TIP PROJECT: U-5510

CONTRACT: DL00160

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

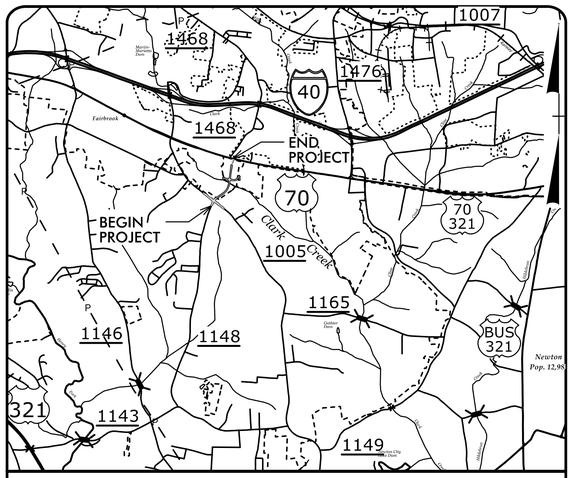
CATAWBA COUNTY

LOCATION: SR 1468 (SWEETWATER RD) EXTENSION FROM US 70 TO SR 1005 (STARTOWN RD)

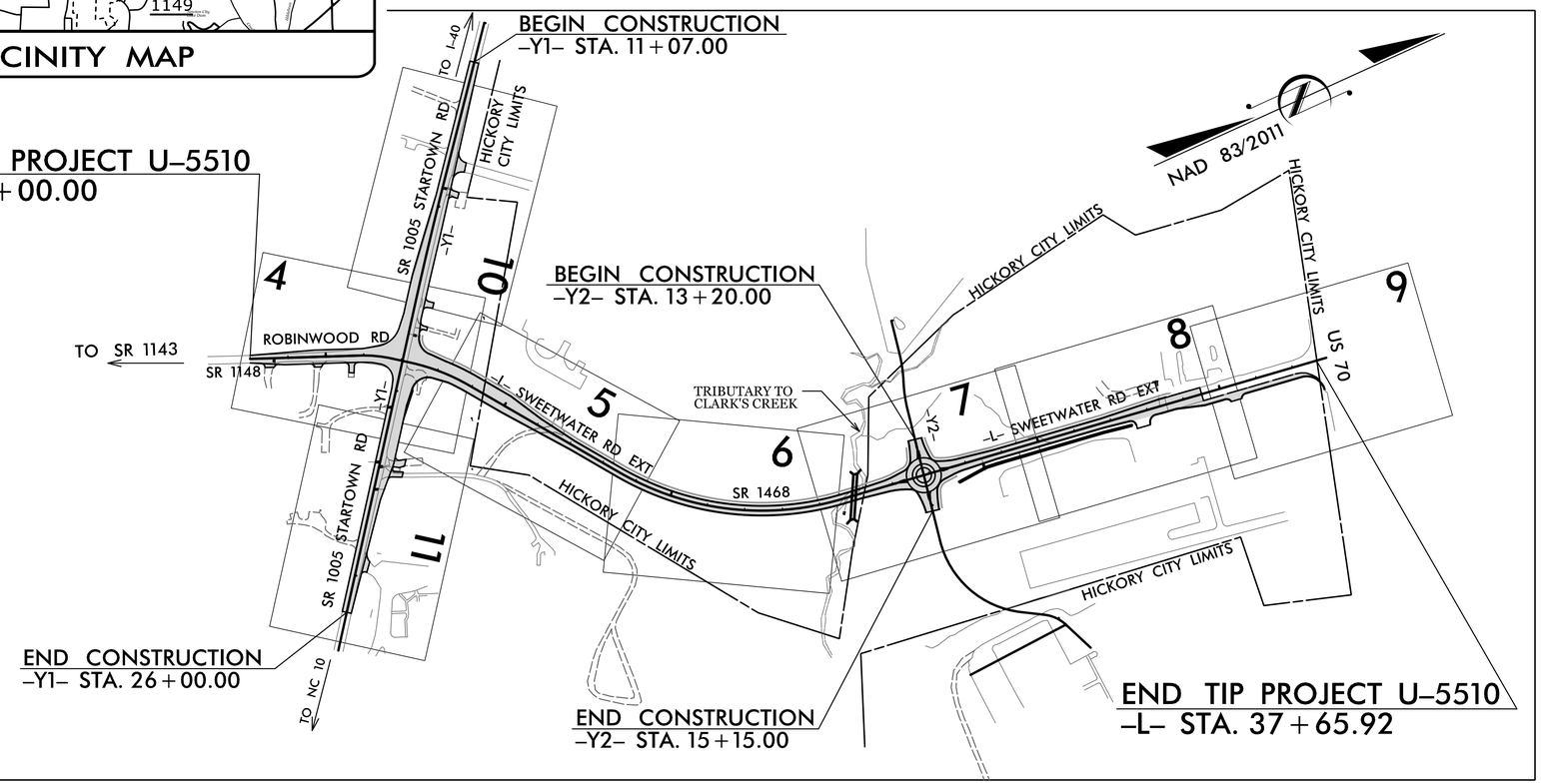
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5510	EC-1	

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



VICINITY MAP



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	
	Infiltration Basin	

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

GRAPHIC SCALE

10 0 20

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

TGS ENGINEERS

Plans Prepared By:
TGS ENGINEERS
804-C N. LAFAYETTE ST.
SHELBY, NC 28150
PH (704) 476-0003

2012 STANDARD SPECIFICATIONS

NCDOT DIVISION 12
NCDOT Contact:
JEREMY GOODWIN
ROADSIDE ENVIRONMENTAL ENGINEER

ANDREW H. COCHRANE, PE
PROJECT ENGINEER
LEVEL III CERTIFICATION
NUMBER 3015

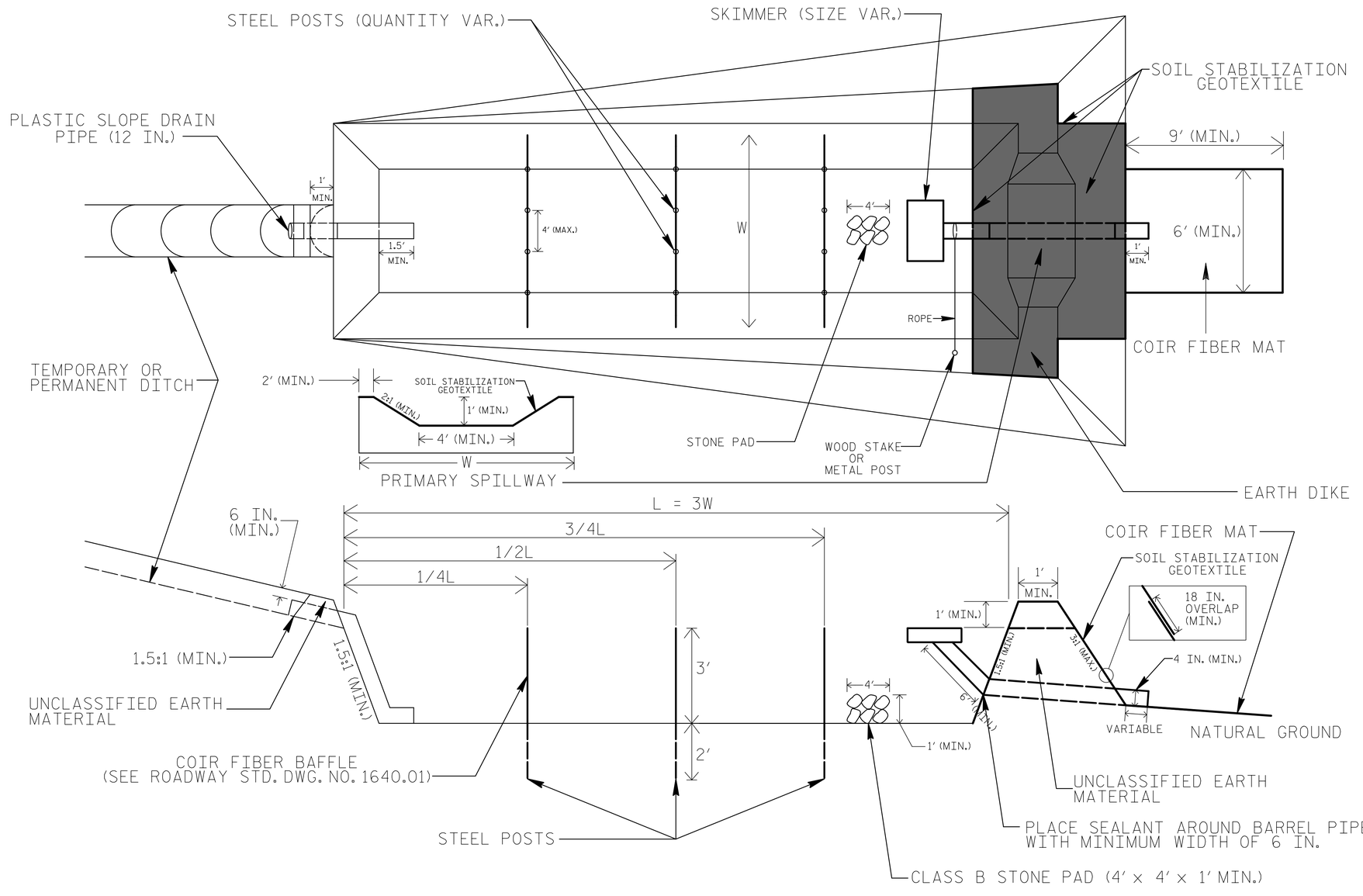
Roadway Standard Drawings

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

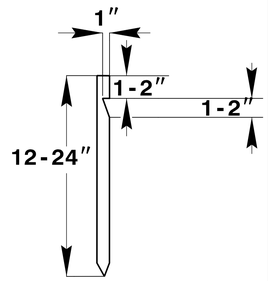
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type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

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

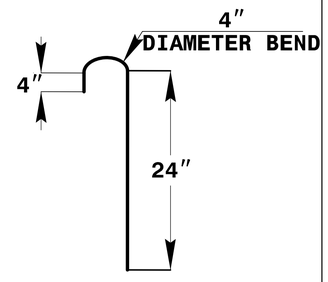
SKIMMER BASIN WITH BAFFLES DETAIL



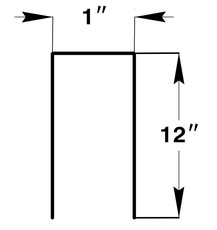
2" x 2" (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1" (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

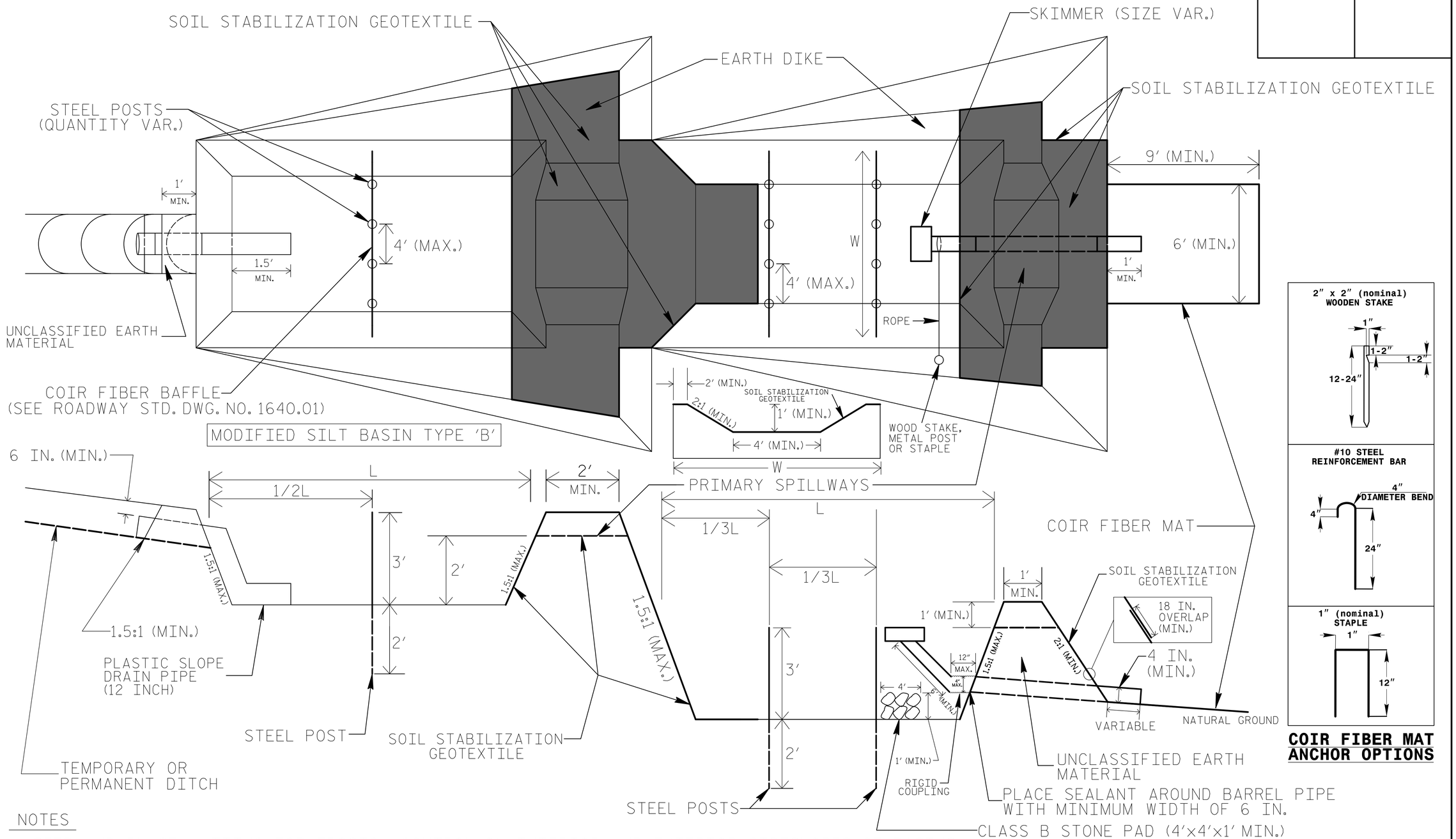
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TIERED SKIMMER BASIN DETAIL



2" x 2" (nominal) WOODEN STAKE

#10 STEEL REINFORCEMENT BAR

1" (nominal) STAPLE

COIR FIBER MAT ANCHOR OPTIONS

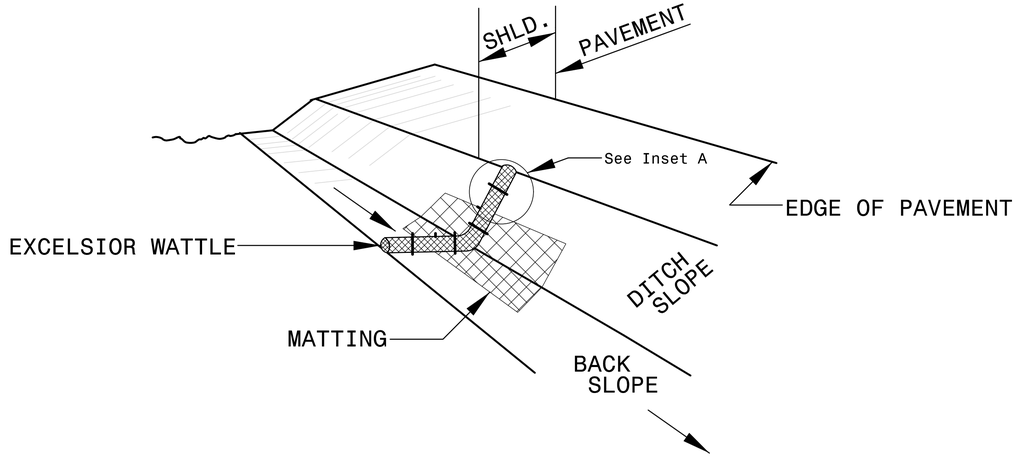
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY WEIR LENGTHS (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

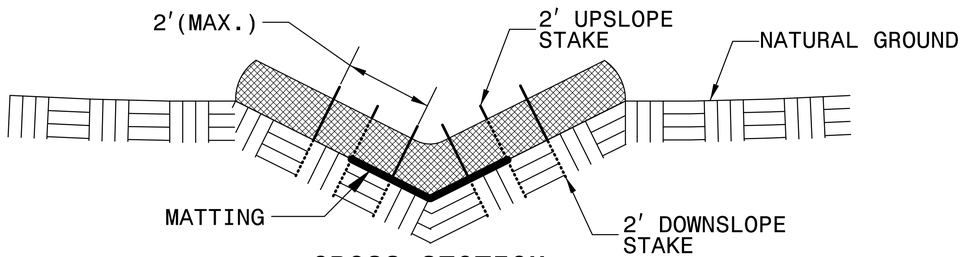
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

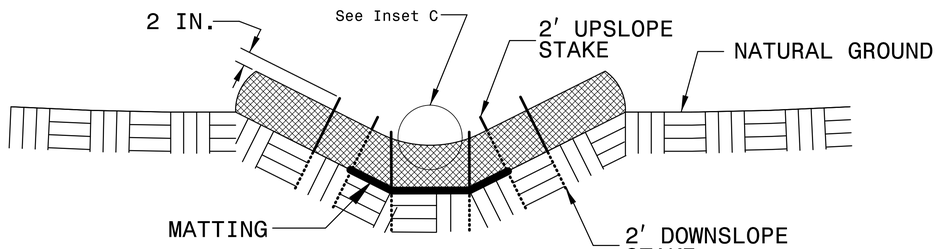
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

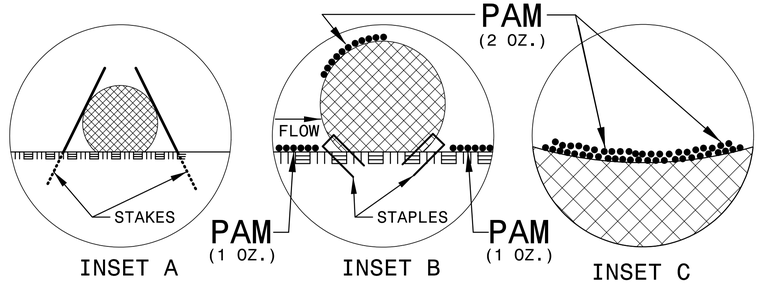
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

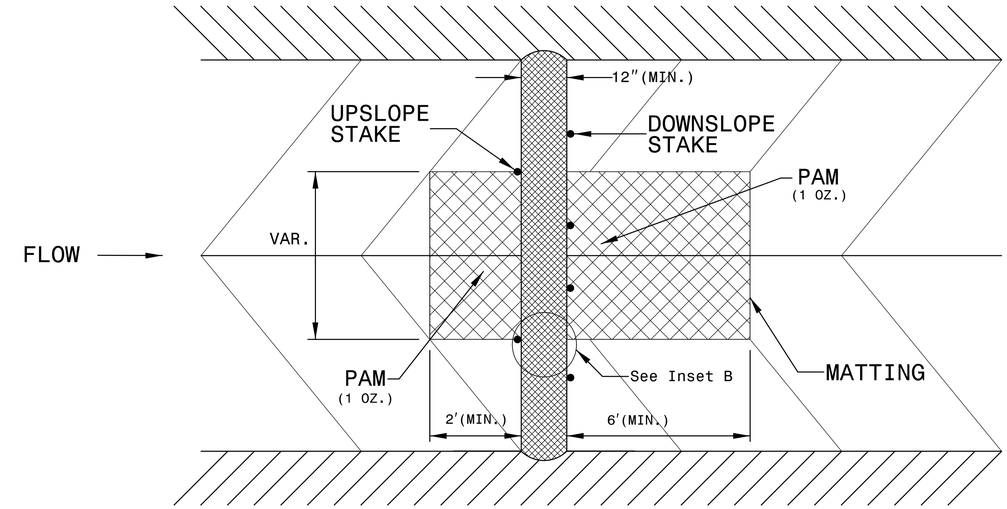
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

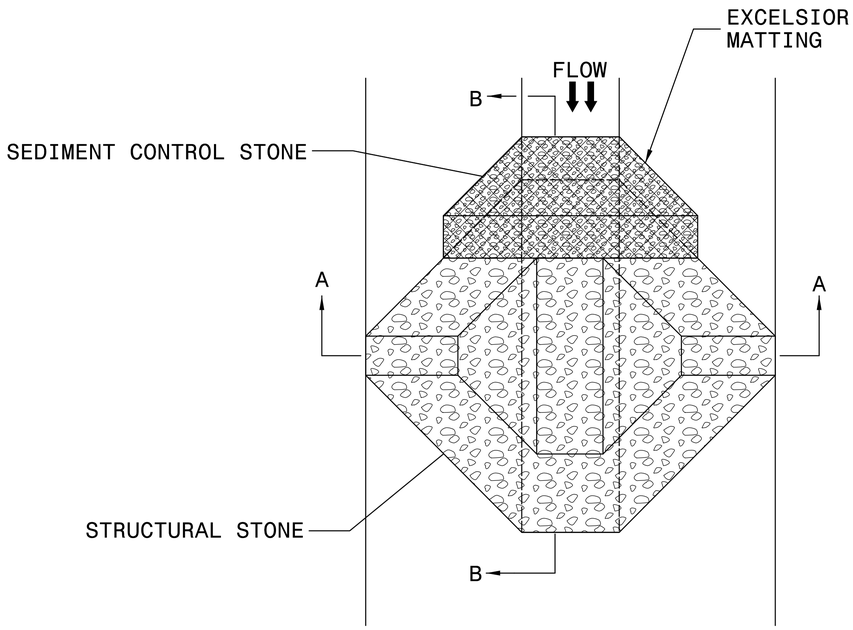




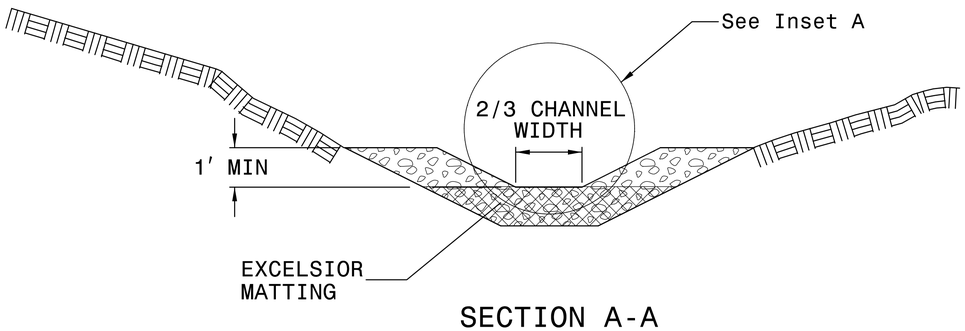
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

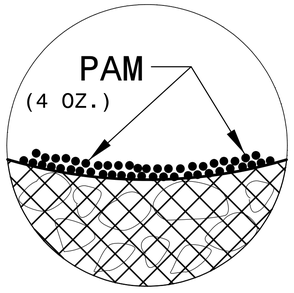
NOTES:

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

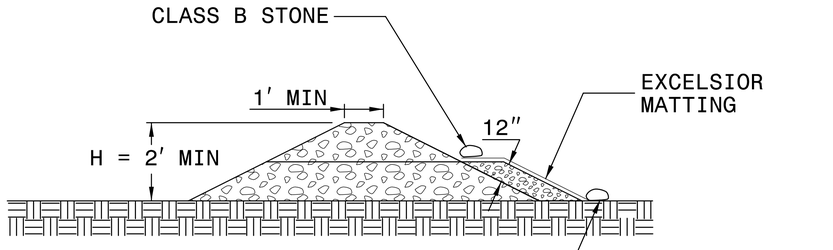
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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-5510	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	8+25	10+75	LT	175
4	-L-	8+70	10+45	RT	130
4	-Y1-	17+40	18+00	LT	30
4	-Y1-	17+40	17+50	RT	10
4	-Y1-	19+84	20+50	LT	35
5	-L-	14+50	18+50	RT	280
10	-Y1-	16+50	17+40	LT	45
10	-Y1-	15+50	16+50	RT	70
10	-Y1-	16+50	17+40	RT	65
11	-Y1-	21+50	22+50	LT	70
			SUBTOTAL		910
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					9275
				TOTAL	10185
				SAY	10700

PERMANENT SOIL REINFORCEMENT MAT

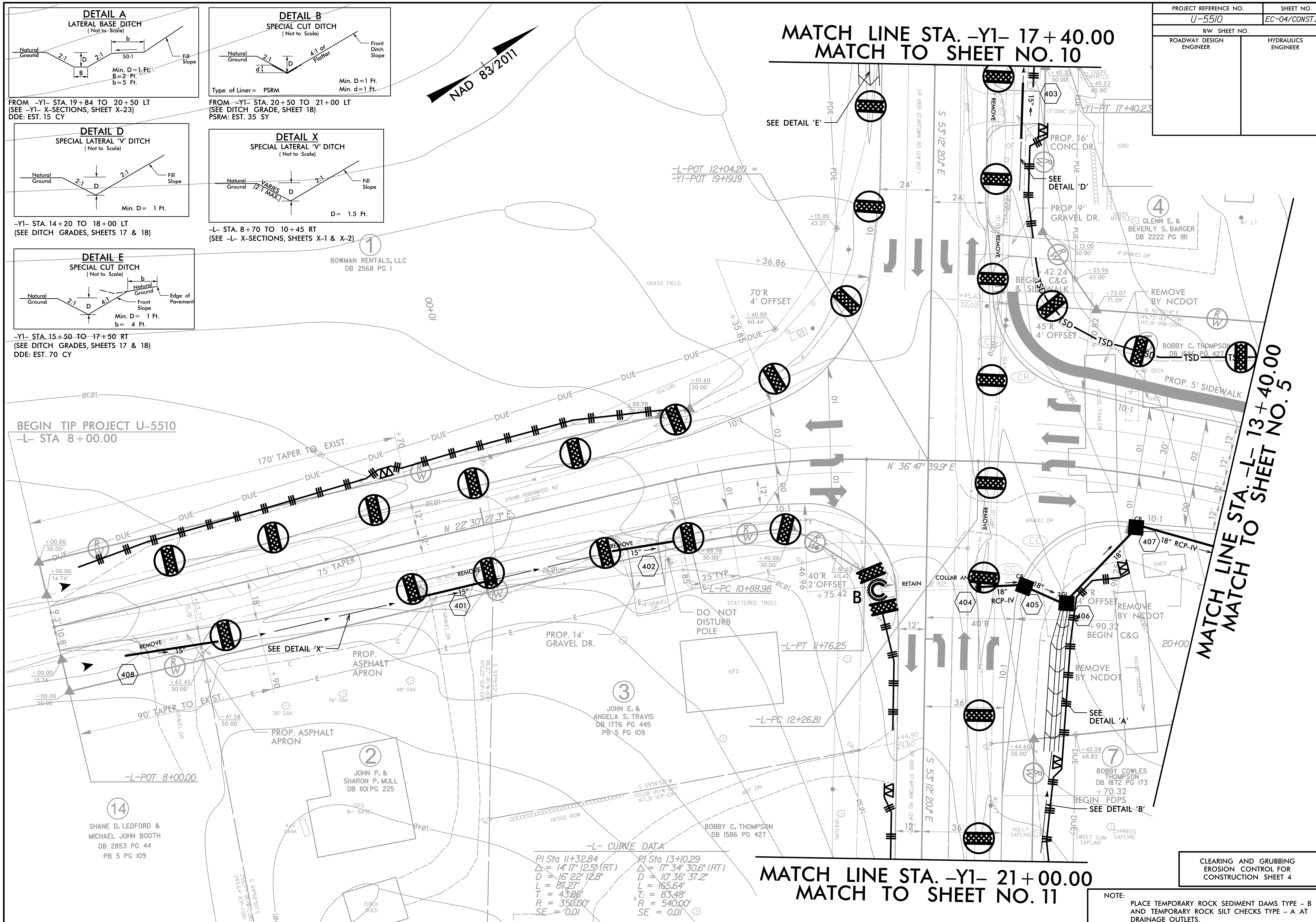
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	-L-	13+50	14+50	RT	50
7	-Y2-	15+00	15+15	LT	10
7	-Y2-	15+15	15+50	LT	20
			SUBTOTAL		80
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	80
				SAY	100

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-3A
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.



DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1 Ft.
B = 2 Ft.
b = 5 Ft.
FROM -Y1- STA. 19+84 TO 20+50 LT
(SEE -Y1- X-SECTIONS, SHEET X-23)
DDE: EST. 15 CY
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
4:1 or Flatter
Type of Liner = PSRM
Min. D = 1 Ft.
Min. d = 1 Ft.
FROM -Y1- STA. 20+50 TO 21+00 LT
(SEE DITCH GRADE, SHEET 18)
PSRM: EST. 35 SY
DETAIL D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1 Ft.
-Y1- STA. 14+20 TO 18+00 LT
(SEE DITCH GRADES, SHEETS 17 & 18)
DETAIL X
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
VARIES (2:1 MAX.)
Fill Slope
D = 1.5 Ft.
-L- STA. 8+70 TO 10+45 RT
(SEE -L- X-SECTIONS, SHEETS X-1 & X-2)
DETAIL E
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Slope
Edge of Pavement
Min. D = 1 Ft.
b = 4 Ft.
-Y1- STA. 15+50 TO 17+50 RT
(SEE DITCH GRADES, SHEETS 17 & 18)
DDE: EST. 70 CY
NAD 83/2011
MATCH LINE STA. -Y1- 17+40.00
MATCH TO SHEET NO. 10
MATCH LINE STA. -L- 13+40.00
MATCH TO SHEET NO. 5
MATCH LINE STA. -Y1- 21+00.00
MATCH TO SHEET NO. 11
BEGIN TIP PROJECT U-5510
-L- STA 8+00.00
-L-POT 12+04.20 =
-Y1-POT 19+19.19
-L-POT 8+00.00
-L-PT 11+76.25
-L-PC 10+88.98
-L-PC 12+26.81
N 22° 30' 27.3" E
N 36° 47' 39.9" E
S 53° 12' 20.1" E
SEE DETAIL 'E'
SEE DETAIL 'D'
SEE DETAIL 'X'
SEE DETAIL 'A'
SEE DETAIL 'B'
PROP. 16' CONC. DR.
PROP. 9' GRAVEL DR.
PROP. 14' GRAVEL DR.
PROP. ASPHALT APRON
PROP. 5' SIDEWALK
BEGIN C&G & SIDEWALK
BEGIN C&G
BEGIN FDPS
REMOVE BY NCDOT
DO NOT DISTURB POLE
170' TAPER TO EXIST.
90' TAPER TO EXIST.
75' TAPER
70'R 4' OFFSET
45'R 4' OFFSET
40'R 2' OFFSET
1 BOWMAN RENTALS, LLC DB 2568 PG 1
2 JOHN P. & SHARON P. MULL DB 1101 PG 225
3 JOHN E. & ANGELA S. TRAVIS DB 1776 PG 445 PB 5 PG 109
4 GLENN E. & BEVERLY S. BARGER DB 2222 PG 181
7 BOBBY COWLES THOMPSON DB 1872 PG 173
14 SHANE D. LEDFORD & MICHAEL JOHN BOOTH DB 2853 PG 44 PB 5 PG 109
BOBBY C. THOMPSON DB 1586 PG 427
401
402
403
404
405
406
407
408
18" RCP-IV
-L- CURVE DATA
PI Sta 11+32.84
Δ = 14° 17' 12.5" (RT)
D = 16° 22' 12.8"
L = 87.27'
T = 43.86'
R = 350.00'
SE = 0.01
PI Sta 13+10.29
Δ = 17° 34' 30.6" (RT)
D = 10° 36' 37.2"
L = 165.64'
T = 83.48'
R = 540.00'
SE = 0.01

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-04/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-5510	EC-05/CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Min. D= 0.5 Ft.

FROM –L– STA. 13+50 TO 14+50 RT
(SEE DITCH GRADES, SHEET 13)

DETAIL F
BERM DITCH
(Not to Scale)

No Lining PAD

Min. D=1 Ft.

FROM –L– STA. 14+50 TO 18+50 RT
(SEE –L– XSCs)

DETAIL H
BERM DITCH
(Not to Scale)

Min. D=1 Ft.
Min. d=1 Ft.

Type of Liner= Class B Rip Rap

FROM –L– STA. 18+50 TO 22+75 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 140 TONS
GEOTEXTILE: EST. 325 SY

–L– CURVE DATA
PI Sta 21+72.71
Δ = 46° 21' 23.2" (LT)
D = 7° 38' 22.0"
L = 606.80'
T = 321.11'
R = 750.00'
SE = 0.04
DS = 40 MPH

NAD 83/2011

MATCH LINE STA. –L– 13+40.00
MATCH TO SHEET NO. 4

MATCH LINE STA. –L– 19+00.00
MATCH TO SHEET NO. 6

–L–PC 18+51.60

–L–PT 13+92.45

CATAWBA VALLEY COMMUNITY COLLEGE
DB 1883 PG 1159

BOBBY C. THOMPSON
DB 1586 PG 427

BOBBY COWLES THOMPSON
DB 1872 PG 173

DUKE ENERGY
ELECTRIC TRANSPORTATION CORRIDOR
DB 2534 PG 1619

100' TAPER
107' TAPER
207' TAPER

PROP. 5' SIDEWALK
PROP. 2'-6" C&G

18" RCP-IV
24" RCP-IV
30" RCP-IV
15" CSP WITH ROD & LUG CONNECTORS AND SLEEVE GASKETS

SEE DETAIL 'C'
SEE DETAIL 'F'
SEE DETAIL 'H'

CB 501 BDO
CB 502
CB 503
CB 504
CB 505

25' TYP.

Approx. Loc. 12" RCP

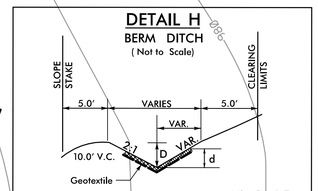
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

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

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

CLEARING AND GRUBBING
EROSION CONTROL FOR CONSTRUCTION SHEET 6

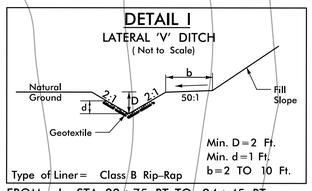
DETAIL H
BERM DITCH
(Not to Scale)



Min. D=1 Ft.
Min. d=1 Ft.
Type of Liner= Class B Rip Rap

FROM –L– STA. 18+50 TO 22+75 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 140 TONS
GEOTEXTILE: EST. 325 SY

DETAIL I
LATERAL 'V' DITCH
(Not to Scale)



Min. D=2 Ft.
Min. d=1 Ft.
b=2 TO 10 Ft.
Type of Liner= Class B Rip–Rap

FROM –L– STA. 22+75 RT TO 24+45 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 50 TONS
GEOTEXTILE: EST. 120 SY
DDB: EST. 100 CY

DETAIL J
TOE PROTECTION
(Not to Scale)

Type of Liner= Class B Rip–Rap

FROM –L– STA. 24+05 TO 24+45 LT
CLASS B RIPRAP: EST. 15 TONS
GEOTEXTILE: EST. 35 SY

–L– CURVE DATA
PI Sta 21+72.71
Δ = 46° 21' 23.2" (LT)
D = 7° 38' 22.0"
L = 606.80'
T = 321.11'
R = 750.00'
SE = 0.04
DS = 40 MPH

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-06/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCH LINE STA. –L– 19+00.00
MATCH TO SHEET NO. 5

MATCH LINE
STA. –L– 24+20.00
MATCH TO SHEET NO. 7

54 x 18 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
7 ft. weir
ID 6.3

51 x 17 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
6 ft. weir
ID 6.1

20 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 6.2

18" CSP WITH ROD & LUG CONNECTION AND SLEEVE GASKET

GRADE TO DRAIN

CUT TO FILL TRANSITION
CLASS B RIP RAP: EST. 5 TONS
GEOTEXTILE: EST. 10 SY

SEE DETAIL 'H'

SEE DETAIL 'I'

30" RCP–IV

PROP. 2'-6" C&G

PROP. 5' SIDEWALK

CB 601

CB 602

CATAWBA VALLEY COMMUNITY COLLEGE
DB 1883 PG 1159

DUKE ENERGY TRANSPORTATION CORRIDOR
ELECTRIC TRANSMISSION
DB 1953A PG 169

Approx. Loc. 15" RCP

CULVERT CONSTRUCTION SEQUENCE STA. 24+93 –L–

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-07
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASING

1. Install perimeter erosion control devices as shown on EC–06 & EC–08.
2. Install special stilling basin as directed by the Engineer.
3. Construct impervious dikes to restrain stream and begin pump around operations.
4. Construct proposed reinforced concrete box culvert.
5. Remove impervious dikes and return flow back to creek channel.
6. Complete any necessary inlet/outlet channel improvements.
7. Remove special stilling basin.
8. Complete roadway construction.

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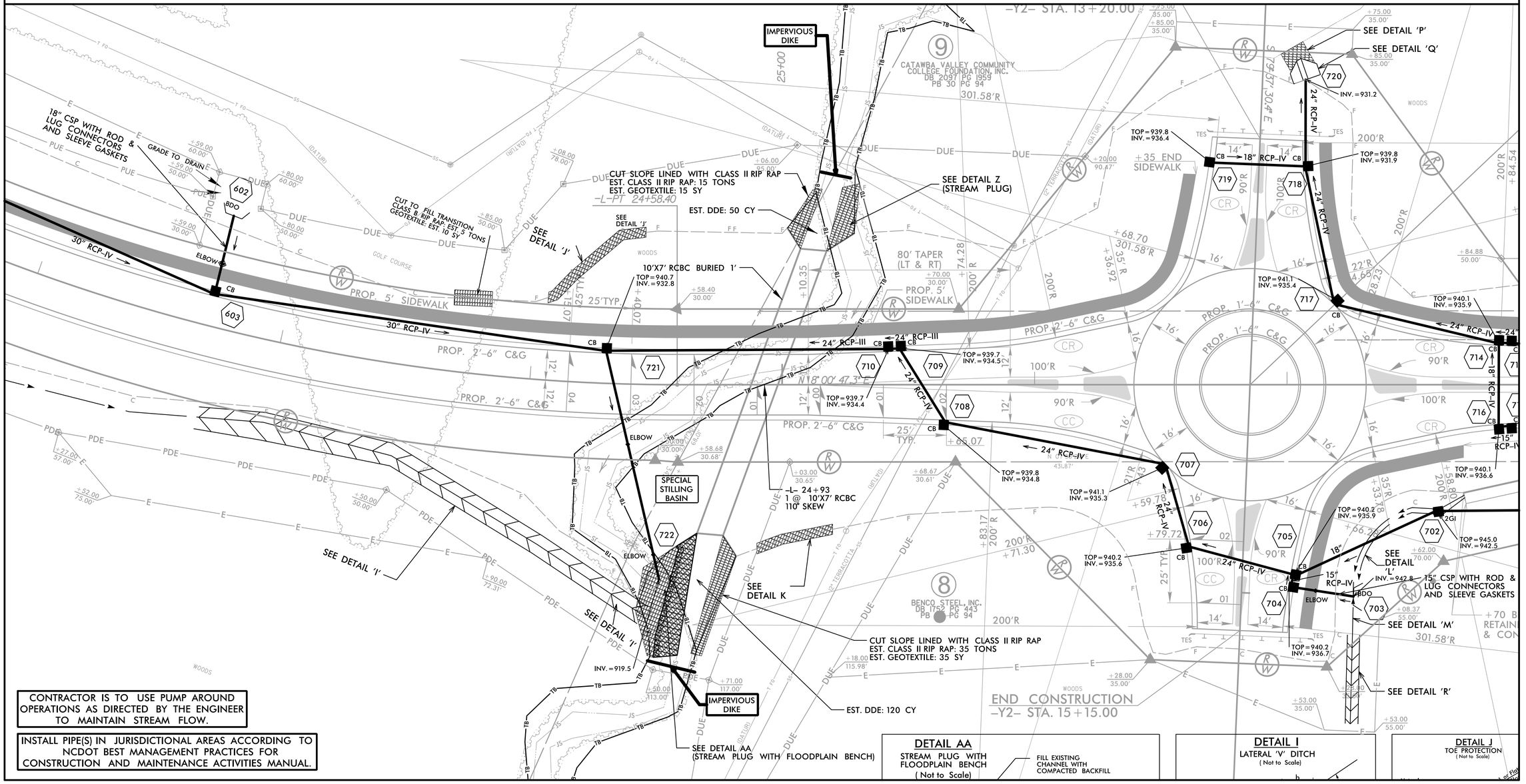


DETAIL AA
STREAM PLUG WITH FLOODPLAIN BENCH
(Not to Scale)

FILL EXISTING CHANNEL WITH COMPACTED BACKFILL

DETAIL I
LATERAL 'V' DITCH
(Not to Scale)

DETAIL J
TOE PROTECTION
(Not to Scale)

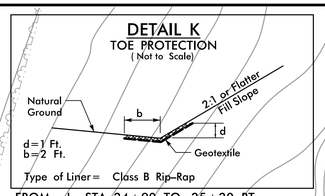
PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-08/CONST.07
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

MATCH LINE STA. –L– 24+20.00
MATCH TO SHEET NO. 6

MATCH LINE STA. –L– 29+80.00
MATCH TO SHEET NO. 8

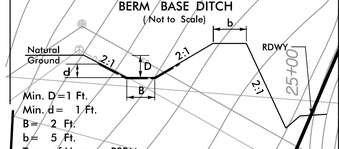
DETAIL K
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = 2 Ft.
Type of Liner = Class B Rip-Rap

FROM –L– STA. 24+90 TO 25+20 RT
CLASS B RIPRAP: EST. 10 TONS
GEOTEXTILE: EST. 20 SY

DETAIL L
BERM BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
Min. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = PSRM

FROM –L– STA. 27+60 RT TO –Y2– STA. 15+00 LT
SEE –L– X–SECTIONS, SHEETS X–13 & X–78)
PSRM: EST. 40 SY

22 x 11 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 7.4

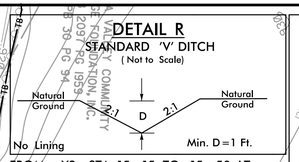
26 x 13 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 7.2

36 x 18 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
10 ft. weir
ID 7.3

36 x 18 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 7.1

Modified Silt Basin
Type 'B'
20 x 10 x 3
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 6.2

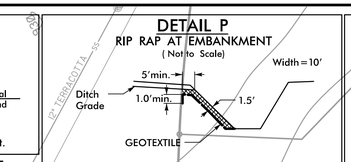
DETAIL R
STANDARD 'V' DITCH
(Not to Scale)



No Lining
Min. D = 1 Ft.

FROM –Y2– STA. 15+15 TO 15+50 LT
(SEE DITCH GRADE, SHEET 19)
DDE: EST. 4 CY

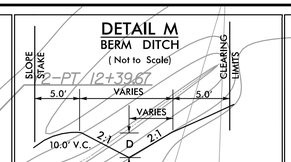
DETAIL P
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class I Rip Rap on Geotextile Fabric

–Y2– STA. 12+88 LT
EST. CL. I: 7 TONS, GEOTEX: 10 SY

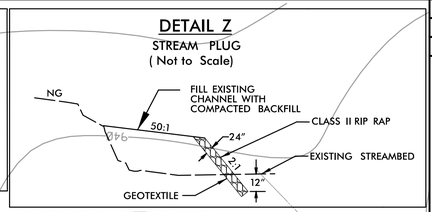
DETAIL M
BERM DITCH
(Not to Scale)



No Lining
Min. D = 1 Ft.

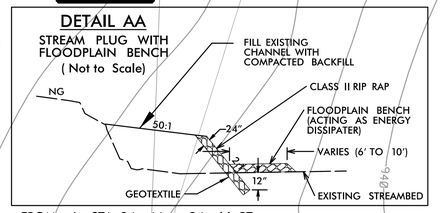
FROM –Y2– STA. 15+00 TO 15+15 LT
(SEE –Y2– X–SECTIONS, SHEET X–28)

DETAIL Z
STREAM PLUG
(Not to Scale)



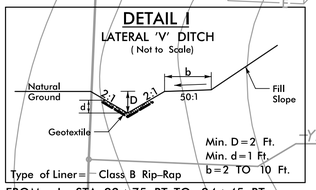
–L– STA. 25+24 TO 25+31 LT
EST. CLASS II RIP RAP: 25 TONS
EST. GEOTEXTILE: 25 SY

DETAIL AA
STREAM PLUG WITH
FLOODPLAIN BENCH
(Not to Scale)



FROM –L– STA. 24+44 to 24+66 RT
EST. CLASS II RIP RAP: 100 TONS
EST. GEOTEXTILE: 100 SY

DETAIL I
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 2 Ft.
Min. d = 1 Ft.
b = 2 TO 10 Ft.
Type of Liner = Class B Rip-Rap

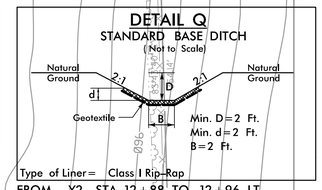
FROM –L– STA. 22+75 RT TO 24+45 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 50 TONS
GEOTEXTILE: EST. 120 SY
DDB: EST. 100 CY

DETAIL J
TOE PROTECTION
(Not to Scale)

d = 1 Ft.
b = 2 Ft.
Type of Liner = Class B Rip-Rap

FROM –L– STA. 24+05 TO 24+45 LT
CLASS B RIPRAP: EST. 15 TONS
GEOTEXTILE: EST. 35 SY

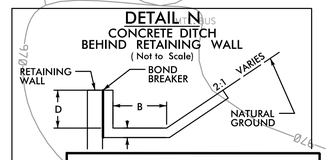
DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Min. d = 2 Ft.
B = 2 Ft.
Type of Liner = Class I Rip-Rap

FROM –Y2– STA. 12+88 TO 12+96 LT
(SEE DITCH GRADE, SHEET 19)
DDE: EST. 6 CY
EST. CL. I: 10 TONS, GEOTEX: 15 SY

DETAIL N
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)



FROM –

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.

CUT SLOPE LINED WITH CLASS II RIP RAP
EST. CLASS II RIP RAP: 40 TONS
EST. GEOTEXTILE: 15 SY

EST. DDE: 30 CY

CUT SLOPE LINED WITH CLASS II RIP RAP
EST. CLASS II RIP RAP: 35 TONS
EST. GEOTEXTILE: 35 SY

EST. DDE: 120 CY

SEE DETAIL 'I'

SEE DETAIL AA
(STREAM PLUG WITH FLOODPLAIN BENCH)

SPECIAL STILLING BASIN

–L– 24+93
1 @ 10'X7' RCBC
110° SKEW

10'X7' RCBC BURIED 1'
TOP = 940.7
INV. = 932.8

BEGIN CONSTRUCTION
–Y2– STA. 13+20.00

END CONSTRUCTION
–Y2– STA. 15+15.00

–L–POT 26+85.35 =
–Y2–POT 14+17.49

+35 END SIDEWALK

+70 BEGIN RETAINING WALL #1 & CONC. DITCH

+70 END SIDEWALK

SEE DETAIL 'P'
SEE DETAIL 'Q'
SEE DETAIL 'L'
SEE DETAIL 'M'
SEE DETAIL 'R'
SEE DETAIL 'N'

15" CSP WITH ROD & LUG CONNECTORS AND SLEEVE GASKETS

80' TAPER (LT & RT)

PROP. 5' SIDEWALK

PROP. 1'-6" C&G

PROP. 2'-6" C&G

PROP. RETAINING WALL #1

PROP. CONCRETE DITCH

CATAWBA VALLEY COMMUNITY COLLEGE
DB 1883 PG 1159

CATAWBA VALLEY COMMUNITY COLLEGE FOUNDATION, INC.
DB 2097 PG 1959
PB 30 PG 94

BENCO STEEL, INC.
DB 1205 PG 811

BENCO STEEL, INC.
DB 1752 PG 443
PB 30 PG 94

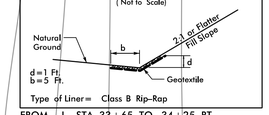
BST LOADING/STORAGE AREA

END UNKNOWN

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-09/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

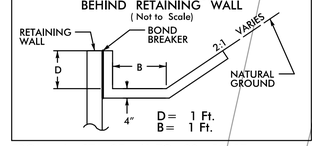
DETAIL Y
TOE PROTECTION
(Not to Scale)



Type of Liner = Class B Rip-Rap

FROM -L- STA. 33+65 TO 34+25 RT
CLASS B RIPRAP: EST. 25 TONS
GEOTEXTILE: EST. 50 SY

DETAIL N
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)



D = 1 Ft.
B = 1 Ft.

FROM -L- STA. 27+61 TO 32+50 RT

MATCH LINE STA. -L- 29+80.00
MATCH TO SHEET NO. 7

MATCH LINE STA. -L- 35+00.00
MATCH TO SHEET NO. 9

9
CATAWBA VALLEY COMMUNITY COLLEGE FOUNDATION, INC.
DB 2097 PG 1959
PB 30 PG 94

11
BOARD OF TRUSTEES OF CATAWBA VALLEY COMMUNITY COLLEGE
DB 2951 PG 723

10
BENCO STEEL, INC.
DB 1205 PG 811

FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW

160' TAPER LT & RT

GRADE TO DRAIN

REMOVE HW

REMOVE PIPE

PROP. 5' SIDEWALK

PROP. 2'-6" C&G

18" RCP-IV

CB
TOP = 958.1
INV. = 954.2

CB
TOP = 955.1
INV. = 951.5

803

804

N 8° 00' 47.3" E

RELOCATE FENCE (BY OWNER)

SEE DETAIL 'N'

RETAINING WALL

18" RCP-IV
TB 2GI
TOP = 967.9
INV. = 956.0

806
TB 2GI
805

TOP = 967.5
INV. = 955.8

RETAIN DI

CONTRACTOR SHALL FIELD VERIFY EXISTING DRAINAGE LOCATIONS AND PATTERNS

PROP. CONCRETE DITCH

+50 END RETAINING WALL #1 & CONC. DITCH

PROP. ASPHALT DRIVE

CONTRACTOR SHALL FIELD VERIFY EXISTING DRAINAGE LOCATIONS AND PATTERNS

TOP = 974.0
INV. = 970.3

REMOVE CB

802

18" RCP-IV
TOP = 974.1
INV. = 970.5

REMOVE CB

801

+58.36
END 2'-6" C&G

+77.53
END SIDEWALK

+75.00
50.00'

+12.00
50.00'

+50.00
50.00'

+16.00
35.00'

+16.00
40.00'

+16.00
45.00'

75' TAPER

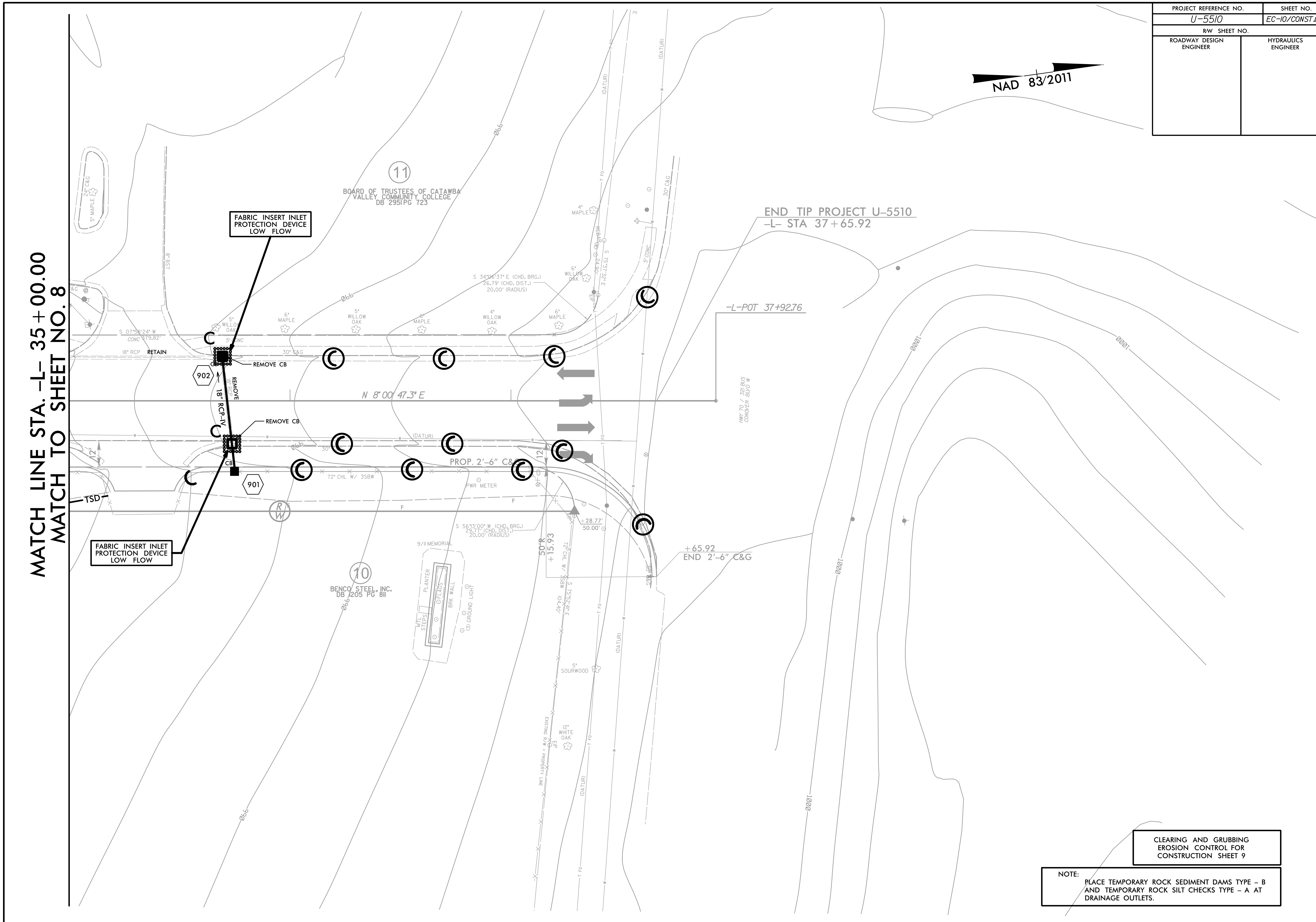
BEGIN RT TURN LANE CONSTRUCTION
-L- STA. 34+50.00

SEE DETAIL 'Y'

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

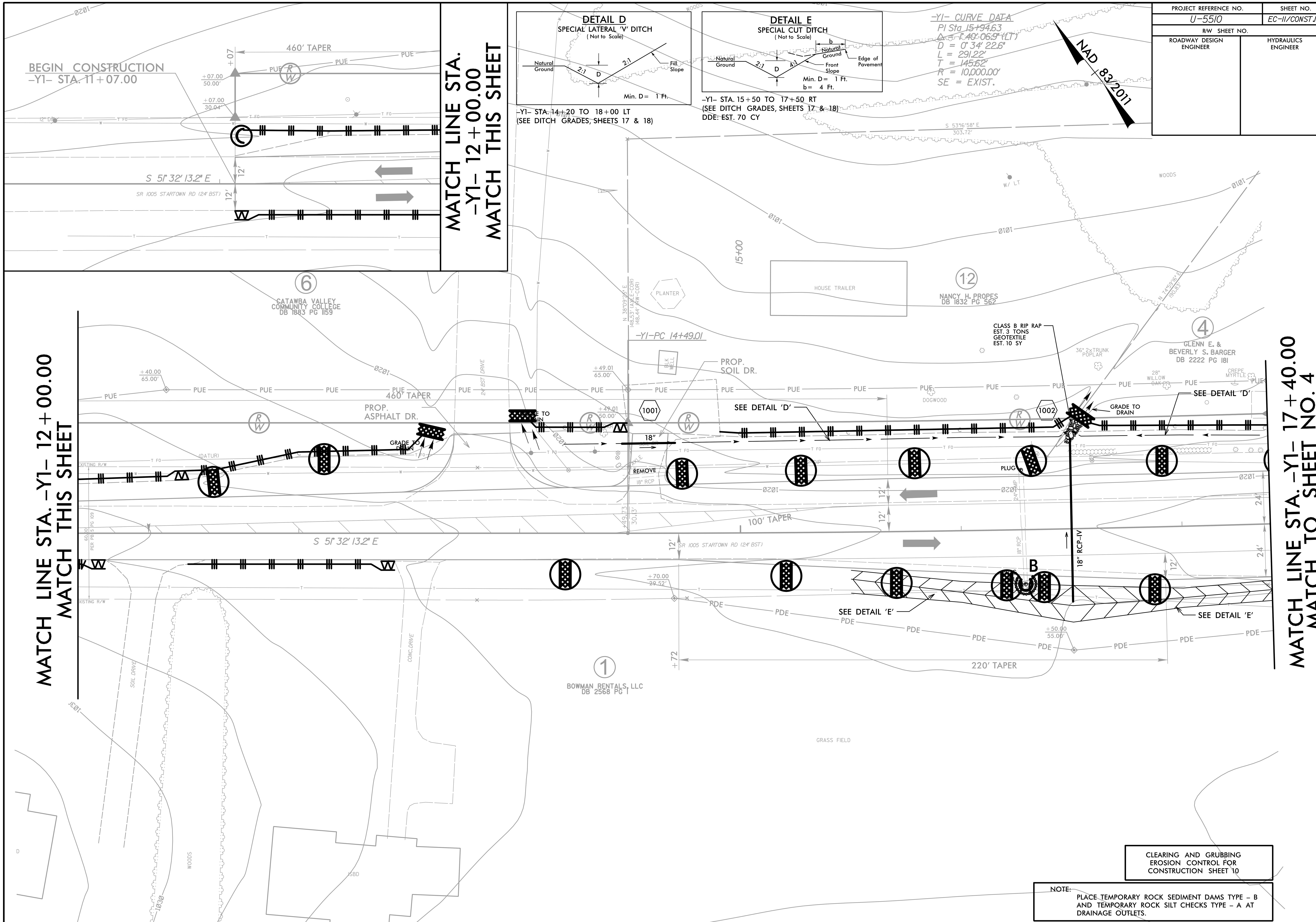
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-10/CONST.09
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



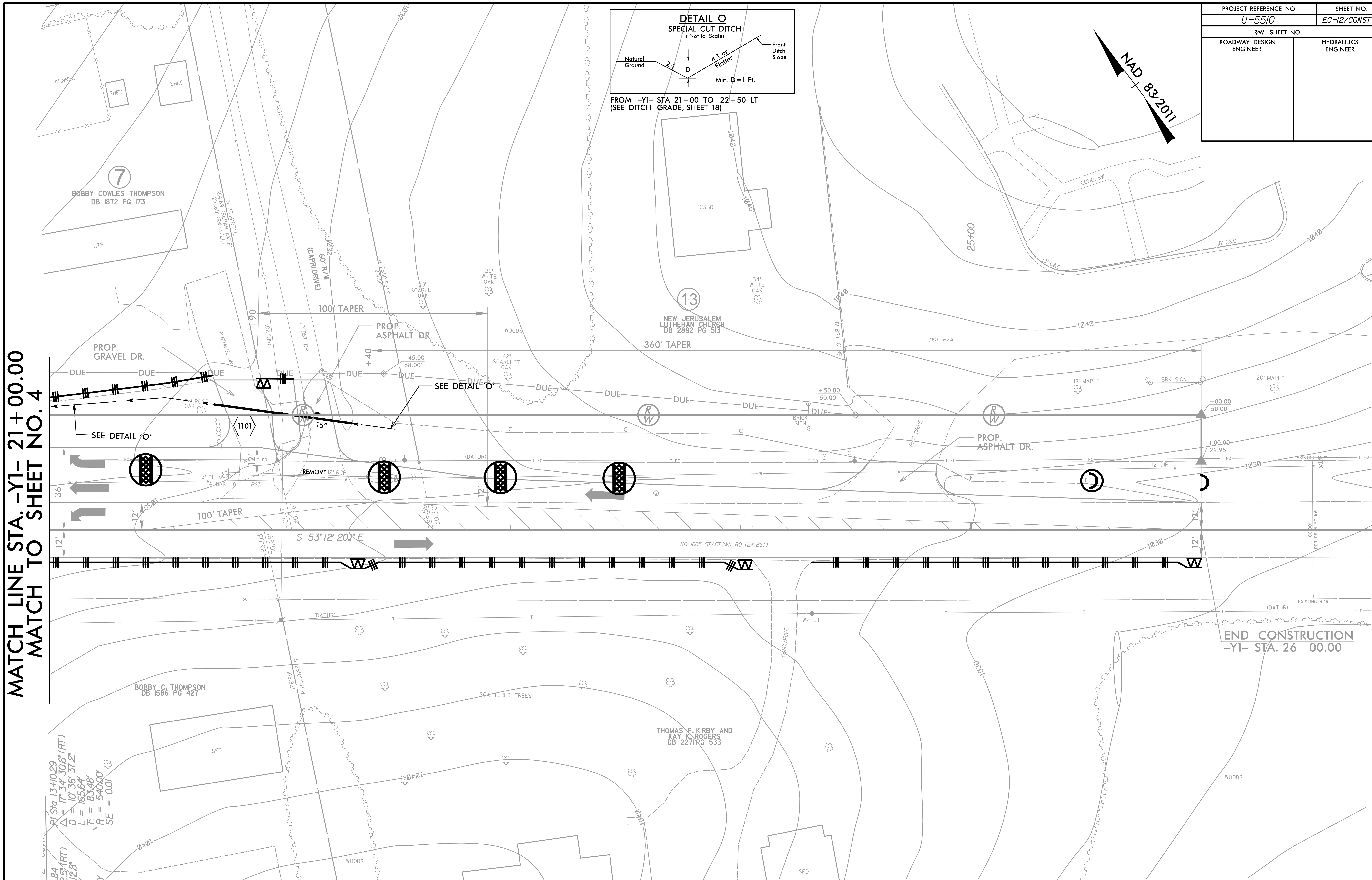
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

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



PROJECT REFERENCE NO.
U-5510
SHEET NO.
EC-11/CONST10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DETAIL D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1 Ft.
-Y1- STA. 14+20 TO 18+00 LT
(SEE DITCH GRADES, SHEETS 17 & 18)
DETAIL E
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Edge of Pavement
Front Slope
Min. D = 1 Ft.
b = 4 Ft.
-Y1- STA. 15+50 TO 17+50 RT
(SEE DITCH GRADES, SHEETS 17 & 18)
DDE: EST. 70 CY
-Y1- CURVE DATA
PI Sta 15+94.63
Δ = 1° 40' 06.9" (LT)
D = 0° 34' 22.6"
L = 291.22'
T = 145.62'
R = 10,000.00'
SE = EXIST.
NAD 83/2011
BEGIN CONSTRUCTION
-Y1- STA. 11+07.00
460' TAPER
S 51° 32' 13.2" E
SR 1005 STARTOWN RD (24' BST)
MATCH LINE STA. -Y1- 12+00.00 MATCH THIS SHEET
CATAWBA VALLEY COMMUNITY COLLEGE
DB 1883 PG 1159
NANCY H. PROPES
DB 1832 PG 562
HOUSE TRAILER
GLENN E. & BEVERLY S. BARGER
DB 2222 PG 181
CLASS B RIP RAP
EST. 3 TONS
GEOTEXTILE
EST. 10 SY
-Y1-PC 14+49.01
PROP. SOIL DR.
PROP. ASPHALT DR.
SEE DETAIL 'D'
GRADE TO DRAIN
REMOVE
PLUG
18" RCP-IV
100' TAPER
220' TAPER
SEE DETAIL 'E'
BOWMAN RENTALS, LLC
DB 2568 PG 1
GRASS FIELD
MATCH LINE STA. -Y1- 17+40.00 MATCH TO SHEET NO. 4
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 10
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-12/CONSTJI
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

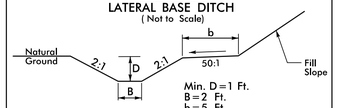


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 11

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

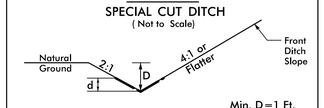
PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-13/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



FROM –Y1– STA. 19+84 TO 20+50 LT
(SEE –Y1– X-SECTIONS, SHEET X-23)
DDE: EST. 15 CY

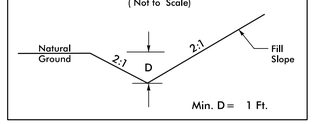
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner = PSRM

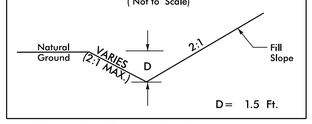
FROM –Y1– STA. 20+50 TO 21+00 LT
(SEE DITCH GRADE, SHEET 18)
PSRM: EST. 35 SY

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



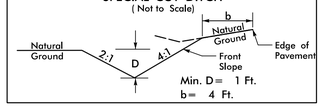
–Y1– STA. 14+20 TO 18+00 LT
(SEE DITCH GRADES, SHEETS 17 & 18)

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



–L– STA. 8+70 TO 10+45 RT
(SEE –L– X-SECTIONS, SHEETS X-1 & X-2)

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



–Y1– STA. 15+50 TO 17+50 RT
(SEE DITCH GRADES, SHEETS 17 & 18)
DDE: EST. 70 CY

NAD 83/2011

MATCH LINE STA. –Y1– 17+40.00
MATCH TO SHEET NO. 10

SEE DETAIL 'E'

–L–POT 12+04.20 =
–Y1–POT 19+19.19

Place Matting for Erosion Control on Slope as Work Allows.
–Y1– Sta. 18+50 to 19+00 LT

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 12+50 to 15+00 LT

BEGIN TIP PROJECT U-5510
–L– STA 8+00.00

MATCH LINE STA. –L– 13+40.00
MATCH TO SHEET NO. 5

MATCH LINE STA. –Y1– 21+00.00
MATCH TO SHEET NO. 11

–L–PC 10+88.98

–L–PT 11+76.25

–L–PC 12+26.81

–L–POT 8+00.00

–L– CURVE DATA

PI Sta 11+32.84
Δ = 14° 17' 12.5" (RT)
D = 16° 22' 12.8"
L = 87.27'
T = 43.86'
R = 350.00'
SE = 0.01

PI Sta 13+10.29
Δ = 17° 34' 30.6" (RT)
D = 10° 36' 37.2"
L = 165.64'
T = 83.48'
R = 540.00'
SE = 0.01

(1) BOWMAN RENTALS, LLC
DB 2568 PG 1

(2) JOHN P. & SHARON P. MULL
DB 1101 PG 225

(3) JOHN E. & ANGELA S. TRAVIS
DB 1776 PG 445
PB 5 PG 109

(4) GLENN E. & BEVERLY S. BARGER
DB 2222 PG 181

(7) BOBBY COWLES THOMPSON
DB 1872 PG 173

(14) SHANE D. LEDFORD & MICHAEL JOHN BOOTH
DB 2853 PG 44
PB 5 PG 109

BOBBY C. THOMPSON
DB 1586 PG 427

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-14/CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

FROM –L– STA. 13+50 TO 14+50 RT
(SEE DITCH GRADES, SHEET 13)

DETAIL F
BERM DITCH
(Not to Scale)

FROM –L– STA. 14+50 TO 18+50 RT
(SEE –L– XSCs)

DETAIL H
BERM DITCH
(Not to Scale)

Type of Liner= Class B Rip Rap

FROM –L– STA. 18+50 TO 22+75 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 140 TONS
GEOTEXTILE: EST. 325 SY

–L– CURVE DATA
PI Sta 21+72.71
Δ = 46° 21' 23.2" (LT)
D = 7° 38' 22.0"
L = 606.80'
T = 321.11'
R = 750.00'
SE = 0.04
DS = 40 MPH

NAD 83/2011

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 12+50 to 15+00 LT

–L–PC 18+51.60

–L–PT 13+92.45

SEE DETAIL 'C'
SEE DETAIL 'F'
SEE DETAIL 'H'

15" CSP WITH ROD & LUG CONNECTORS AND SLEEVE GASKETS

18" RCP–IV
24" RCP–IV
30" RCP–IV

100' TAPER
107' TAPER
207' TAPER

PROP. 5' SIDEWALK
PROP. 2'–6" C&G

25'TYP.

Approx. Loc. 12" RCP

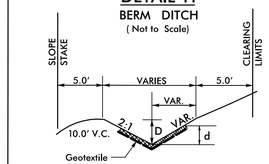
For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

MATCH LINE STA. –L– 13+40.00
MATCH TO SHEET NO. 4

MATCH LINE STA. –L– 19+00.00
MATCH TO SHEET NO. 6

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-15/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL H
BERM DITCH
(Not to Scale)

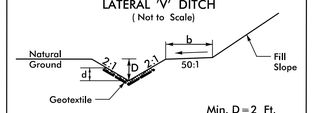


Min. D=1 Ft.
Min. d=1 Ft.

Type of Liner= Class B Rip Rap

FROM –L– STA. 18+50 TO 22+75 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 140 TONS
GEOTEXTILE: EST. 325 SY

DETAIL I
LATERAL 'V' DITCH
(Not to Scale)

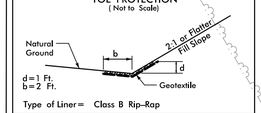


Min. D=2 Ft.
Min. d=1 Ft.
b=2 TO 10 Ft.

Type of Liner= Class B Rip-Rap

FROM –L– STA. 22+75 RT TO 24+45 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 50 TONS
GEOTEXTILE: EST. 120 SY
DDB: EST. 100 CY

DETAIL J
TOE PROTECTION
(Not to Scale)



d=1 Ft.
b=2 Ft.

Type of Liner= Class B Rip-Rap

FROM –L– STA. 24+05 TO 24+45 LT
CLASS B RIPRAP: EST. 15 TONS
GEOTEXTILE: EST. 35 SY

–L– CURVE DATA
PI Sta 21+72.71
Δ = 46° 21' 23.2" (LT)
D = 7° 38' 22.0"
L = 606.80'
T = 321.11'
R = 750.00'
SE = 0.04
DS = 40 MPH

NAD 83/2011

MATCH LINE STA. –L– 19+00.00
MATCH TO SHEET NO. 5

MATCH LINE
STA. –L– 24+20.00
MATCH TO SHEET NO. 7

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 24+00 to 26+50 LT

CUT TO FILL TRANSITION
CLASS B RIP RAP: EST. 5 TONS
GEOTEXTILE: EST. 10 SY

SEE DETAIL 'J'

SEE DETAIL 'H'

SEE DETAIL 'I'

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 23+50 to 26+50 RT

20 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 6.2

30" RCP–IV
PROP. 5' SIDEWALK
PROP. 2'–6" C&G
601
603
CB
CWD
PDE
DUE
TSD
18" CSP WITH ROD & LUG CONNECTION AND SLEEVE COUPLING
GRADE TO DRAIN
Approx. Loc. 15" RCP

CATAWBA VALLEY COMMUNITY COLLEGE
DB 1883 PG 1159

DUKE ENERGY
ELECTRIC TRANSMISSION CORRIDOR
DB 2534 PG 169

WOODS

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-16/CONST.07
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

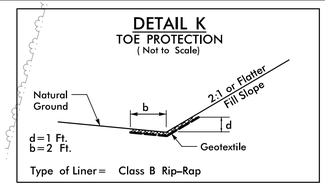
For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

NAD 83/2011

MATCH LINE STA. –L– 24+20.00 MATCH TO SHEET NO. 6

MATCH LINE STA. –L– 29+80.00 MATCH TO SHEET NO. 8

DETAIL K
TOE PROTECTION
(Not to Scale)

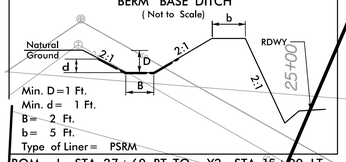


d=1 Ft.
b=2 Ft.

Type of Liner= Class B Rip-Rap

FROM –L– STA. 24+90 TO 25+20 RT
CLASS B RIPRAP: EST. 10 TONS
GEOTEXTILE: EST. 20 SY

DETAIL L
BERM BASE DITCH
(Not to Scale)

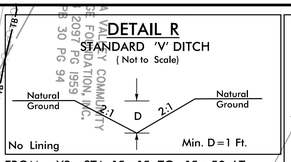


Min. D=1 Ft.
Min. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= PSRM

FROM –L– STA. 27+60 RT TO –Y2– STA. 15+00 LT
SEE –L– X-SECTIONS, SHEETS X-13 & X-78)
PSRM: EST. 40 SY

22 x 11 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 7.4

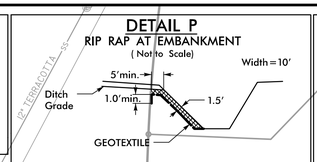
DETAIL R
STANDARD 'V' DITCH
(Not to Scale)



No Lining
Min. D=1 Ft.

FROM –Y2– STA. 15+15 TO 15+50 LT
(SEE DITCH GRADE, SHEET 19)
DDE: EST. 4 CY

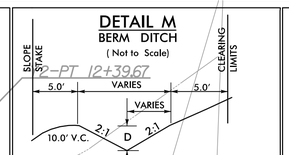
DETAIL P
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class I Rip Rap on Geotextile Fabric

–Y2– STA. 12+88 LT
EST. CL. I: 7 TONS, GEOTEX: 10 SY

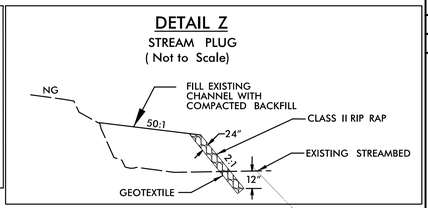
DETAIL M
BERM DITCH
(Not to Scale)



No Lining
Min. D=1 Ft.

FROM –Y2– STA. 15+00 TO 15+15 LT
(SEE –Y2– X-SECTIONS, SHEET X-28)

DETAIL Z
STREAM PLUG
(Not to Scale)



–L– STA. 25+24 TO 25+31 LT
EST. CLASS II RIP RAP: 25 TONS
EST. GEOTEXTILE: 25 SY

BEGIN CONSTRUCTION
–Y2– STA. 13+20.00

END CONSTRUCTION
–Y2– STA. 15+15.00

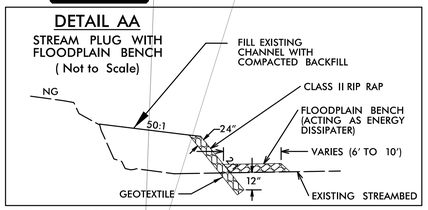
–L–POT 26+85.35 = –Y2–POT 14+17.49

26 x 13 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 7.2

36 x 18 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 7.1

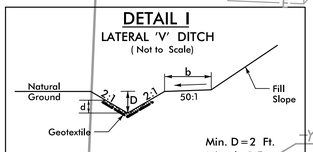
Modified Silt Basin
Type 'B'
20 x 10 x 3
4 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 6.2

DETAIL AA
STREAM PLUG WITH FLOODPLAIN BENCH
(Not to Scale)



FROM –L– STA. 24+44 to 24+66 RT
EST. CLASS II RIP RAP: 100 TONS
EST. GEOTEXTILE: 100 SY

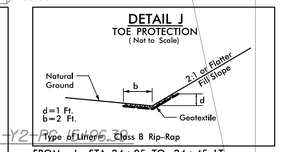
DETAIL I
LATERAL 'V' DITCH
(Not to Scale)



Min. D=2 Ft.
Min. d=1 Ft.
b=2 TO 10 Ft.
Type of Liner= Class B Rip-Rap

FROM –L– STA. 22+75 RT TO 24+45 RT
(SEE –L– XSCs)
CLASS B RIPRAP: EST. 50 TONS
GEOTEXTILE: EST. 120 SY
DDB: EST. 100 CY

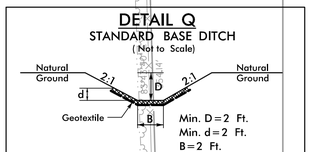
DETAIL J
TOE PROTECTION
(Not to Scale)



d=1 Ft.
b=2 Ft.
Type of Liner= Class B Rip-Rap

FROM –L– STA. 24+05 TO 24+45 LT
CLASS B RIPRAP: EST. 15 TONS
GEOTEXTILE: EST. 35 SY

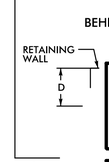
DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class I Rip-Rap

FROM –Y2– STA. 12+88 TO 12+96 LT
(SEE DITCH GRADE, SHEET 19)
DDE: EST. 6 CY
EST. CL. I: 10 TONS, GEOTEX: 15 SY

DETAIL N
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



FROM

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 23+50 to 26+50 RT
–L– Sta. 24+00 to 26+50 LT

Place Matting for Erosion Control on Slope as Work Allows.
–Y2– Sta. 13+20 to 13+50 LT
–Y2– Sta. 13+20 to 14+00 RT
–Y2– Sta. 15+00 to 15+15 RT

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-17/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

DETAIL Y
TOE PROTECTION
(Not to Scale)

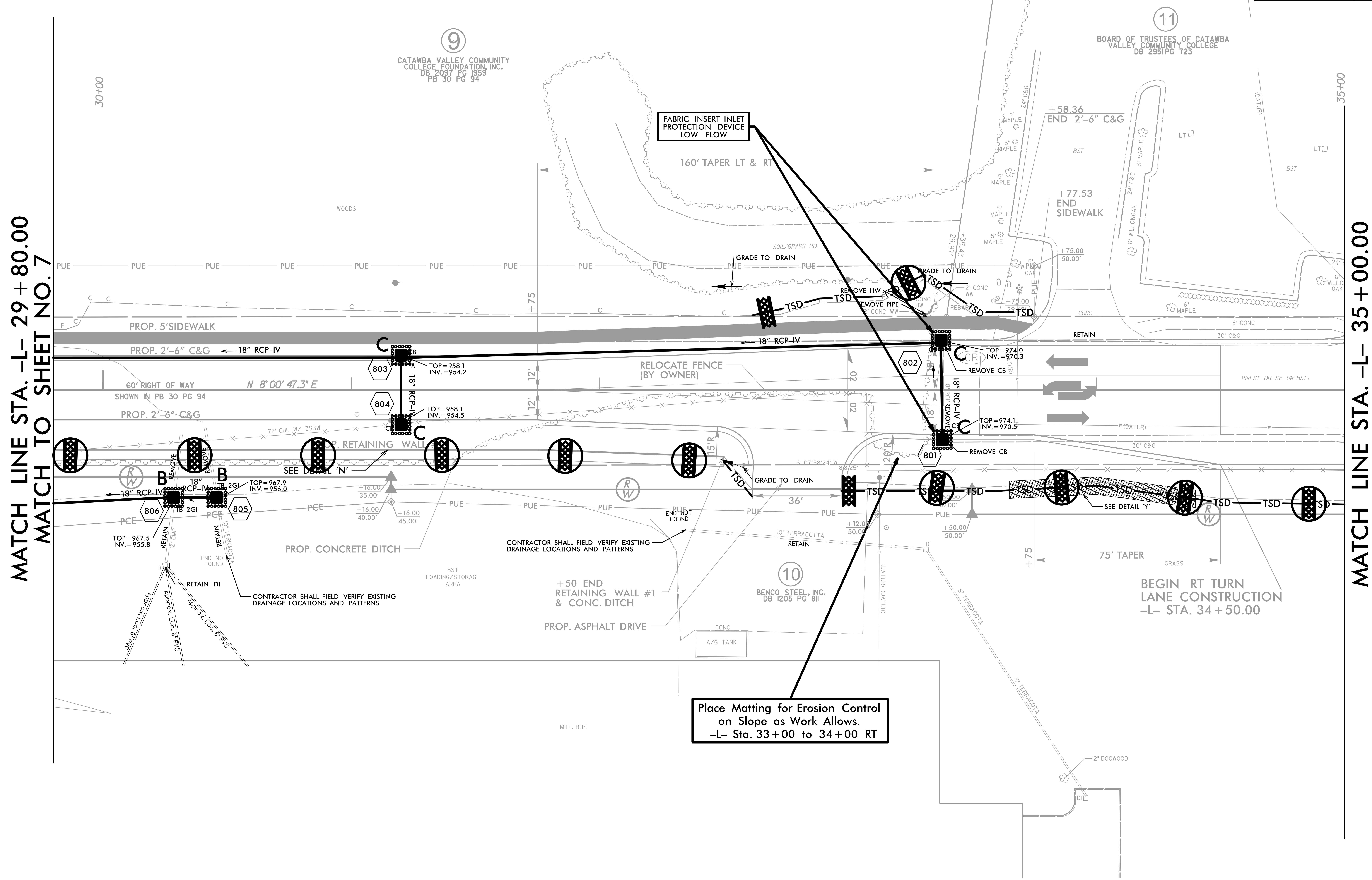
Natural Ground
2:1 or Flatter Fill Slope
Geotextile
d=1 Ft.
b=5 Ft.
Type of Liner= Class B Rip-Rap

FROM -L- STA. 33+65 TO 34+25 RT
CLASS B RIPRAP: EST. 25 TONS
GEOTEXTILE: EST. 50 SY

DETAIL N
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)

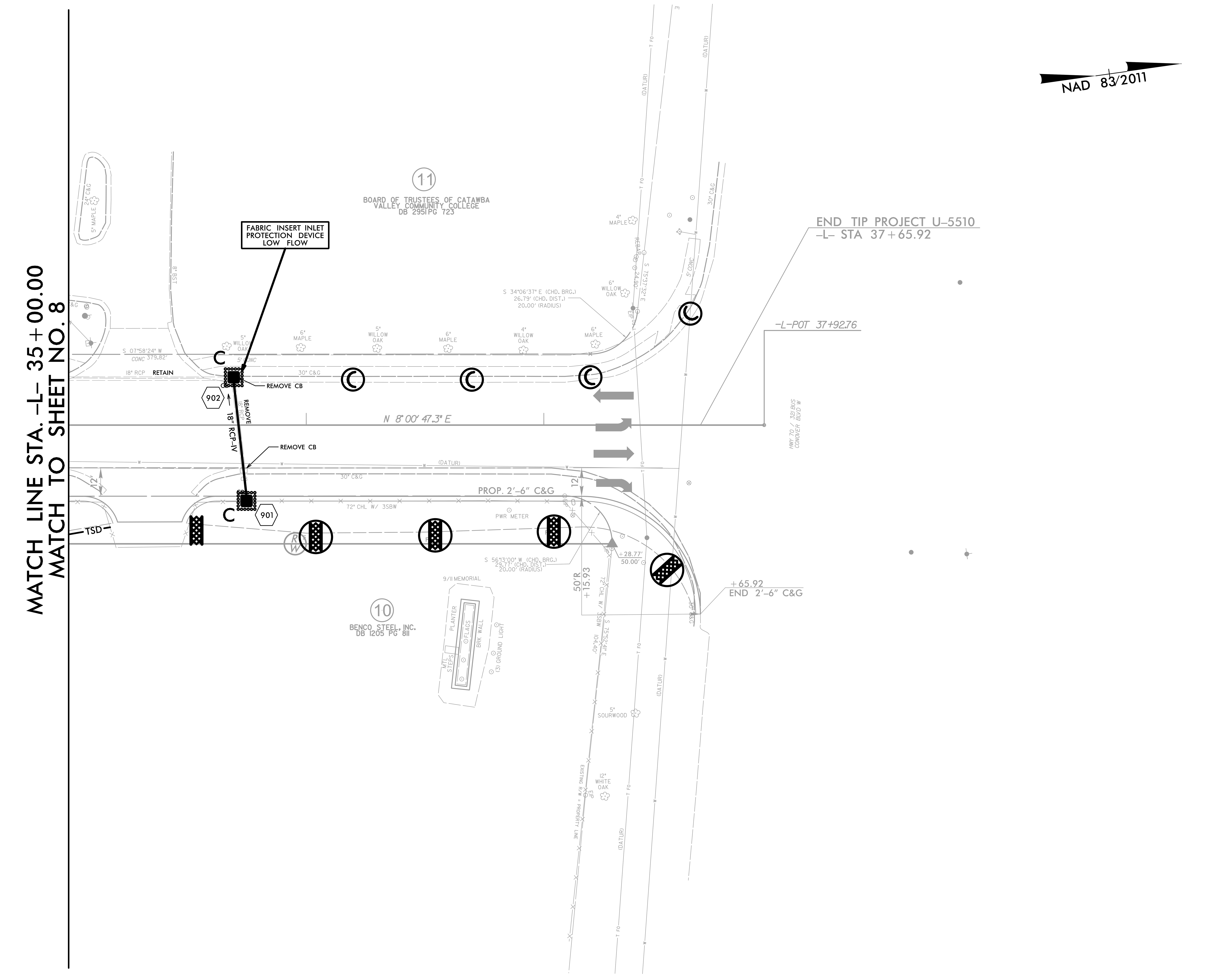
RETAINING WALL
BOND BREAKER
2:1
VARIES
NATURAL GROUND
D= 1 Ft.
B= 1 Ft.

FROM -L- STA. 27+61 TO 32+50 RT

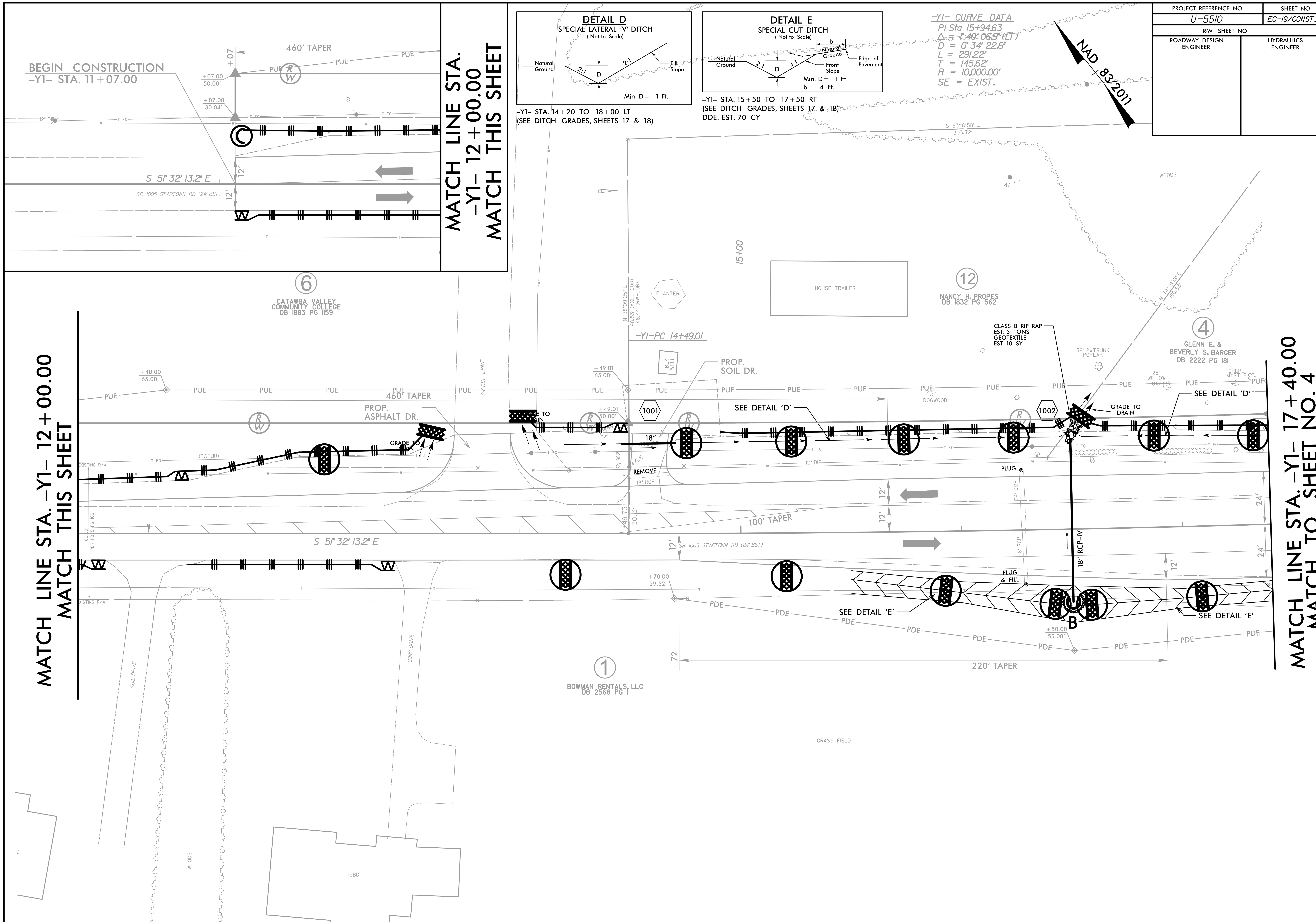


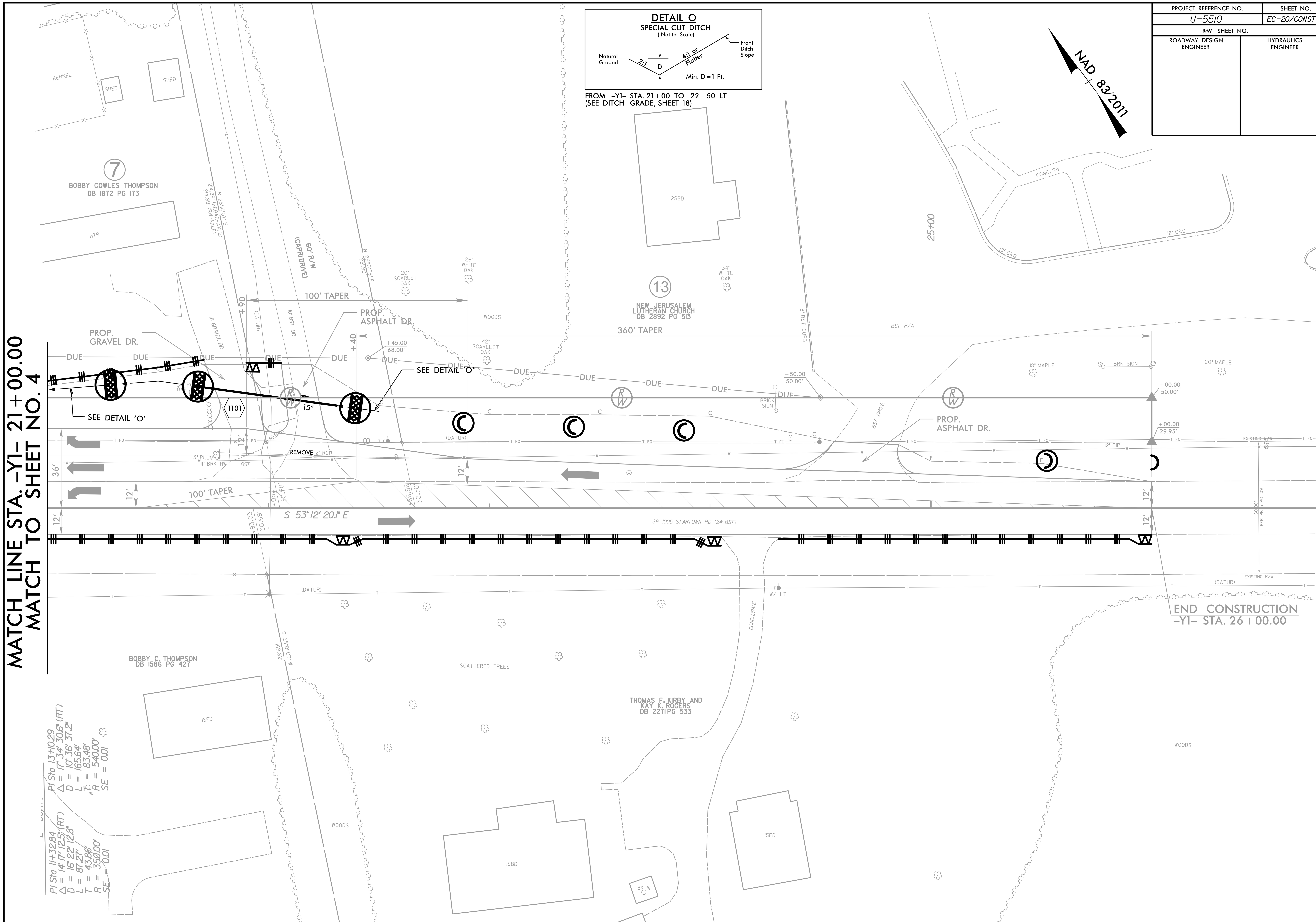
NAD 83/2011
MATCH LINE STA. -L- 29+80.00
MATCH TO SHEET NO. 7
MATCH LINE STA. -L- 35+00.00
MATCH TO SHEET NO. 9
CATAWBA VALLEY COMMUNITY COLLEGE FOUNDATION, INC.
DB 2097 PG 1959
PB 30 PG 94
BOARD OF TRUSTEES OF CATAWBA VALLEY COMMUNITY COLLEGE
DB 2951 PG 723
BENCO STEEL, INC.
DB 1205 PG 811
FABRIC INSERT INLET PROTECTION DEVICE LOW FLOW
160' TAPER LT & RT
+58.36 END 2'-6" C&G
+77.53 END SIDEWALK
GRADE TO DRAIN
REMOVE HW
REMOVE PIPE
PROP. 5'SIDEWALK
PROP. 2'-6" C&G
18" RCP-IV
60' RIGHT OF WAY SHOWN IN PB 30 PG 94
N 8°00'47.3" E
RELOCATE FENCE (BY OWNER)
TOP=958.1 INV.=954.2
TOP=958.1 INV.=954.5
TOP=974.0 INV.=970.3
TOP=974.1 INV.=970.5
REMOVE CB
TOP=967.9 INV.=956.0
TOP=967.5 INV.=955.8
SEE DETAIL 'N'
SEE DETAIL 'Y'
RETAIN DI
CONTRACTOR SHALL FIELD VERIFY EXISTING DRAINAGE LOCATIONS AND PATTERNS
PROP. CONCRETE DITCH
+50 END RETAINING WALL #1 & CONC. DITCH
PROP. ASPHALT DRIVE
75' TAPER
BEGIN RT TURN LANE CONSTRUCTION -L- STA. 34+50.00
Place Matting for Erosion Control on Slope as Work Allows. -L- Sta. 33+00 to 34+00 RT

PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-18/CONST.09
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
U-5510	EC-19/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER




PROJECT REFERENCE NO.
U-5510
SHEET NO.
EC-20/CONST.J1
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DETAIL O
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
D
4:1 or Flatter
Front Ditch Slope
Min. D=1 Ft.
FROM -Y1- STA. 21+00 TO 22+50 LT
(SEE DITCH GRADE, SHEET 18)
NAD 83/2011
MATCH LINE STA. -Y1- 21+00.00
MATCH TO SHEET NO. 4
BOBBY COWLES THOMPSON
DB 1872 PG 173
KENNEL
SHED
SHED
HTR
60' R/W
(CAPRI DRIVE)
100' TAPER
360' TAPER
PROP. ASPHALT DR.
PROP. GRAVEL DR.
SEE DETAIL 'O'
SEE DETAIL 'O'
1101
15"
REMOVE
NEW JERUSALEM LUTHERAN CHURCH
DB 2892 PG 513
2SBD
25+00
CONC. SW
18" C&G
WOODS
PROP. ASPHALT DR.
BRK SIGN
+00.00
50.00'
+00.00
29.95'
+50.00
50.00'
+45.00
68.00'
36'
12'
12'
12'
100' TAPER
S 53°12'20.1" E
SR 1005 STARTOWN RD (24' BST)
END CONSTRUCTION
-Y1- STA. 26+00.00
BOBBY C. THOMPSON
DB 1586 PG 427
SCATTERED TREES
THOMAS F. KIRBY AND
KAY K. ROGERS
DB 2271 PG 533
1SFD
1SBD
1SFD
WOODS
WOODS
CONC. DRIVE
PI Sta 11+32.84
Δ = 14°17'12.5" (RT)
D = 16°22'12.8"
L = 87.27'
T = 43.86'
R = 350.00'
SE = 0.01
PI Sta 13+10.29
Δ = 17°34'30.6" (RT)
D = 10°36'37.2"
L = 165.64'
T = 83.48'
R = 540.00'
SE = 0.01