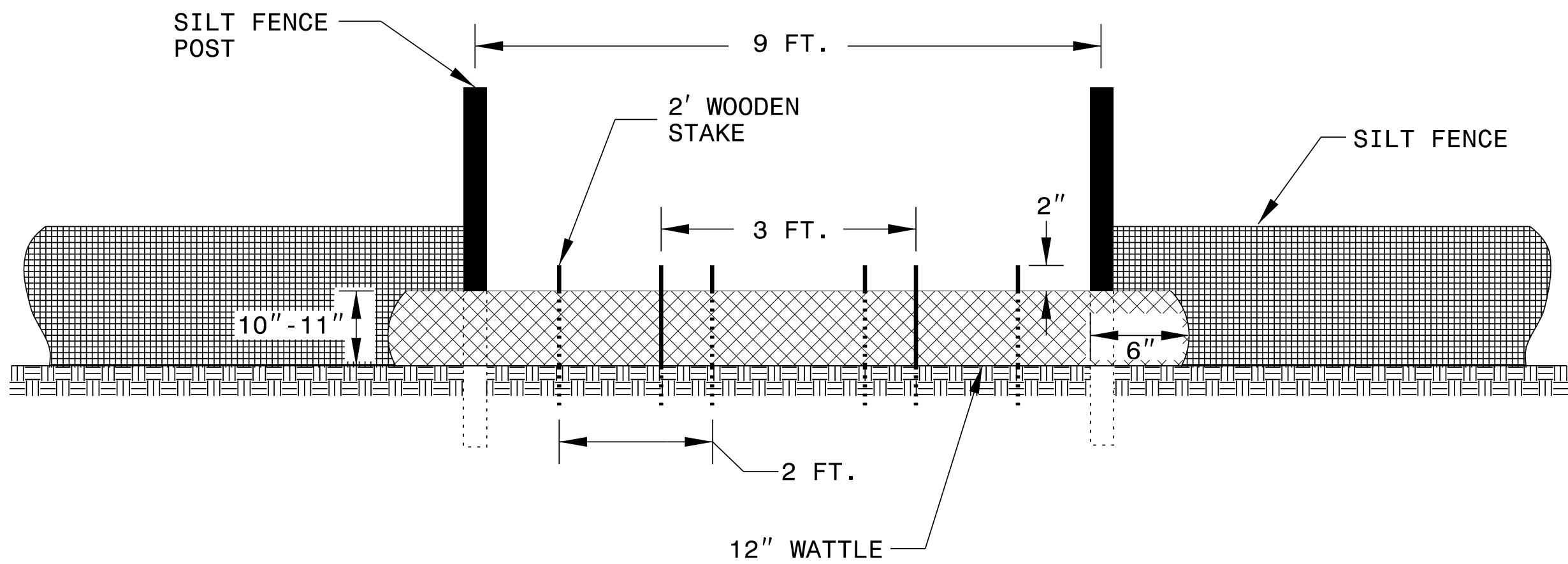


**TOP VIEW**

# SILT FENCE WATTLE BREAK DETAIL



**ISOMETRIC VIEW**

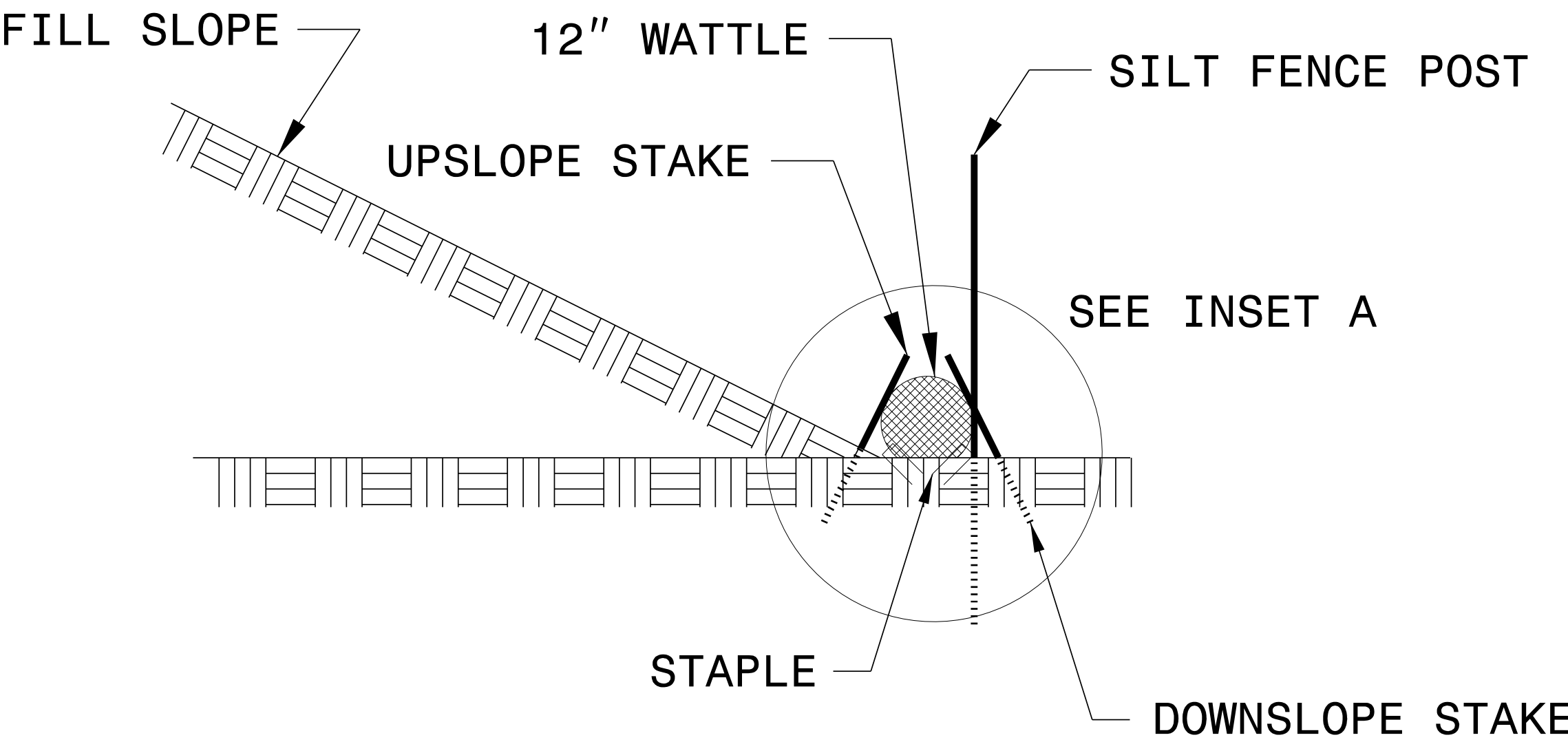
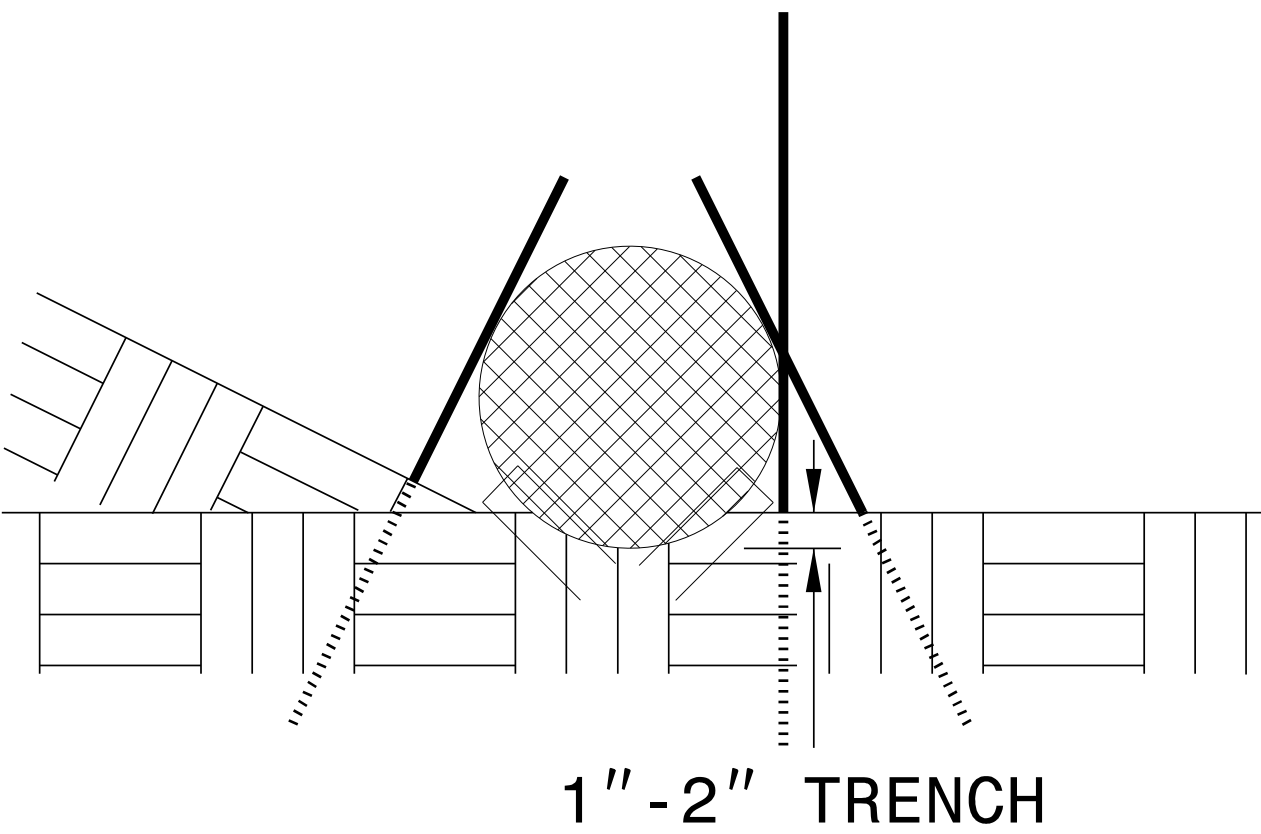


**VIEW FROM SLOPE**

**NOTES:**

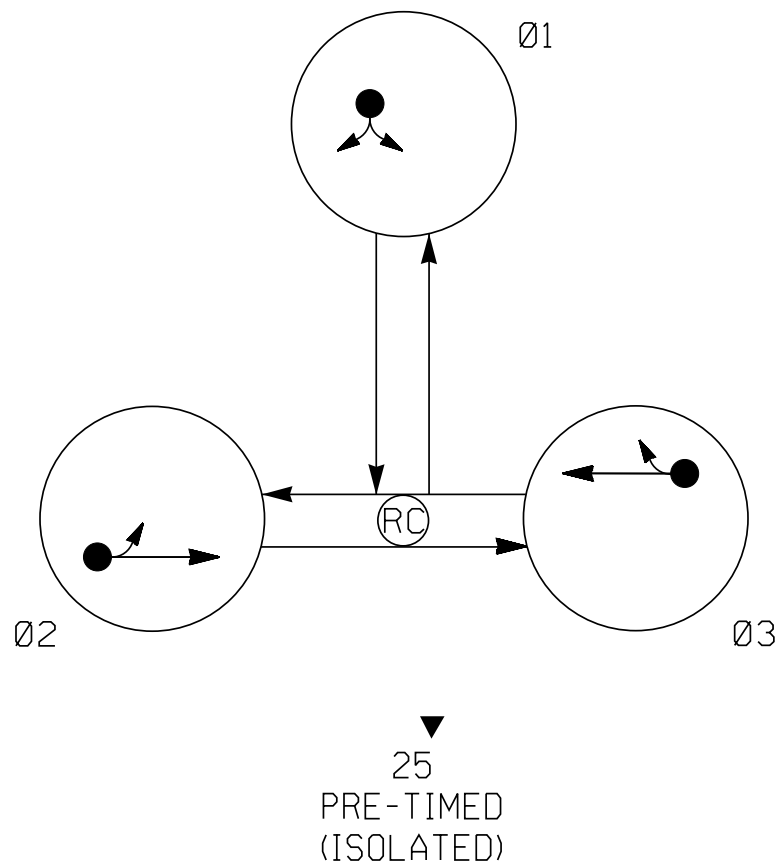
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT 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.

**INSET A**



**SIDE VIEW**

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ↔ PEDESTRIAN MOVEMENT

TABLE OF OPERATION										
SIGNAL FACE	03			02			01			FLASH
	R / W	CLEAR		R / W	CLEAR		R / W	CLEAR		
		02			01			03		
		1	2		1	2		1	2	
11	R	R	R	G	Y	R	R	R	R	
21	G	Y	R	R	R	R	R	R	R	
31	R	R	R	R	R	R	G	Y	R	

SIGNAL FACE I.D.

R  
Y  
G  
12"  
11  
21  
31

NOTES

1. PORTABLE TEMPORARY INSTALLATION.
2. SIGNAL HEADS SHALL BE NO CLOSER THAN 40 FEET FROM THE STOPLINE.
3. NO COUNTS AVAILABLE.
4. CONTRACTOR TO UTILIZE NCDOT PRE-APPROVED PORTABLE TRAFFIC SIGNAL MANUFACTURER AND MODEL.

-6.6% GRADE  
25 MPH DESIGN SPEED

BEGIN PROJECT 17BP.14.R.141  
-L- STA 12+50.00

END PROJECT 17BP.14.R.141  
-L- STA 17+00.00

+0.3% GRADE  
25 MPH DESIGN SPEED

SR 1501 18' BST  
HUNTING COUNTRY RD.

TIMING CHART						
NEMA CONTROLLER						
PHASE	Ø1		Ø2		Ø3	
MINIMUM GREEN	40	SEC.	40	SEC.	40	SEC.
PASSAGE/GAP	0	SEC.	0	SEC.	0	SEC.
YELLOW CHANGE INT.	4.0	SEC.	4.0	SEC.	4.0	SEC.
RED CLEARANCE	25	SEC.	25	SEC.	25	SEC.
MAX. 1	65	SEC.	65	SEC.	65	SEC.
RECALL POSITION	MAX. RECALL		MAX. RECALL		MAX. RECALL	
VEHI. CALL MEMORY	—		—		—	

CONSTRUCTION ZONE



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

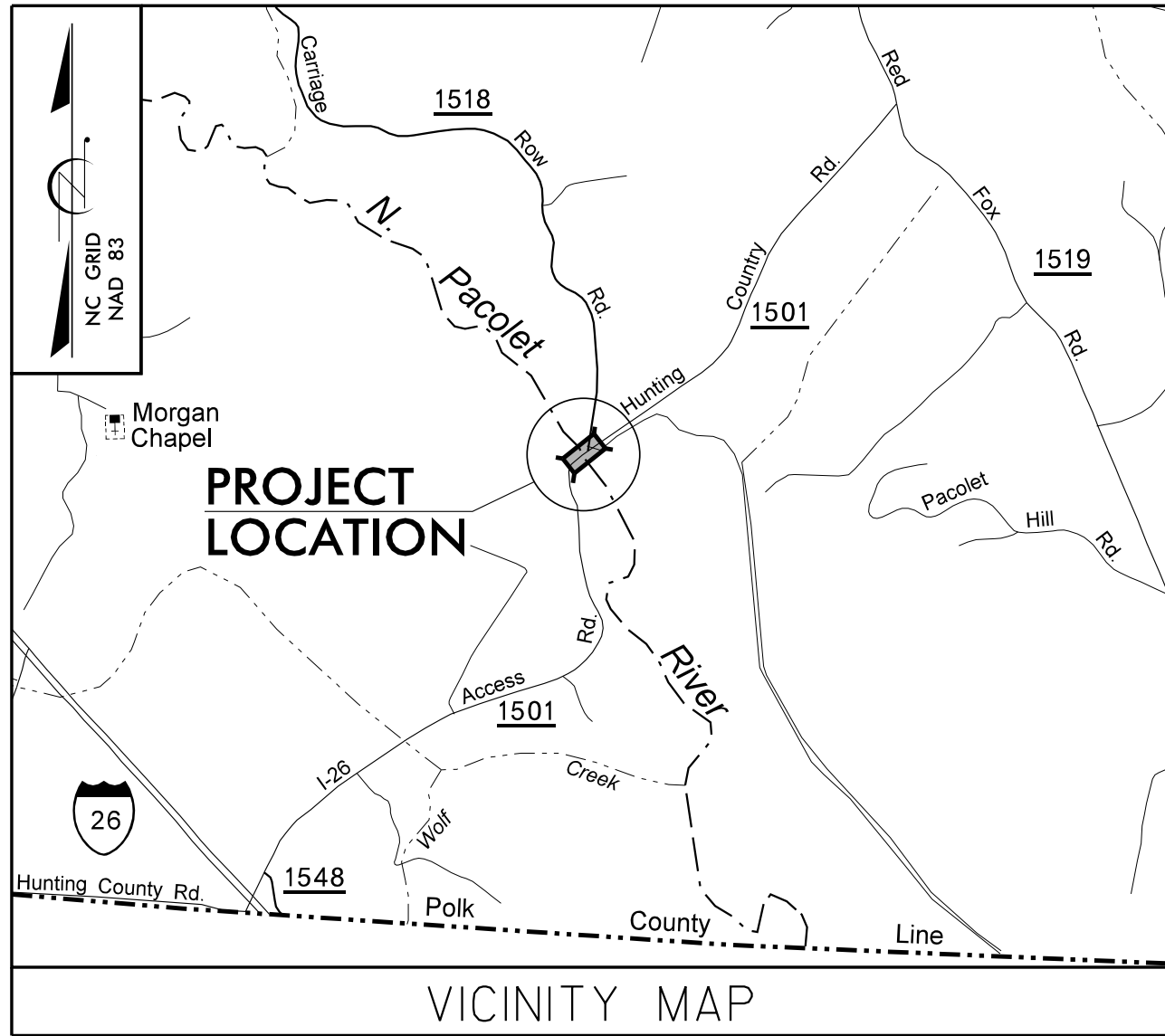
Prepared in the Offices of: <b>V&amp;M</b> Vaughan & Melton Consulting Engineers Asheville, North Carolina 28733-2796 Copyright © 2006, Vaughan & Melton, Inc. All Rights Reserved.		Charlotte, North Carolina 28203-3888 Trenton, Tennessee 37312-4400 Knoxville, Tennessee 37604-5600 Middleboro, Kentucky 40354-4000 Spartanburg, South Carolina 29584-4750		PORTABLE TRAFFIC SIGNAL PLAN SR 1501 HUNTING COUNTRY ROAD DIV. 14 POLK COUNTY PLAN DATE: 8/25/15 REVIEWED BY: LDB PREPARED BY: ACC REVIEWED BY:		SEAL NORTH CAROLINA PROFESSIONAL SEAL 2019 ENGINEER LOYD D. BROWN	
SCALE 0 30		REVISIONS		INIT.		DATE	
Signed by: Lloyd D. Brown		Date: 8/25/2015		Signature:		Date:	
SIGNED		SIGNED		SIGNED		SIGNED	
SIG. INVENTORY NO.							



1/28/15  
V&M PROJECT #31235-12  
TRANSPORTATION/31235-12 UTILITIES/0-1.DGN

PROJECT: 17BP.14.R.141

CONTRACT: DN00121



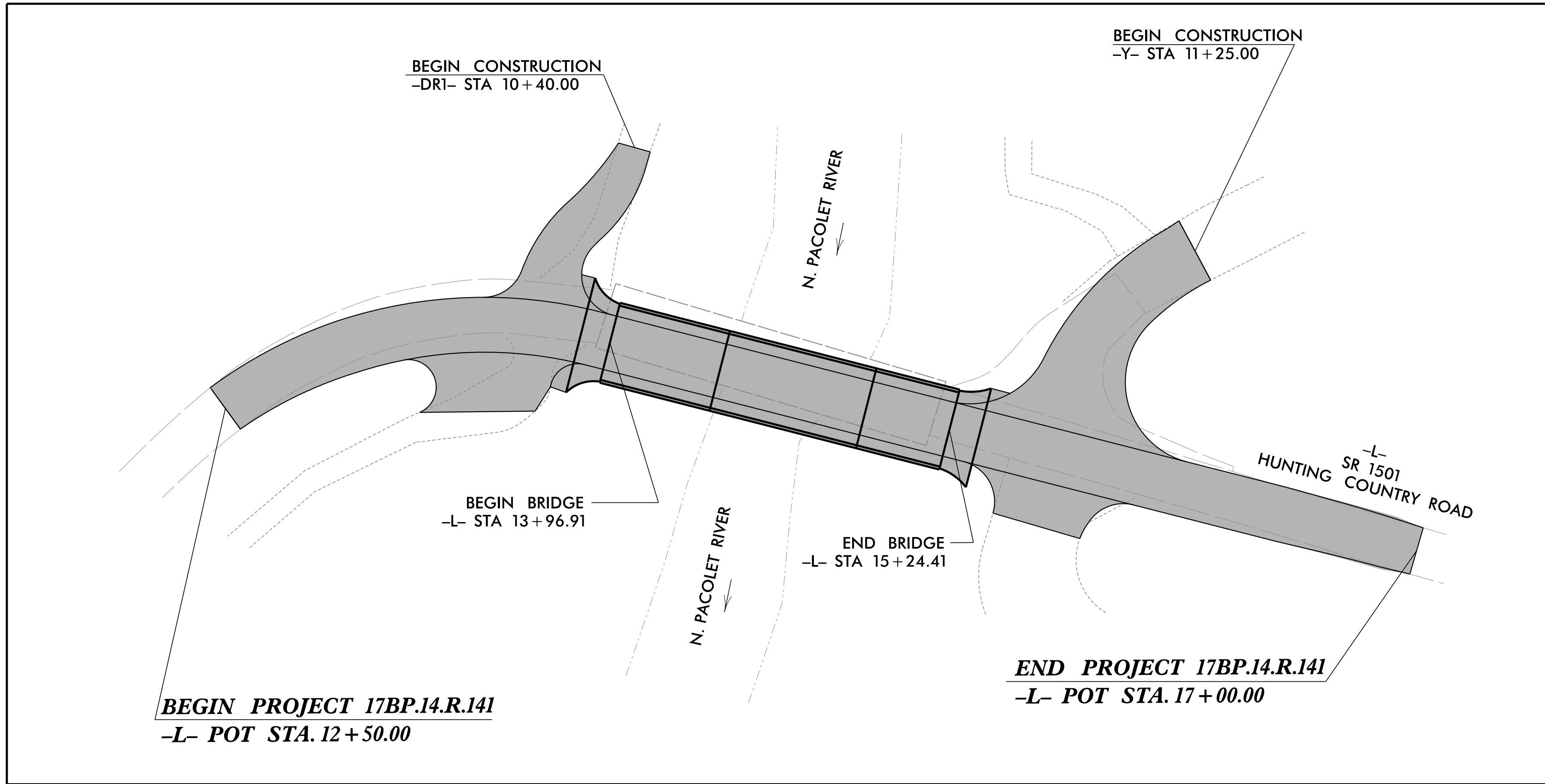
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS  
POLK COUNTY

LOCATION: BRIDGE NO. 21 OVER N. PACOLET RIVER  
ON SR 1501 (HUNTING COUNTRY ROAD)

TYPE OF WORK: AERIAL POWER AND TELEPHONE,  
AND UNDERGROUND TELEPHONE

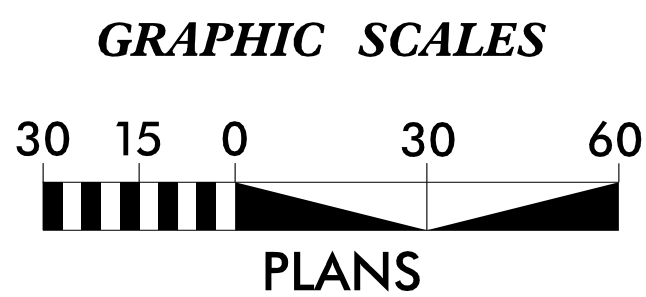
T.I.P. NO.	SHEET NO.
17BP.14.R.141	UO-1



**V&M**  
Vaughn & Melton  
Consulting Engineers  
Asheville,  
North Carolina  
828-253-2796

☐ Charlotte, NC  
☐ Boone, NC  
☐ Knoxville, TN  
☐ Knoxville, TN  
☐ Spartanburg, SC  
☐ Charleston, SC  
☐ Middlesboro, KY  
☐ Atlanta, GA

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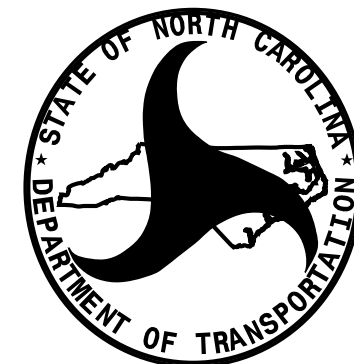


SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET

- UTILITY OWNERS ON PROJECT
- (1) POWER - DUKE ENERGY
- (2) TELEPHONE - WINDSTREAM COMMUNICATIONS

PLANS  
PREPARED  
BY:

**V&M**  
Vaughn & Melton  
Consulting Engineers  
1318-F PATTON AVE.  
Asheville, NC 28806  
828-253-2796



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

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

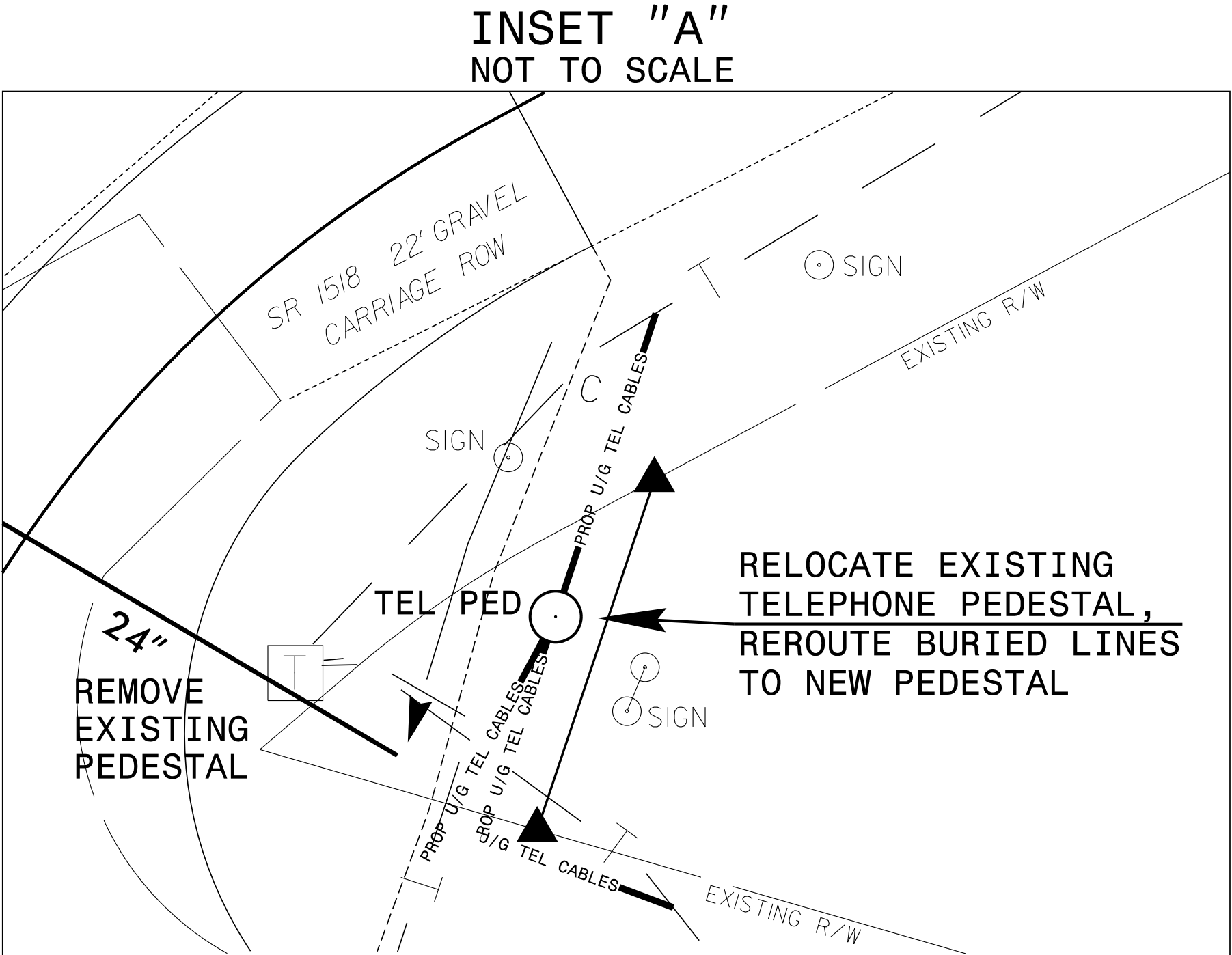
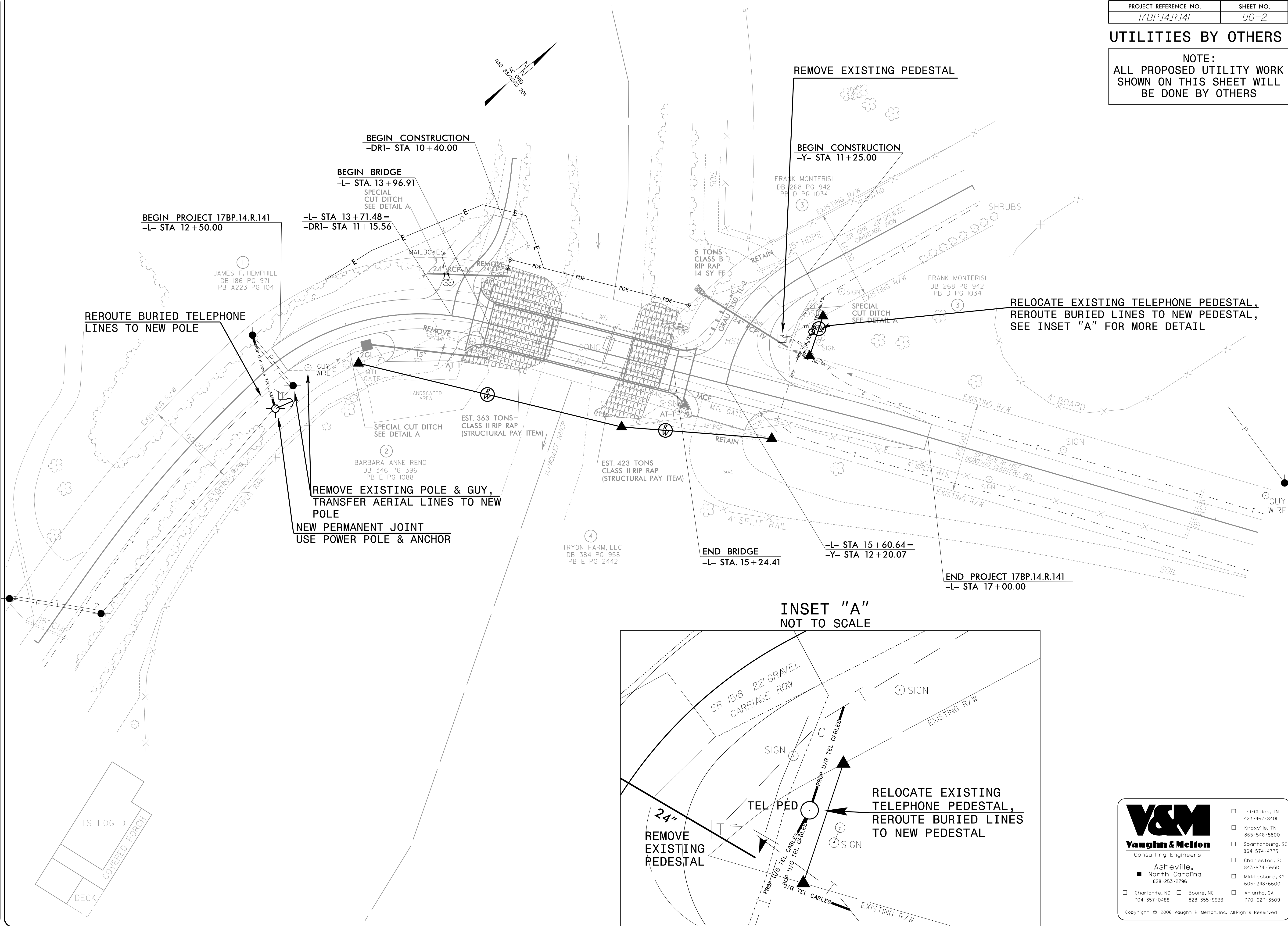
Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Lynn A. Mann, P.G. UTILITIES PROJECT DESIGNER

2/29/16  
V&M PROJECT #31235-12  
TRANSPORTATION/31235-12 UTILITIES/0-2.DGN  
PROJECT: 17BP.14.R.141  
CONTRACT: DN00121

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.141	00-2

UTILITIES BY OTHERS

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



**V&M**  
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