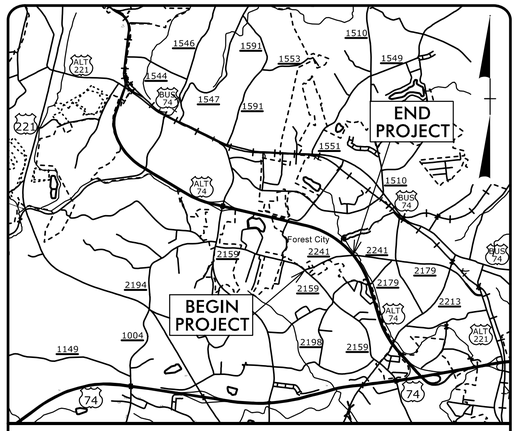
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

TIP PROJECT: U-5833

CONTRACT: DM00245



VICINITY MAP

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

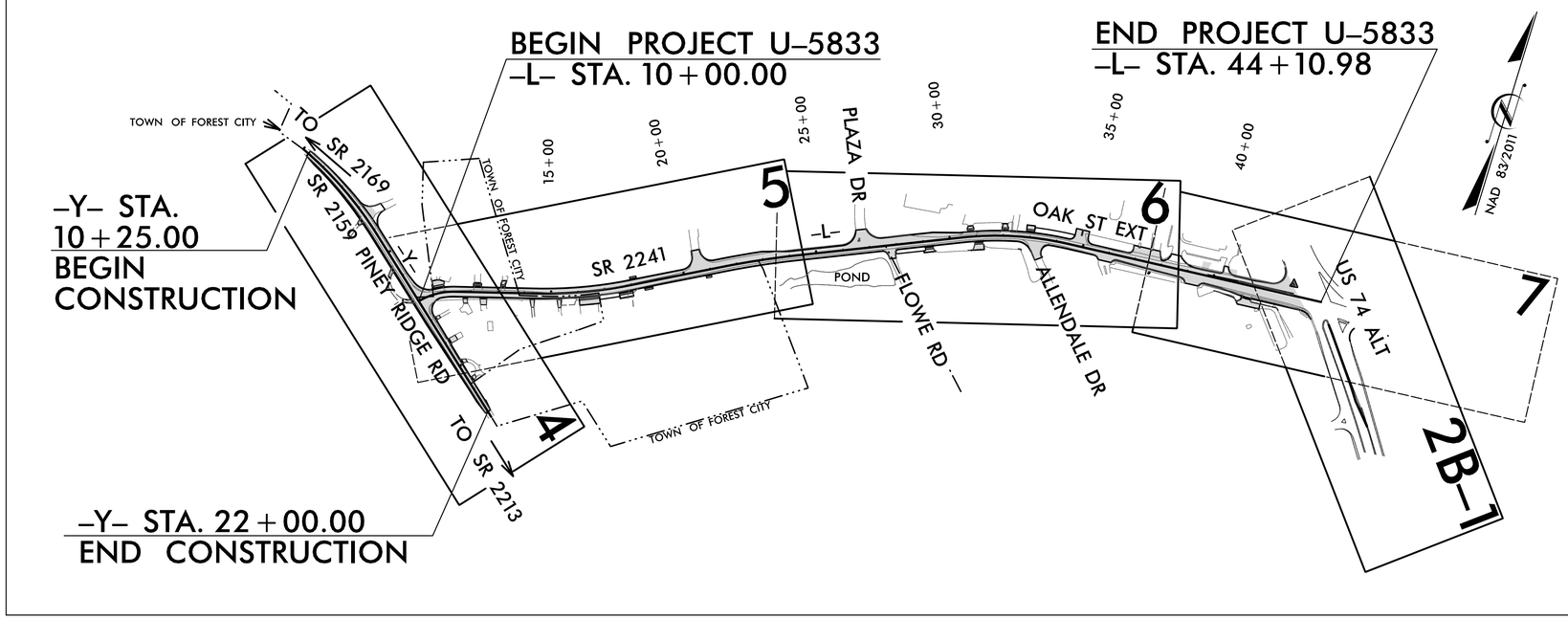
RUTHERFORD COUNTY

LOCATION: WIDENING OF SR 2241 (OAK STREET EXTENSION) FROM SR 2159 (PINEY RIDGE ROAD) TO US 74 ALT

TYPE OF WORK: GRADING, DRAINAGE, PAVEMENT, CURB & GUTTER, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5833	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50225.1.1	N/A	P.E.
50225.2.1	N/A	R/W & UTIL.
50225.3.1	N/A	CONST.



EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE

25 0 50

PLANS

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

Prepared In the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2018 STANDARD SPECIFICATIONS

Designed by:

ANDREW H. COCHRANE, PE 3015

NAME *LEVEL III CERTIFICATION NO.*

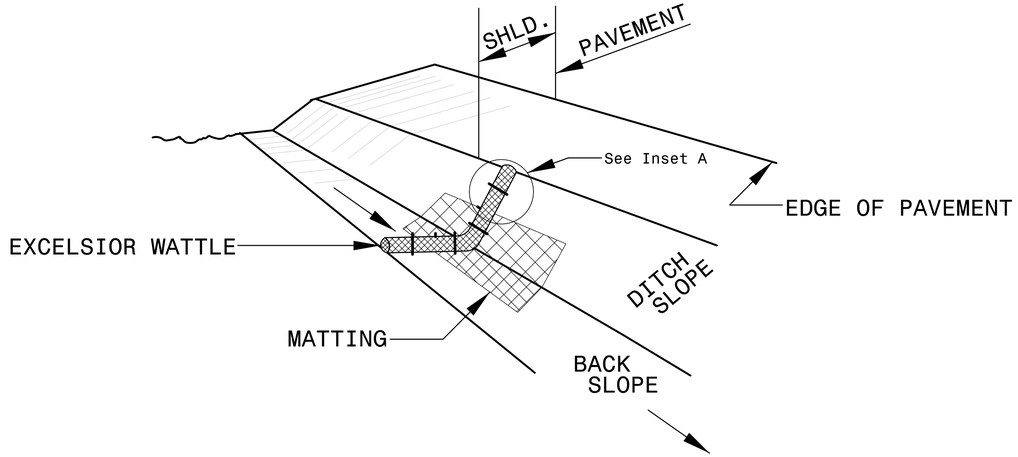
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

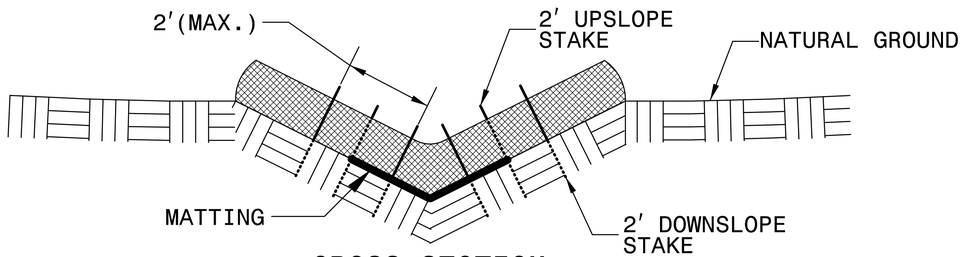
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type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

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

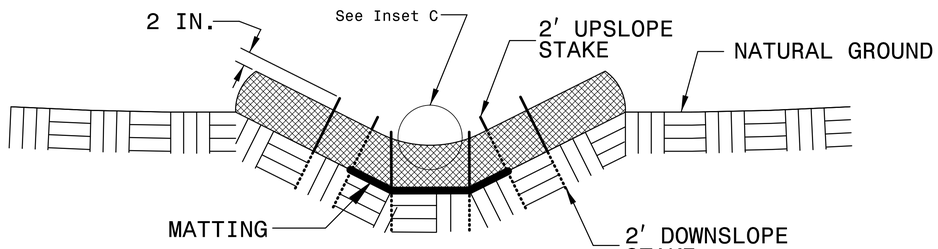
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

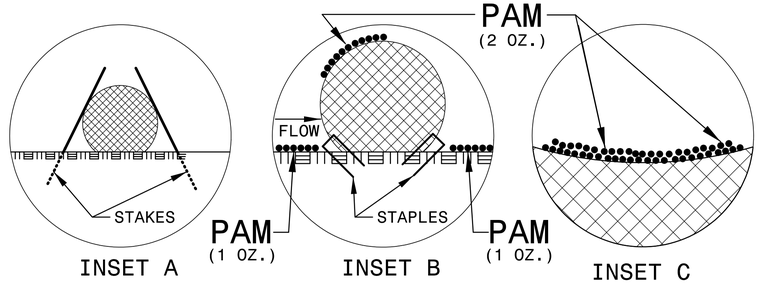
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

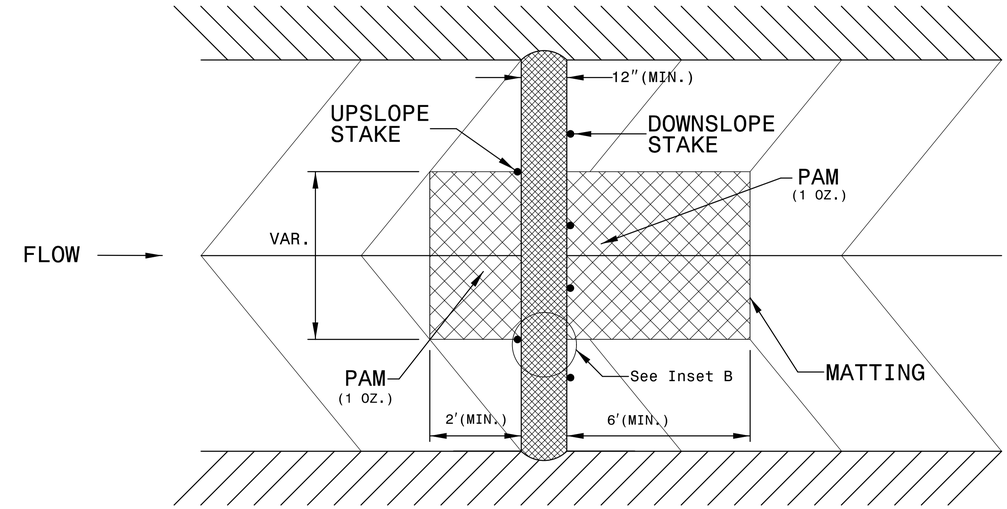
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

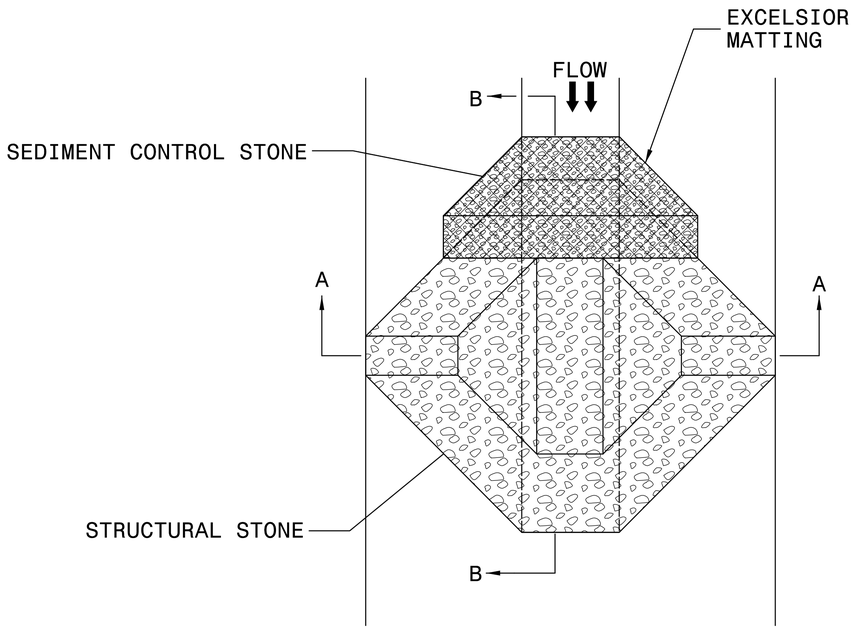




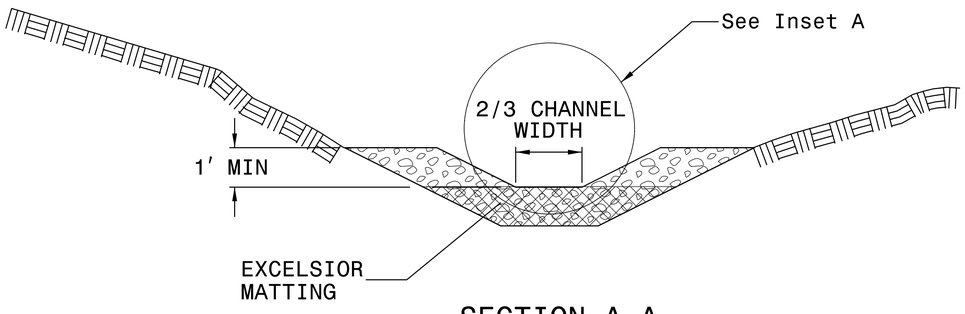
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

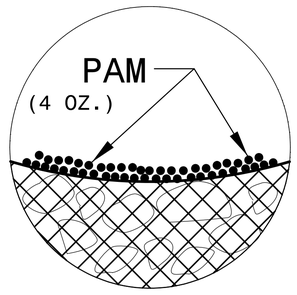
NOTES:

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

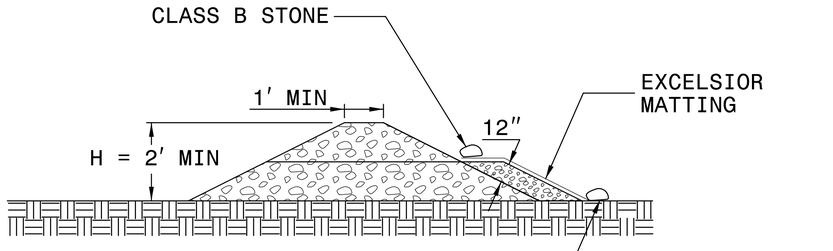
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

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



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

MATTING FOR EROSION CONTROL

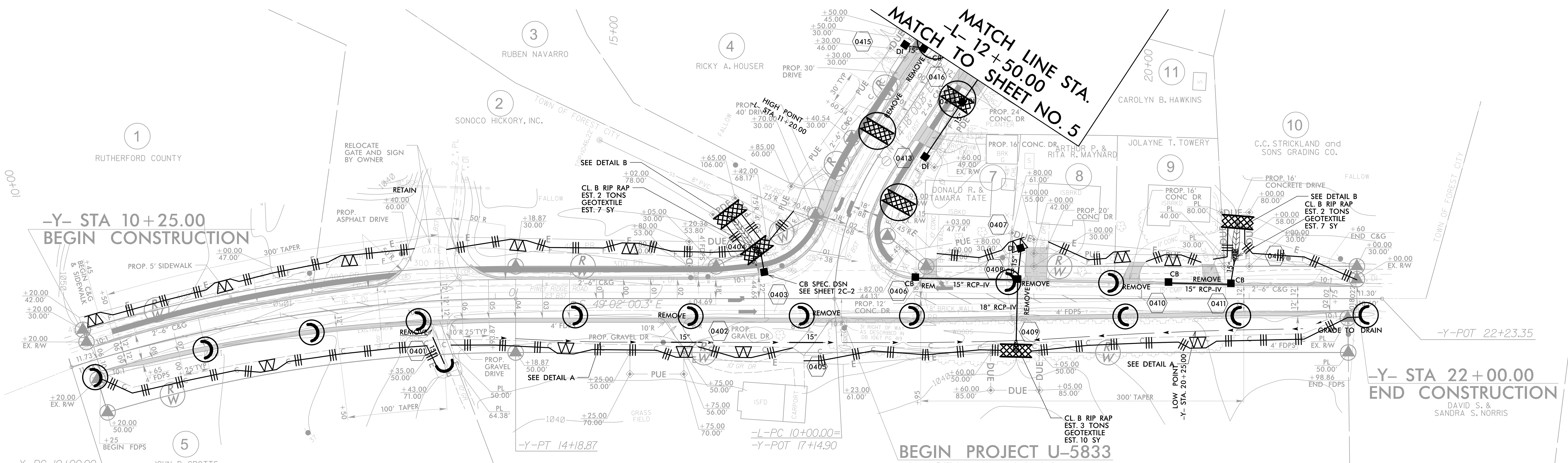
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	L	17+26	17+62	LT	30
6	L	27+50	30+38	LT	145
			SUBTOTAL		175
			MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER		7650
			TOTAL		7825
			SAY		7825

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-04/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

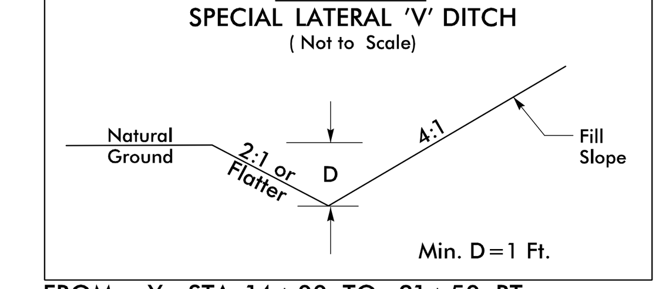
NAD 83/2011



-Y- CURVE DATA
PI Sta 12+11.08
Δ = 17° 31' 04.3" (RT)
D = 4° 10' 55.8"
L = 418.87'
T = 211.08'
R = 1,370.00'
SE = 0.10
DS = 60 MPH

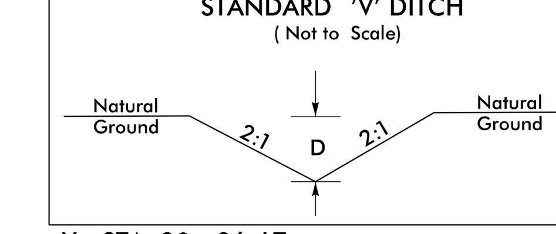
-L- CURVE DATA
PI Sta 10+72.18
Δ = 32° 12' 30.4" (RT)
D = 22° 55' 05.9"
L = 140.54'
T = 72.18'
R = 250.00'
SE = 0.02
DS < 15 MPH
① -L-PT 11+40.54

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



FROM -Y- STA. 14+00 TO 21+50 RT
(SEE DITCH GRADE THIS SHEET)

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)



-Y- STA. 20+86 LT
0.3% SLOPE TO DAYLIGHT
EST. DDE=10 CY
-Y- STA. 16+50
0.3% SLOPE TO DAYLIGHT
EST. DDE=20 CY

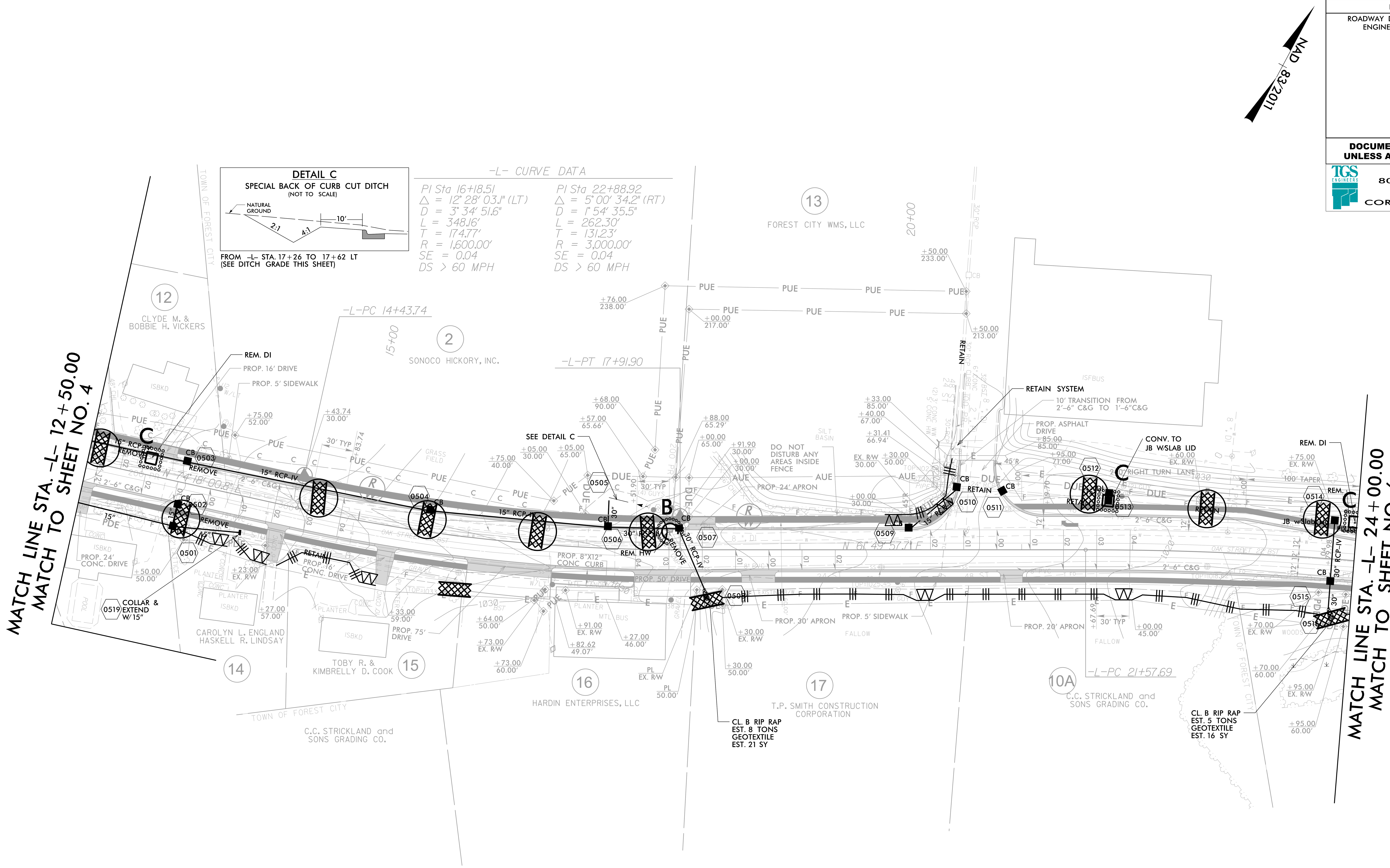
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-05/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

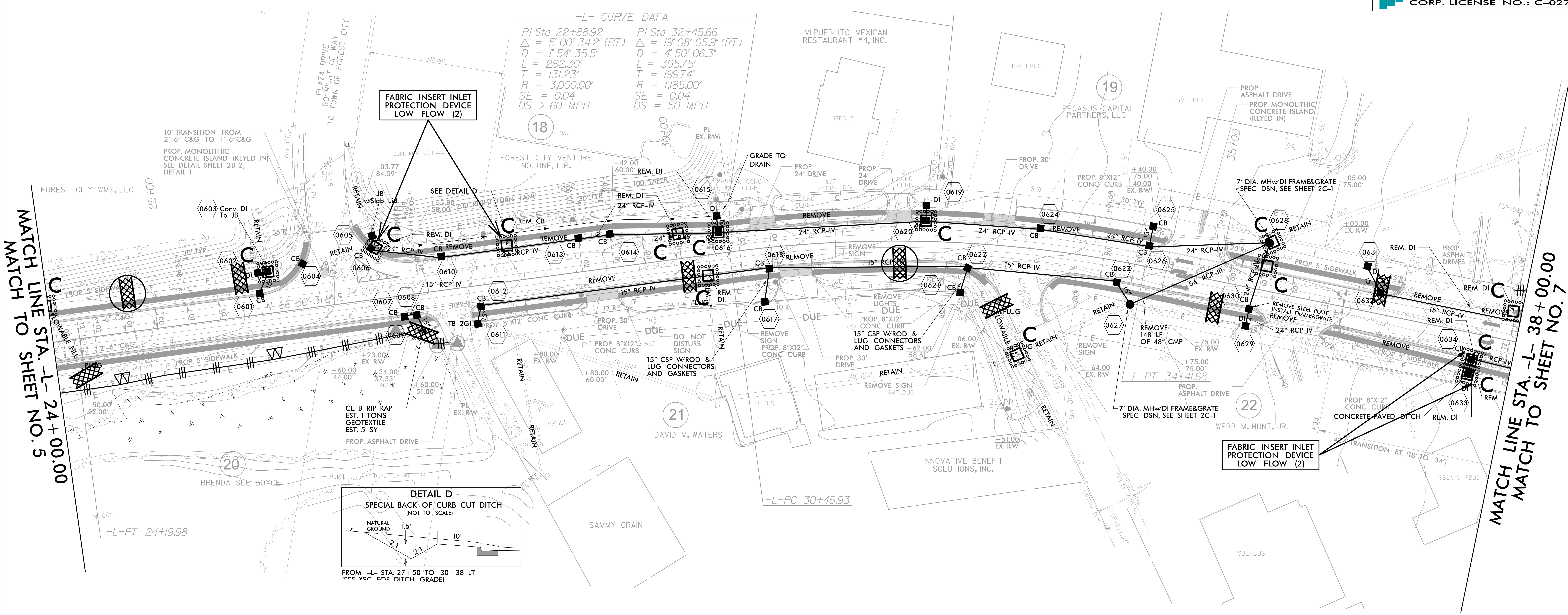
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-06/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

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

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-07/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

MATCH LINE STA. -L- 38+00.00
MATCH TO SHEET NO. 6

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW (2)

END PROJECT U-5833
-L- STA. 44+10.98
INV.=951.84'

-L-POT 44+10.98

MCDONALD'S REAL ESTATE COMPANY

PROP. MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) SEE DETAIL SHEET 2B-2, DETAIL 2

+50.60 END SIDEWALK

DO NOT DISTURB TREE

150' TRANSITION LT. (18' TO 22')

114.12' TRANSITION LT. (22' TO 26')

PROP. ASPHALT DRIVE

RETAIN

0707 JBw/ Slab Lid

2GI 0706

15" RCP-IV

30' TYP

PROP. 5' SIDEWALK

0705

34'R

REMOVE

REM. DI

REM. CB

REM. SYSTEM

0702

0709

0701

0704

PROP. MONOLITHIC CONCRETE ISLAND (CURED-IN)

18" RCP-IV

0708

0710

0711

+84.00 END SIDEWALK

PROP. 5' SIDEWALK

+00.00 EX. R/W

PROP. ASPHALT DRIVE

REM. CB

REM. DI

PROP. 8"X12" CONC CURB

15" CSP W/ROD & LUG CONNECTORS AND GASKETS

DO NOT DISTURB SIGN

427' TRANSITION RT. (18' TO 34')

0712

0713

JB w/Slab Lid

2GI 'TYPE A' 0714

TIE TO EXIST. 30" RCP

EX. R/W 60.00

204.29' RIGHT TURN LANE

EX. R/W 73.00'

SEE NOTE 1

PROP. ASPHALT DRIVE

PROP. GUARDRAIL

PROP. RETAINING WALL # 1 -L- STA. 41+53.66 TO 43+00,RT

PROP. 8"X12" CONC. CURB SEE DETAIL SHEET 2B-2, DETAIL

WEBB M. HUNT, JR.

BURGER KING CORPORATION

DRIVE THRU AT BURGER KING MUST REMAIN OPEN DURING NORMAL BUSINESS HOURS.

TOP=964.17' INV.=960.75'

TOP=964.70' INV.=952.70'

INV.=953.9'

18" CMP

JB (NOT FOUND)

TOP=962.45'

INV.=948.40'

INV.=955.41'

INV.=955.81'

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW (2)

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW (4)

NOTE 1:
THE CONTRACTOR SHALL REPLACE CONTROL OF ACCESS 60" CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER.

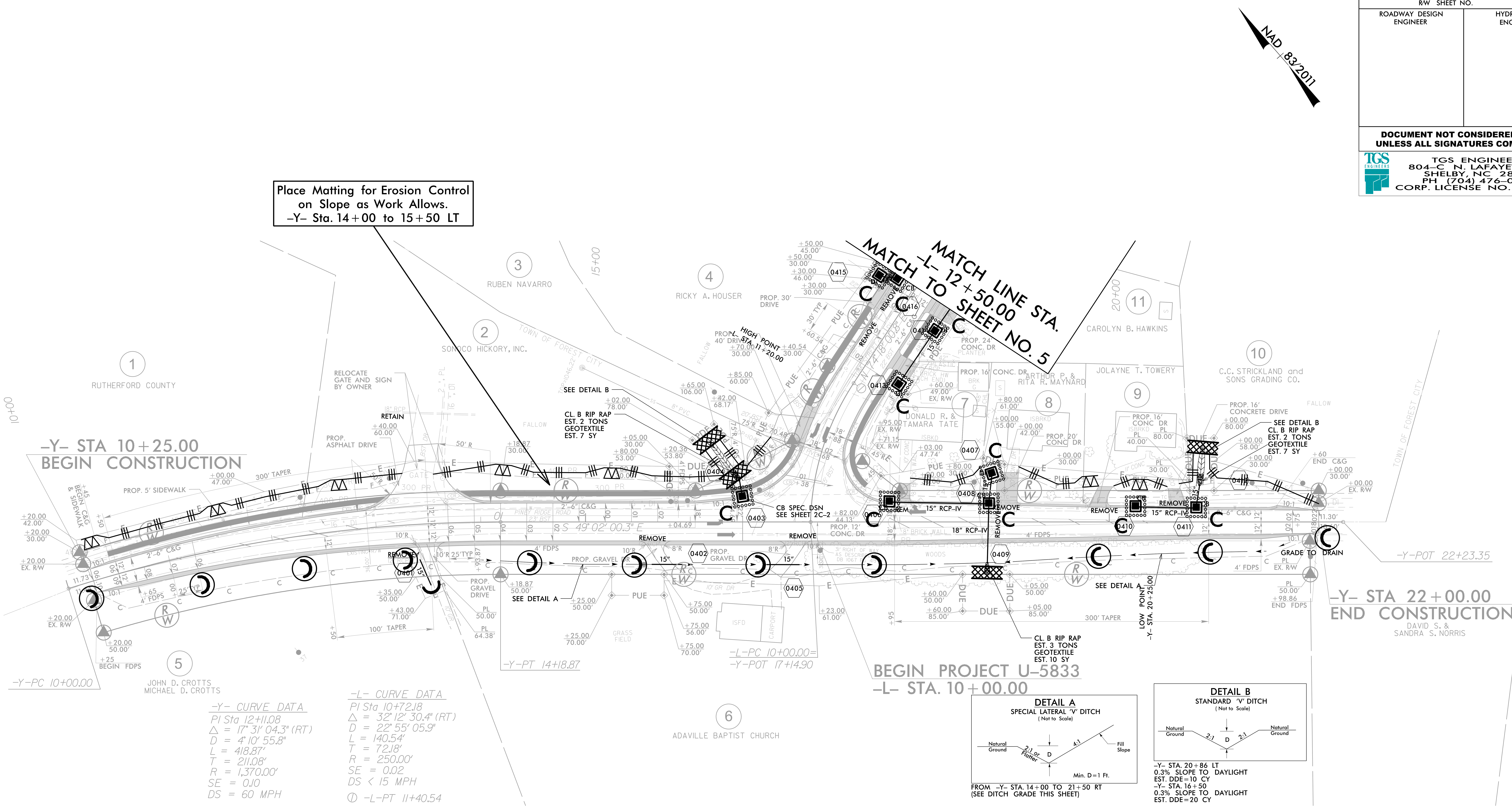
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

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

PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-08/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



-Y- CURVE DATA
PI Sta 12+11.08
△ = 17° 31' 04.3" (RT)
D = 4° 10' 55.8"
L = 418.87'
T = 211.08'
R = 1,370.00'
SE = 0.10
DS = 60 MPH

-L- CURVE DATA
PI Sta 10+72.18
△ = 32° 12' 30.4" (RT)
D = 22° 55' 05.9"
L = 140.54'
T = 72.18'
R = 250.00'
SE = 0.02
DS < 15 MPH
① -L-PT 11+40.54

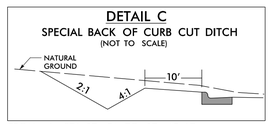
PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-09/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

DETAIL C
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM –L– STA. 17+26 TO 17+62 LT
(SEE DITCH GRADE THIS SHEET)

–L– CURVE DATA

PI Sta 16+18.51
Δ = 12° 28' 03.1" (LT)
D = 3° 34' 51.6"
L = 348.16'
T = 174.77'
R = 1,600.00'
SE = 0.04
DS > 60 MPH

PI Sta 22+88.92
Δ = 5° 00' 34.2" (RT)
D = 1° 54' 35.5"
L = 262.30'
T = 131.23'
R = 3,000.00'
SE = 0.04
DS > 60 MPH

MATCH LINE STA. –L– 12+50.00
MATCH TO SHEET NO. 4

MATCH LINE STA. –L– 24+00.00
MATCH TO SHEET NO. 6

INSTALL MATTING IN THE PROPOSED DITCH LINE
–L– STA 17+26 TO 17+62 LT
EST. 30 SY

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 23+00 to 27+50 RT

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

REM. DI
PROP. 16' DRIVE
PROP. 5' SIDEWALK
SEE DETAIL C
RETAIN SYSTEM
10' TRANSITION FROM 2'-6" C&G TO 1'-6"C&G
PROP. ASPHALT DRIVE
CONV. TO JB W/SLAB LID
2' RIGHT TURN LANE
100' TAPER
REM. JB W/SLAB LID
PLUG
PROP. 24' APRON
PROP. 30' APRON
PROP. 5' SIDEWALK
PROP. 20' APRON
PROP. 24' CONC. DRIVE
PROP. 75' DRIVE
PROP. 50' DRIVE
PROP. 8'X12' CONC. CURB
REM. HW
COLLAR & EXTEND W/15"
CL. B RIP RAP EST. 8 TONS GEOTEXTILE EST. 21 SY
CL. B RIP RAP EST. 5 TONS GEOTEXTILE EST. 16 SY

12 CLYDE M. & BOBBIE H. VICKERS
2 SONOCO HICKORY, INC.
13 FOREST CITY WMS, LLC
14 CAROLYN L. ENGLAND HASKELL R. LINDSAY
15 TOBY R. & KIMBRELLY D. COOK
16 HARDIN ENTERPRISES, LLC
17 T.P. SMITH CONSTRUCTION CORPORATION
10A C.C. STRICKLAND and SONS GRADING CO.
C.C. STRICKLAND and SONS GRADING CO.
TOWN OF FOREST CITY

–L– PC 14+43.74
–L– PT 17+91.90
–L– PC 21+57.69

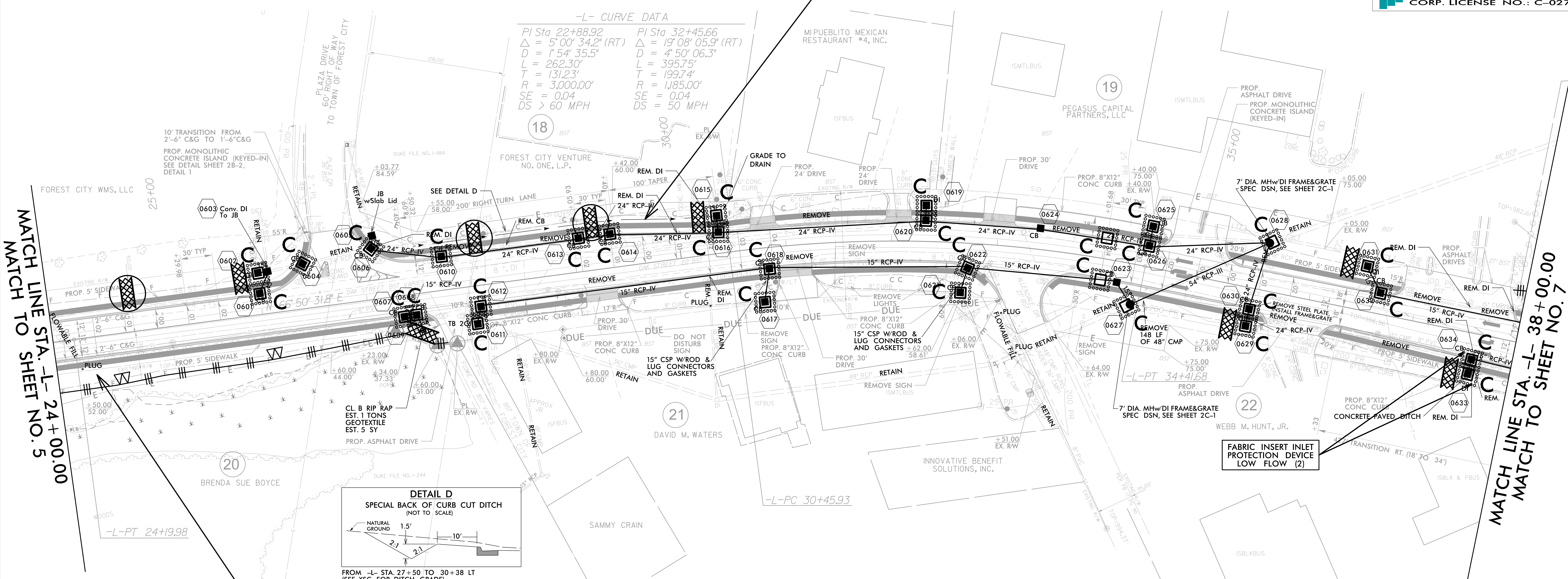
PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-10/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

INSTALL MATTING IN THE PROPOSED DITCH LINE
-L- STA 27+50 TO 30+38 LT
EST. 145 SY



Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 23+00 to 27+50 RT

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

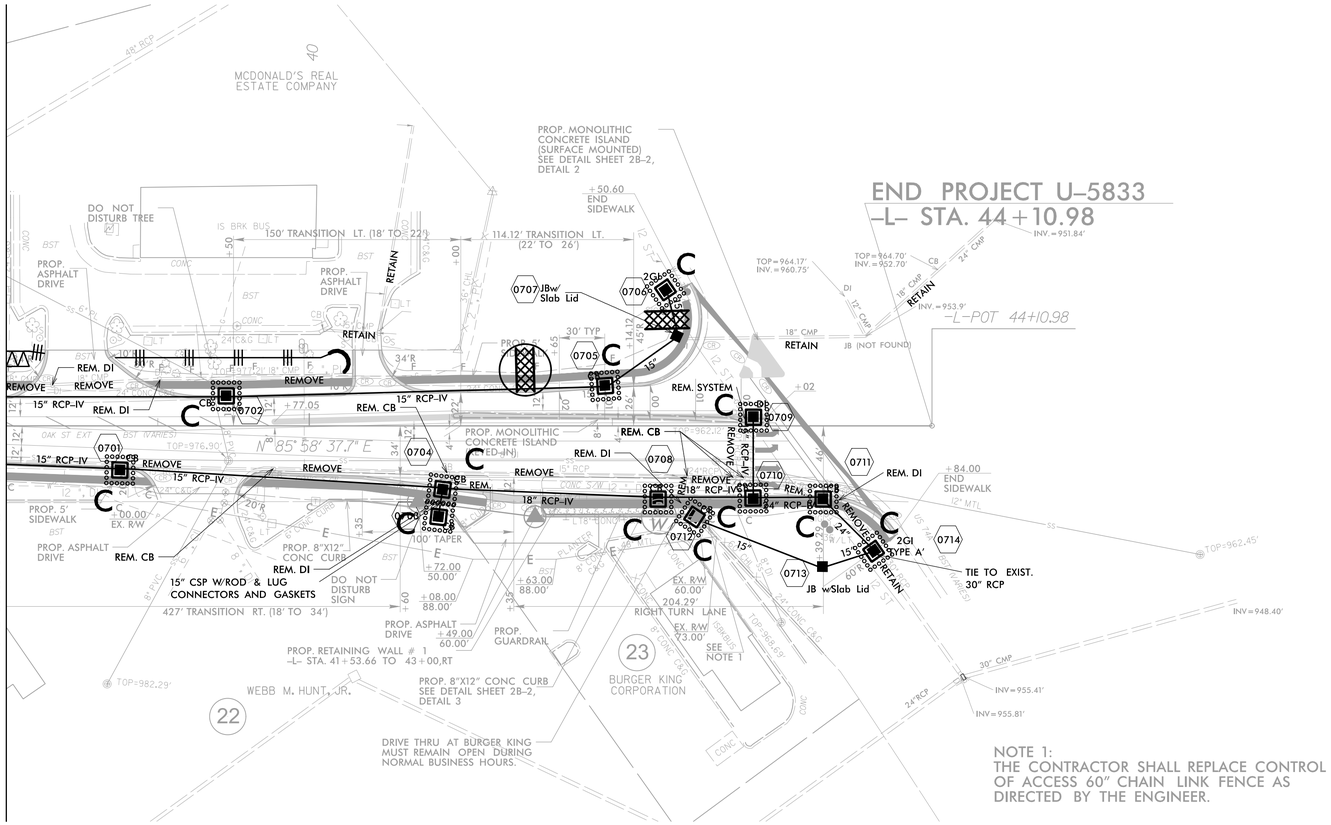
PROJECT REFERENCE NO.	SHEET NO.
U-5833	EC-11/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

MATCH LINE STA. -L- 38+00.00
MATCH TO SHEET NO. 6



NOTE 1:
THE CONTRACTOR SHALL REPLACE CONTROL OF ACCESS 60" CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER.