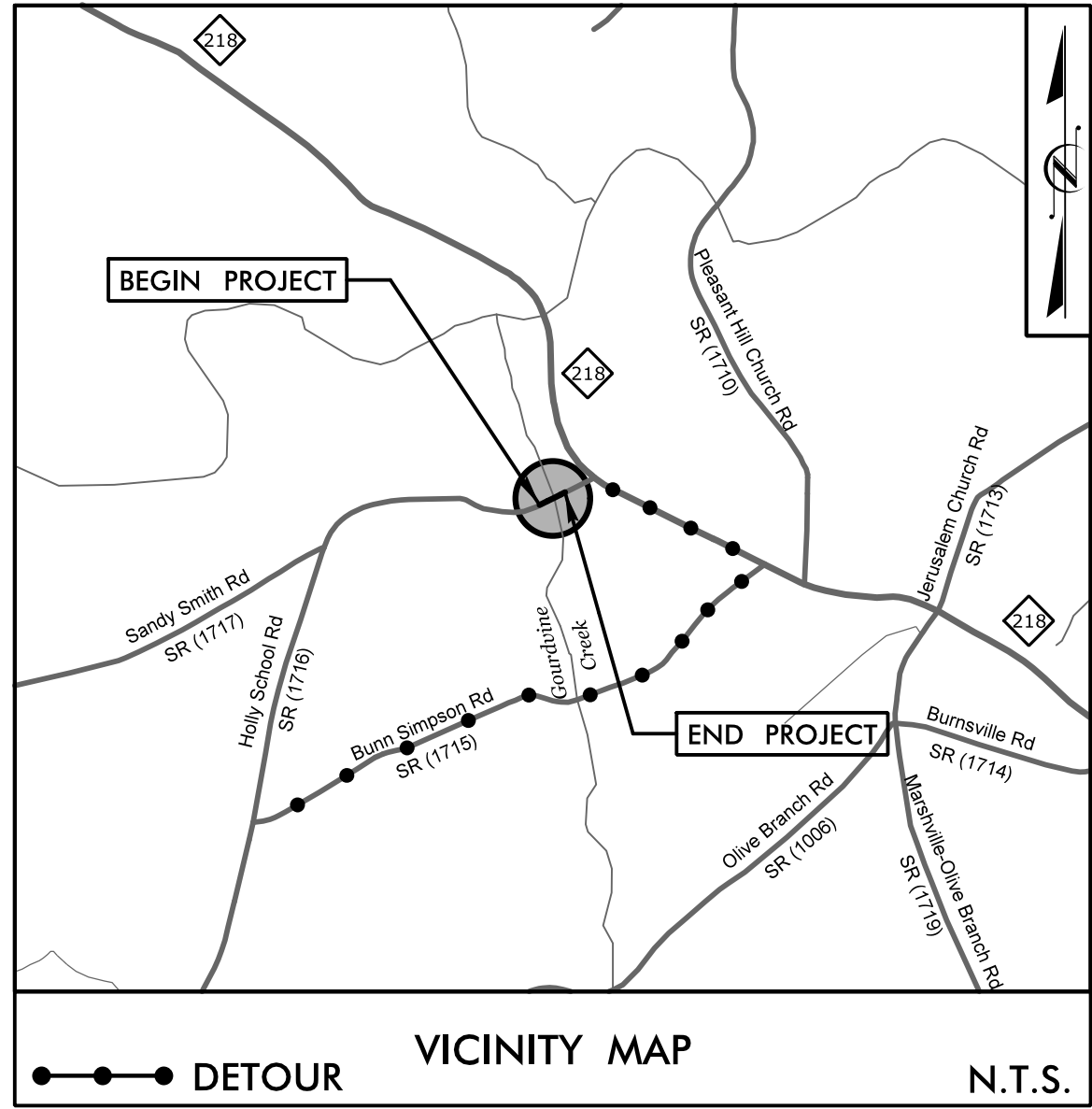


I:\25\2016
R:\roadway\proj\sh\10R61_rdy_tsh.dgn
cgraves

CONTRACT:

PROJECT WBS: 17BP.10.R.61

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



FINAL PLANS

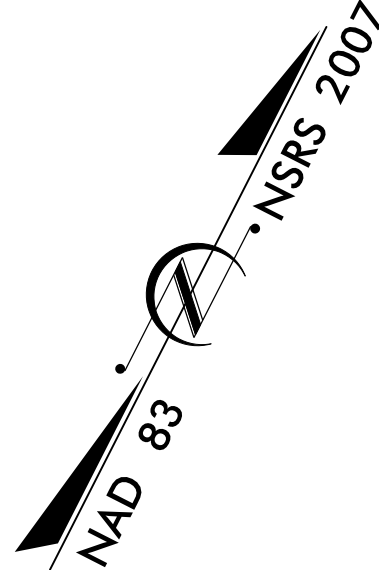
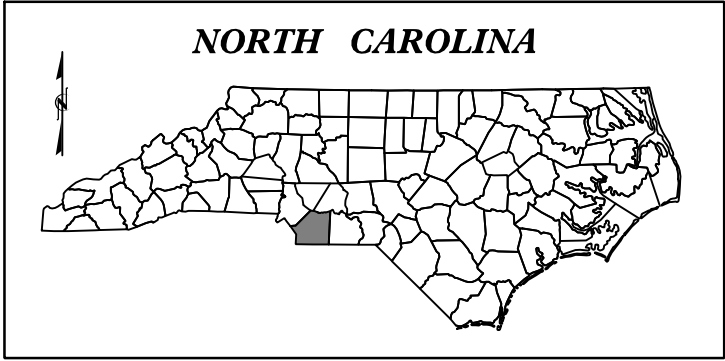
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

LOCATION: BRIDGE #046 OVER GOURDVINE CREEK
ON SR 1716 (HOLLY SCHOOL RD.)

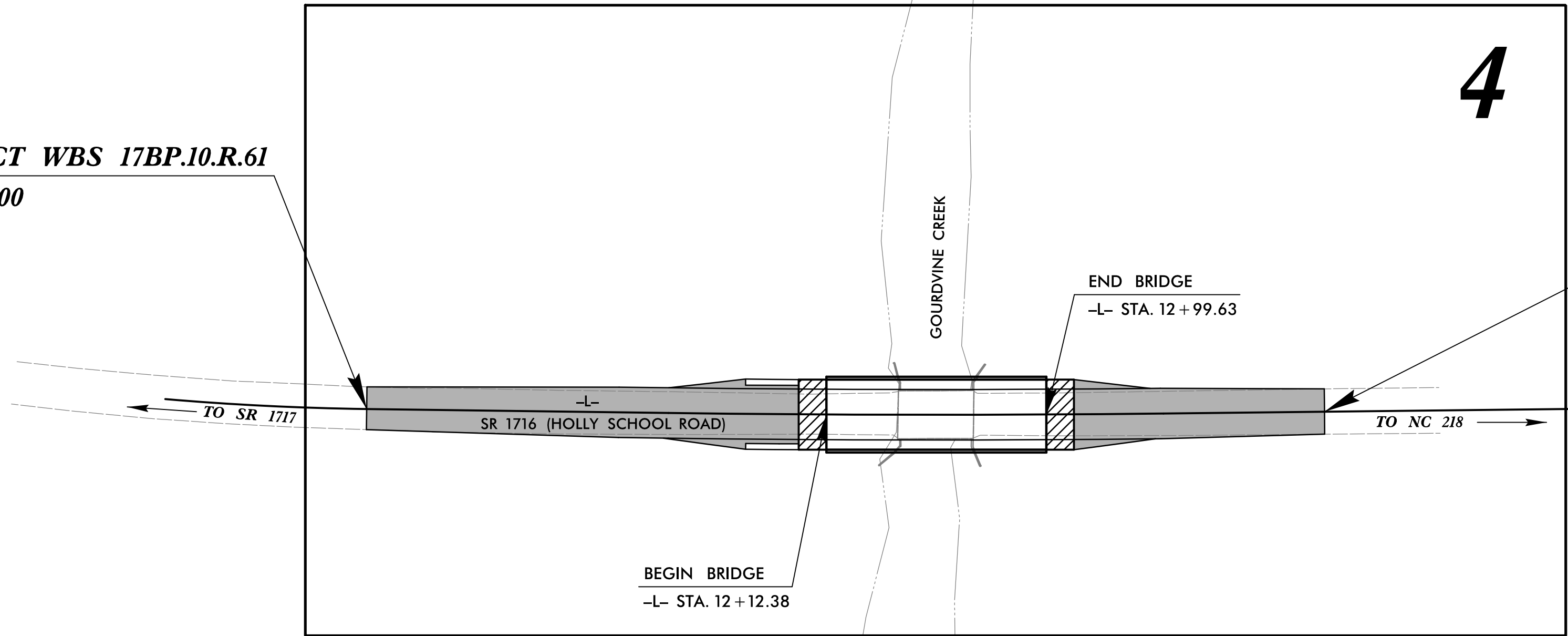
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.61	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.61		P.E.	
17BP.10.R.61		R/W & UTILITIES	
17BP.10.R.61		CONSTRUCTION	



BEGIN PROJECT WBS 17BP.10.R.61
-L- STA. 10+30.00

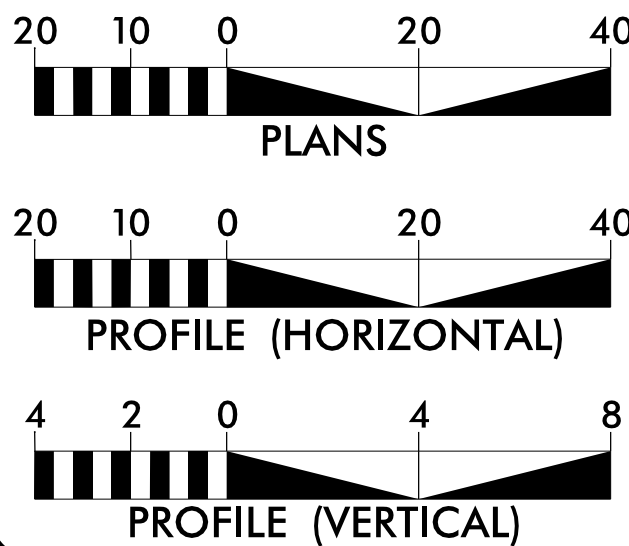
END PROJECT WBS 17BP.10.R.61
-L- STA. 14+10.00



DESIGN EXCEPTION FOR VERTICAL CURVE K VALUES
AND STOPPING SIGHT DISTANCE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 290
ADT 2025 = 540
DHV = N/A
D = N/A
T = 6 %
V = 55 MPH

FUNC. CLASSIFICATION:
LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.10.R.61 = 0.055 MILES
LENGTH OF STRUCTURE PROJECT WBS 17BP.10.R.61 = 0.017 MILES
TOTAL LENGTH OF PROJECT WBS 17BP.10.R.61 = 0.072 MILES

NCDOT CONTACT: GARLAND HAYWOOD, PE
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:



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

2012 STANDARD SPECIFICATIONS

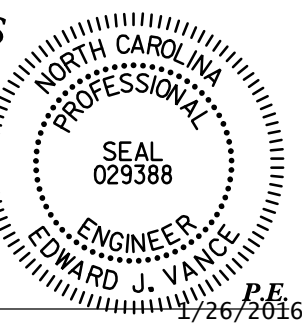
RIGHT OF WAY DATE:
JULY 15, 2014

LETTING DATE:
MARCH 2, 2016

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

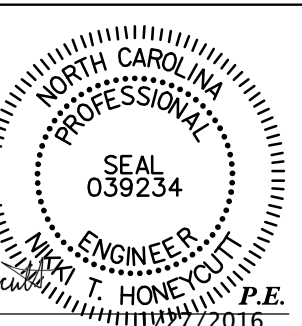
MAAMOON K. ABDELAZIZ
PROJECT DESIGNER

HYDRAULICS
ENGINEER

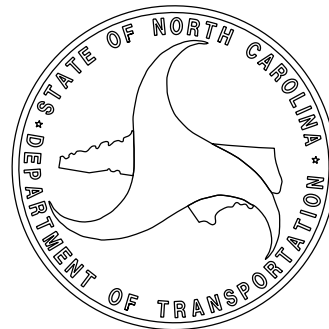


DocuSigned by:
Edward J. Vance
SIGNATURE:

ROADWAY
DESIGN
ENGINEER



DocuSigned by:
Nikki T. Honeycutt
SIGNATURE:



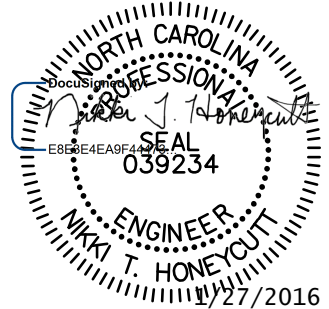
PROJECT REFERENCE NO.
17BPJ0.R.61

SHEET NO.
I-A



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

ROADWAY DESIGN
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

STANDARD DRAWINGS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
3	SUMMARIES AND TYPICAL SECTION SHEET
4	PLAN AND PROFILE SHEET
TMP-1	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-3	CROSS-SECTIONS

GENERAL NOTES:	2012 SPECIFICATIONS EFFECTIVE: 01-01-2012
GRADE LINE: GRADING AND SURFACING:	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
SUPERELEVATION:	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.
SHOULDER CONSTRUCTION:	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.
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.

2012 ROADWAY ENGLISH STANDARD DRAWINGS	EFF. January, 2012
--	--------------------

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 4 - MAJOR STRUCTURES	
422.11	Bridge Approach Fills - Sub Regional Tier
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
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.03	Temporary Road Closures
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III
DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT	
1605.01	Temporary Silt Fence
1607.01	Gravel Construction Entrance
1630.04	Stilling Basin For Pumped Effluent
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

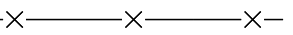
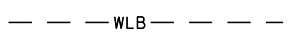
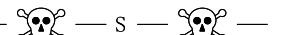
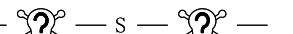
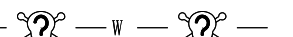
04/16/11

I:\25\2016
F:\Roadway\proj\shnt\0R6Lrdy_psh0B.dgn
cgraves

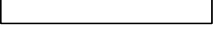
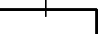
Note: Not to Scale

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

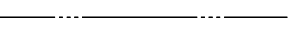
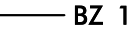
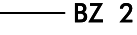
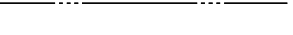
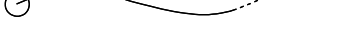
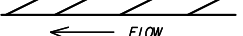
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
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	

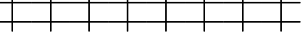
BUILDINGS AND OTHER CULTURE:

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

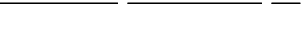
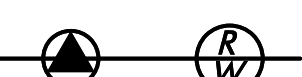
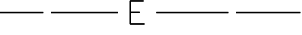
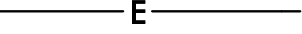
HYDROLOGY:

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	

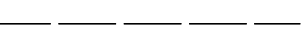
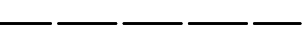
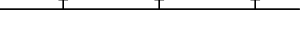
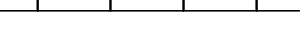
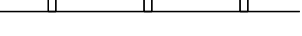
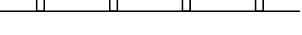
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

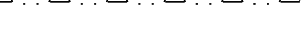
RIGHT OF WAY:

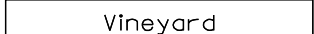
Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite R/W Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control 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:

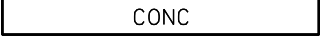
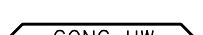
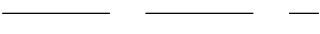
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

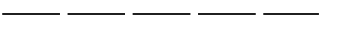
VEGETATION:

Single Tree	
Single Shrub	
Hedge	
Woods Line	

Orchard	
Vineyard	

EXISTING STRUCTURES:

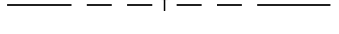
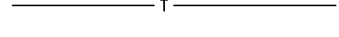
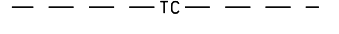
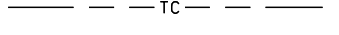
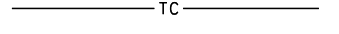
MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	

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.*)	

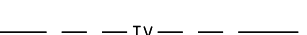
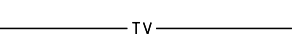
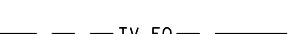
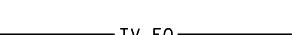
TELEPHONE:

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	

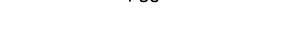
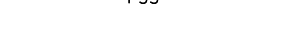
TV:

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.*)	

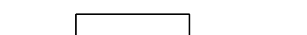
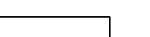
GAS:

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:

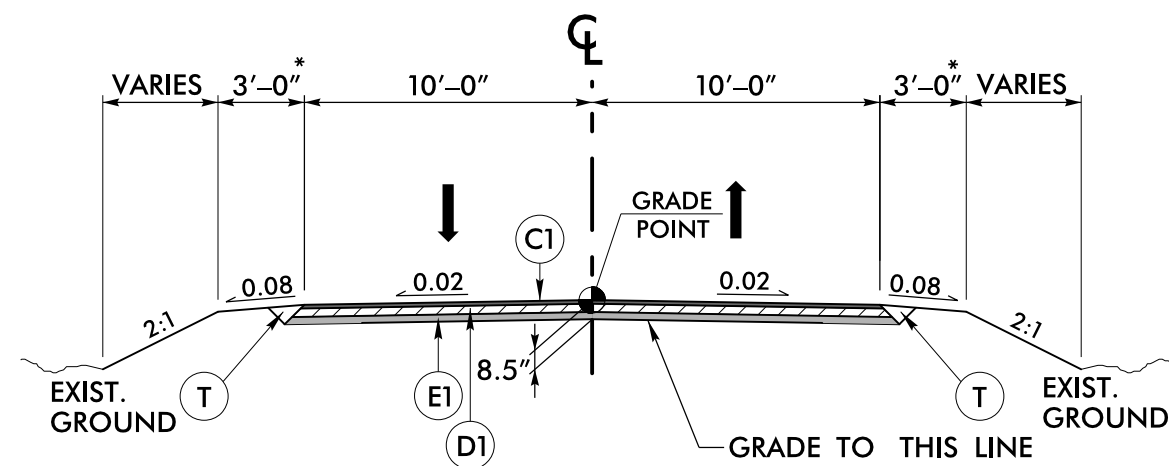
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According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

I/25/2016
r:\roadway\proj\sh\t\10R6l_rdy_psh03.dgn
cgroves

1/25/2016
r:\roadw
cgroves

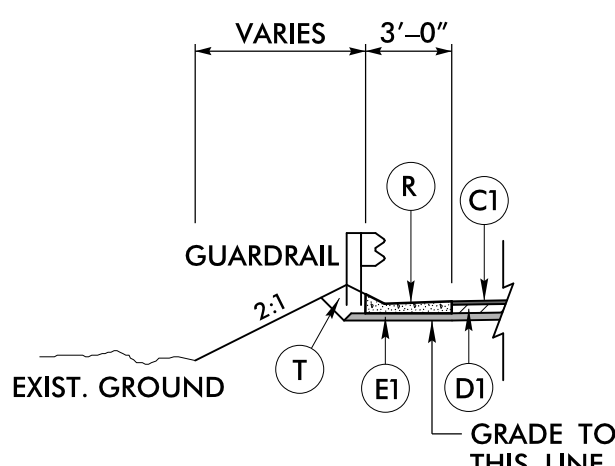
Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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."



TYPICAL SECTION 2

—L STA. 10+83 +/— TO 12+13.38 (BEGIN BRIDGE)
—L STA. 12+99.63 (END BRIDGE) TO 13+74 +/—
* 7'-0" WITH GUARDRAIL
** ALL PAVEMENT SLOPES ARE 1:1
UNLESS SHOWN OTHERWISE.
*** SEE DETAIL A FOR SHOULDER
BERM GUTTER LOCATIONS.



DETAIL A

-L- STA. 11+80.24 TO 12+01.28 (LT)
-L- STA. 11+80.49 TO 12+01.47 (RT)

PAVEMENT SCHEDULE

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

* 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

TOTAL ANCHOR LENGTH:	
TOTAL GUARDRAIL LENGTH:	
SAY:	

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "BL-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 496922.575(++) EASTING: 1600120.822(++)
ELEVATION: 366.22(++)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99986255
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GRID DISTANCE FROM
"BL-2" TO -L- STATION 10+30.00 IS
S 66°15' 09.374" W 245.216(++)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

FROM STA. 13+30 TO STA. 14+00 RT

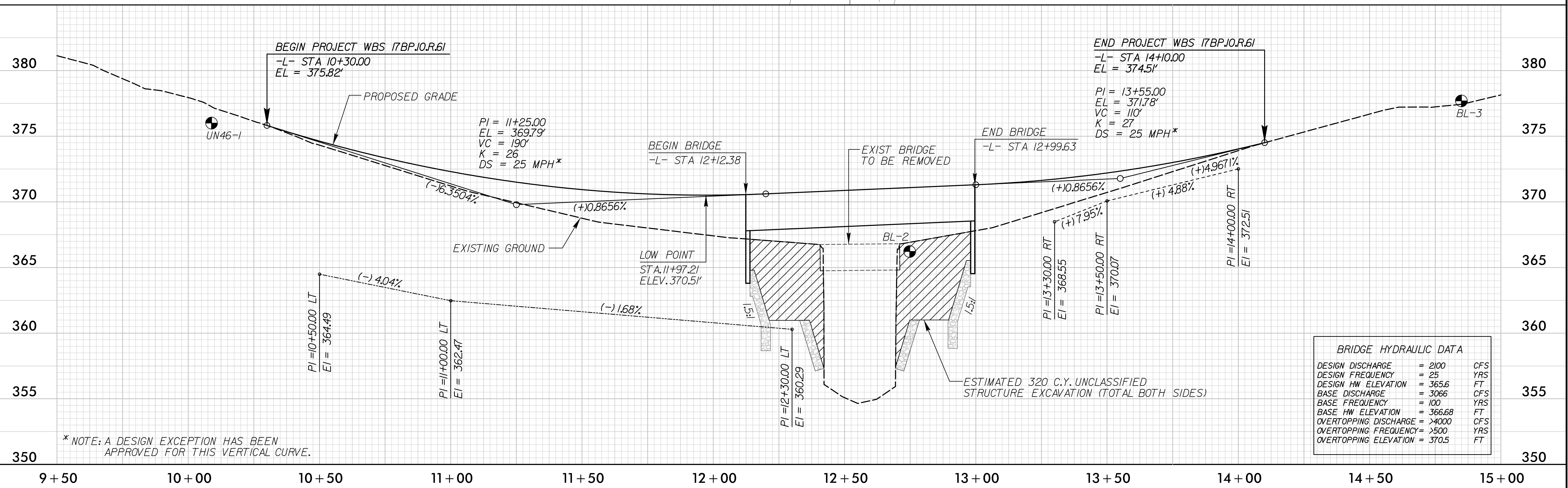
FROM STA. 10+50 TO STA. 11+00 LT

FROM STA. 11+00 TO STA. 12+30 LT

STA. 12+30 TO STA. 12+40 LT
3TN CL-B, 5SY GEOTEXTILE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

NOTE: INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.



OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

PROJECT REFERENCE NO.
17BPJ0.R.61

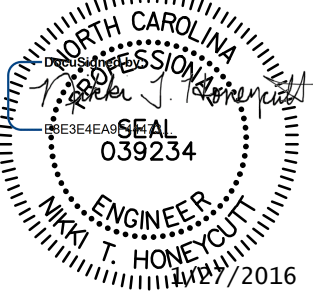
SHEET NO.
TMP-1

RW SHEET NO.

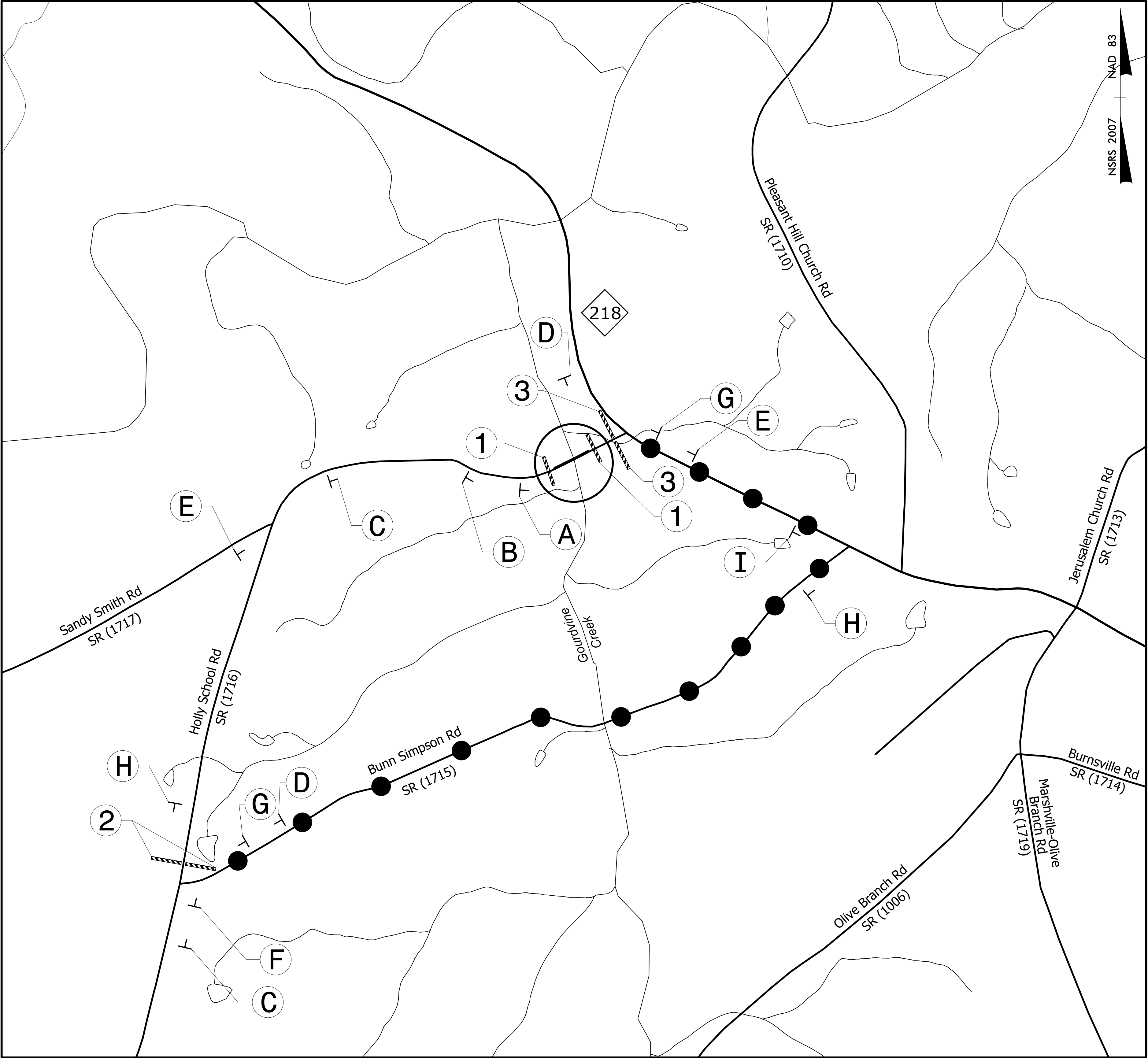


STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

ROADWAY DESIGN
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



R11-2
48" X 30"
ROAD CLOSED

TYPE III BARRICADE(S)

1

R11-3
60" X 30"
ROAD CLOSED
2 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR

TYPE III BARRICADE

2

R11-4
60" X 30"
ROAD CLOSED TO
THRU TRAFFIC
DETOUR

TYPE III BARRICADE

3

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

A

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

B

W20-3
48" X 48"
ROAD CLOSED
AHEAD

C

W20-3
48" X 48"
ROAD CLOSED
AHEAD

D

W20-3
48" X 48"
ROAD CLOSED
AHEAD

E

W20-2
48" X 48"
DETOUR
AHEAD

F

SP-4R
42" X 12"
NEXT RIGHT

G

SP-4L
42" X 12"
NEXT LEFT

H

M4-8 A
24" X 18"
END
DETOUR

M4-8
24" X 12"
DETOUR

M6-1 L
21" X 15"

G

M4-8 A
24" X 18"
END
DETOUR

M4-8
24" X 12"
DETOUR

M6-1 L
21" X 15"

H

M4-8 A
24" X 18"
END
DETOUR

M4-8
24" X 12"
DETOUR

M6-1
21" X 15"

I

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

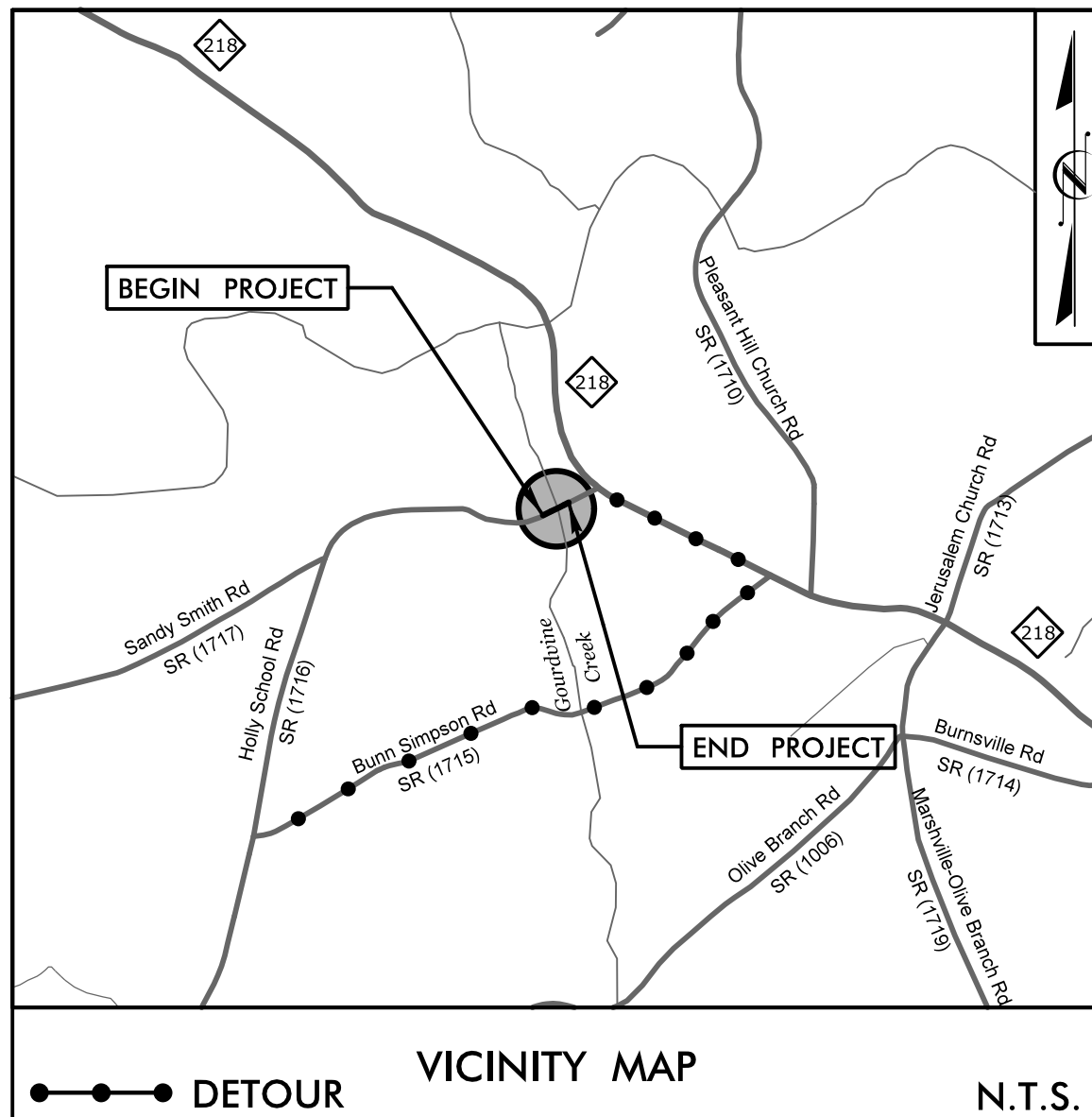
600 300 0 600 1200

Scale: 1" = 600'

I:\25\2016
r:\Traffic\TrafficControl\TCP\10R61_rdy_tmp0.dgn
cgroves

PROJECT WBS: 17BP.10.R.61

CONTRACT:

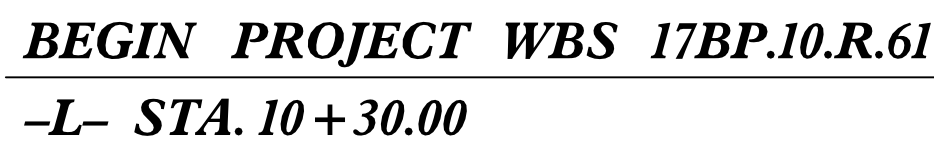


EROSION CONTROL PLANS

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

**LOCATION: BRIDGE 890046 OVER GOURDVINE CREEK
ON SR 1716 (HOLLY SCHOOL RD.)**

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

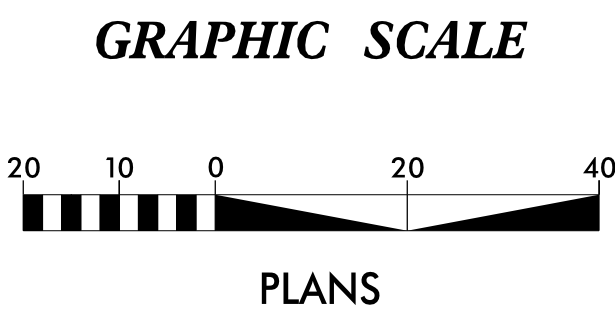


**THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.**

**ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT**

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

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



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Level III Designer #161
Edward Vance, PE

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

PREPARED IN THE OFFICE OF:



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

2012 STANDARD SPECIFICATIONS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.61	EC-1	7
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION	
17BP.10.R.61		P.E.	
17BP.10.R.61		R/W & UTILITIES	
17BP.10.R.61		CONSTRUCTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle // Coir Fiber Wattle	
	Wattle // Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

END PROJECT WBS 17BP.10.R.61

-L- STA. 14+10.00

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

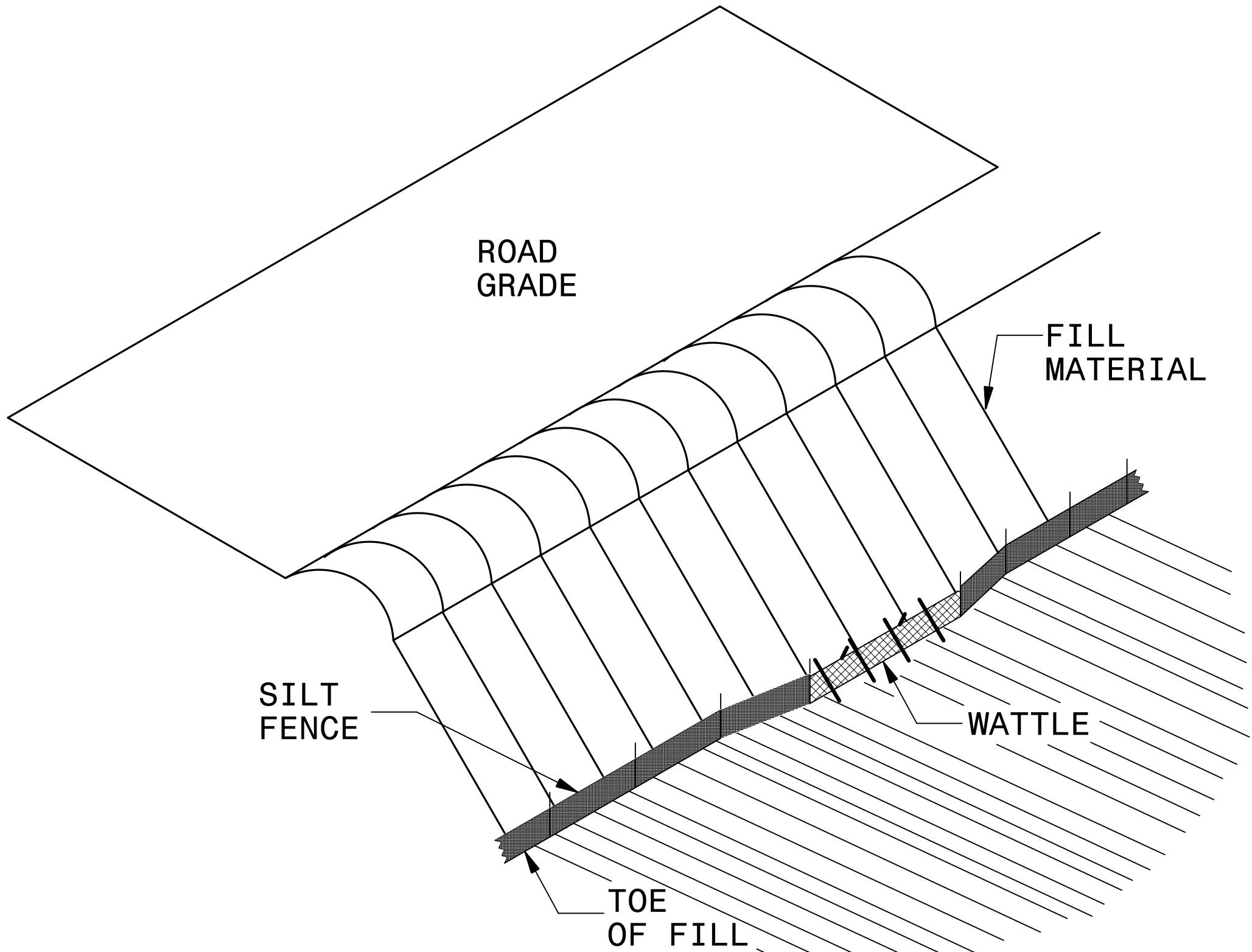
Roadway Standard Drawings

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

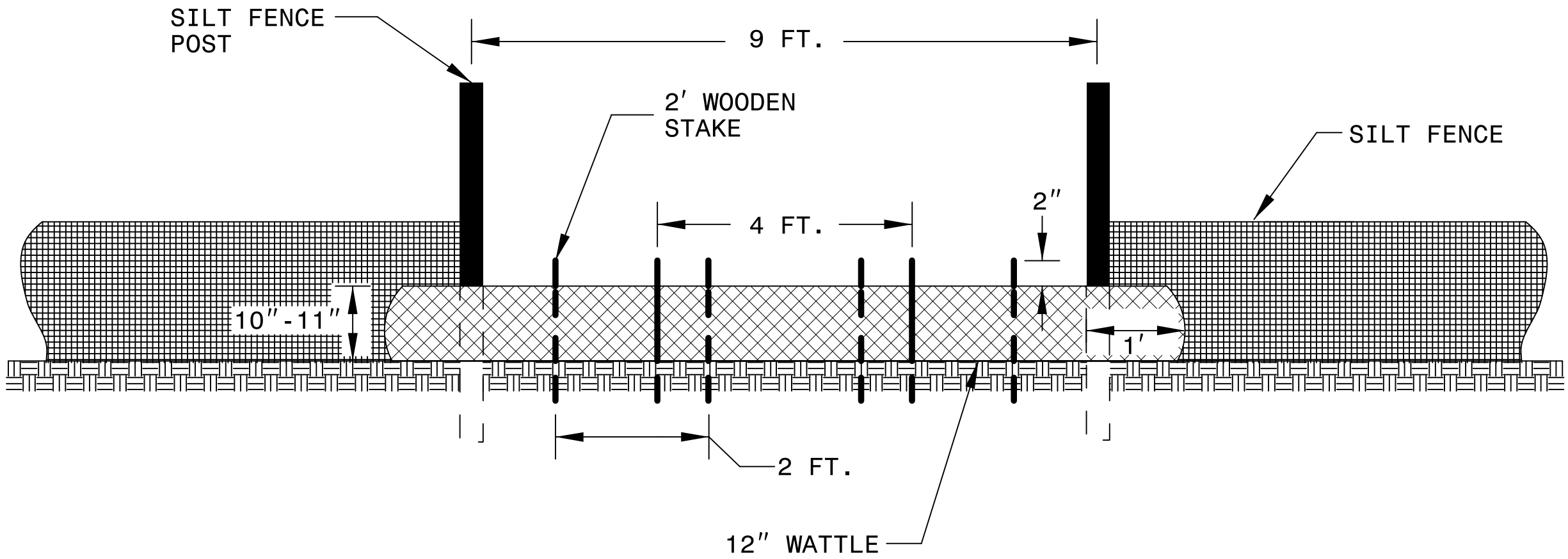
1605.01	Temporary Silt Fence
1607.01	Gravel Construction Entrance
1630.04	Stilling Basin
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A

SILT FENCE WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.61	EC-2
RW SHEET NO.	
STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



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.

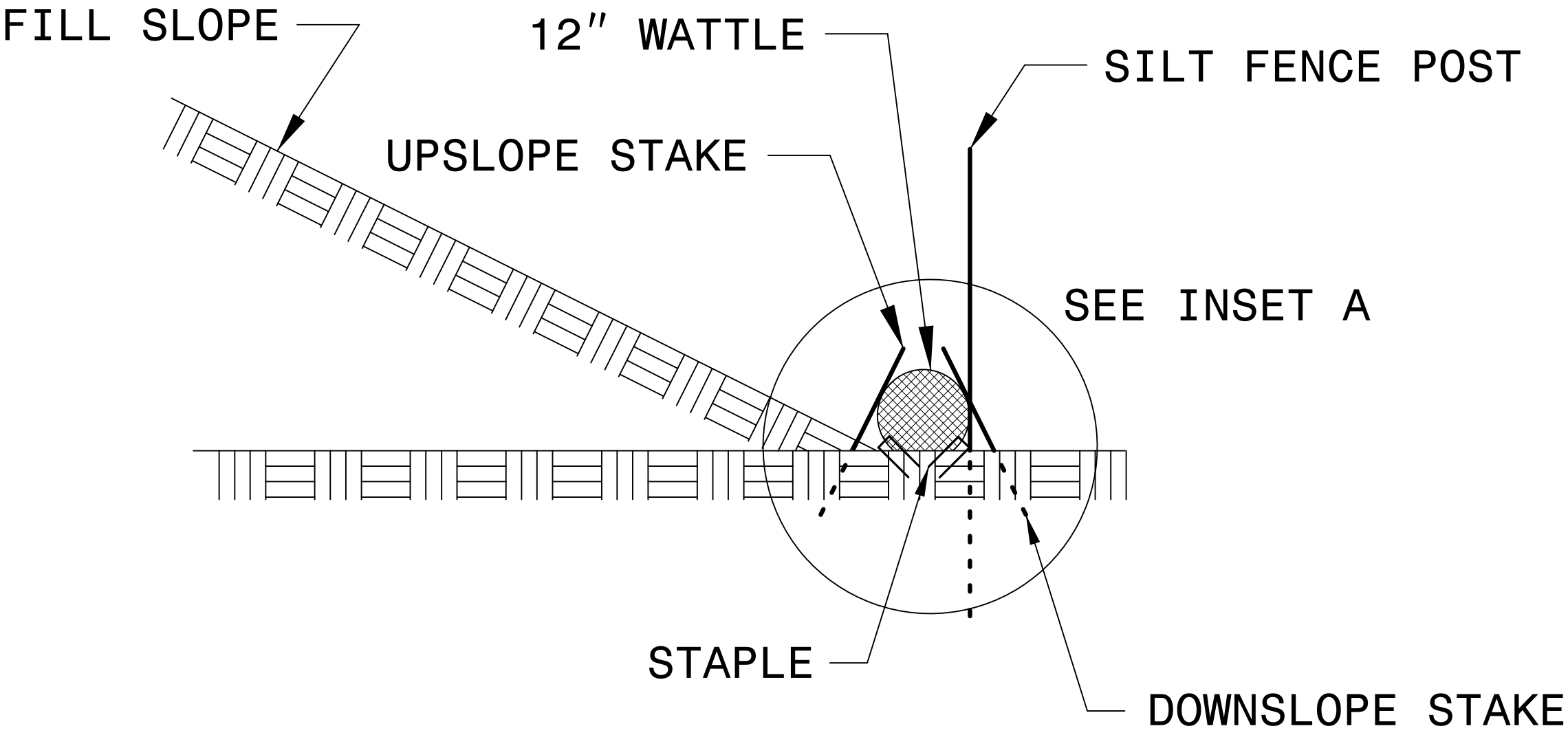
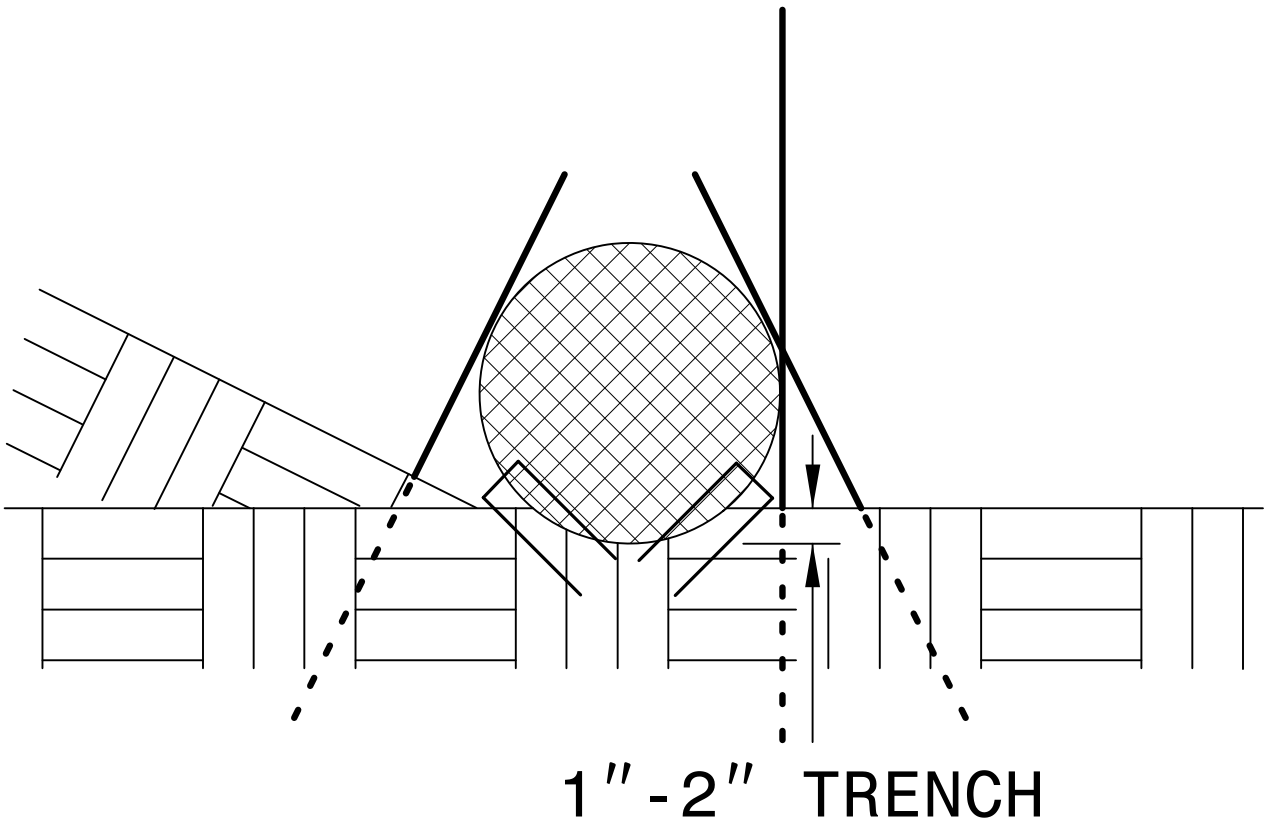
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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.

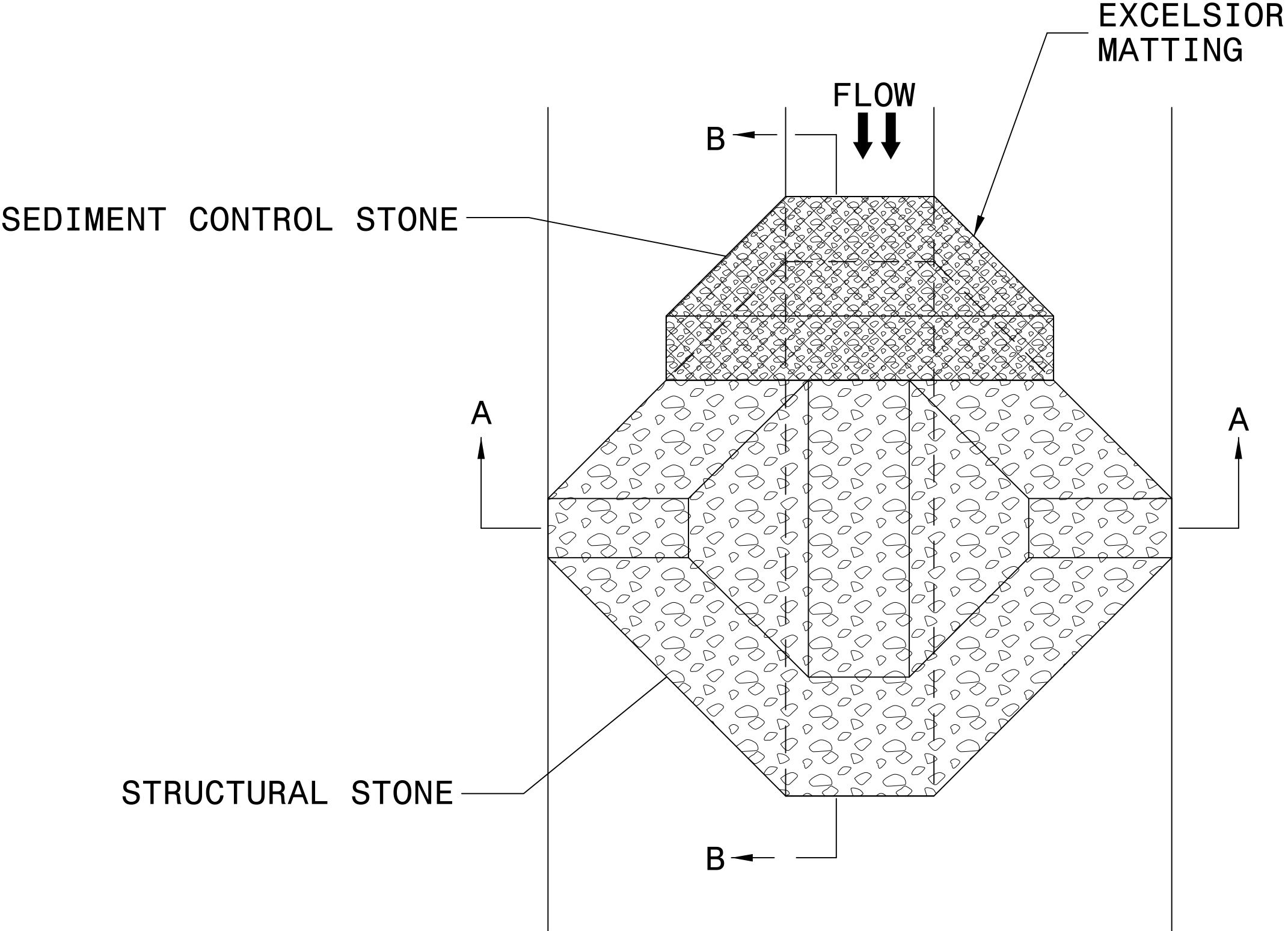
INSET A



SIDE VIEW

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

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.61	EC-2A
RW SHEET NO.	
STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



PLAN

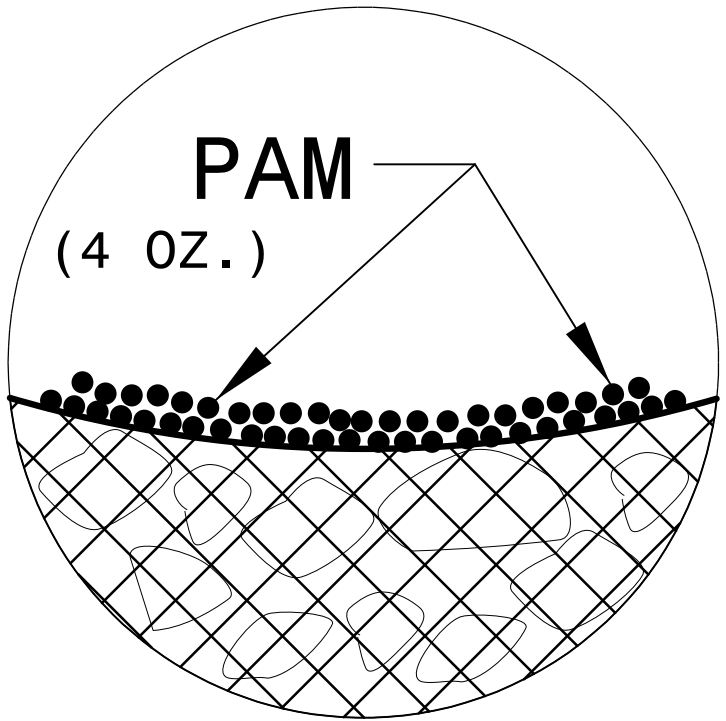
NOTES

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

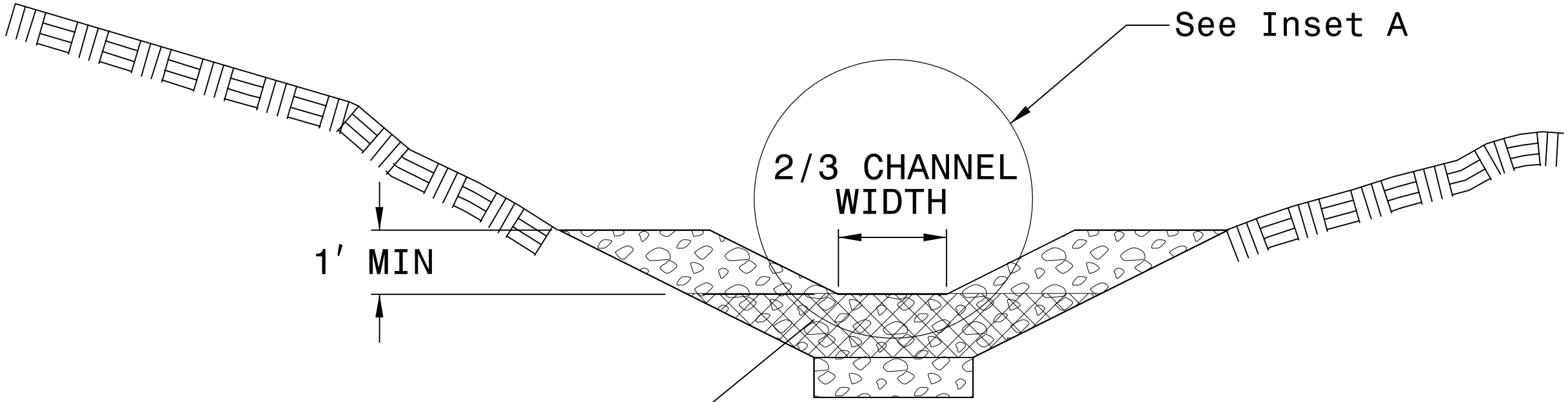
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

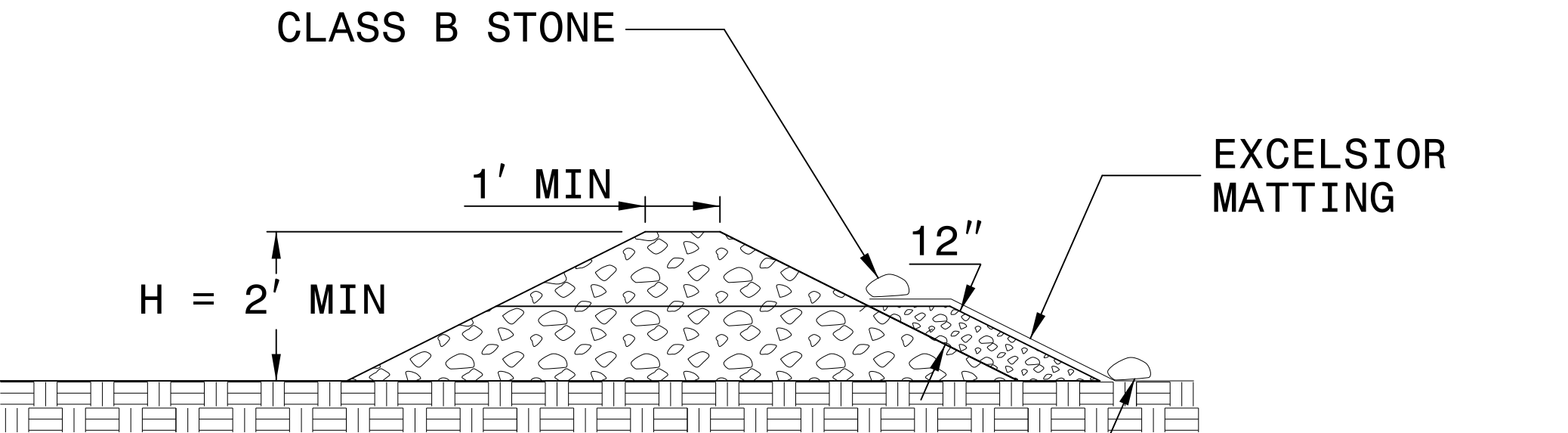
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.61	EC-3
RW SHEET NO.	
100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL
(FOR SLOPE STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		555
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					55
				TOTAL	610
				SAY	610

PERMANENT SOIL REINFORCEMENT MATTING
(FOR DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	GEO FOR DRAINAGE ESTIMATE (SY)
4	-L- V-DITCH	13+30	14+00	RT	50
4	-L- V-DITCH	10+50	11+09	LT	55
			SUBTOTAL		105
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					11
				TOTAL	116
				SAY	120

STANDARD MATTING
(FOR DITCH STABILIZATION)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	GEO FOR DRAINAGE ESTIMATE (SY)
4	-L- V-DITCH	11+09	12+32	LT	140
			SUBTOTAL		140
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					14
				TOTAL	154
				SAY	160

SOIL STABILIZATION REQUIREMENTS

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.61	EC-3A
RW SHEET NO.	



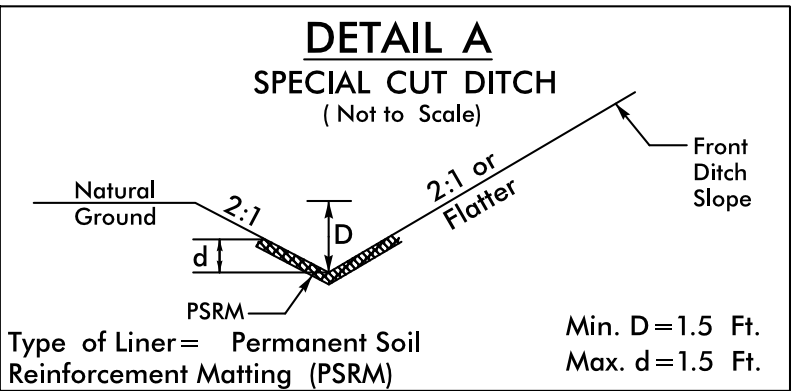
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

Stabilization for this project shall comply with the time frame guidelines as specified 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. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity. Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

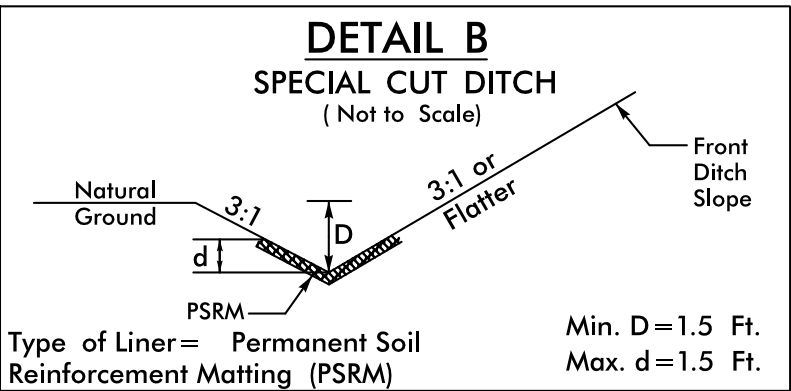
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10’ OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

SCALE: 1"=20'

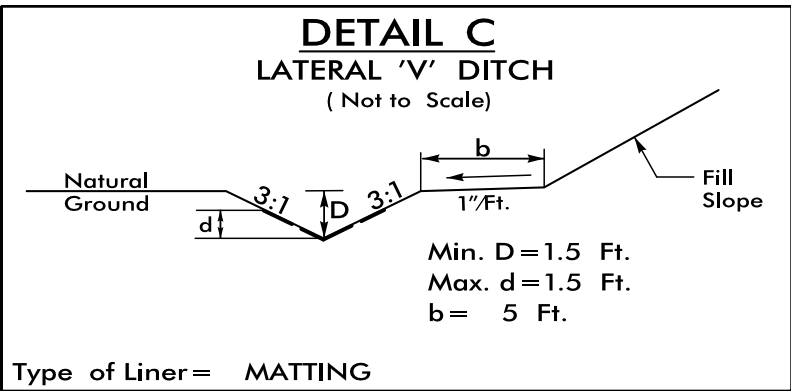
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4



FROM STA. 13+30 TO STA. 14+00 RT

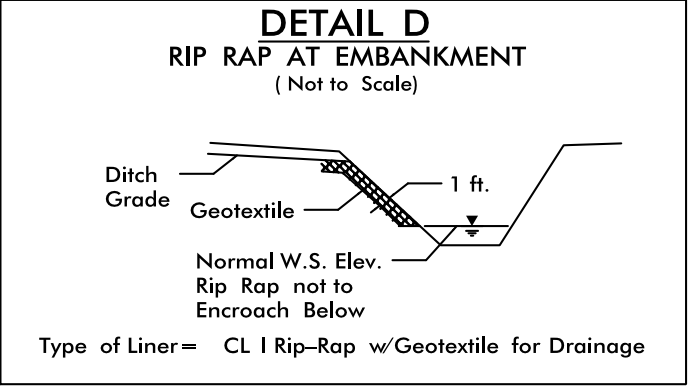


FROM STA. 10+50 TO STA. 11+09 LT



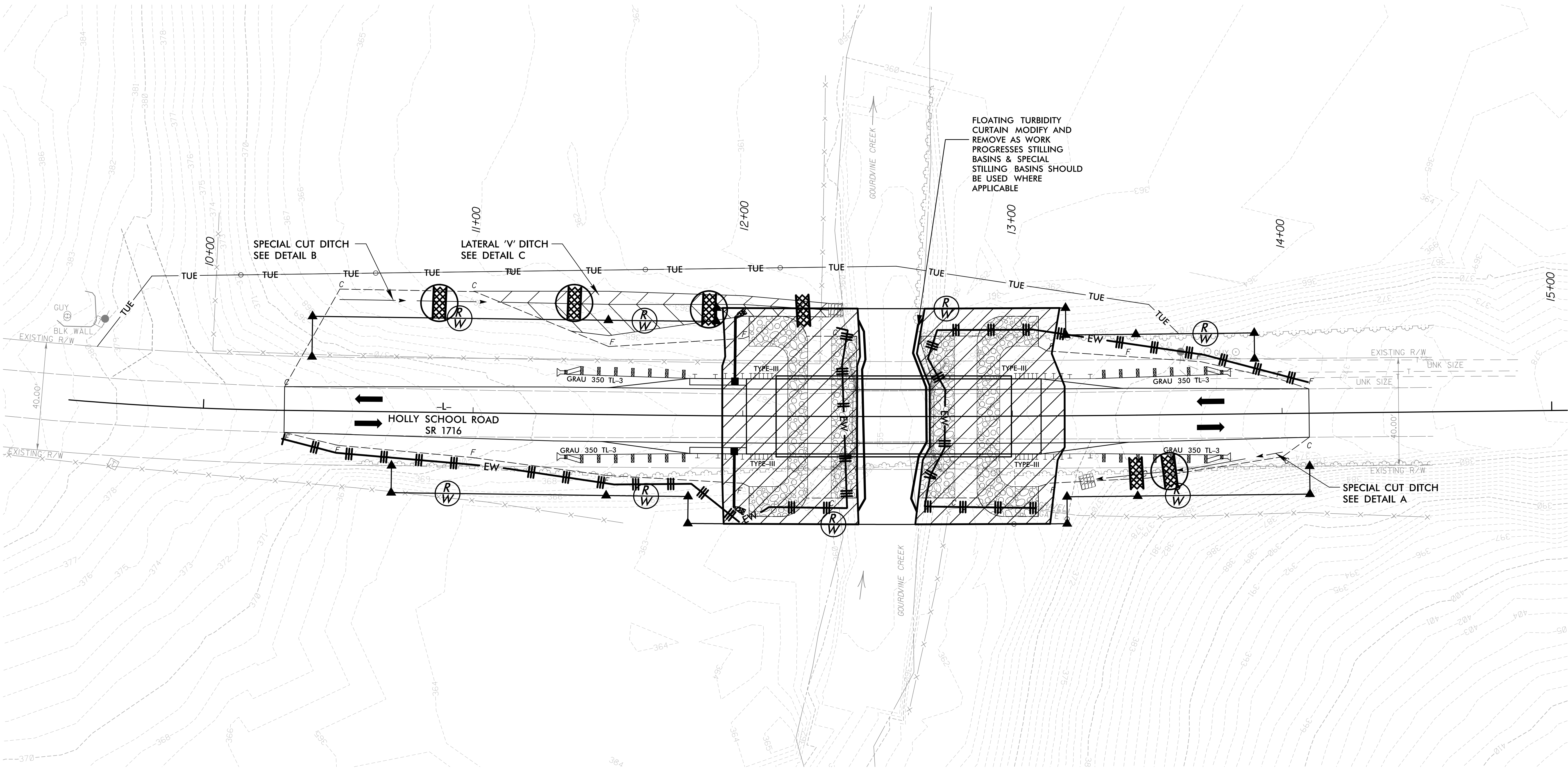
Type of Liner= MATTING

FROM STA. 11+09 TO STA. 12+32 LT



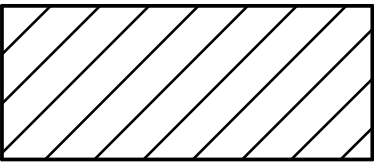
Type of Liner = CL I Rip-Rap w/Geotextile for Drainage

STA. 12+32 TO STA. 12+42 LT - 3TN CL-I, 5SY GEOTEXTILE
STA. 13+20 TO STA. 13+30 RT - 3TN CL-I, 5SY GEOTEXTILE



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.



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

NOTE: UTILIZE SPECIAL STILLING
BASIN AS STILLING BASIN
WHERE APPLICABLE

NOTE: INSTALL FLOATING TURBIDITY CURTAIN AS DIRECTED

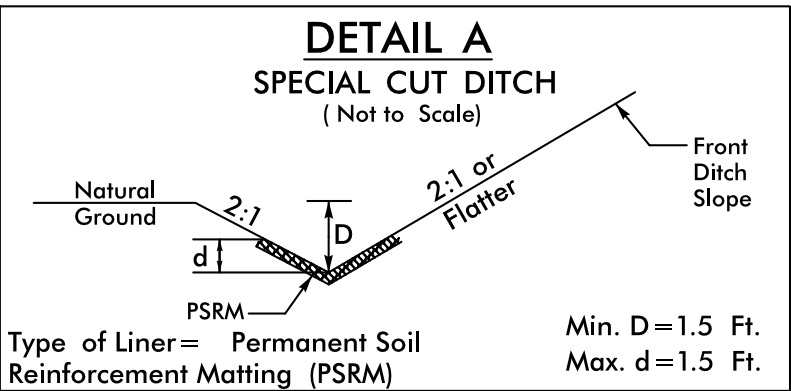
INSTALL PERMANENT DITCHES DURING C&G PHASE

1/25/2016
R:\Roadway\Proj\EC\I0R6L_rdy_psh_EC04.dgn
cgroves

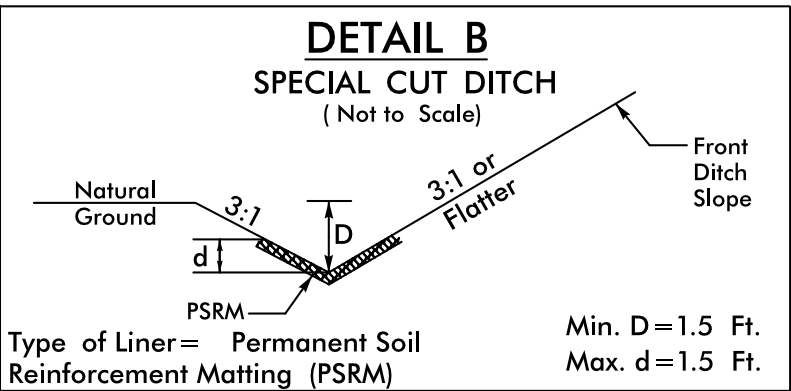
BRIDGE #890046

SCALE: 1"=20'

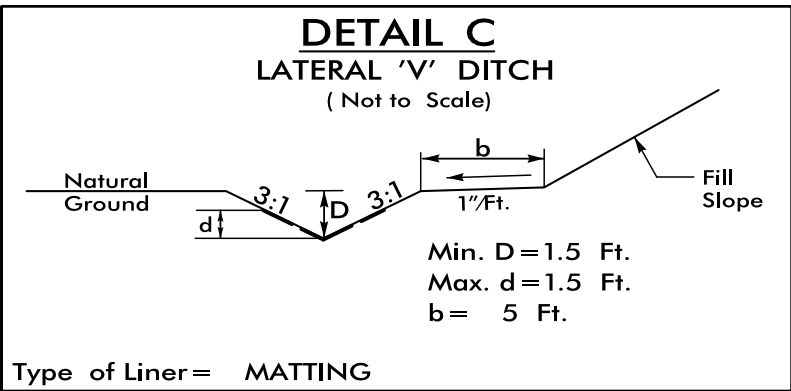
PROJECT REFERENCE NO.	SHEET NO.
17BP10.R.61	EC-5/CONST.4
RW SHEET NO.	
STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	



FROM STA. 13+30 TO STA. 14+00 RT

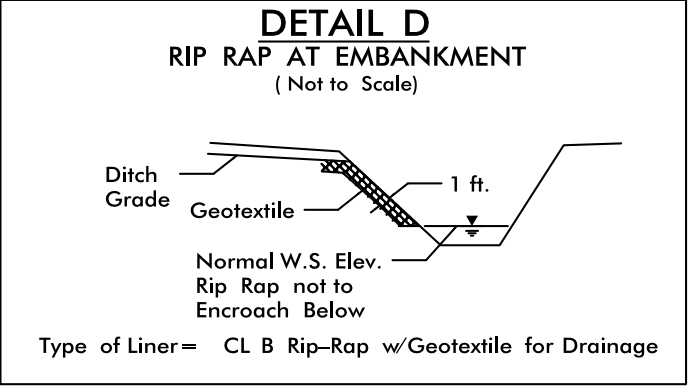


FROM STA. 10+50 TO STA. 11+09 LT

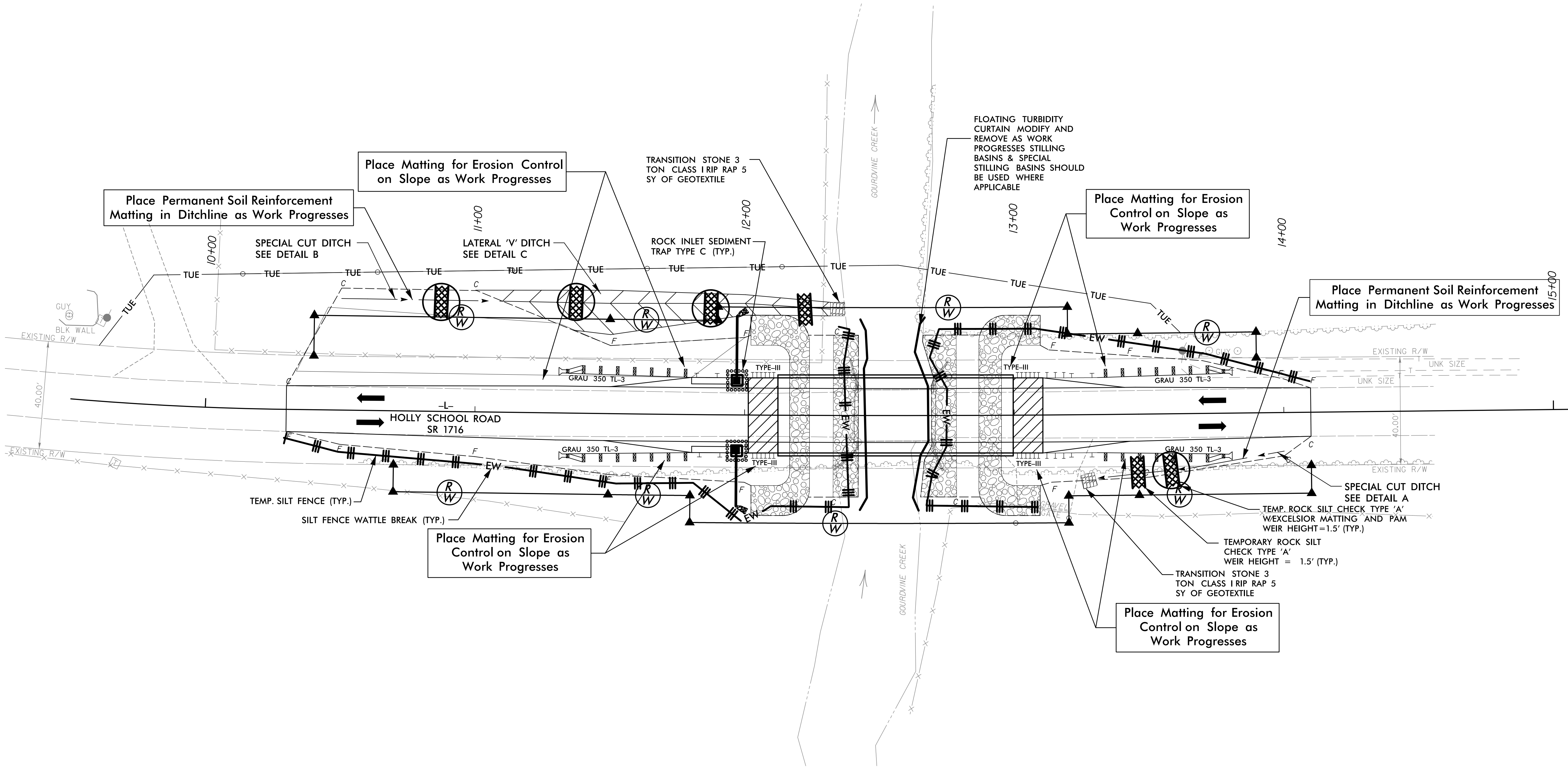
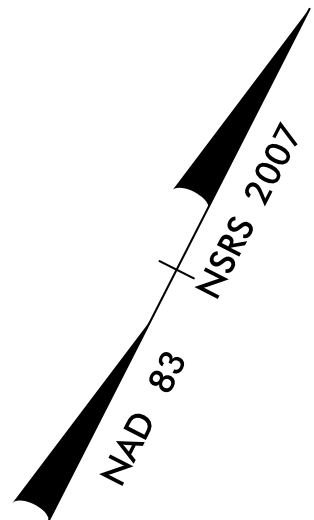


Type of Liner= MATTING

FROM STA. 11+09 TO STA. 12+32 LT



STA. 12+32 TO STA. 12+42 LT - 3TN CL-I, 5SY GEOTEXTILE
STA. 13+20 TO STA. 13+30 LT - 3TN CL-I, 5SY GEOTEXTILE



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.

NOTE: UTILIZE SPECIAL STILLING BASIN AS STILLING BASIN WHERE APPLICABLE

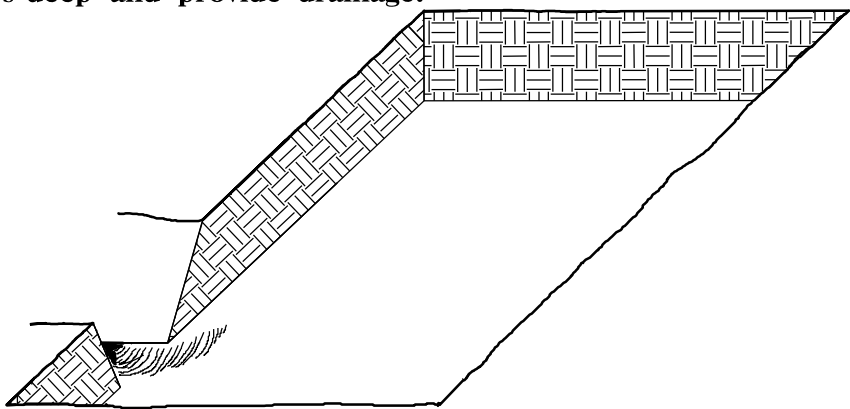
NOTE: INSTALL FLOATING TURBIDITY CURTAIN AS DIRECTED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.61	RF-1	1
STATE PROJ.NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.10.R.61		P.E.	
17BP.10.R.61		R/W & UTILITIES	
17BP.10.R.61		CONSTRUCTION	

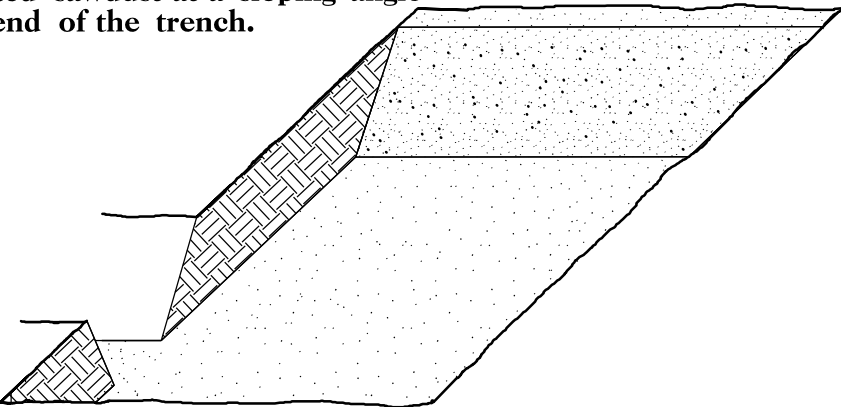
PLANTING DETAILS
SEEDLING / LINER BARERROOT PLANTING DETAIL

HEALING IN

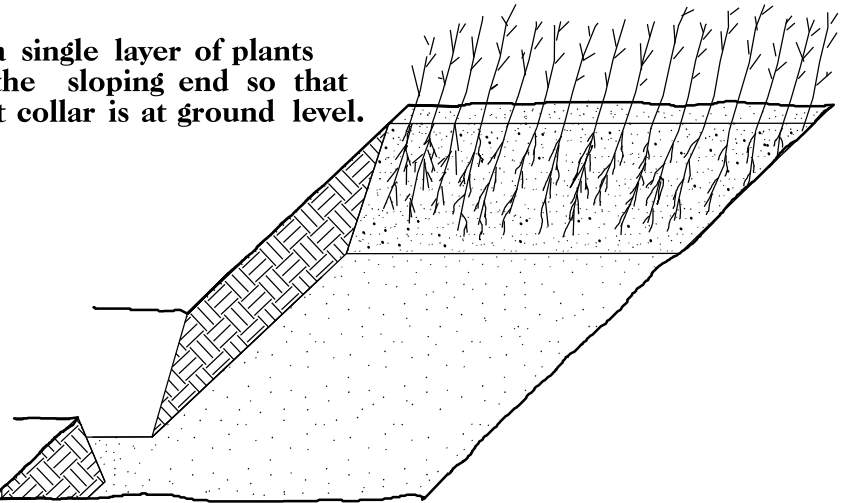
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



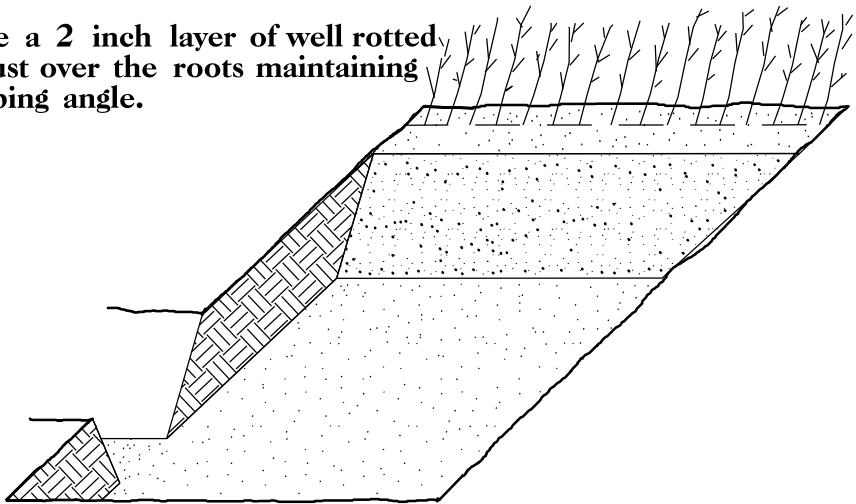
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

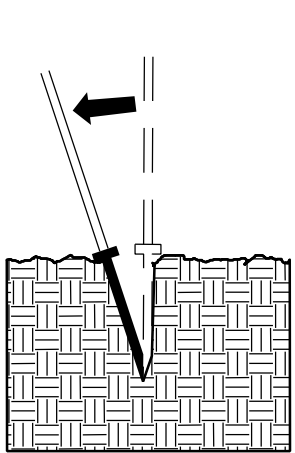


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

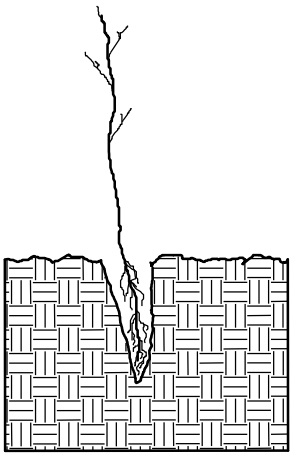


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

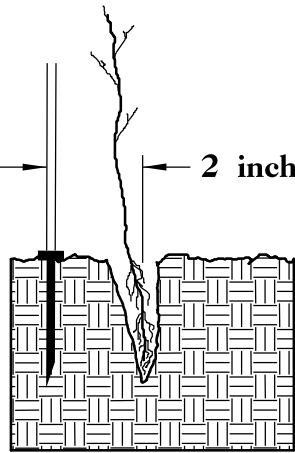
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



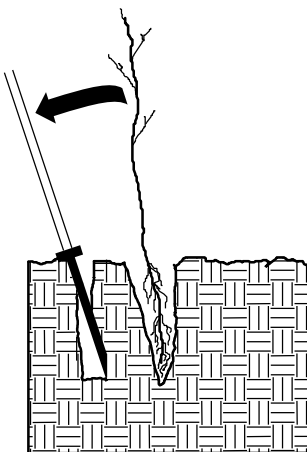
1. Insert planting bar as shown and pull handle toward planter.



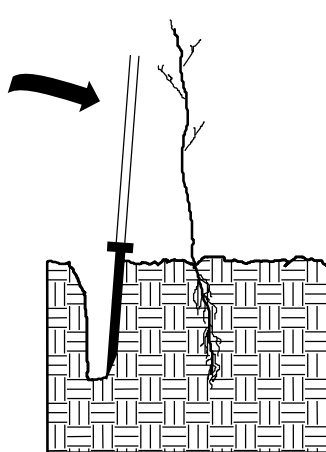
2. Remove planting bar and place seedling at correct depth.



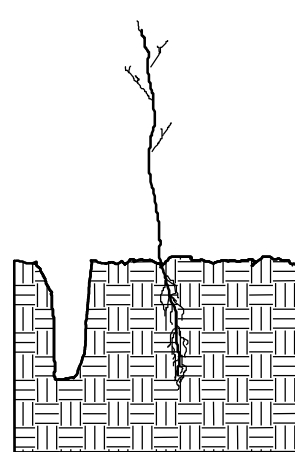
3. Insert planting bar 2 inches toward planter from seedling.



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



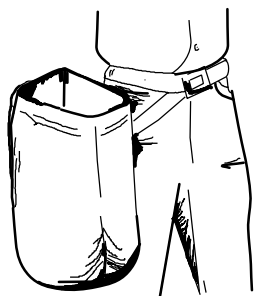
5. Push handle forward firming soil at top.



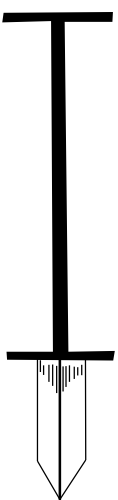
6. Leave compaction hole open. Water thoroughly.

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.

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

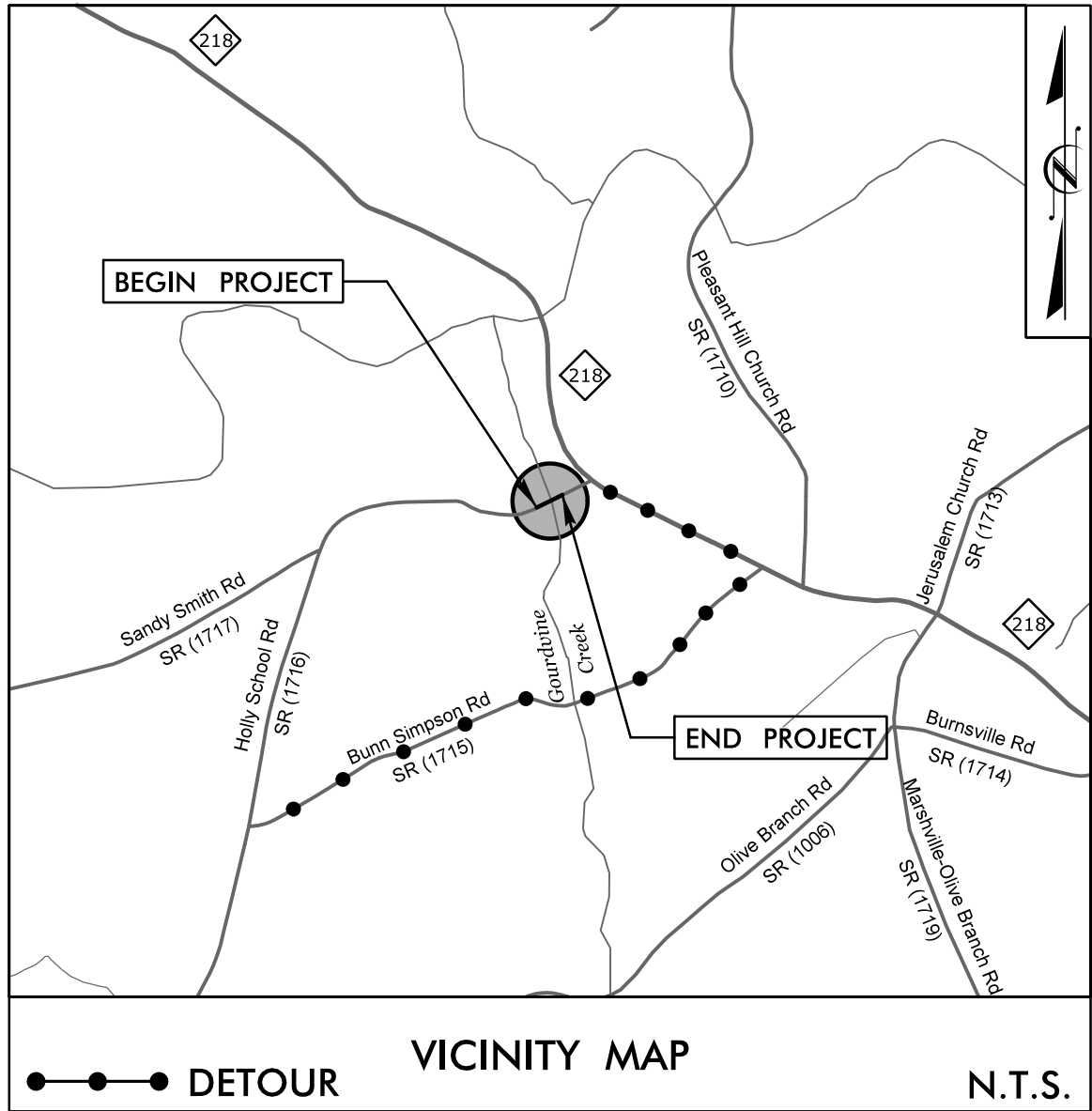
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25%	PLATANUS OCCIDENTALIS	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

PROJECT NO.	SHEET NO.
17BP.10.R.61	UO-1

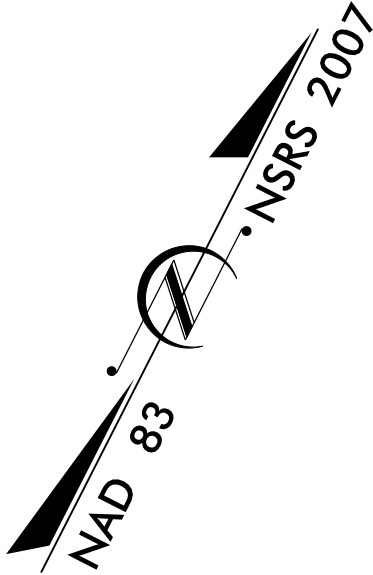


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS UNION COUNTY

LOCATION: BRIDGE #046 OVER GOURDVINE CREEK
ON SR 1716 (HOLLY SCHOOL RD.)

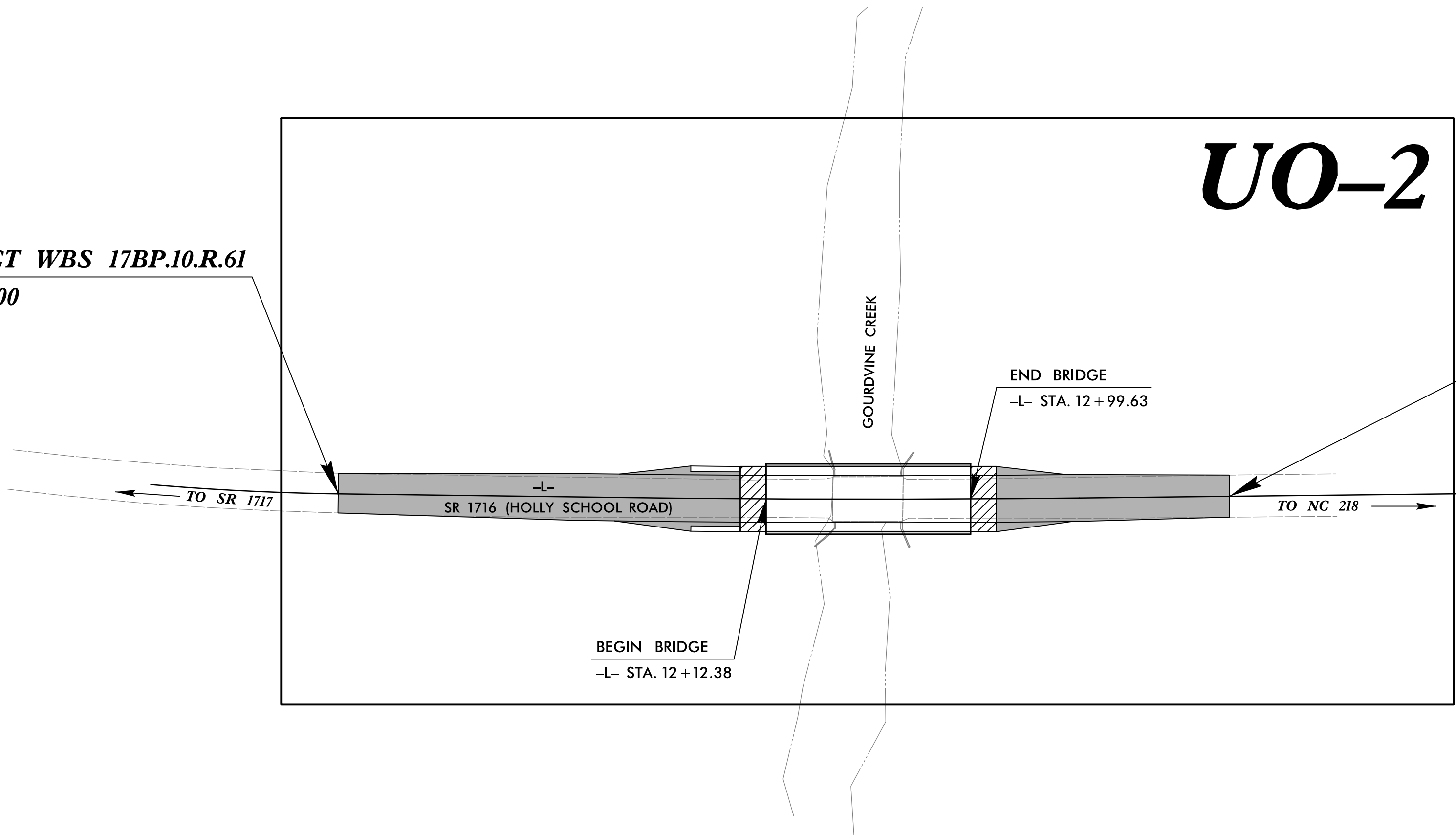
TYPE OF WORK: AERIAL POWER AND TELEPHONE



UO-2

BEGIN PROJECT WBS 17BP.10.R.61
-L- STA. 10 + 30.00

END PROJECT WBS 17BP.10.R.61
-L- STA. 14 + 10.00



GRAPHIC SCALES

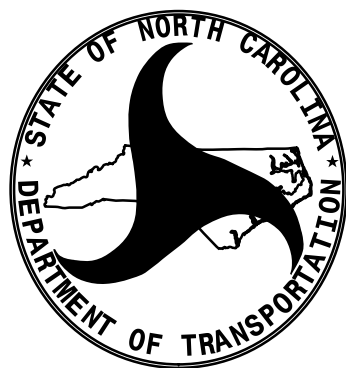


INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

- POWER - DUKE ENERGY
- TELEPHONE - WINDSTREAM



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

<u>Roger Worthington, P.E.</u>	UTILITIES SECTION ENGINEER
<u>Xxxxx Xxxxx, P.E.</u>	UTILITIES SQUAD LEADER PROJECT ENGINEER
<u>Reece Schuler, PE</u>	UTILITIES PROJECT DESIGNER

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

