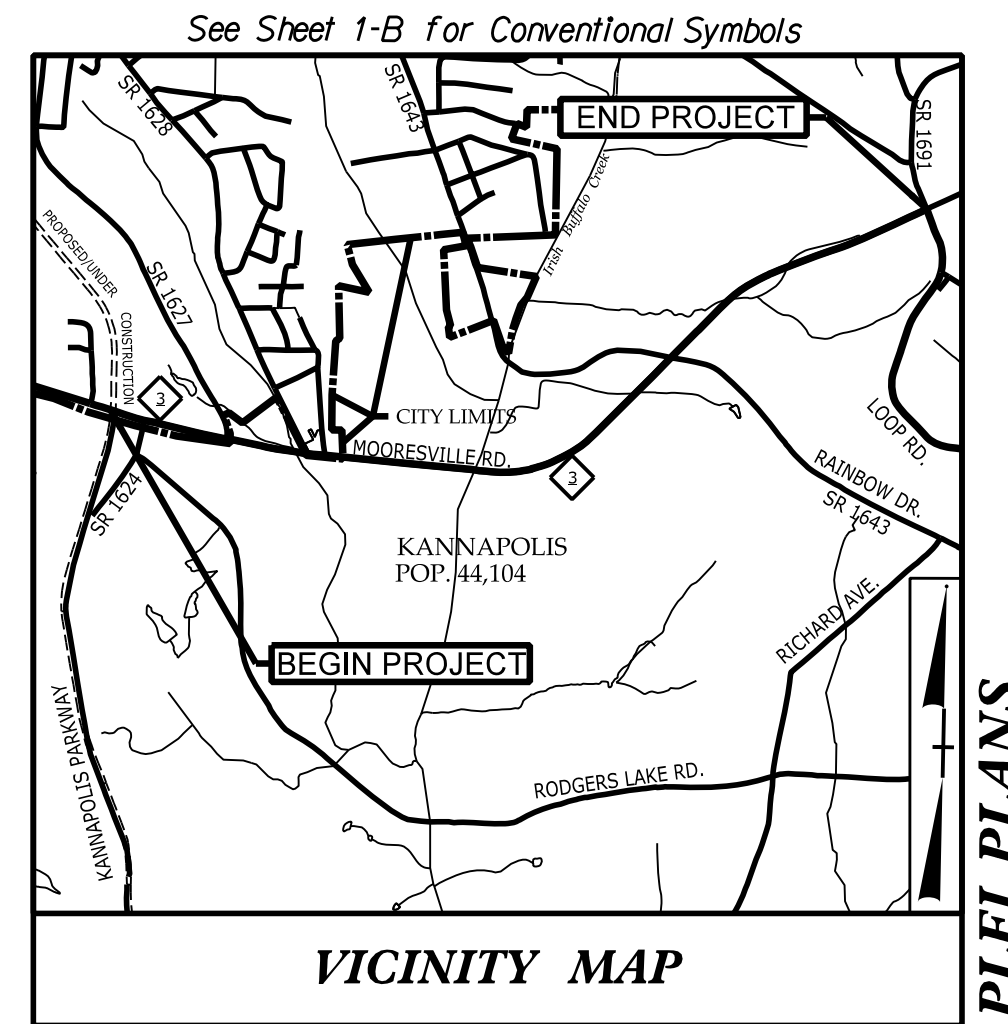


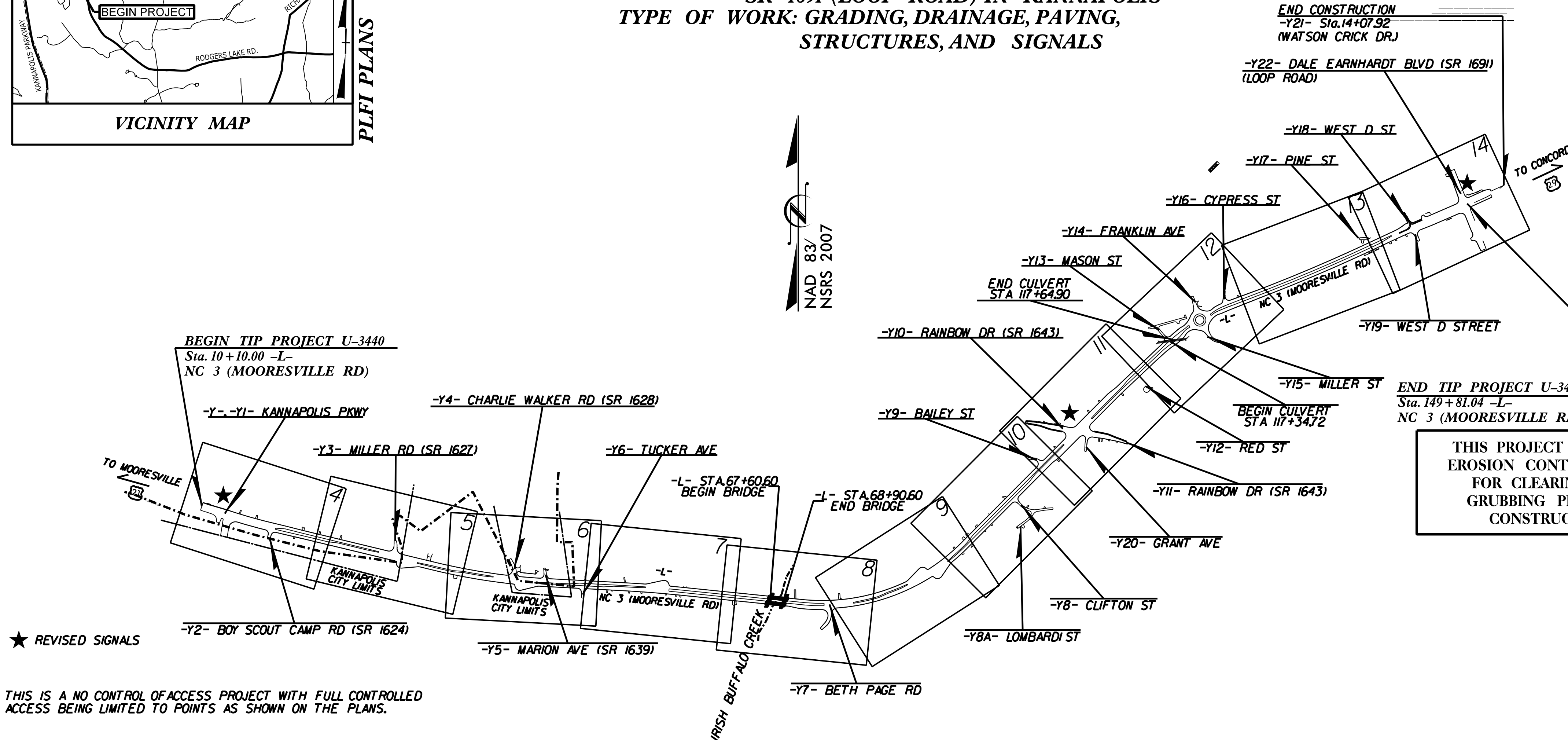
TIP PROJECT: U-3440

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3440	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



LOCATION: NC 3, PROPOSED WEST SIDE BYPASS (U-2009) TO SR 1691 (LOOP ROAD) IN KANNAPOLIS
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, AND SIGNALS



EROSION AND SEDIMENT CONTROL MEASURES

Sid. #	Description	Symbol
1650.05	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	T
1630.02	Silt Basin Type B	SB
1633.01	Temporary Rock Silt Check Type-A	RS
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	RS-PAM
1633.02	Temporary Rock Silt Check Type-B	RS
	Wattle/Coir Fiber Wattle	W
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	W-PAM
1634.01	Temporary Rock Sediment Dam Type-A	SDA
1634.02	Temporary Rock Sediment Dam Type-B	SDB
1635.01	Rock Pipe Inlet Sediment Trap Type-A	RPIA
1635.02	Rock Pipe Inlet Sediment Trap Type-B	RPIB
1630.04	Stilling Basin	SB
1630.06	Special Stilling Basin	SSB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SKB
	Tiered Skimmer Basin	TSKB
	Infiltration Basin	IB

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

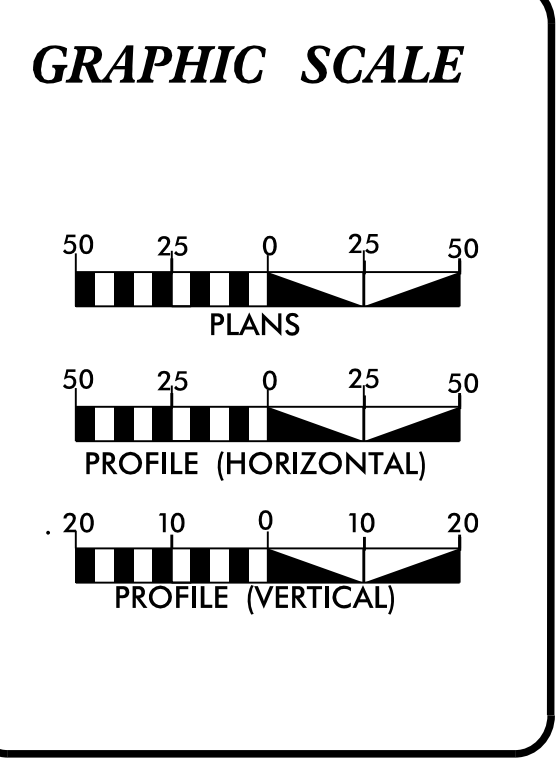
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR FINAL GRADE PHASE OF CONSTRUCTION.

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.

THIS IS A NO CONTROL OF ACCESS PROJECT WITH FULL CONTROLLED ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

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



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

Prepared In the Office of:

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Designed by:
STEVEN BONDOR, PE 3077
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:
NATALIE CHAN, PE

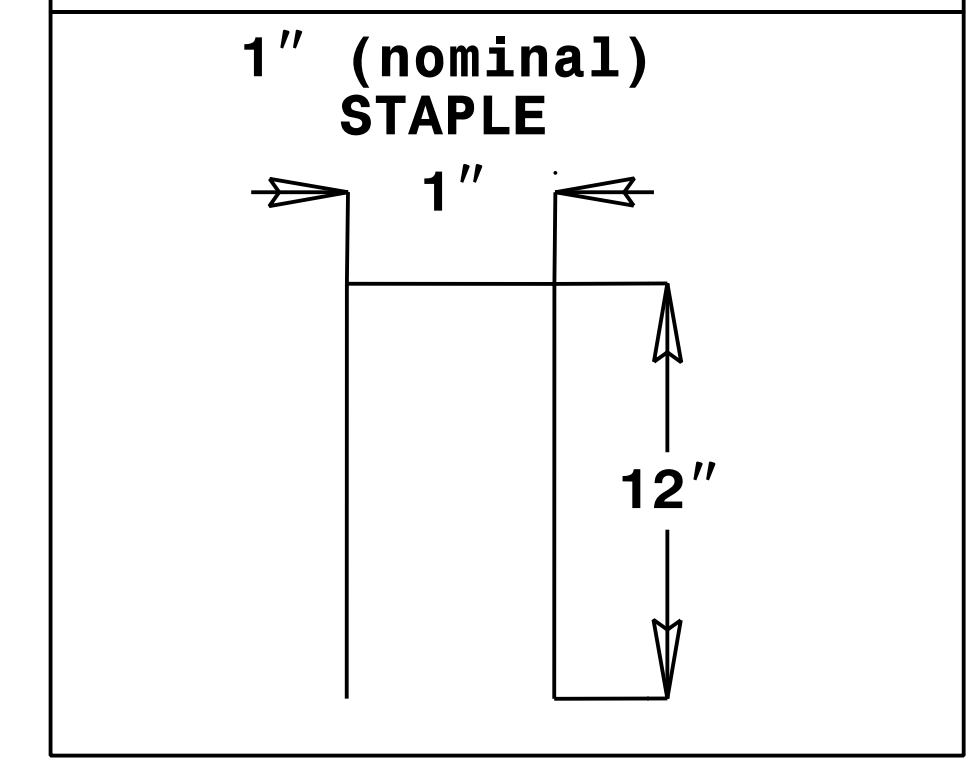
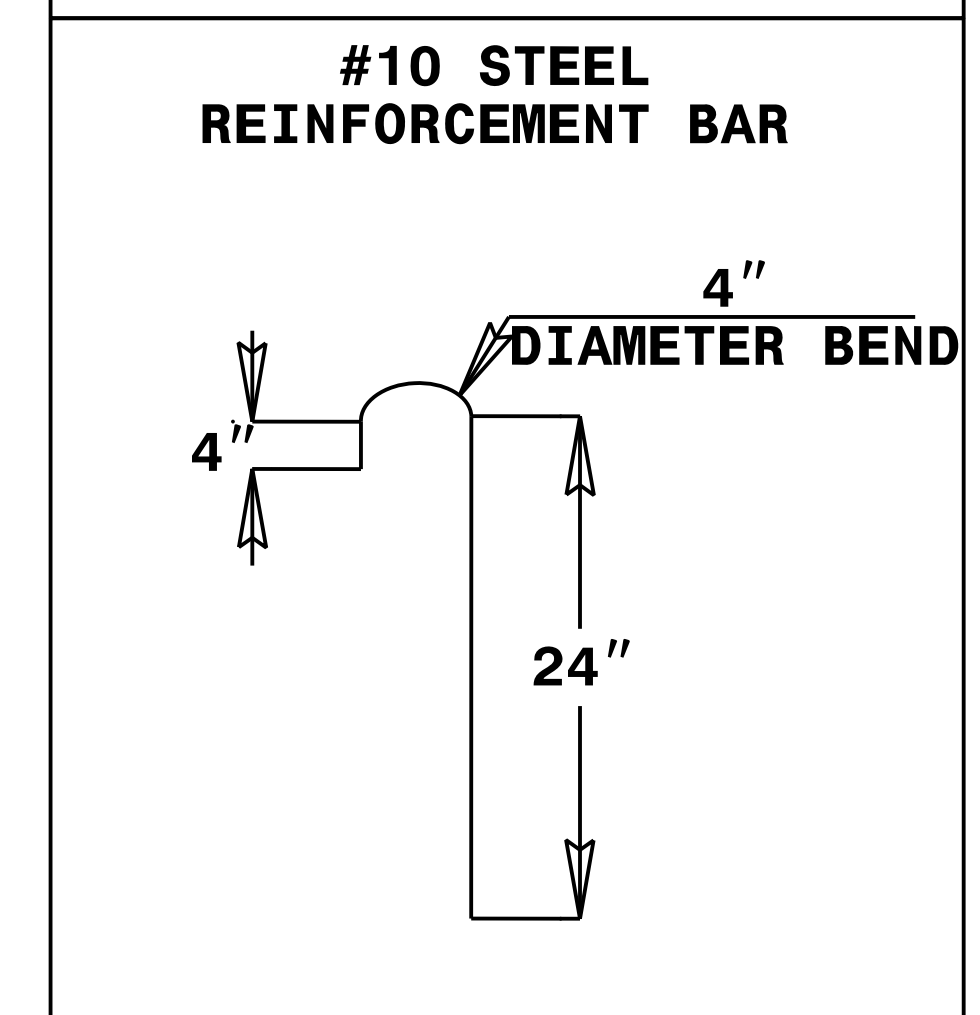
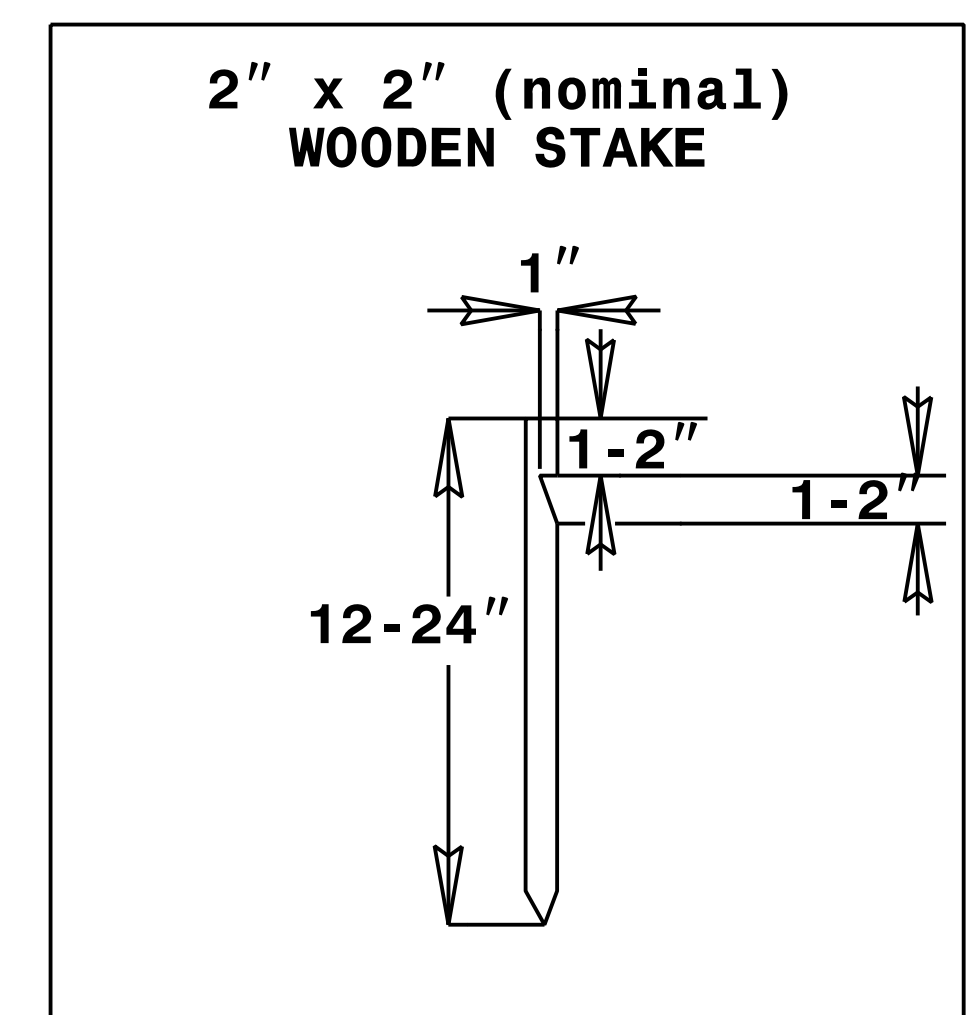
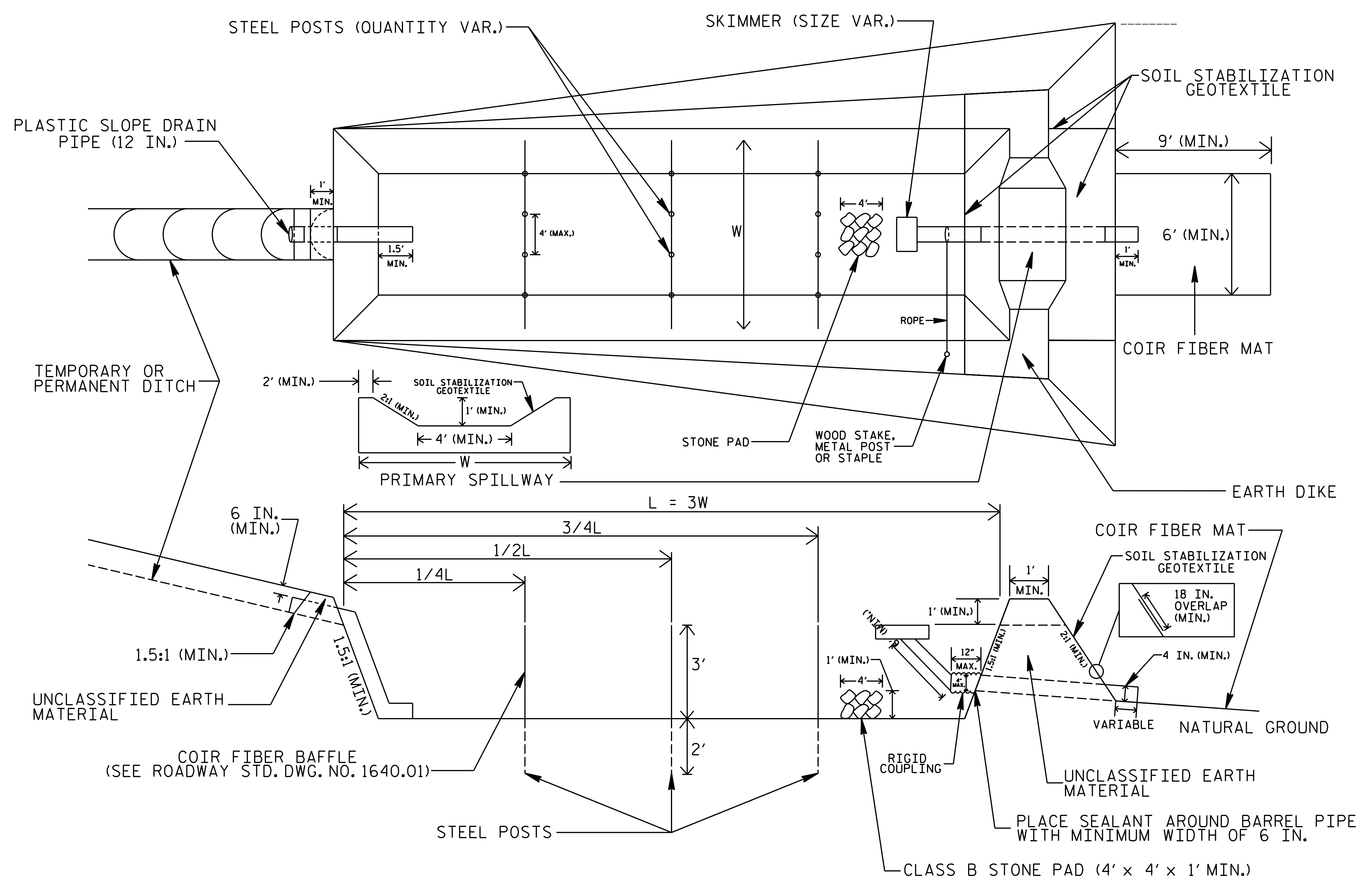
Roadway Standard Drawings

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.

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. U-3440	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL



COIR FIBER MAT ANCHOR OPTIONS

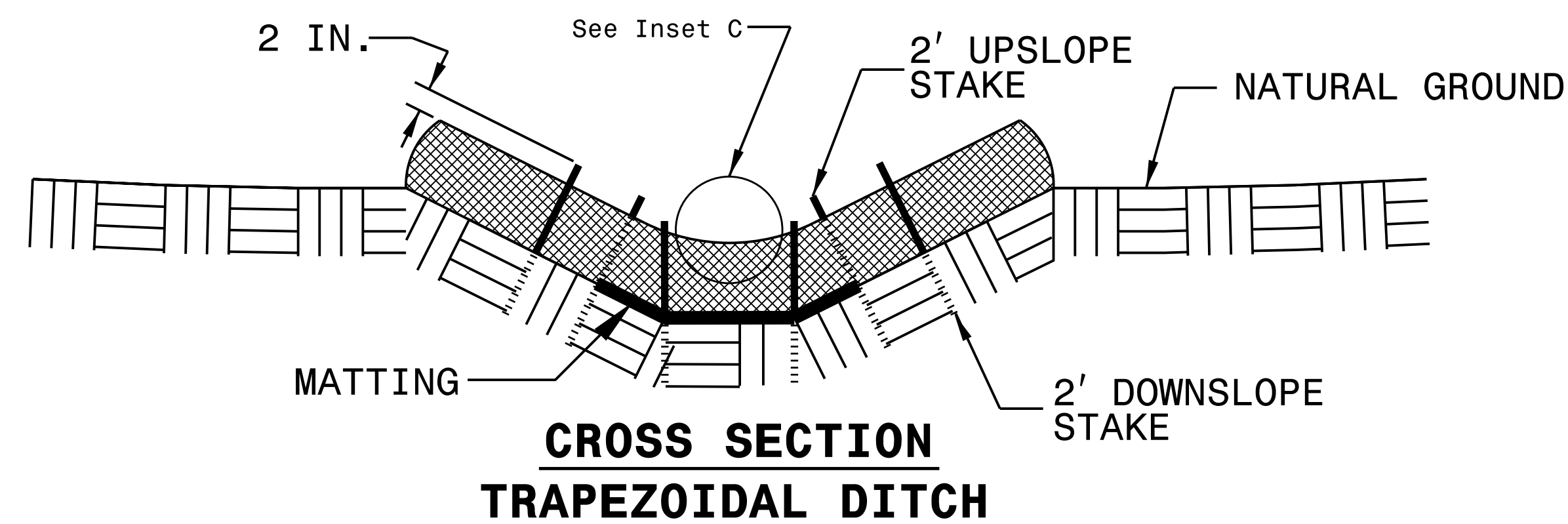
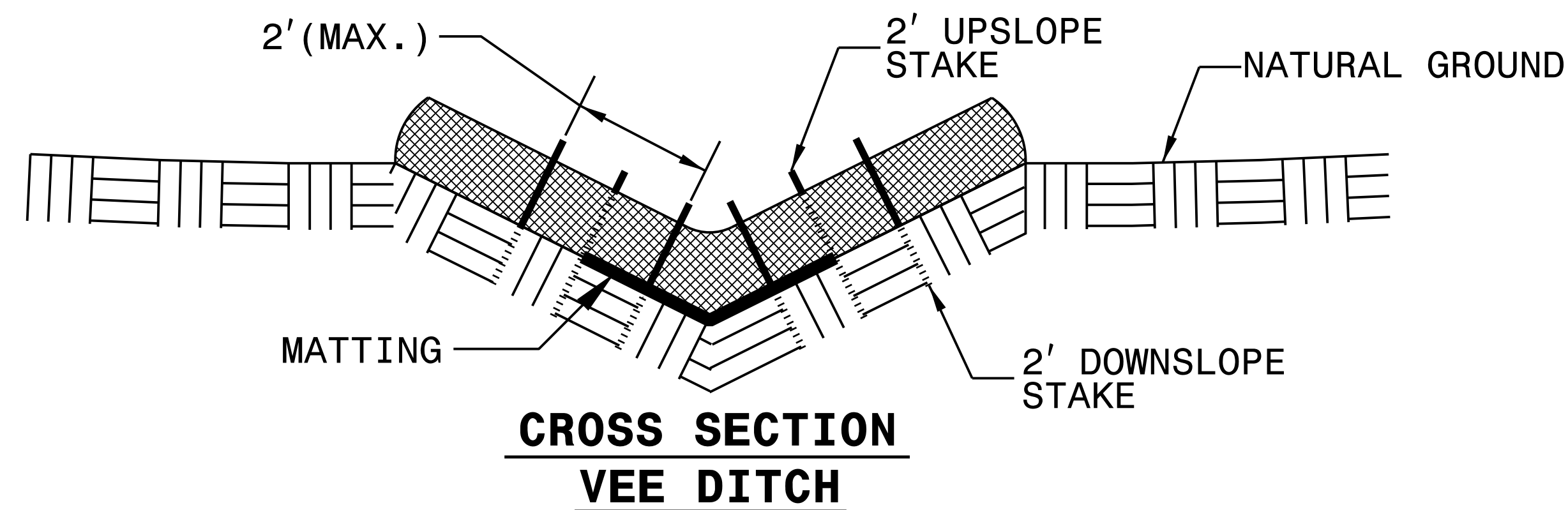
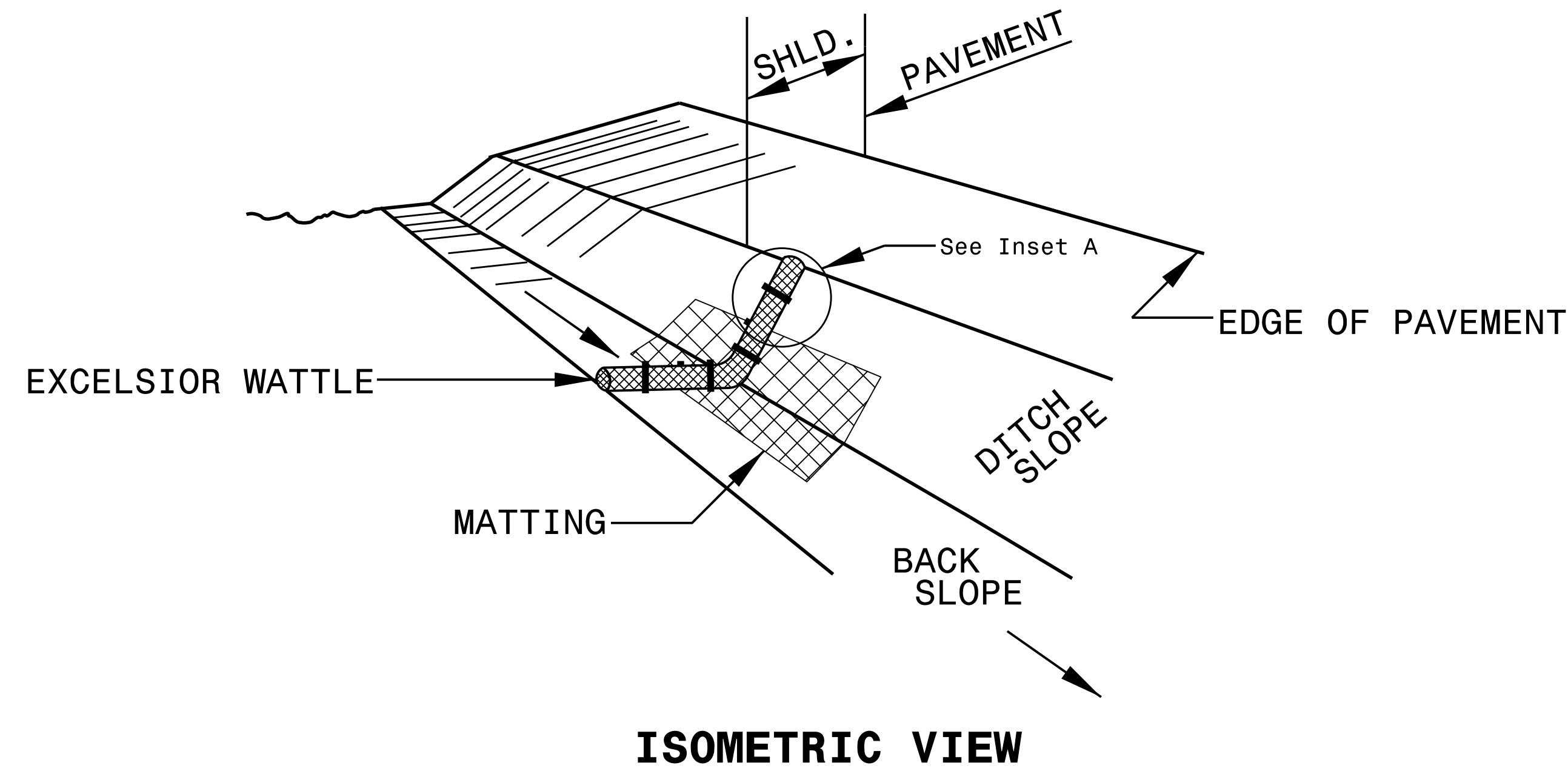
NOTES

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 $Q/0.8$, 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. U-3440	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

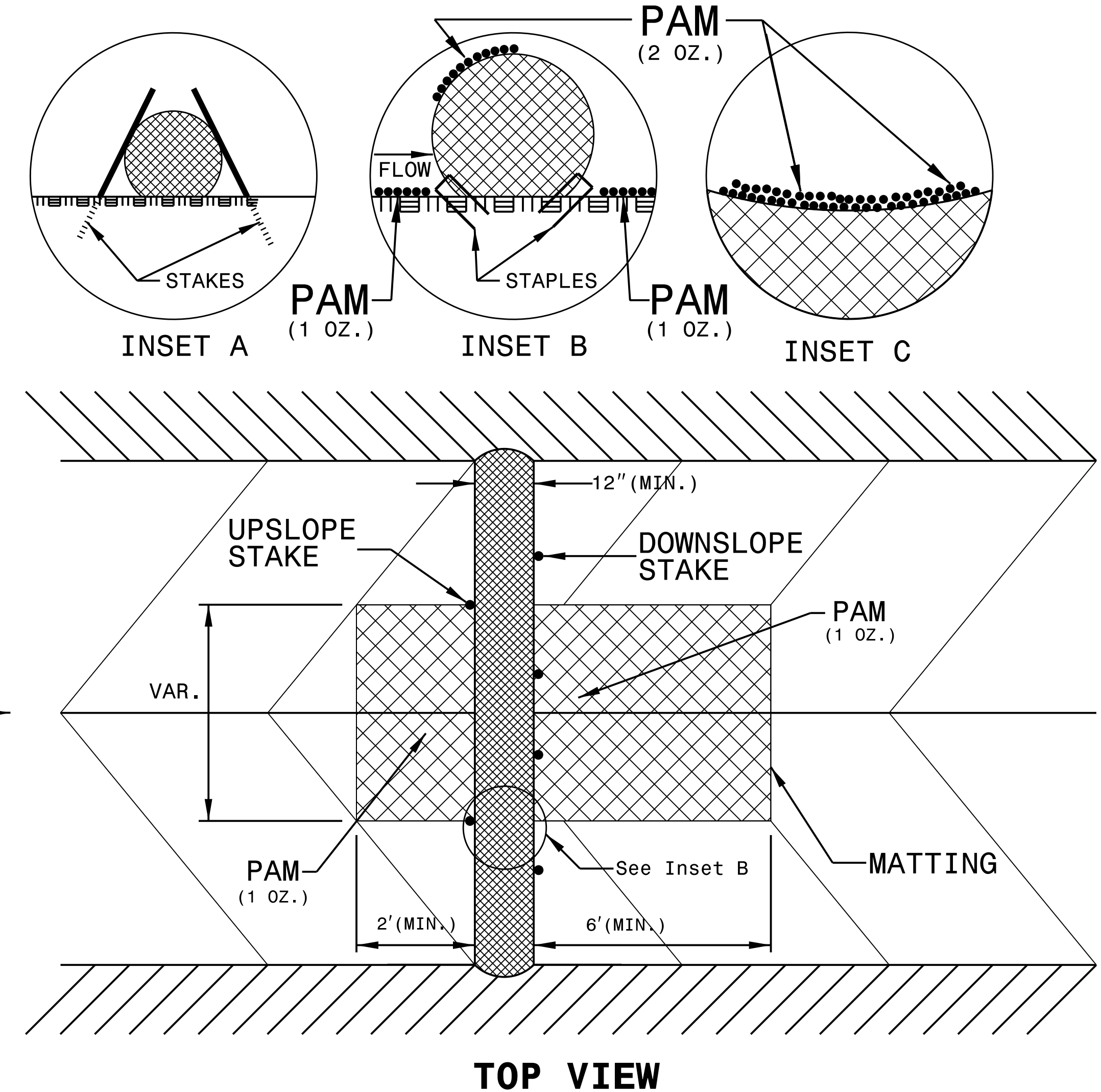
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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.

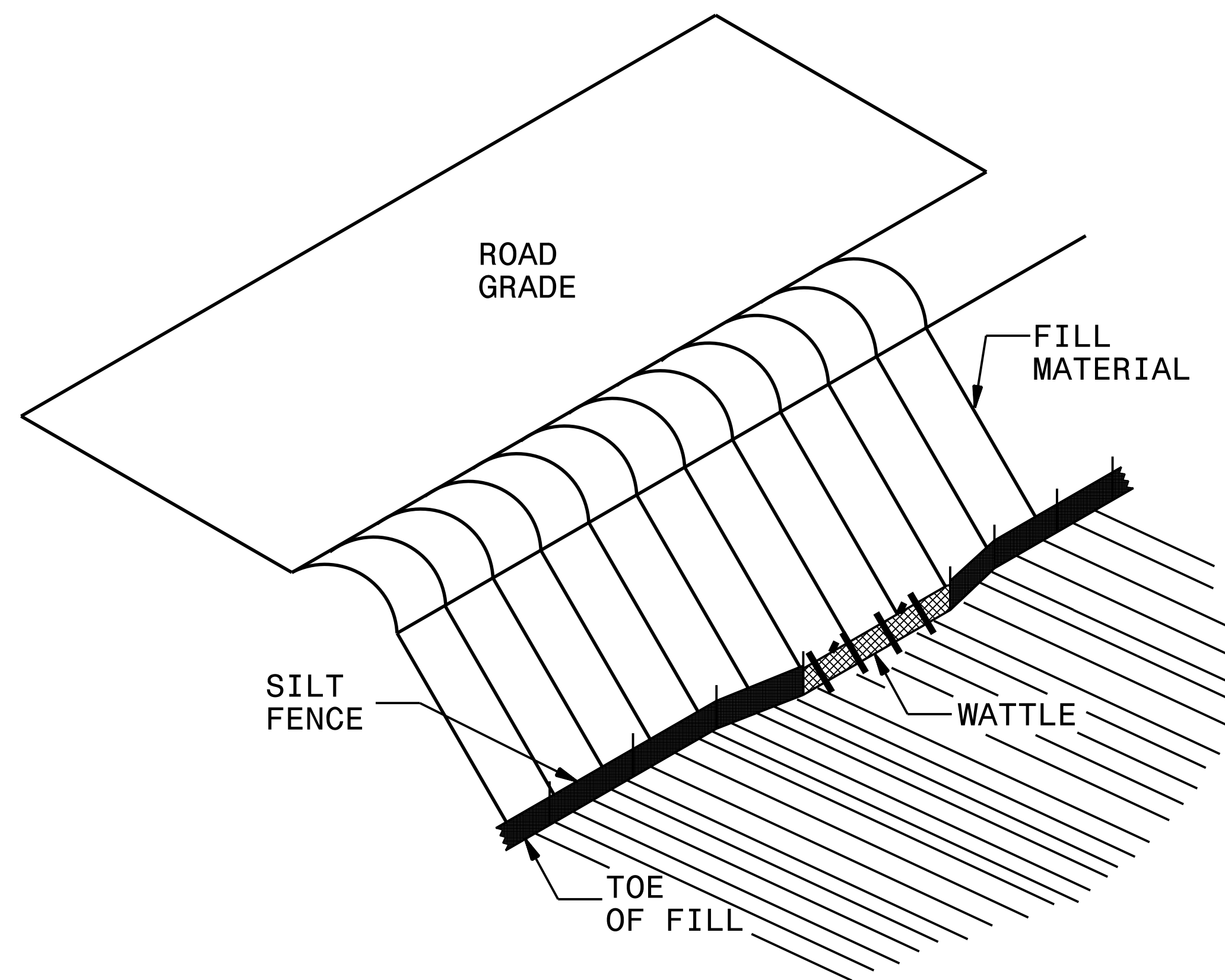
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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

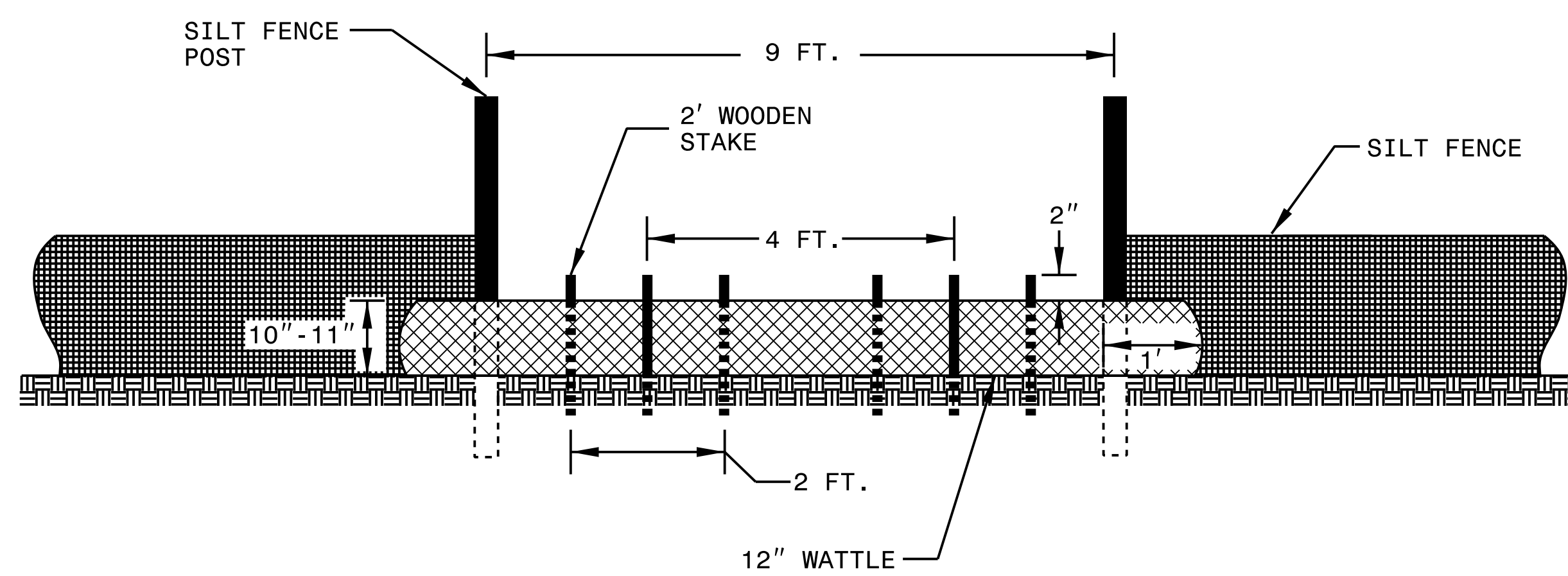


SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. <i>U-3440</i>	SHEET NO. <i>EC-2B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

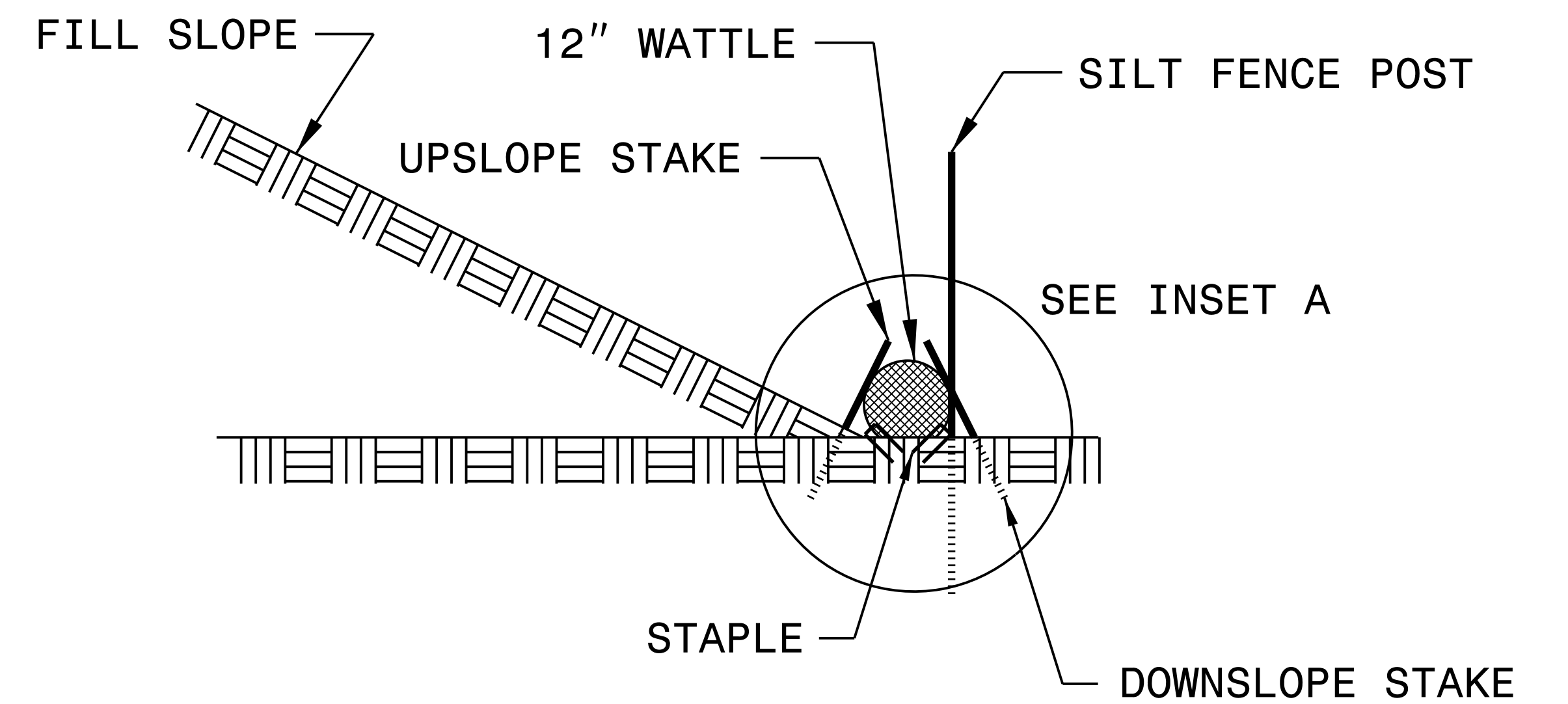
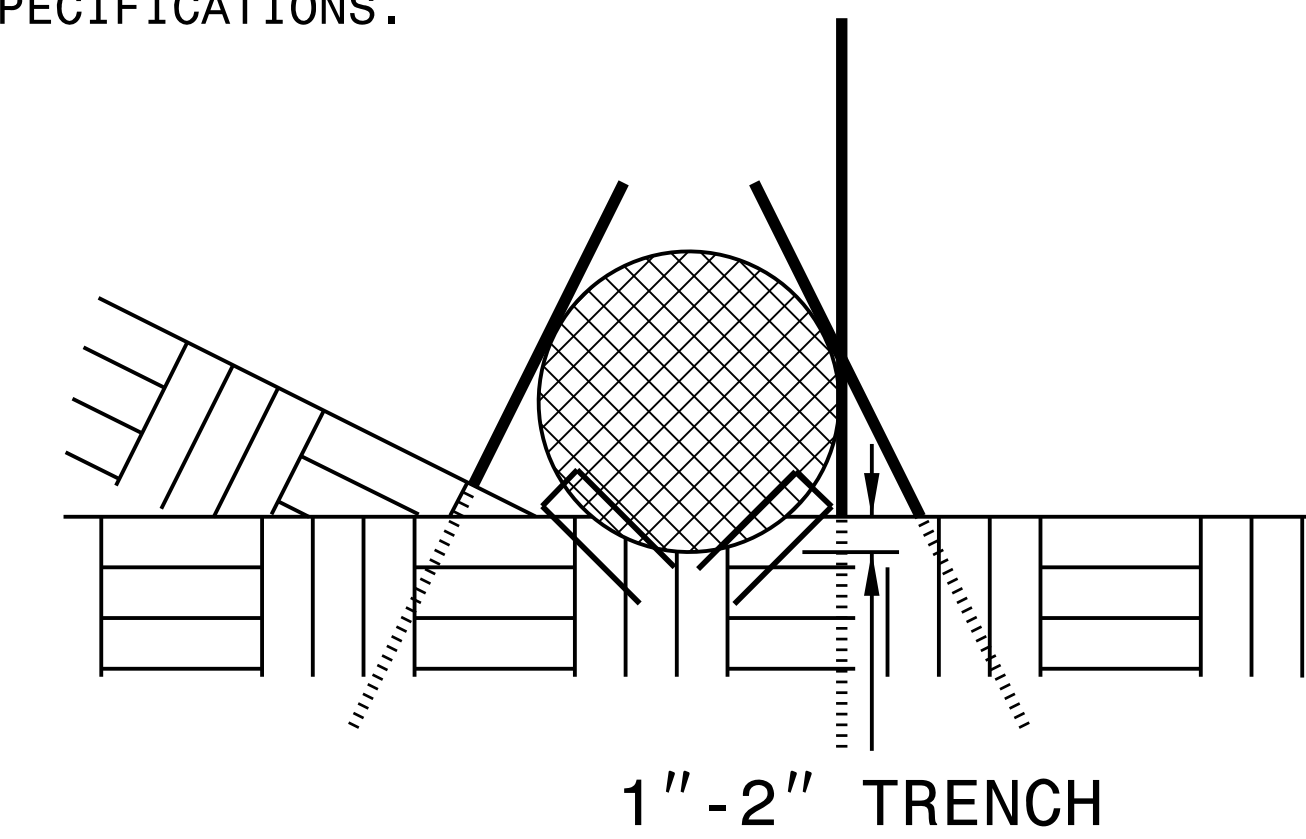


VIEW FROM SLOPE

NOTES:

- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

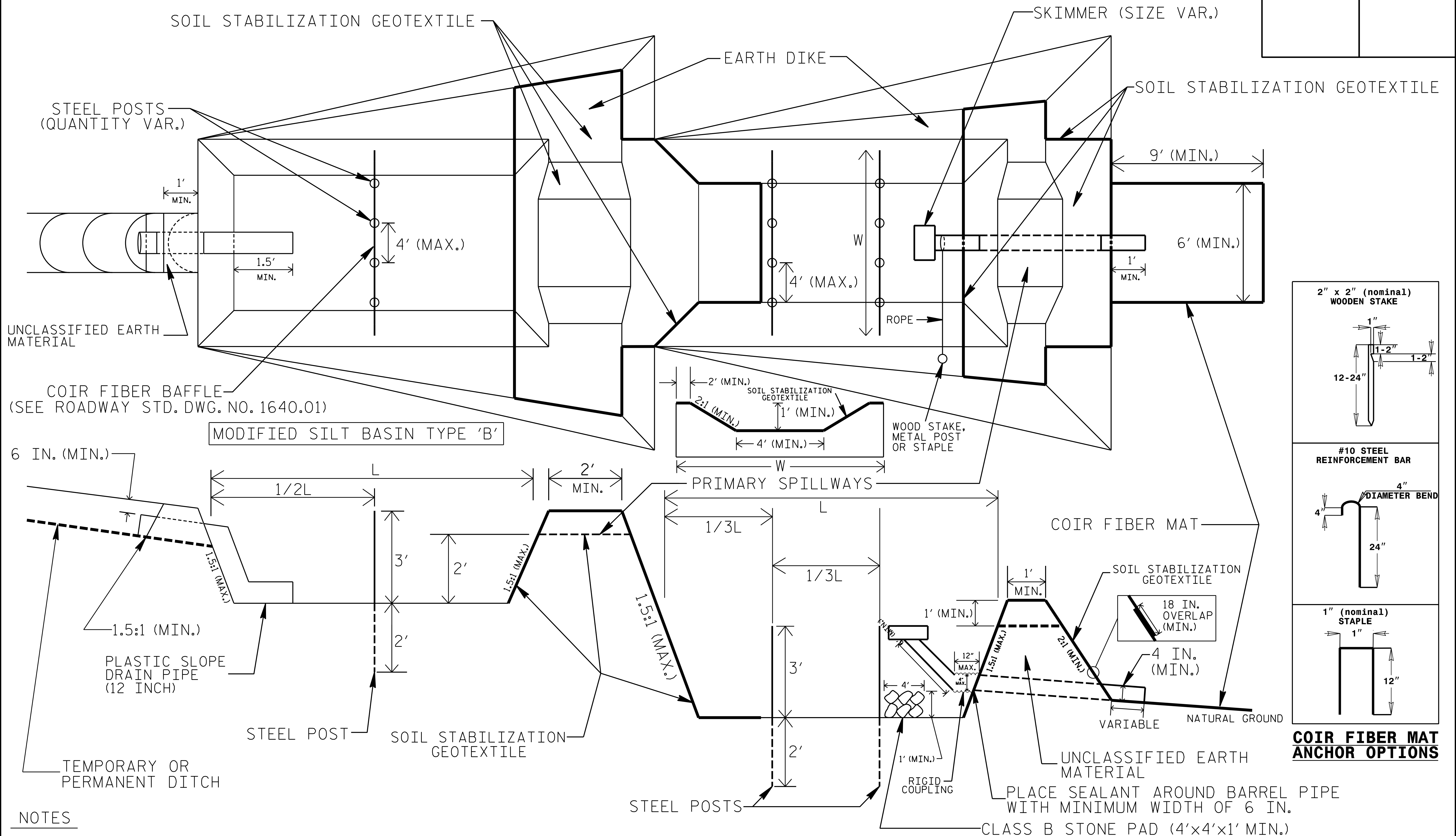
INSET A



SIDE VIEW

TIERED SKIMMER BASIN DETAIL

PROJECT REFERENCE NO. U-3440	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



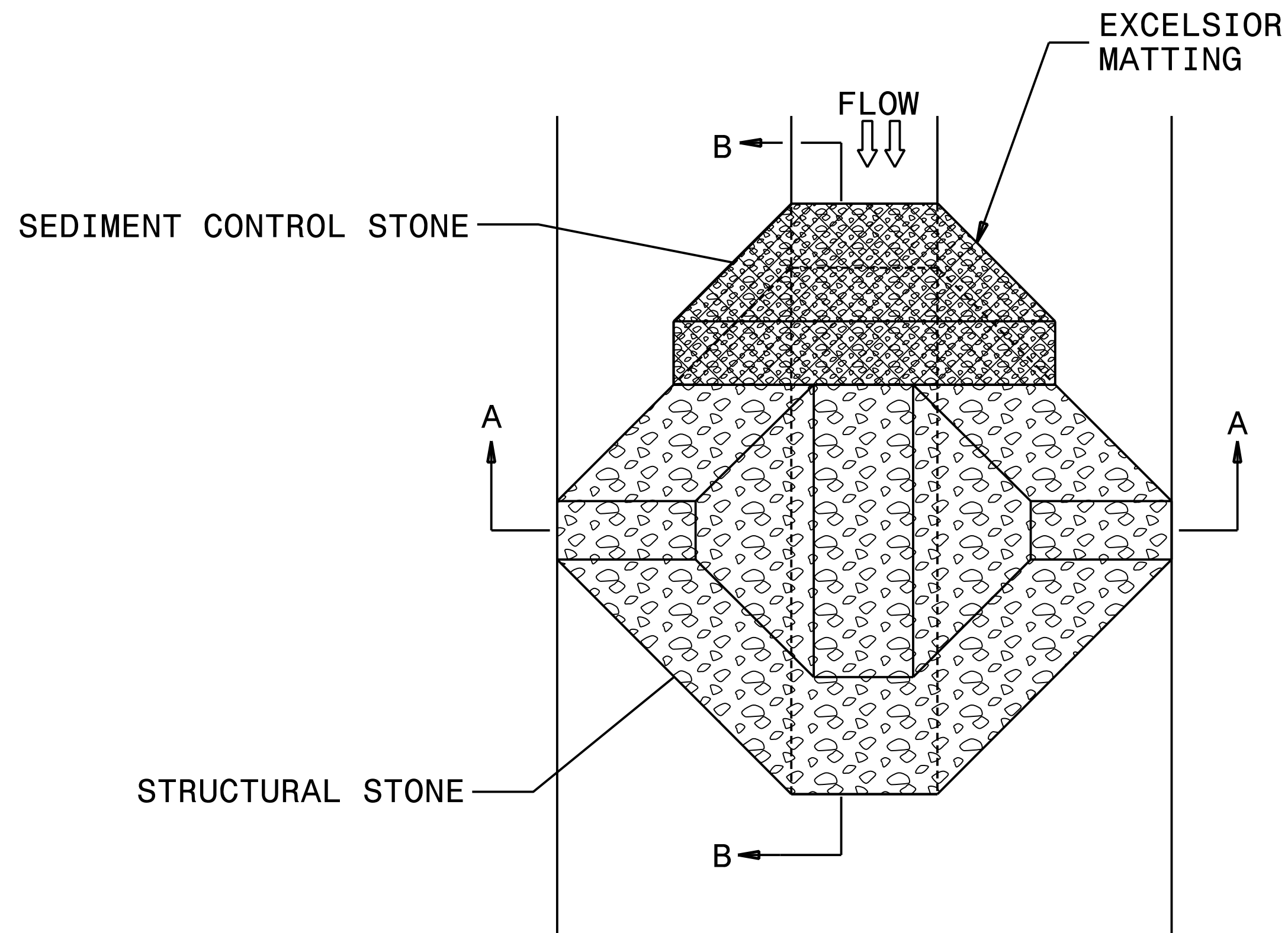
NOTES

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-3440	EC-2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

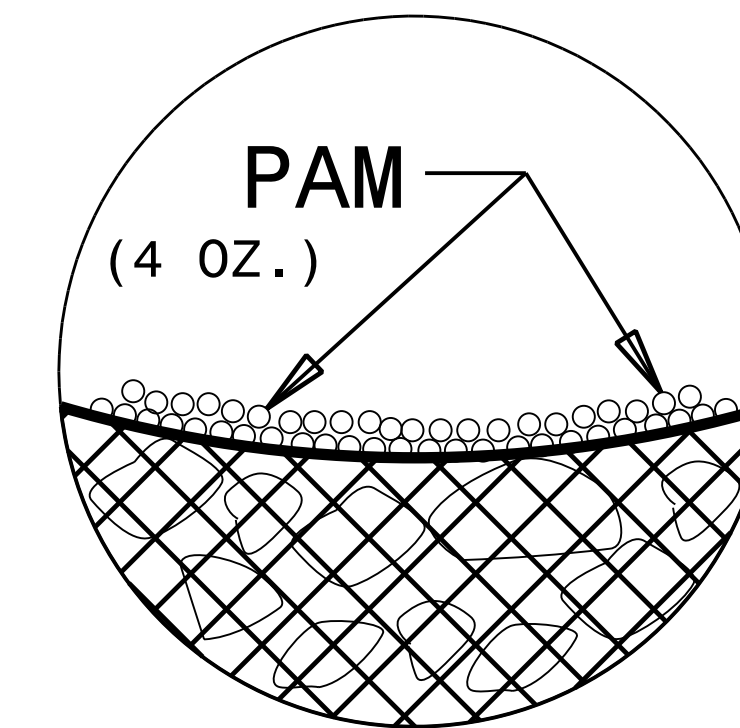
NOTES:

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

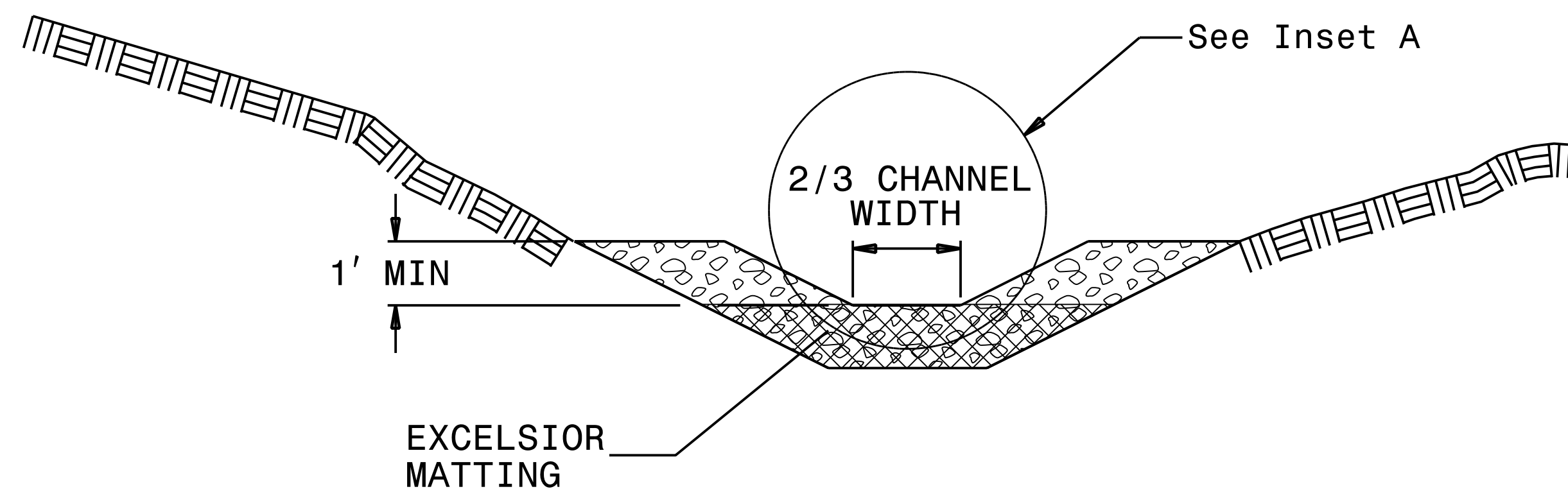
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

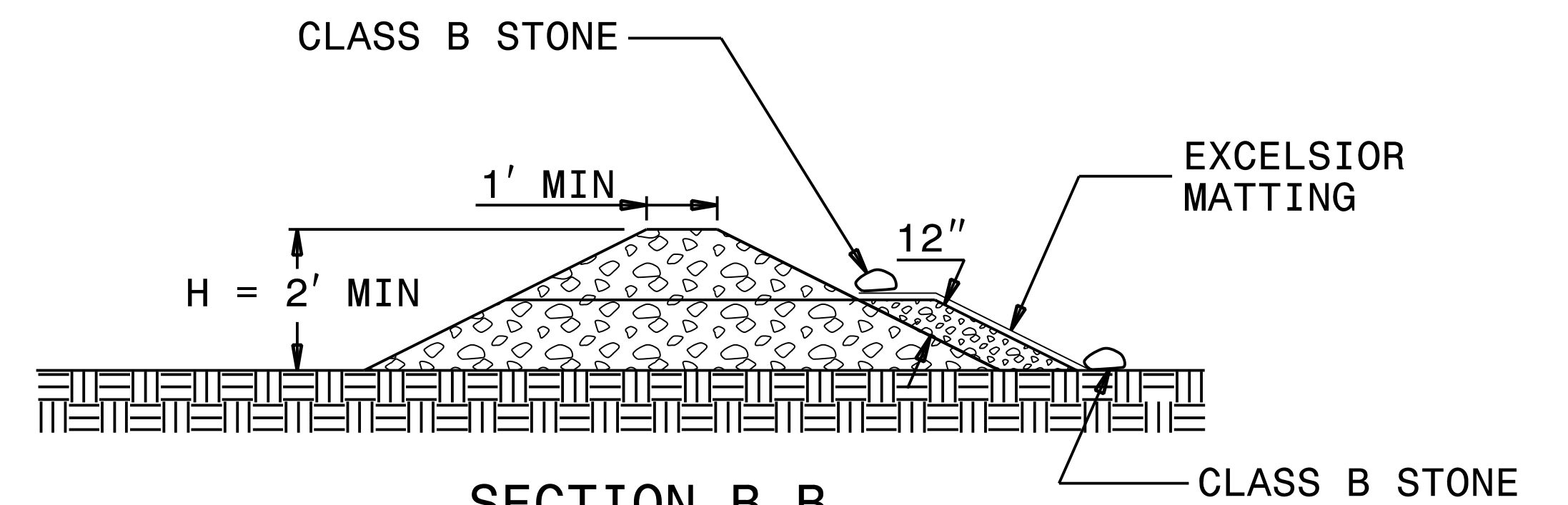
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>U-3440</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

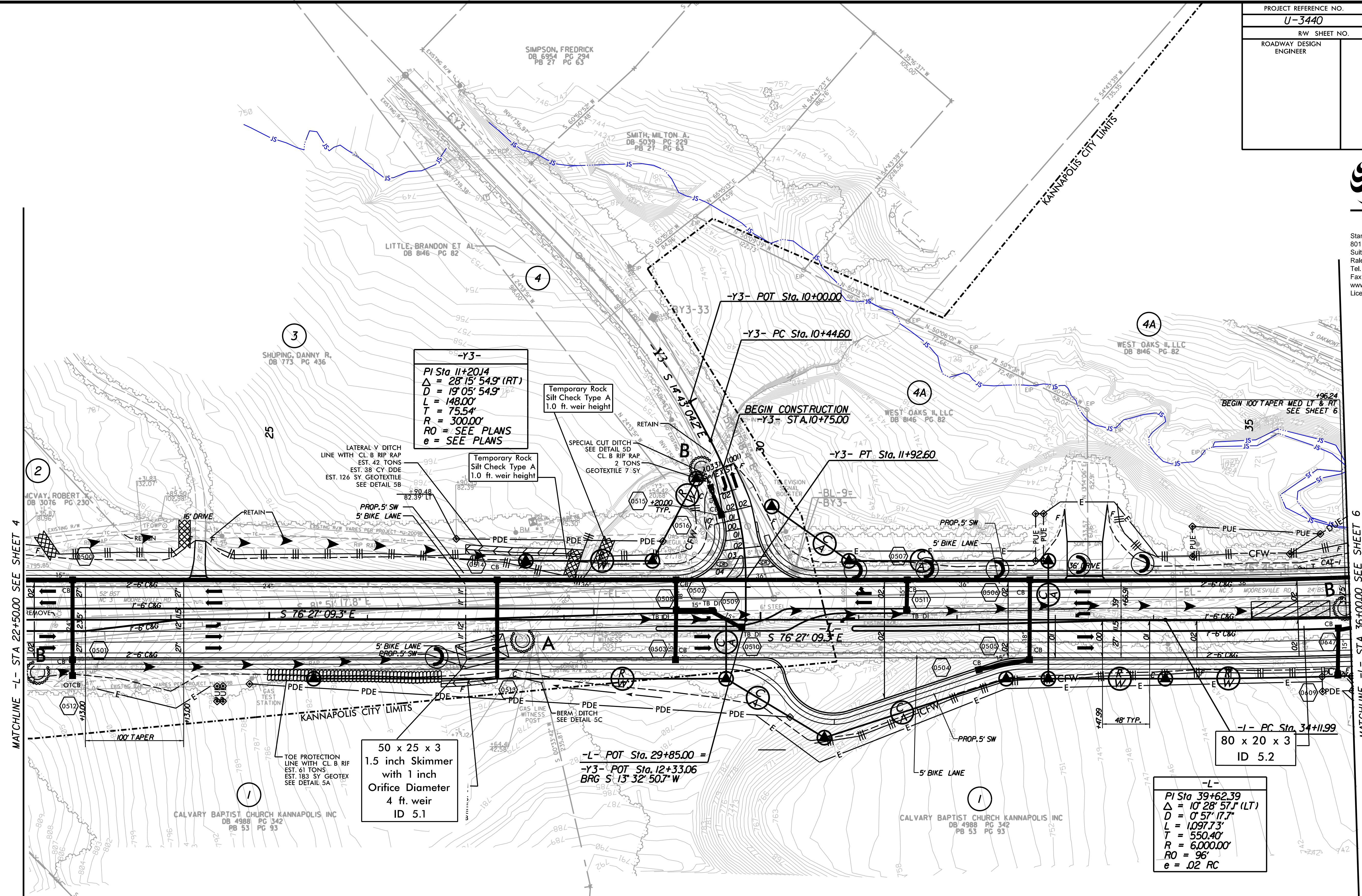
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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-Y3-
PI Sta 11+20.14
 $\Delta = 28' 15" 54.9" (RT)$
 $D = 19' 05" 54.9"$
 $L = 148.00'$
 $T = 75.54'$
 $R = 300.00'$
 $RO = \text{SEE PLANS}$
 $e = \text{SEE PLANS}$

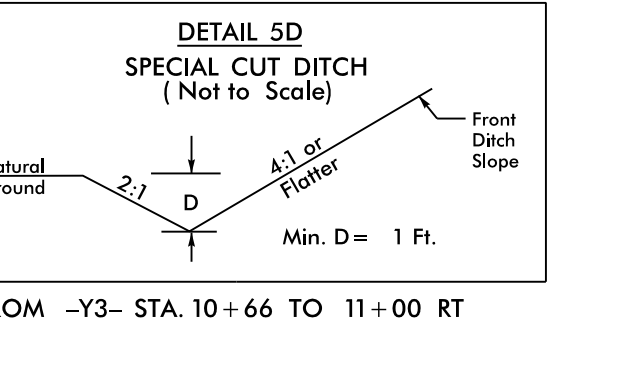
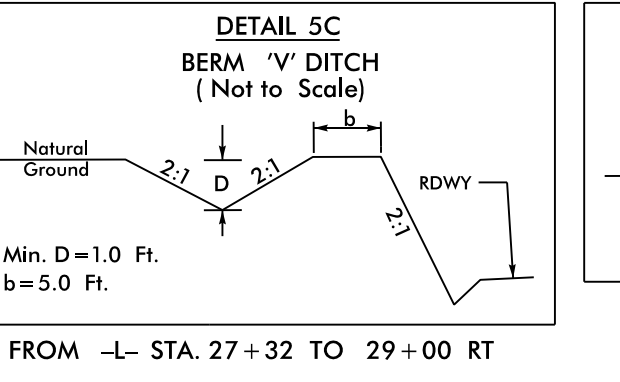
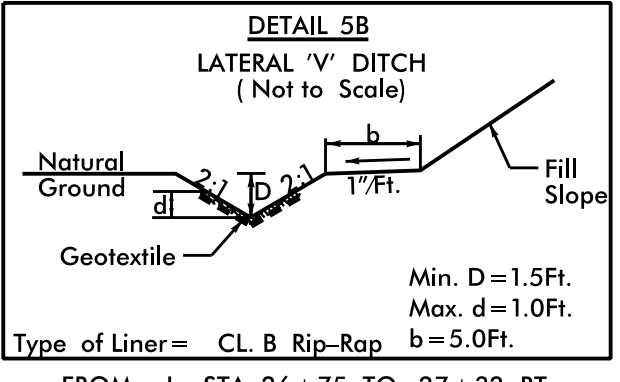
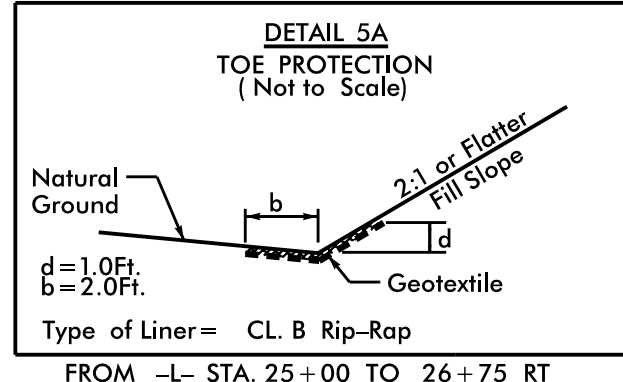
50 x 25 x 3
1.5 inch Skimmer
with 1 inch
Orifice Diameter
4 ft. weir
ID 5.1

-L-
PI Sta 39+62.39
 $\Delta = 10' 28" 57.7" (LT)$
 $D = 0' 57" 17.7"$
 $L = 1,097.73'$
 $T = 550.40'$
 $R = 6,000.00'$
 $RO = 96'$
 $e = .02 RC$

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

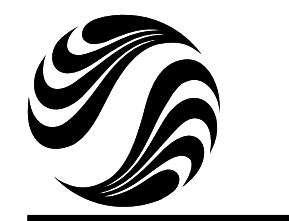
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.



MATCHLINE -L- STA 22+50.00 SEE SHEET 4

MATCHLINE -L- STA 36+00.00 SEE SHEET 6

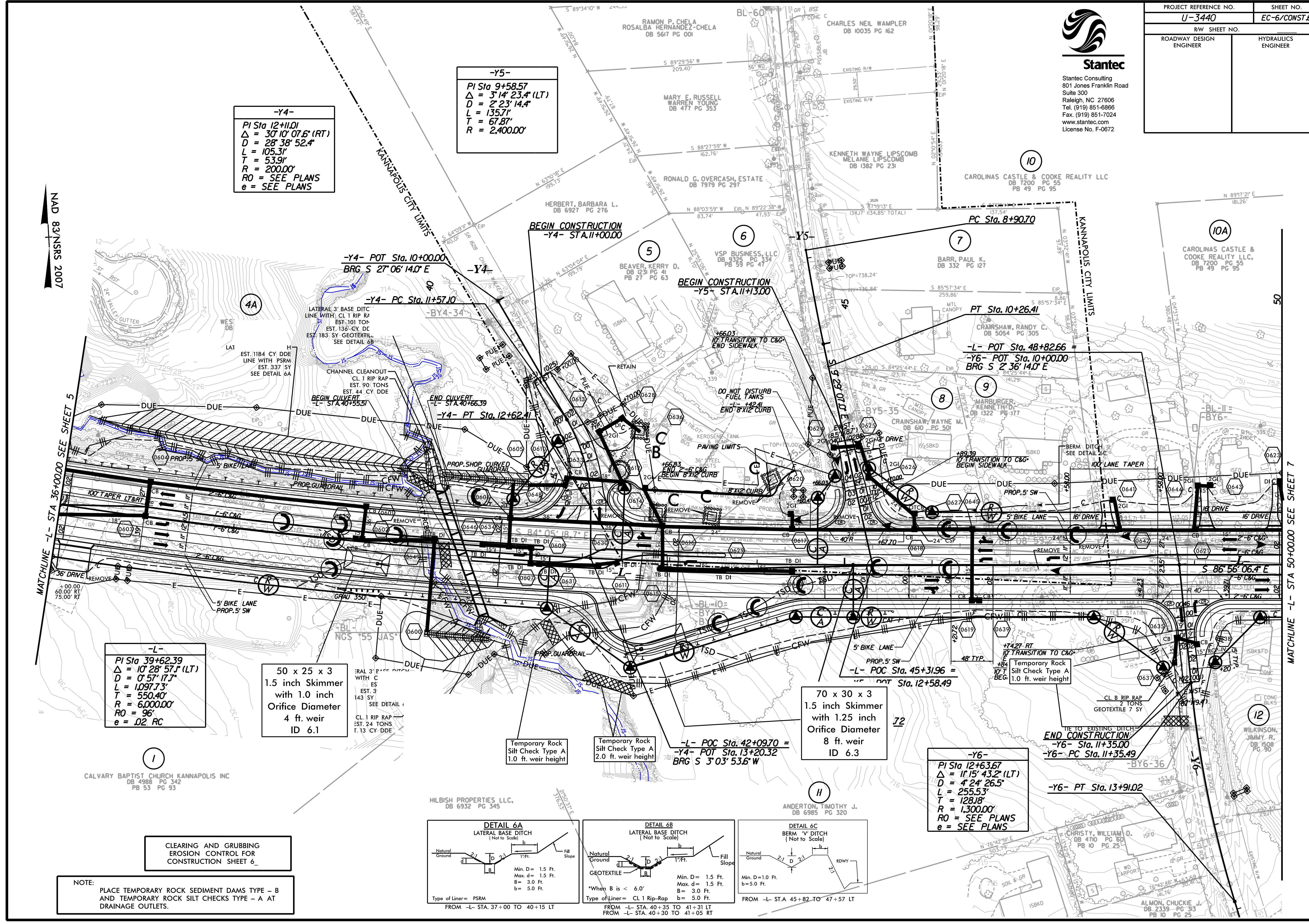


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PROJECT REFERENCE NO. U-3440	SHEET NO. EC-6/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007



-Y4-
 PI Sta 12+11.01
 $\Delta = 30' 10" 07.6' (RT)$
 $D = 28' 38" 52.4'$
 $L = 105.31'$
 $T = 53.91'$
 $R = 200.00'$
 RO = SEE PLANS
 e = SEE PLANS

-Y5-
 PI Sta 9+58.57
 $\Delta = 3' 14' 23.4' (LT)$
 $D = 2' 23' 14.4'$
 $L = 135.71'$
 $T = 67.87'$
 $R = 2,400.00'$

-L-
 PI Sta 39+62.39
 $\Delta = 10' 28' 57.1' (LT)$
 $D = 0' 57' 17.7'$
 $L = 1,097.73'$
 $T = 550.40'$
 $R = 6,000.00'$
 $RO = 96'$
 $e = .02 RC$

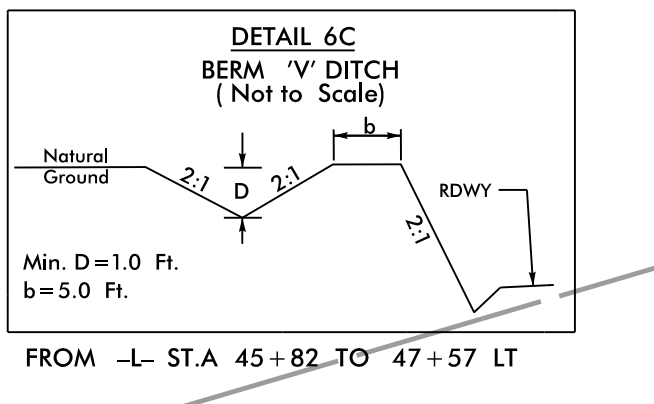
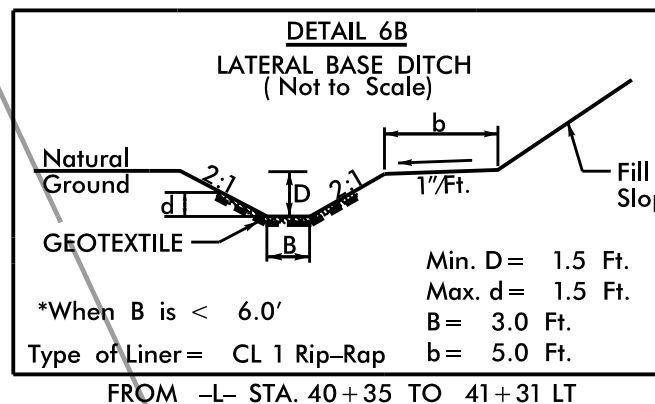
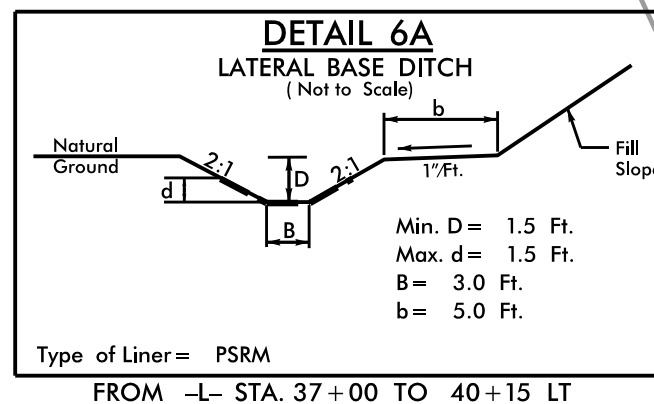
50 x 25 x 3
 1.5 inch Skimmer
 with 1.0 inch
 Orifice Diameter
 4 ft. weir
 ID 6.1

70 x 30 x 3
 1.5 inch Skimmer
 with 1.25 inch
 Orifice Diameter
 8 ft. weir
 ID 6.3

-Y6-
 PI Sta 12+63.67
 $\Delta = 11' 15' 43.2' (LT)$
 $D = 4' 24' 26.5'$
 $L = 255.53'$
 $T = 128.18'$
 $R = 1,300.00'$
 RO = SEE PLANS
 e = SEE PLANS

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.

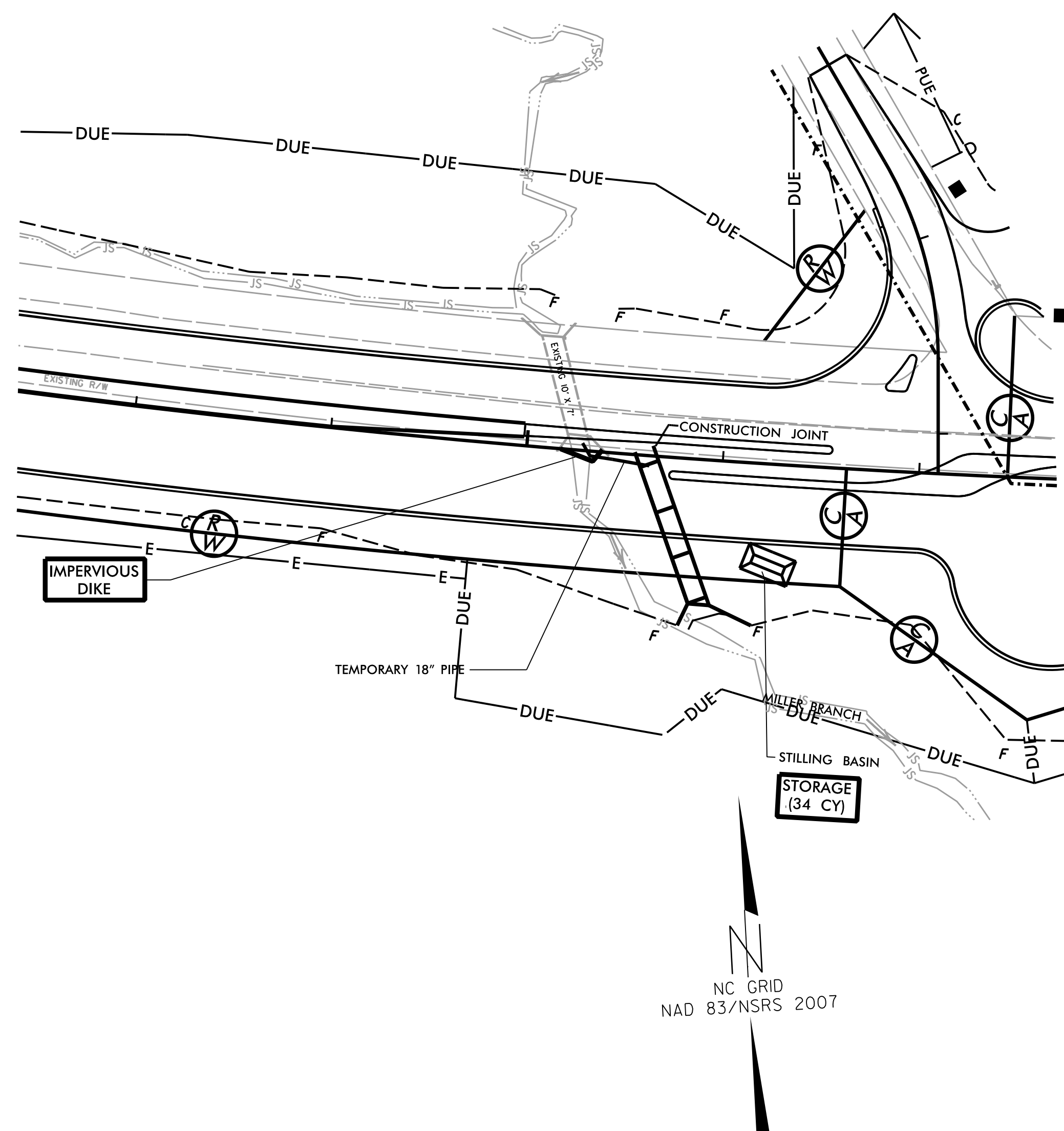


CULVERT CONSTRUCTION SEQUENCE STA. 40+60 -L-

PROJECT REFERENCE NO. U-3440	SHEET NO. EC-7/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

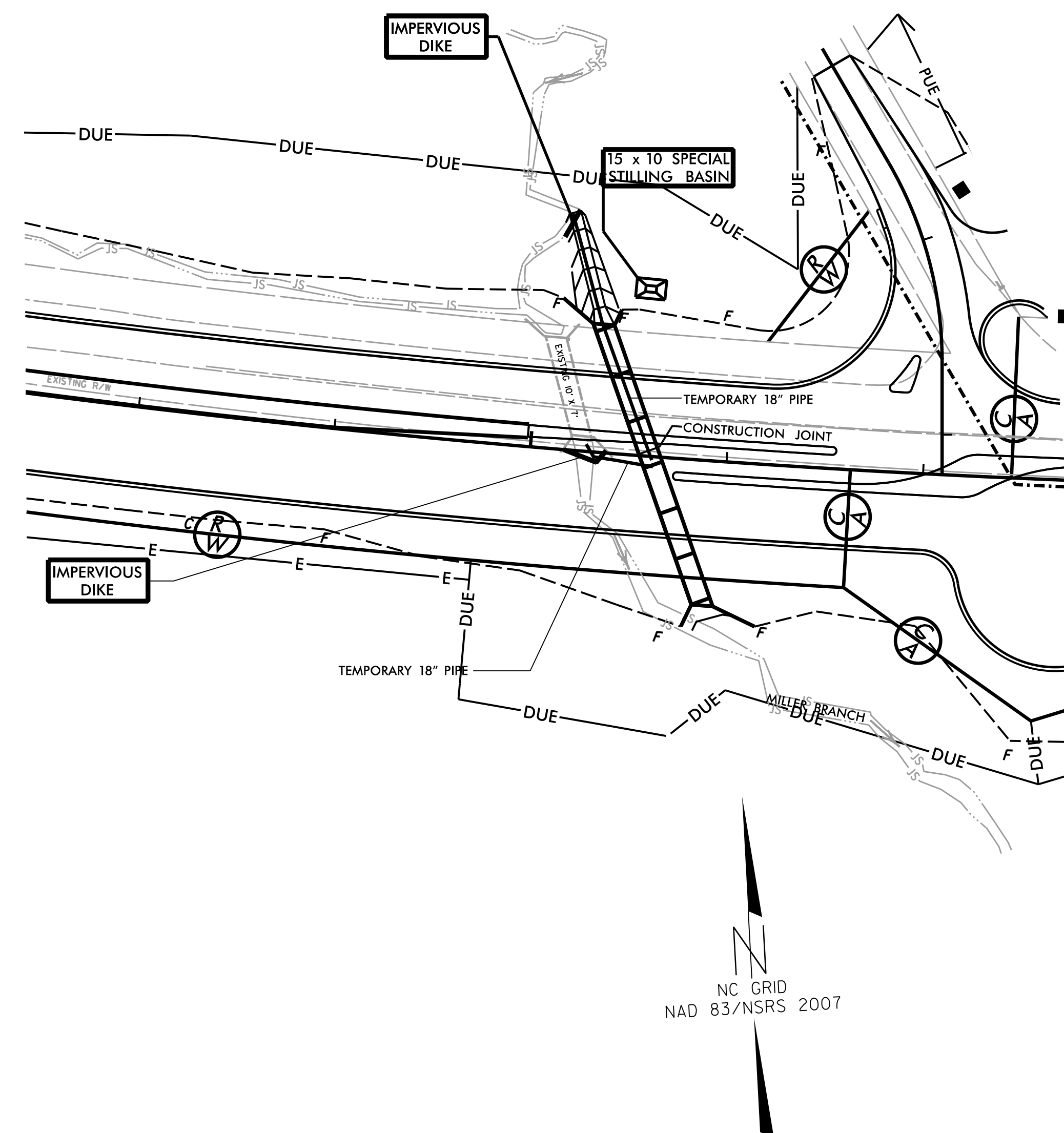
1. INSTALL STILLING BASIN DOWNSTREAM SIDE.
2. CONSTRUCT DOWNSTREAM SIDE OF CULVERT, BETWEEN EXISTING ROADWAY AND STREAM.
3. INSTALL IMPERVIOUS DIKE AND DIVERT FLOW FROM EXISTING CULVERT WITH 18" DIAMETER TEMPORARY PIPE.
4. REMOVE STILLING BASIN.
5. CONSTRUCT EASTBOUND ROADWAY AND DIVERT TRAFFIC.



NC GRID
NAD 83/NSRS 2007

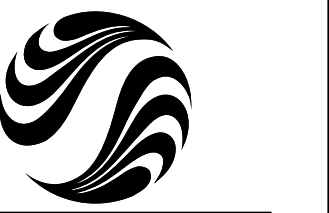
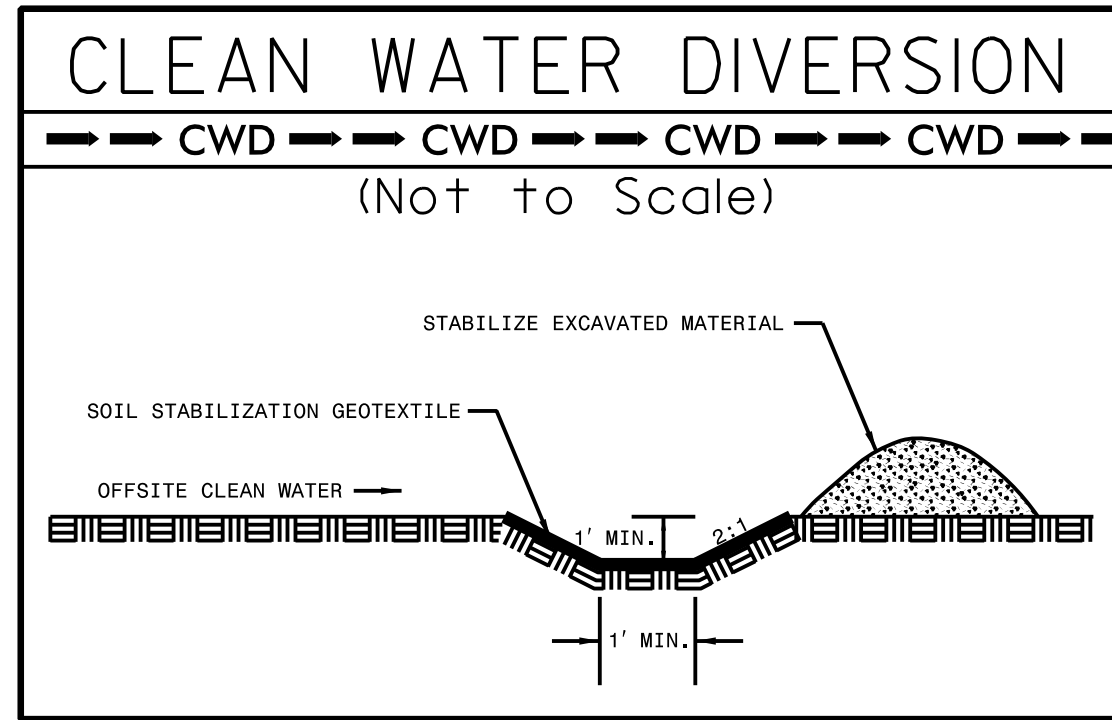
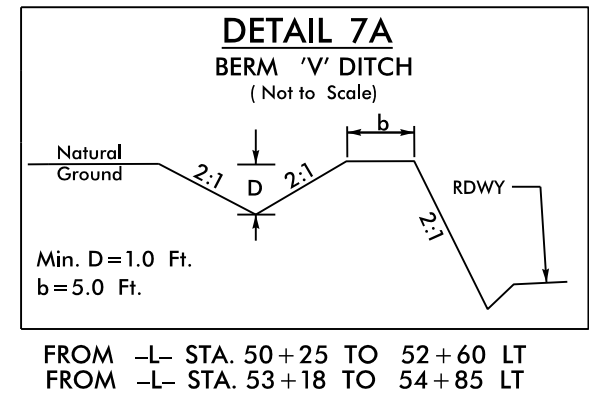
PHASE II

1. INSTALL SPECIAL STILLING BASIN, UPSTREAM SIDE.
2. INSTALL IMPERVIOUS DIKES, INLET CHANNEL, AND 18" TEMPORARY PIPE AT UPSTREAM SIDE. MAINTAIN FLOW TO EXISTING CULVERT.
3. CONSTRUCT UPSTREAM SIDE OF CULVERT.
4. SHIFT UPSTREAM IMPERVIOUS DIKE AND DIVERT FLOW TO NEW CULVERT.
5. REMOVE EXISTING CULVERT.
6. REMOVE IMPERVIOUS DIKES AND TEMPORARY DIVERSION CHANNELS.
7. REMOVE SPECIAL STILLING BASIN.
8. CONSTRUCT WESTBOUND ROADWAY.



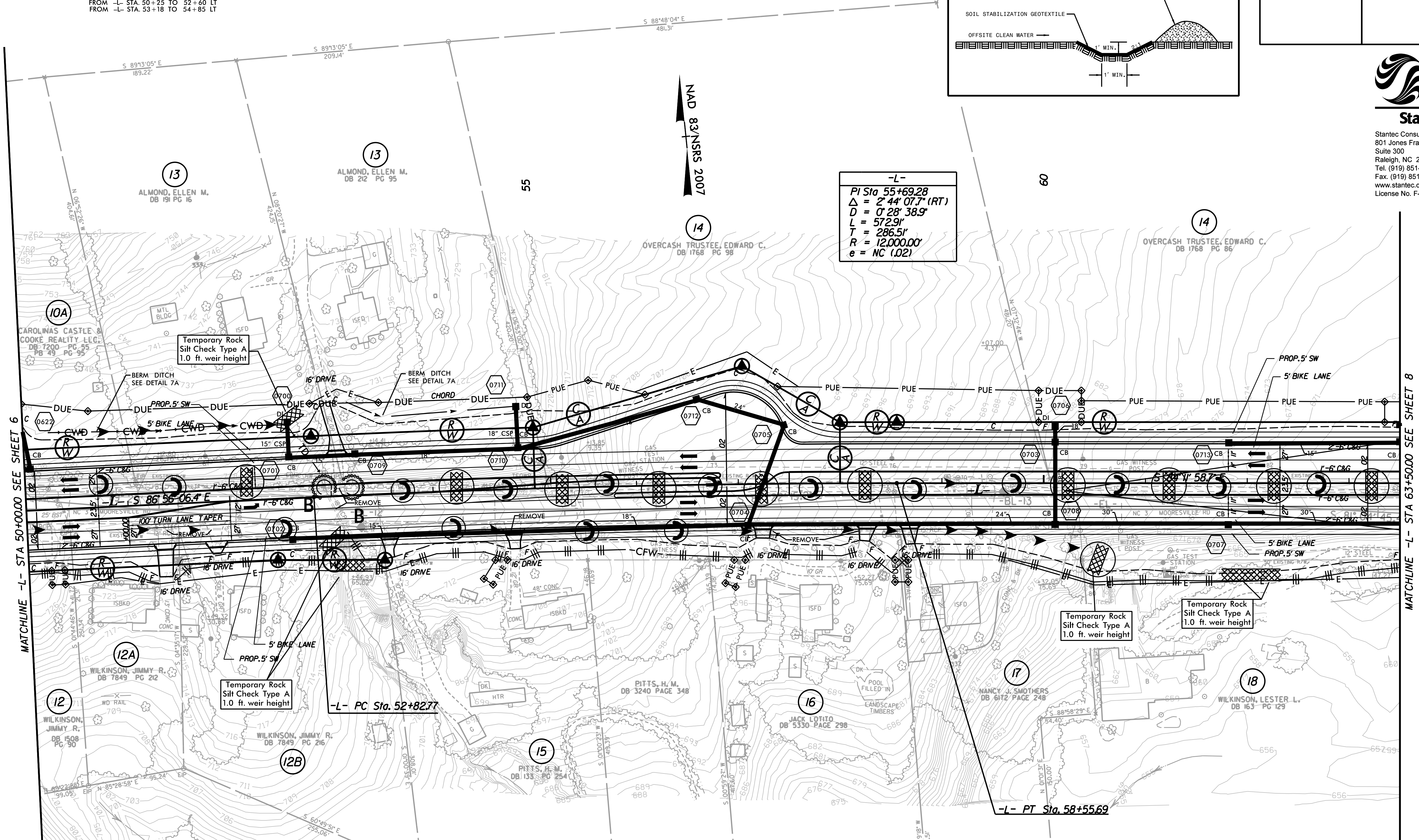
NC GRID
NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-8/CONST.7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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License No. F-0672

-L-
PI Sta 55+69.28
 $\Delta = 2' 44'' 07.7'' (RT)$
 $D = 0' 28'' 38.9''$
 $L = 572.9'$
 $T = 286.5'$
 $R = 12,000.00'$
 $e = NC (.02)$



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

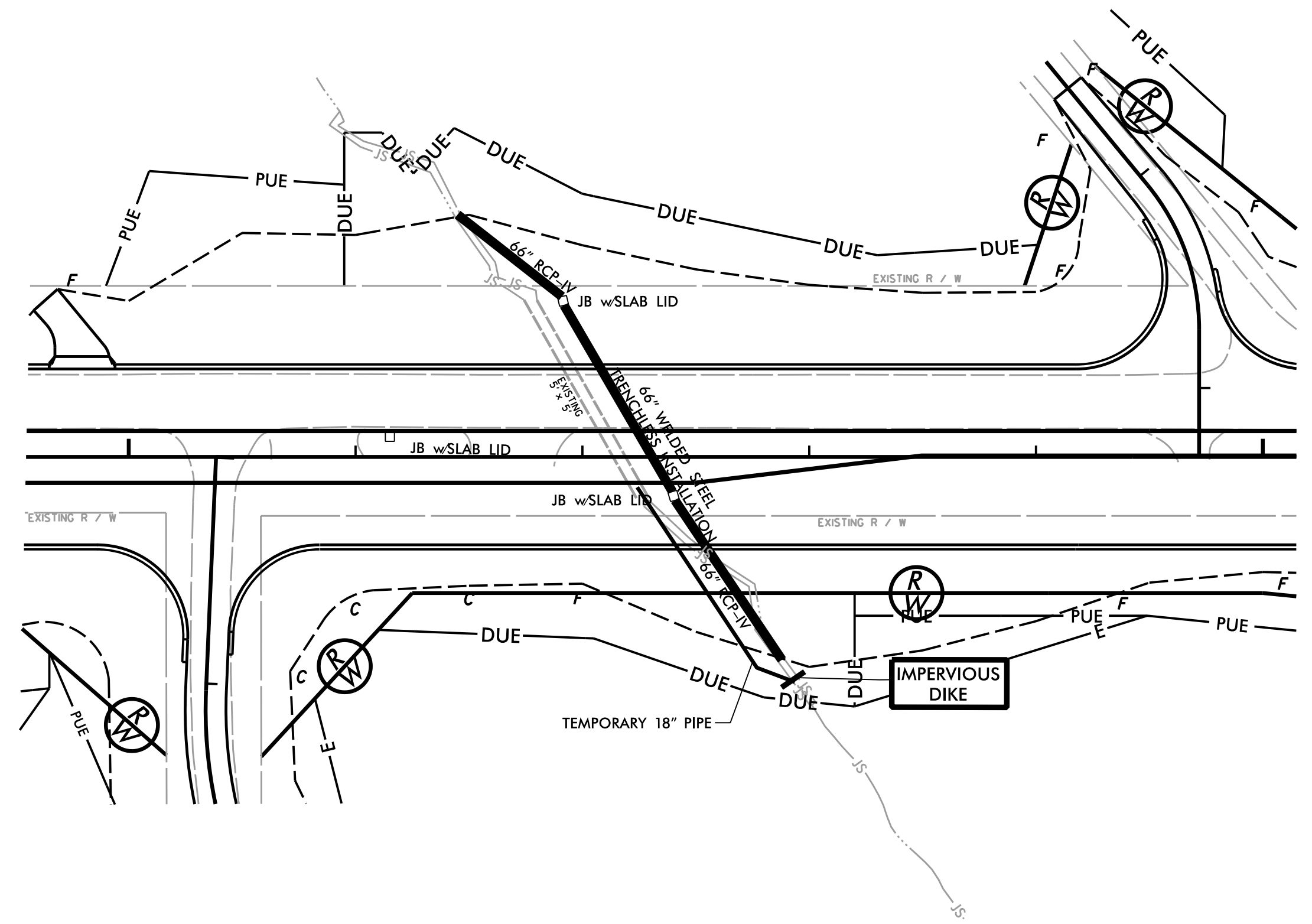
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-12/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PIPE CONSTRUCTION SEQUENCE STA. 97+20 -L-

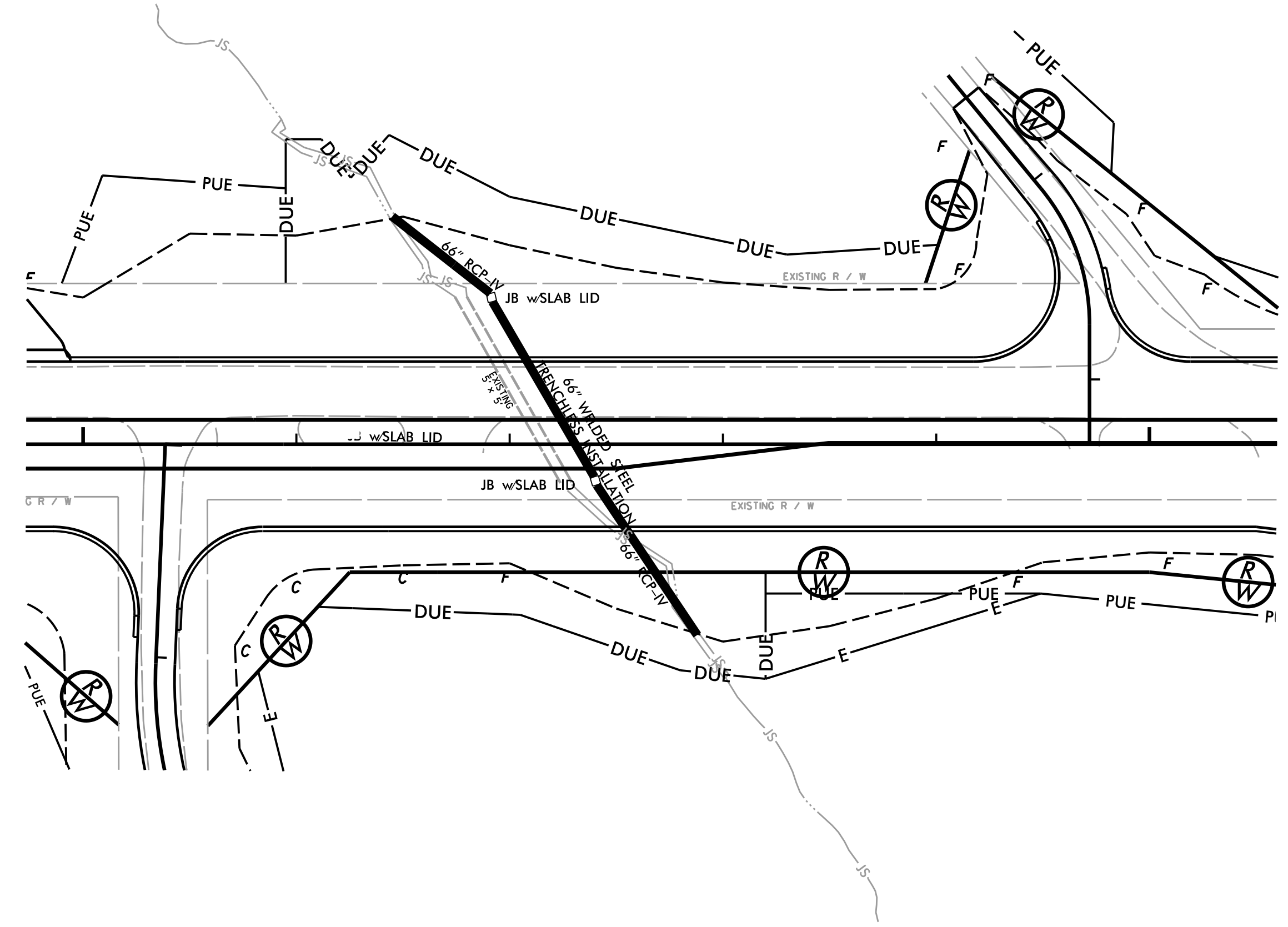
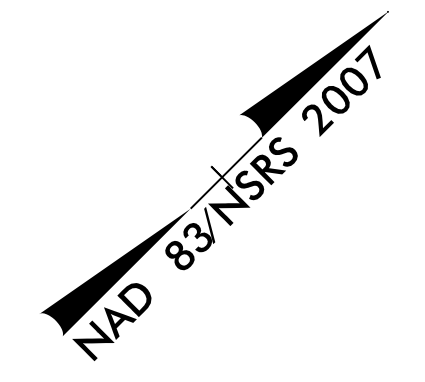
PHASE I

1. INSTALL SPECIAL STILLING BASIN UPSTREAM SIDE.
2. INSTALL IMPERVIOUS DIKE AND 18" DIAMETER TEMPORARY PIPE. EXTEND TEMPORARY PIPE TO EXISTING BOX CULVERT AND DIVERT FLOW FROM EXISTING STREAM TO EXISTING BOX CULVERT.
3. BORE AND JACK 66" WELDED STEEL PIPE BELOW EXISTING ROADWAY. INSTALL JUNCTION BOXES UPSTREAM AND DOWNSTREAM.
4. INSTALL 66" CL V PIPE UPSTREAM AND DOWNSTREAM OF JUNCTION BOXES. INSTALL HEADWALLS AND ENDWALLS.
5. DIVERT FLOW TO 66" PIPE. REMOVE TEMPORARY PIPE AND SPECIAL STILLING BASIN.
6. REMOVE UPSTREAM SECTION OF EXISTING BOX CULVERT.
6. CONSTRUCT EASTBOUND ROADWAY.



PHASE II

1. DIVERT TRAFFIC TO EASTBOUND SIDE.
2. REMOVE DOWNSTREAM SECTION OF EXISTING BOX CULVERT.
3. BACKFILL AND CONSTRUCT WESTBOUND ROADWAY.

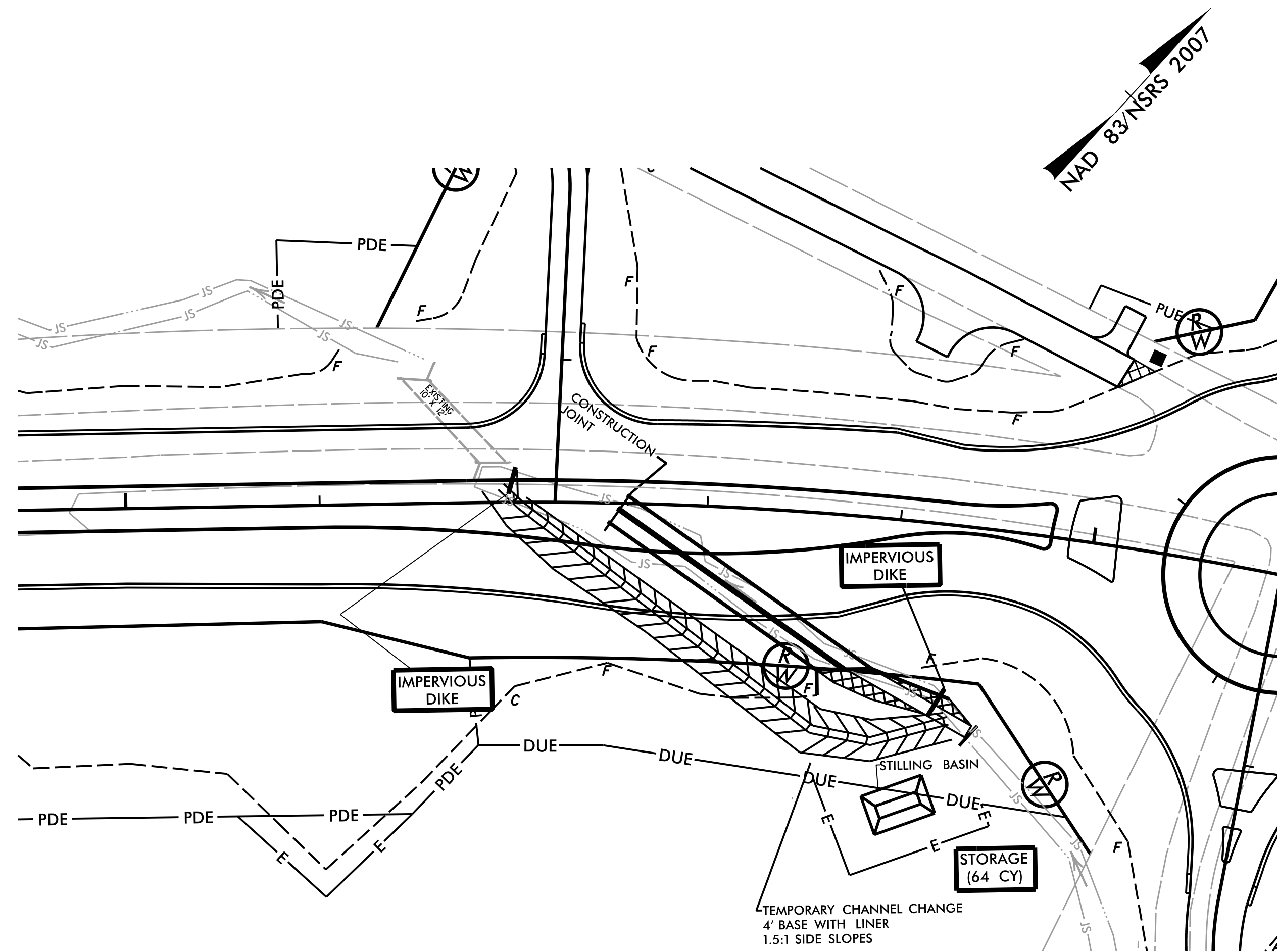


CULVERT CONSTRUCTION SEQUENCE STA. 117+50 -L-

PROJECT REFERENCE NO. U-3440	SHEET NO. EC-15/CONST J2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

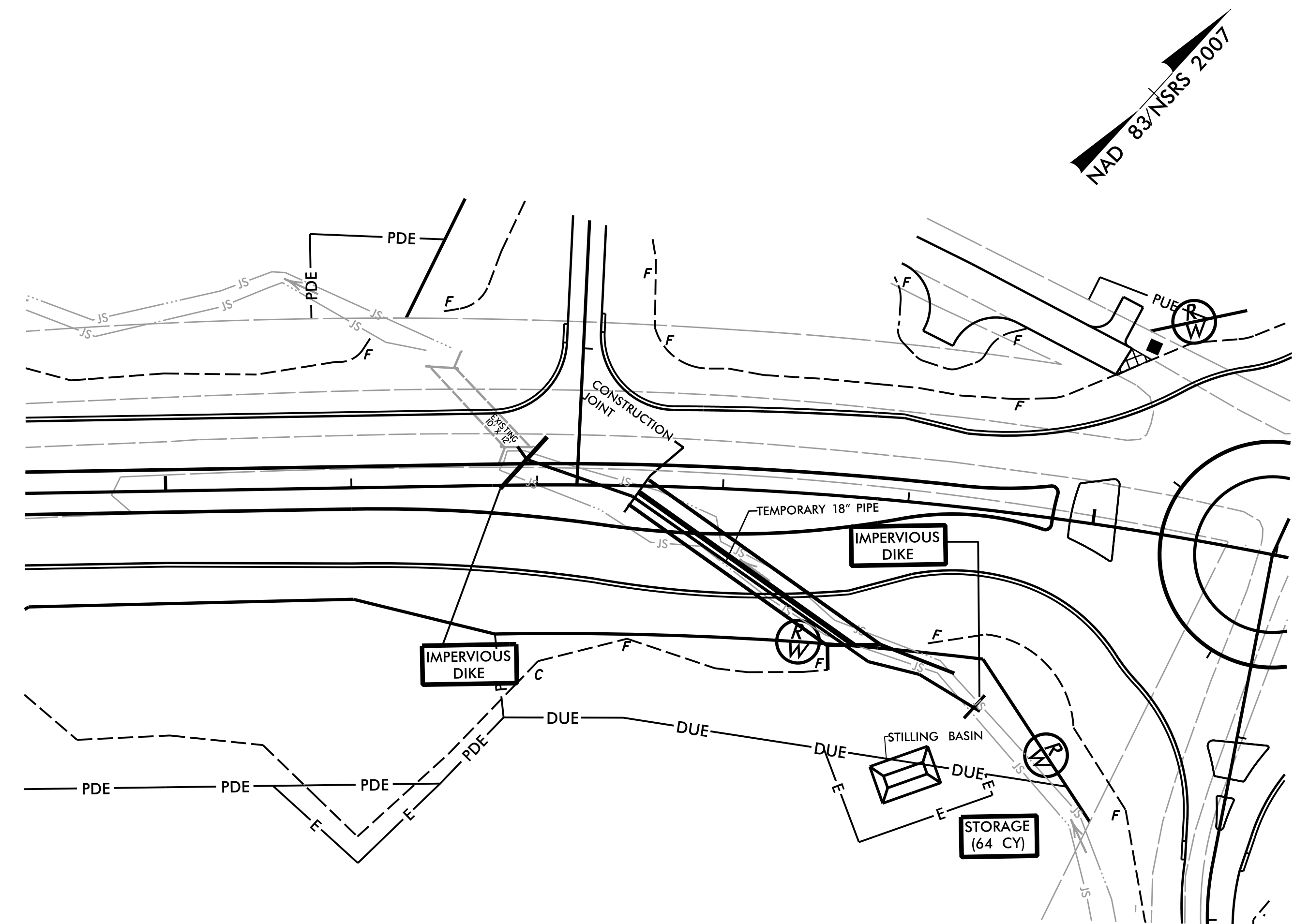
PHASE I

1. INSTALL STILLING BASIN ON THE UPSTREAM SIDE
2. INSTALL TEMPORARY DIVERSION CHANNEL WITH LINER.
3. INSTALL IMPERVIOUS DIKES AND DIVERT FLOW TO TEMPORARY DIVERSION CHANNEL
4. CONSTRUCT UPSTREAM BARRELS TO CONSTRUCTION JOINT.



PHASE II

1. INSTALL 18" TEMPORARY PIPE INSIDE SOUTH SIDE BARREL AND CONNECT TO EXISTING CULVERT
2. DIVERT FLOW TO 18" PIPE
3. REMOVE DIVERSION CHANNEL.
4. CONSTRUCT EASTBOUND ROADWAY AND DIVERT TRAFFIC.

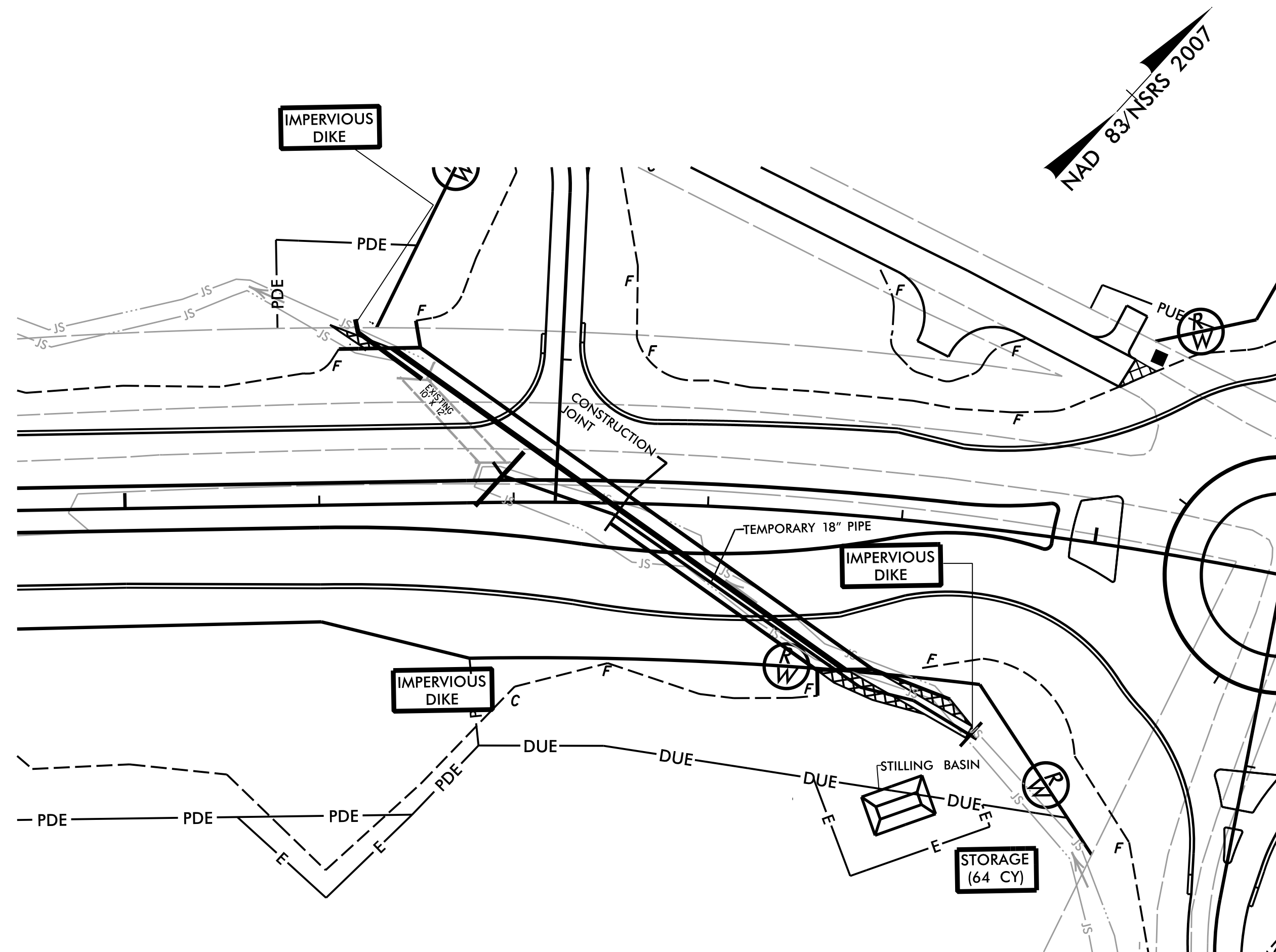


PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-16/CONST J2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 117+50 -L-

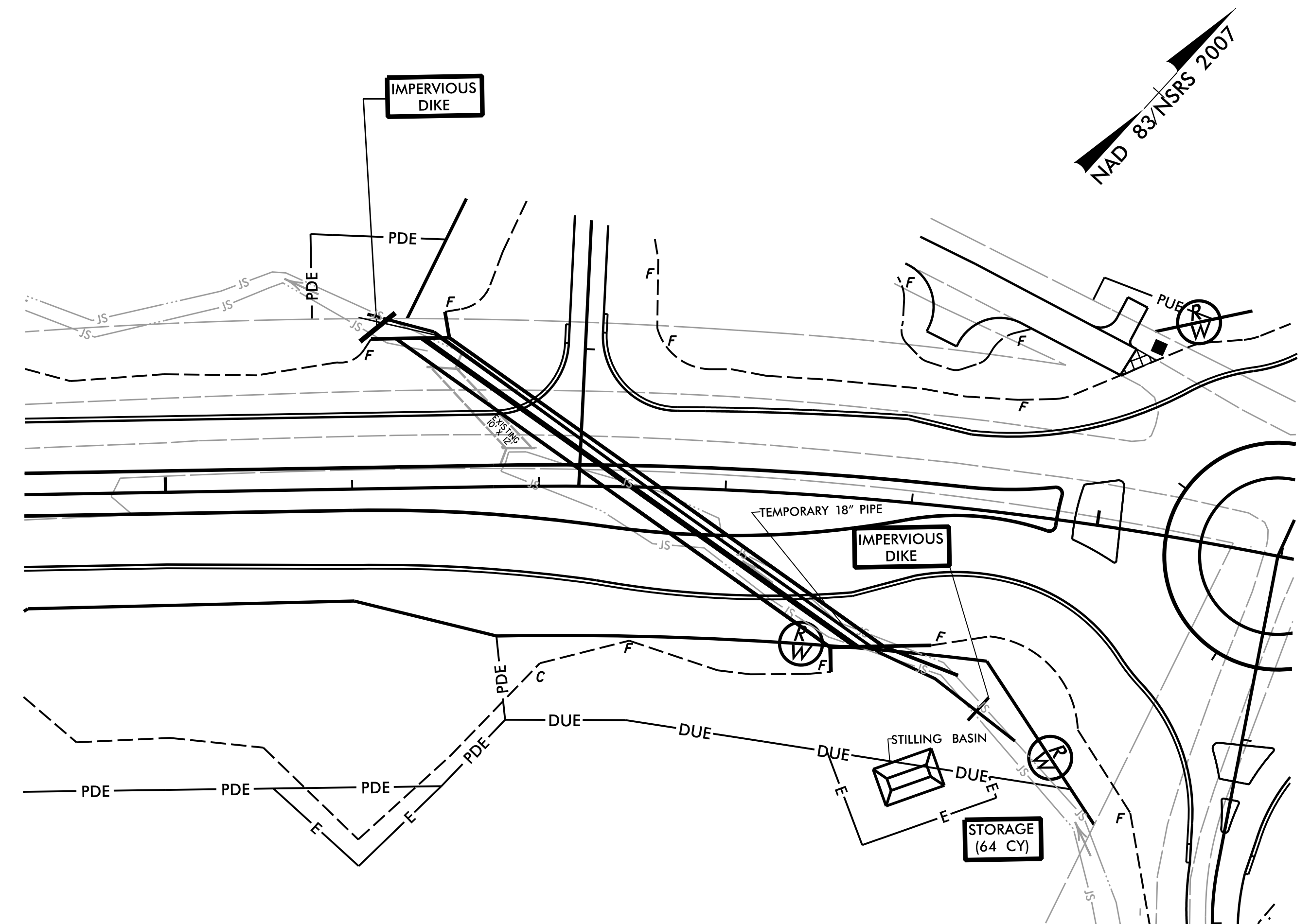
PHASE III

1. INSTALL SPECIAL STILLING BASIN ON THE DOWNSTREAM SIDE
2. INSTALL IMPERVIOUS DIKE ON THE DOWNSTREAM SIDE WHILE MAINTAINING FLOW THROUGH 18" PIPE AND EXISTING CULVERT
3. CONSTRUCT DOWNSTREAM NORTH SIDE BARRELL FROM CONSTRUCTION JOINT TO OUTLET.

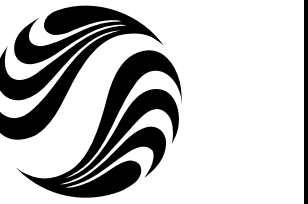


PHASE IV

1. MODIFY DOWNSTREAM SIDE IMPERVIOUS DIKE
2. RELOCATE AND LENGTHEN 18" TEMPORARY PIPE SO IT CARRIES FLOW INSIDE THE NORTH BARRELS.
3. REMOVE EXISTING CULVERT
4. CONSTRUCT DOWNSTREAM SOUTHSIDE BARREL.
5. REMOVE IMPERVIOUS DIKES, STILLING BASIN, AND SPECIAL STILLING BASIN
6. CONSTRUCT WESTBOUND ROADWAY

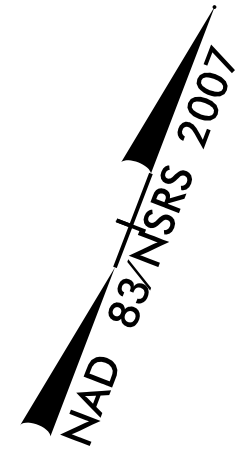


PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-17/CONST J3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

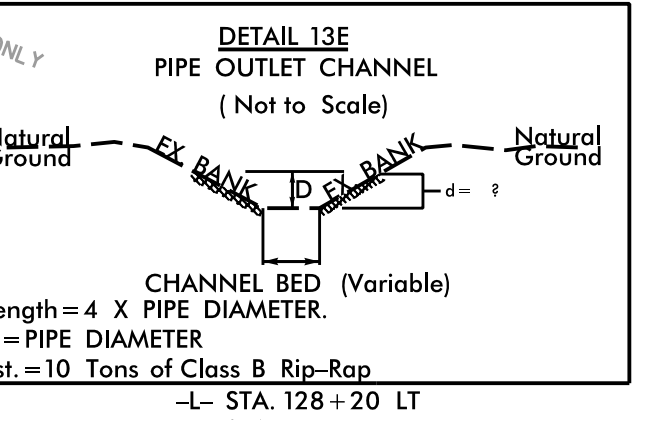
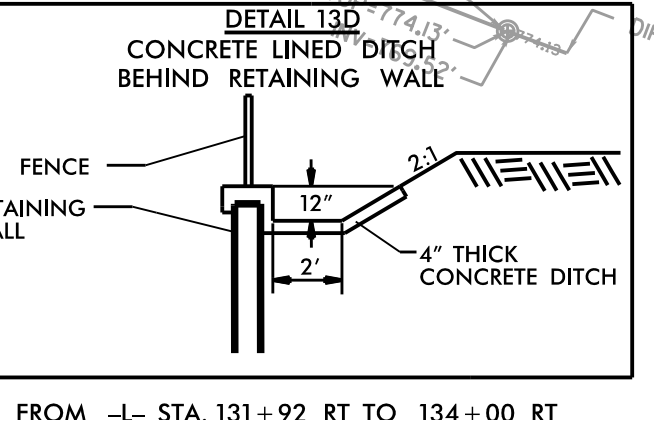
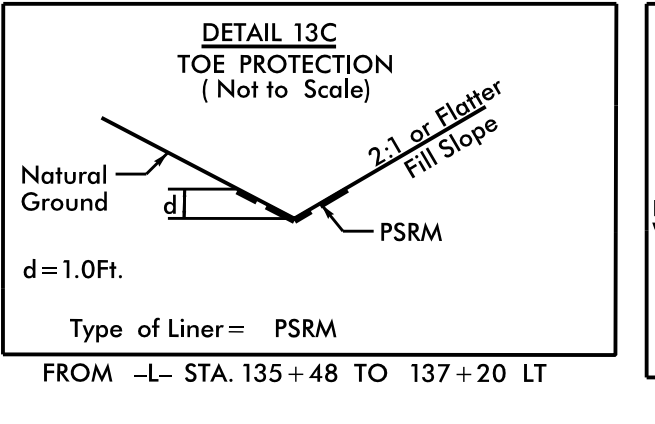
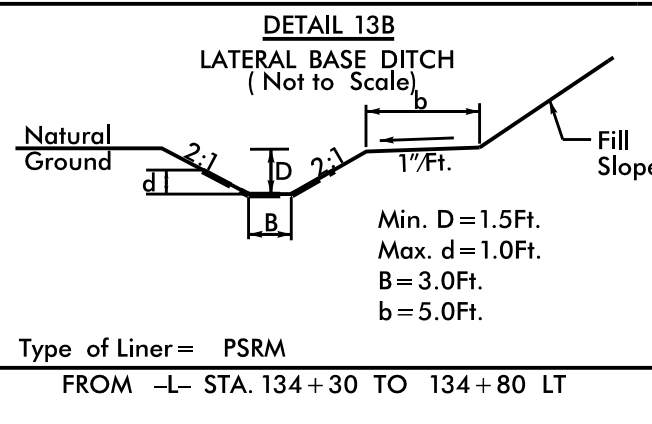
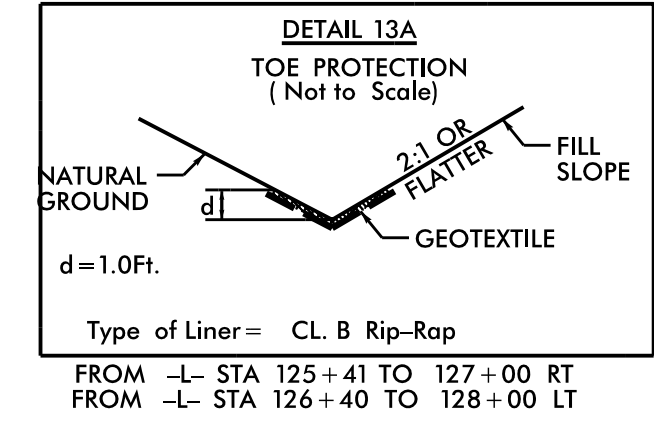
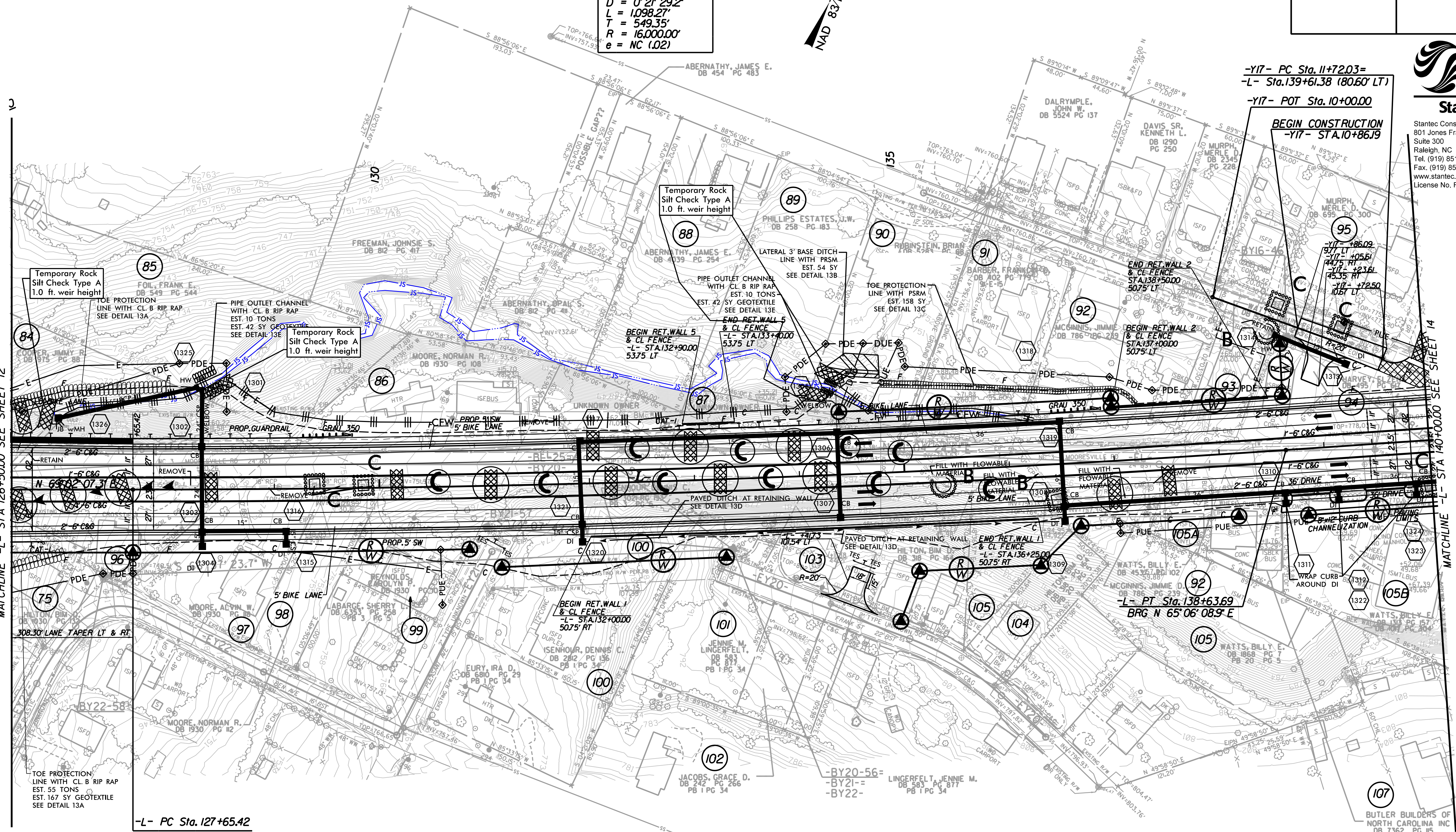


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-L-
 PI Sta 133+4.77
 $\Delta = 3' 55" 58.4" (LT)$
 $D = 0' 21" 29.2"$
 $L = 1,098.27'$
 $T = 549.35'$
 $R = 16,000.00'$
 $e = NC (.02)$



MATCHLINE -L- STA 126+50.00 SEE SHEET 12



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 13

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

MATCHLINE -L- STA 140+00.00 SEE SHEET 14



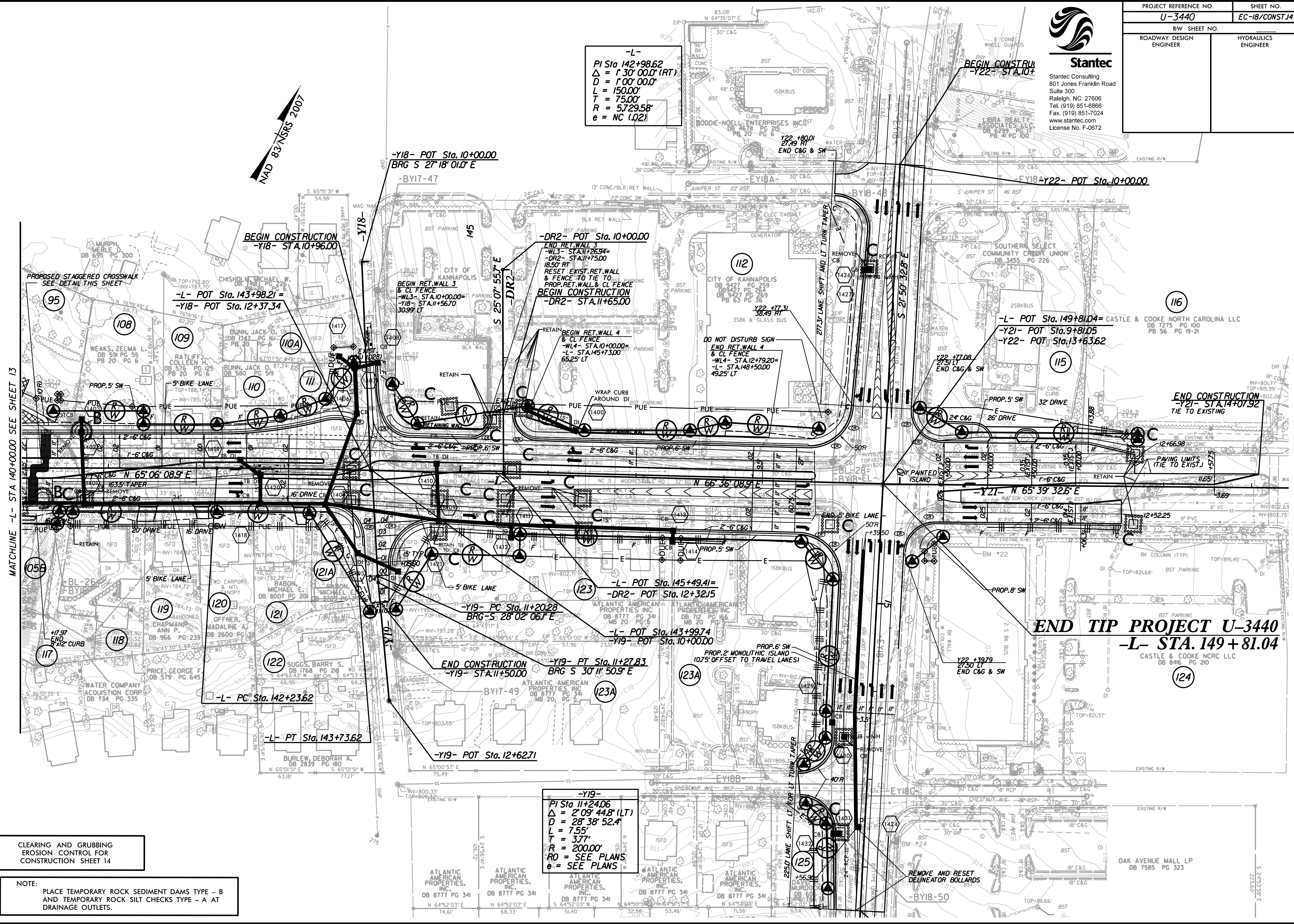
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PROJECT REFERENCE NO. U-3440	SHEET NO. EC-18/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-
 PI Sta 142+98.62
 $\Delta = 1' 30' 00.0''$ (RT)
 $D = 1' 00' 00.0''$
 $L = 150.00'$
 $T = 75.00'$
 $R = 5729.58'$
 $e = NC (0.2)$

NAD 83 NRS 2007



MATCHLINE -L- STA 140+00.00 SEE SHEET 13

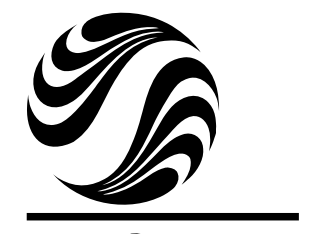
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14

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

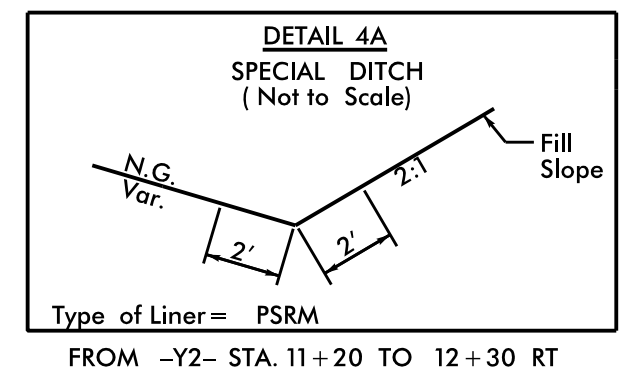
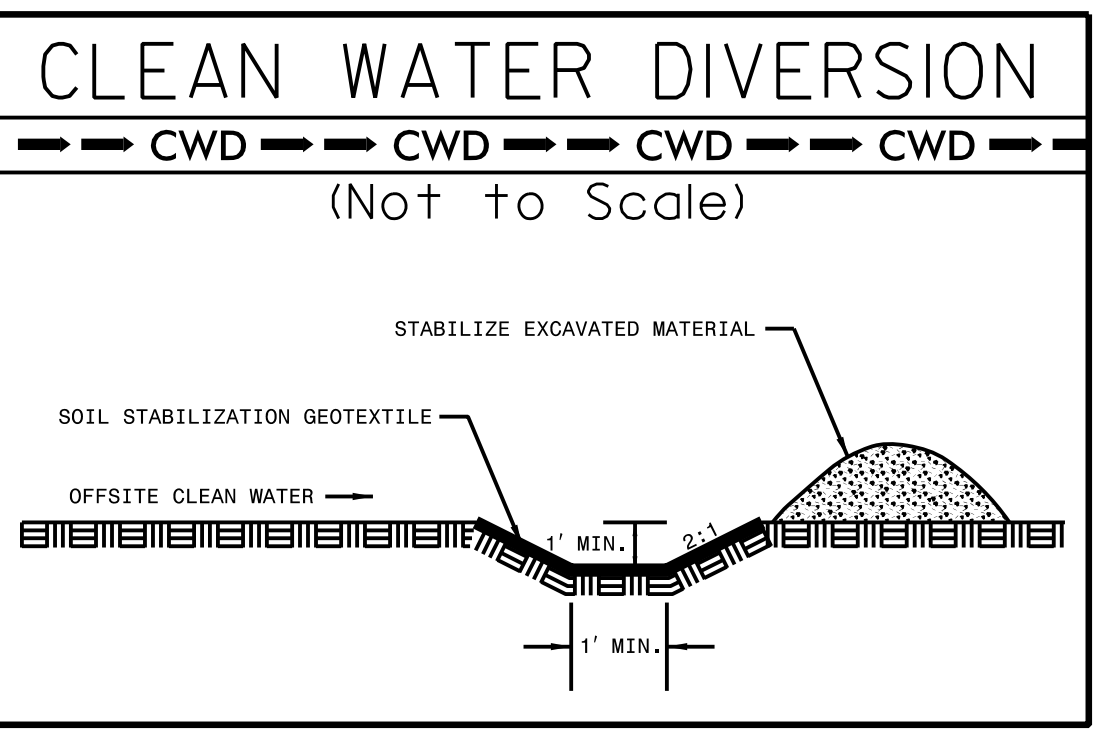
-Y19-
 PI Sta 11+24.06
 $\Delta = 2' 09' 44.8''$ (LT)
 $D = 28' 38' 52.4''$
 $L = 7.55'$
 $T = 3.77'$
 $R = 200.00'$
 RO = SEE PLANS
 e = SEE PLANS

END TIP PROJECT U-3440
-L- STA. 149 + 81.04
 CASTLE & COOKE NCR LLC
 DB 8416 PG 210

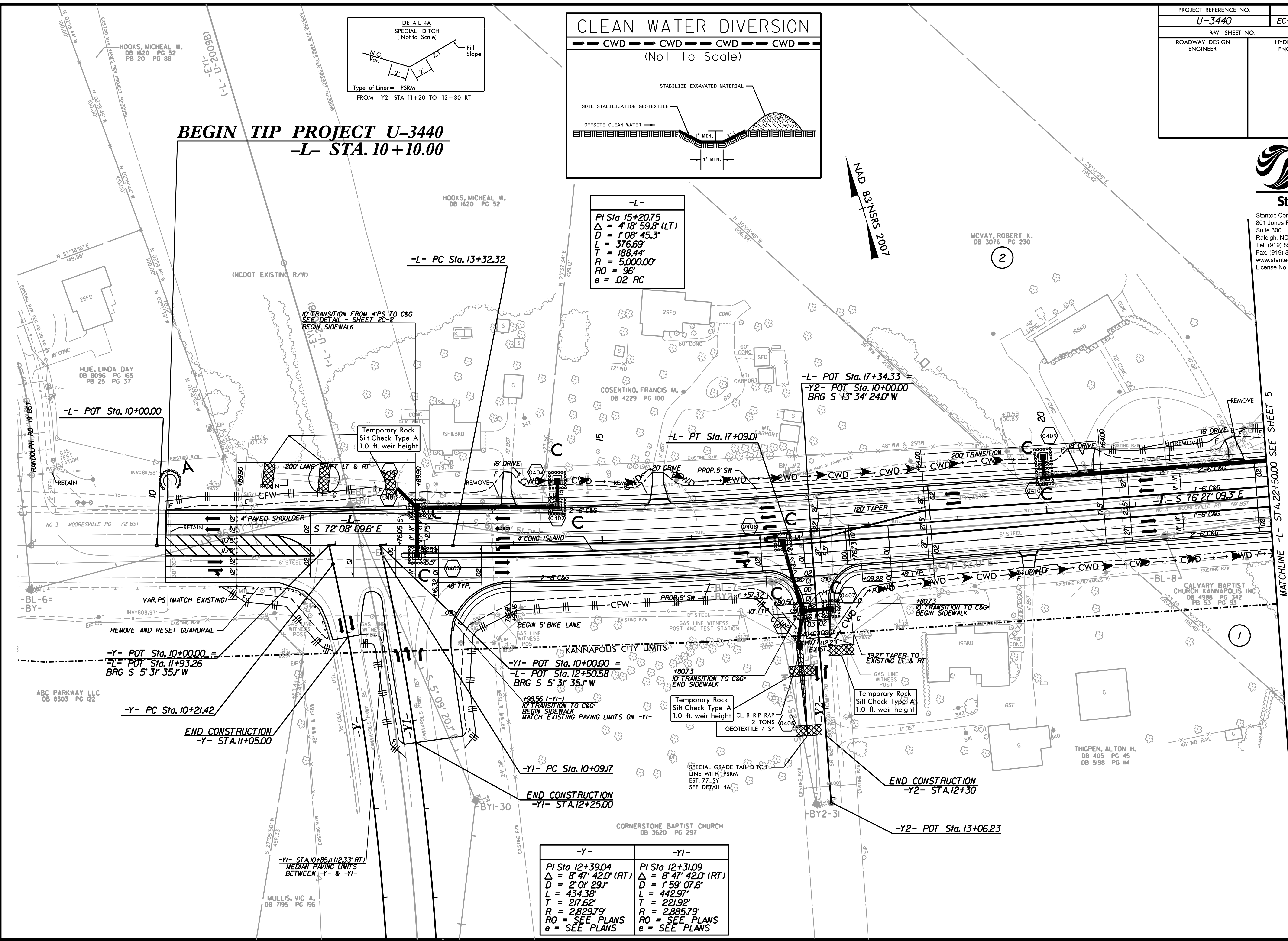
PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-19/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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BEGIN TIP PROJECT U-3440
-L- STA. 10+10.00



-L-
 PI Sta 15+20.75
 $\Delta = 4' 18'' 59.8'' (LT)$
 $D = 1' 08'' 45.3''$
 $L = 376.69'$
 $T = 188.44'$
 $R = 5,000.00'$
 $RO = 96'$
 $e = .02 RC$

-Y1- POT Sta. 10+00.00 =
 -L- POT Sta. 12+50.58
 BRG S 5° 31' 35.1" W

-Y-	-Y1-
PI Sta 12+39.04	PI Sta 12+31.09
$\Delta = 8' 47'' 42.0'' (RT)$	$\Delta = 8' 47'' 42.0'' (RT)$
$D = 2' 01'' 29.1''$	$D = 1' 59'' 07.6''$
$L = 434.38'$	$L = 442.97'$
$T = 217.62'$	$T = 221.92'$
$R = 2,829.79'$	$R = 2,885.79'$
$RO = \text{SEE PLANS}$	$RO = \text{SEE PLANS}$
$e = \text{SEE PLANS}$	$e = \text{SEE PLANS}$

-Y- POT Sta. 10+00.00 =
 -L- POT Sta. 11+93.26
 BRG S 5° 31' 35.1" W

-Y- PC Sta. 10+21.42

END CONSTRUCTION
 -Y- STA. 11+05.00

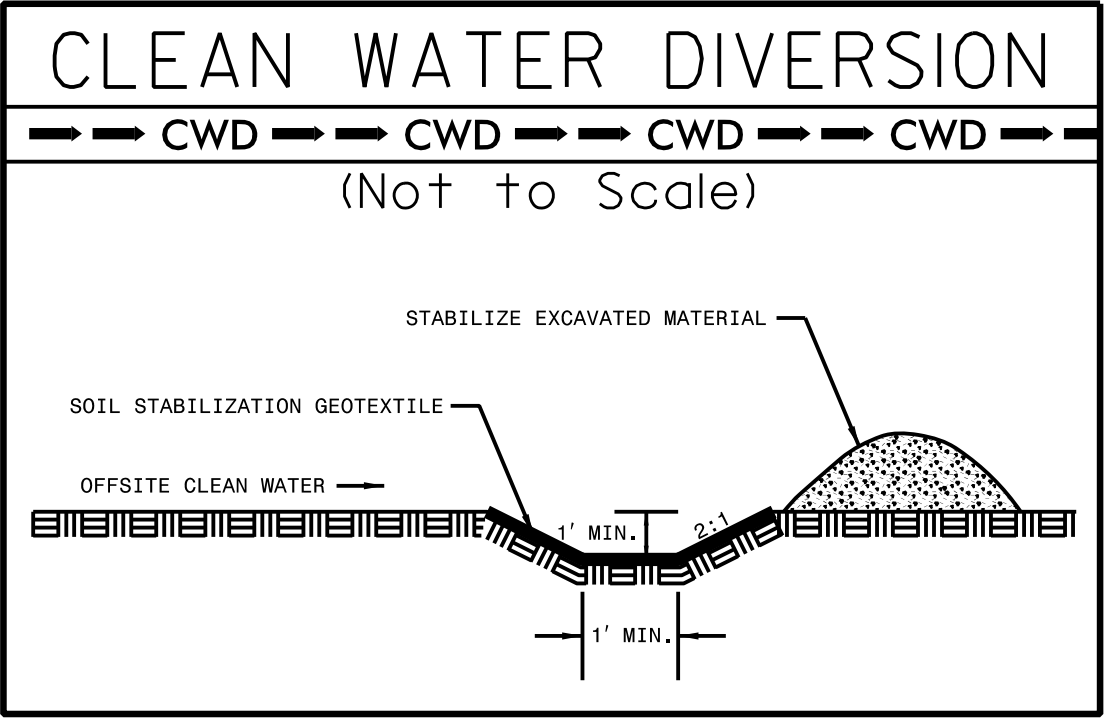
-Y1- PC Sta. 10+09.17

END CONSTRUCTION
 -Y1- STA. 12+25.00

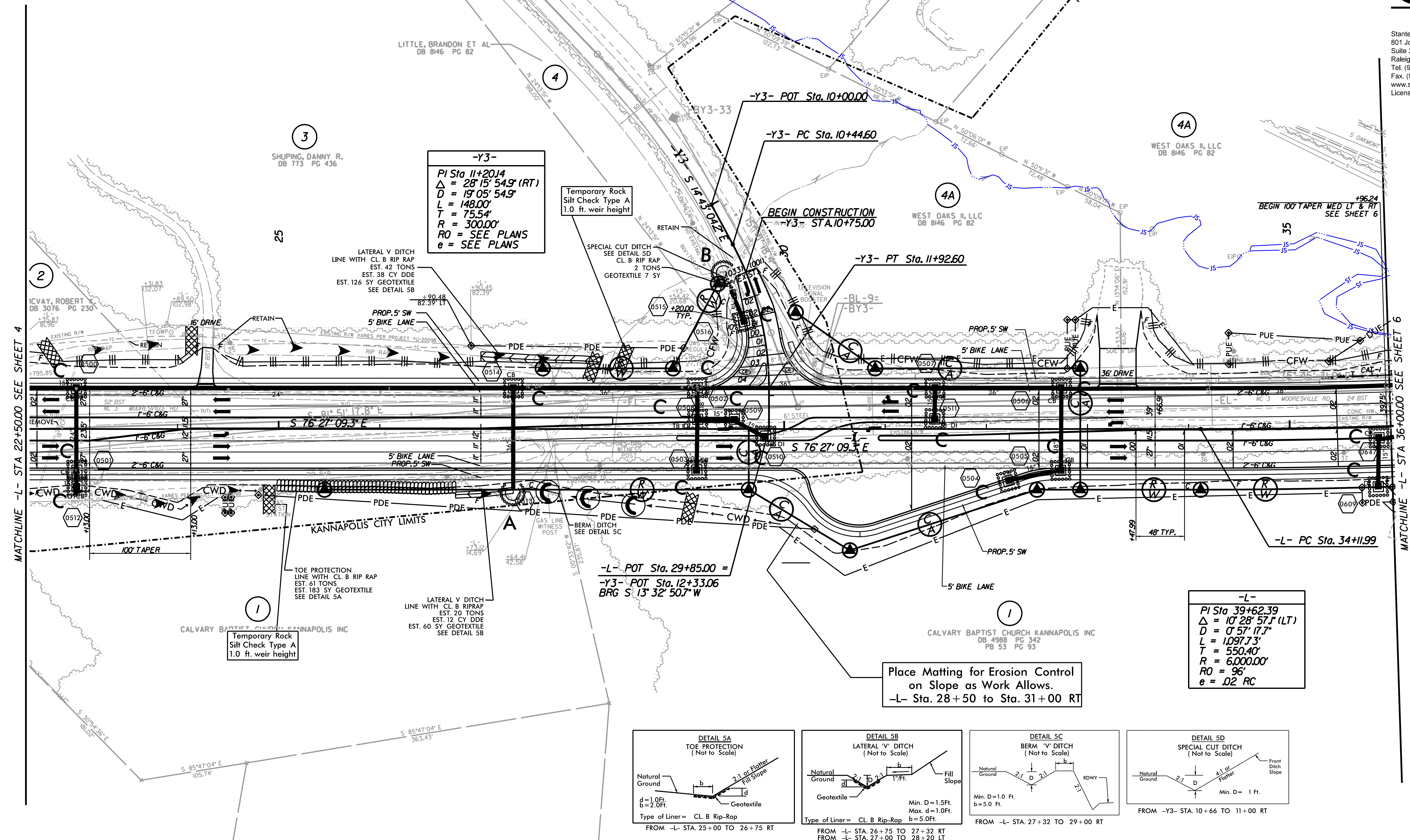
END CONSTRUCTION
 -Y2- STA. 12+30

-Y2- POT Sta. 13+06.23

MATCHLINE -L- STA. 22+50.00 SEE SHEET 5



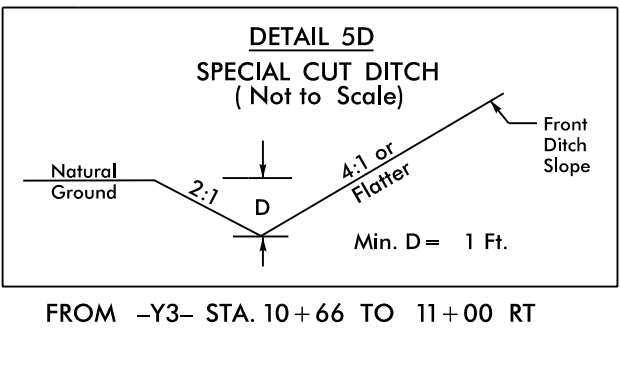
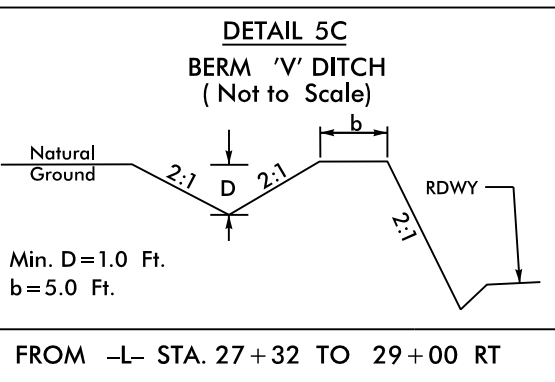
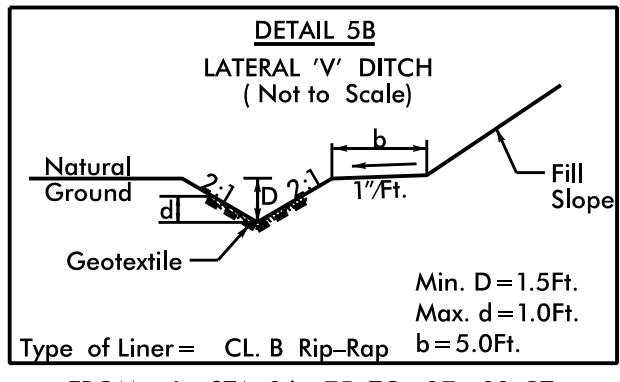
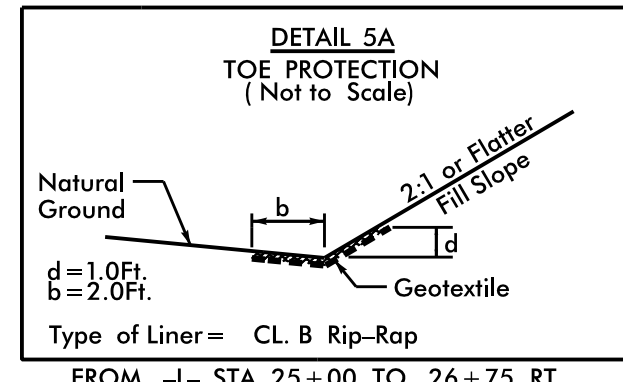
PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-20/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

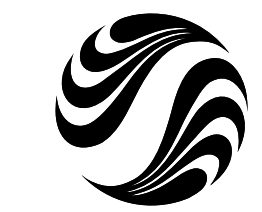


-Y3-
 PI Sta 11+20.14
 $\Delta = 28' 15'' 54.9''$ (RT)
 $D = 19' 05'' 54.9''$
 $L = 148.00'$
 $T = 75.54'$
 $R = 300.00'$
 $RO = \text{SEE PLANS}$
 $e = \text{SEE PLANS}$

-L-
 PI Sta 39+62.39
 $\Delta = 10' 28'' 57.1''$ (LT)
 $D = 0' 57'' 17.7''$
 $L = 1,097.73'$
 $T = 550.40'$
 $R = 6,000.00'$
 $RO = 96'$
 $e = .02$ RC

Place Matting for Erosion Control
 on Slope as Work Allows.
 -L- Sta. 28+50 to Sta. 31+00 RT



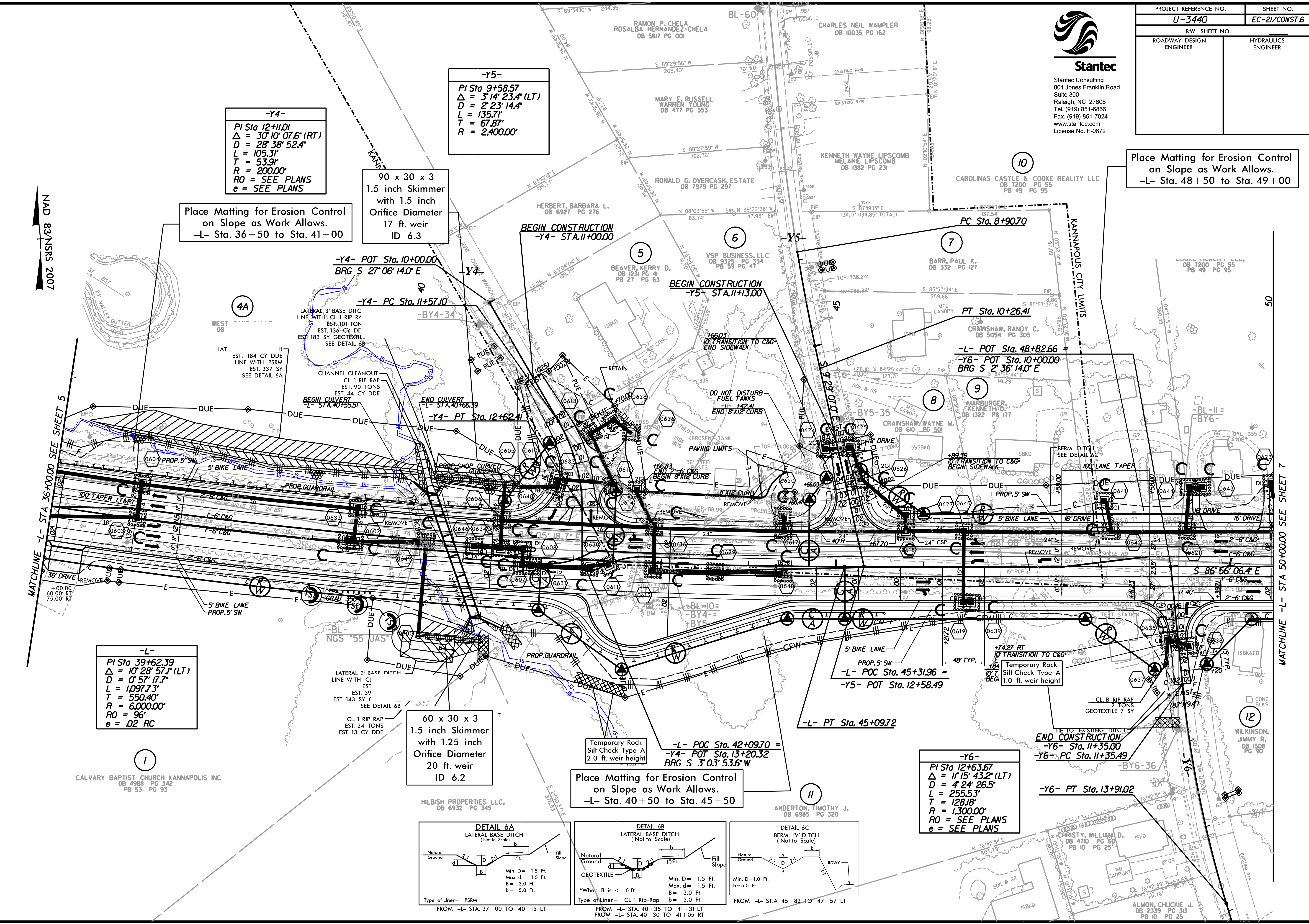


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PROJECT REFERENCE NO. U-3440	SHEET NO. EC-21/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 48+50 to Sta. 49+00

NAD 83/NSRS 2007



-Y4-
 PI Sta. 12+11.01
 $\Delta = 30' 10" 07.6" (RT)$
 $D = 28' 38" 52.4"$
 $L = 105.31'$
 $T = 53.91'$
 $R = 200.00'$
 RO = SEE PLANS
 e = SEE PLANS

-Y5-
 PI Sta. 9+58.57
 $\Delta = 3' 14" 23.4" (LT)$
 $D = 2' 23" 14.4"$
 $L = 135.71'$
 $T = 67.87'$
 $R = 2,400.00'$

Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 36+50 to Sta. 41+00

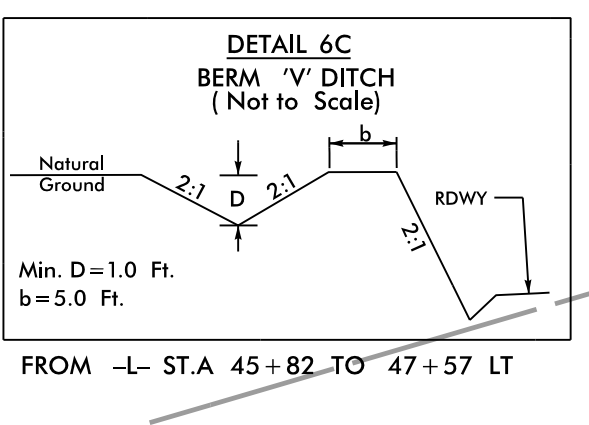
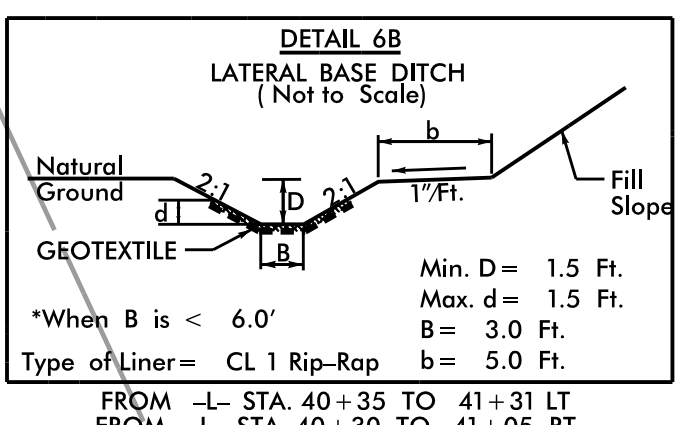
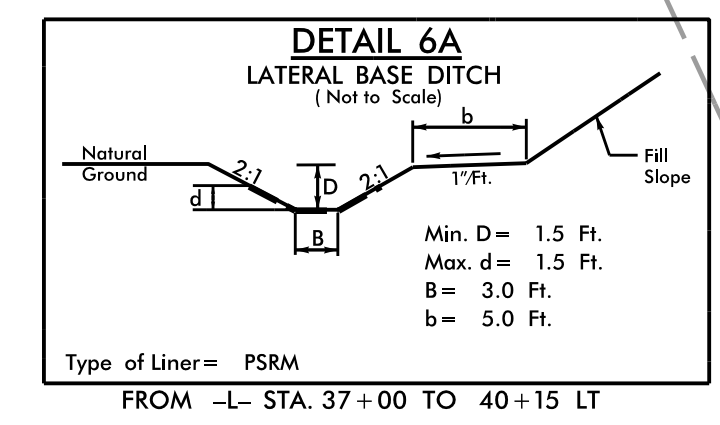
90 x 30 x 3
 1.5 inch Skimmer
 with 1.5 inch
 Orifice Diameter
 17 ft. weir
 ID 6.3

-L-
 PI Sta. 39+62.39
 $\Delta = 10' 28" 57.1" (LT)$
 $D = 0' 57" 17.7"$
 $L = 1,097.73'$
 $T = 550.40'$
 $R = 6,000.00'$
 RO = 96'
 e = 0.2 RC

60 x 30 x 3
 1.5 inch Skimmer
 with 1.25 inch
 Orifice Diameter
 20 ft. weir
 ID 6.2

Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 40+50 to Sta. 45+50

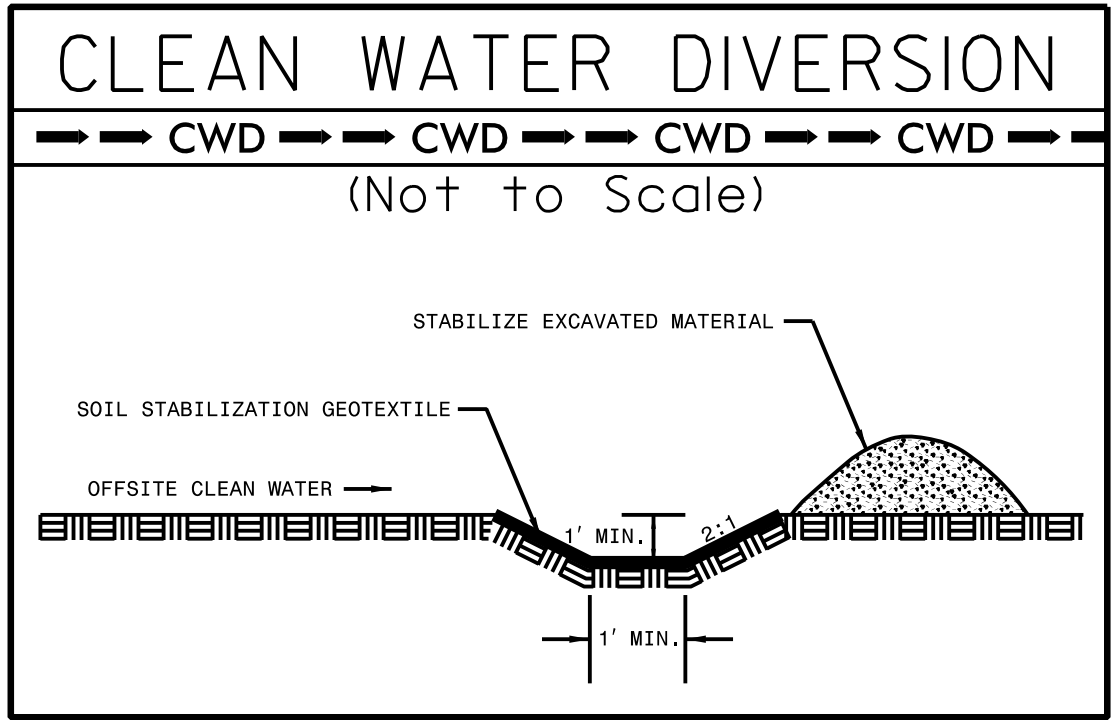
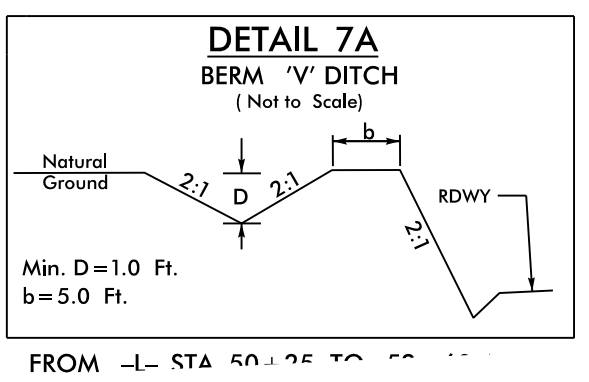
-Y6-
 PI Sta. 12+63.67
 $\Delta = 11' 15" 43.2" (LT)$
 $D = 4' 24" 26.5"$
 $L = 255.53'$
 $T = 128.18'$
 $R = 1,300.00'$
 RO = SEE PLANS
 e = SEE PLANS



MATCHLINE -L- STA. 00+00+96 SEE SHEET 5

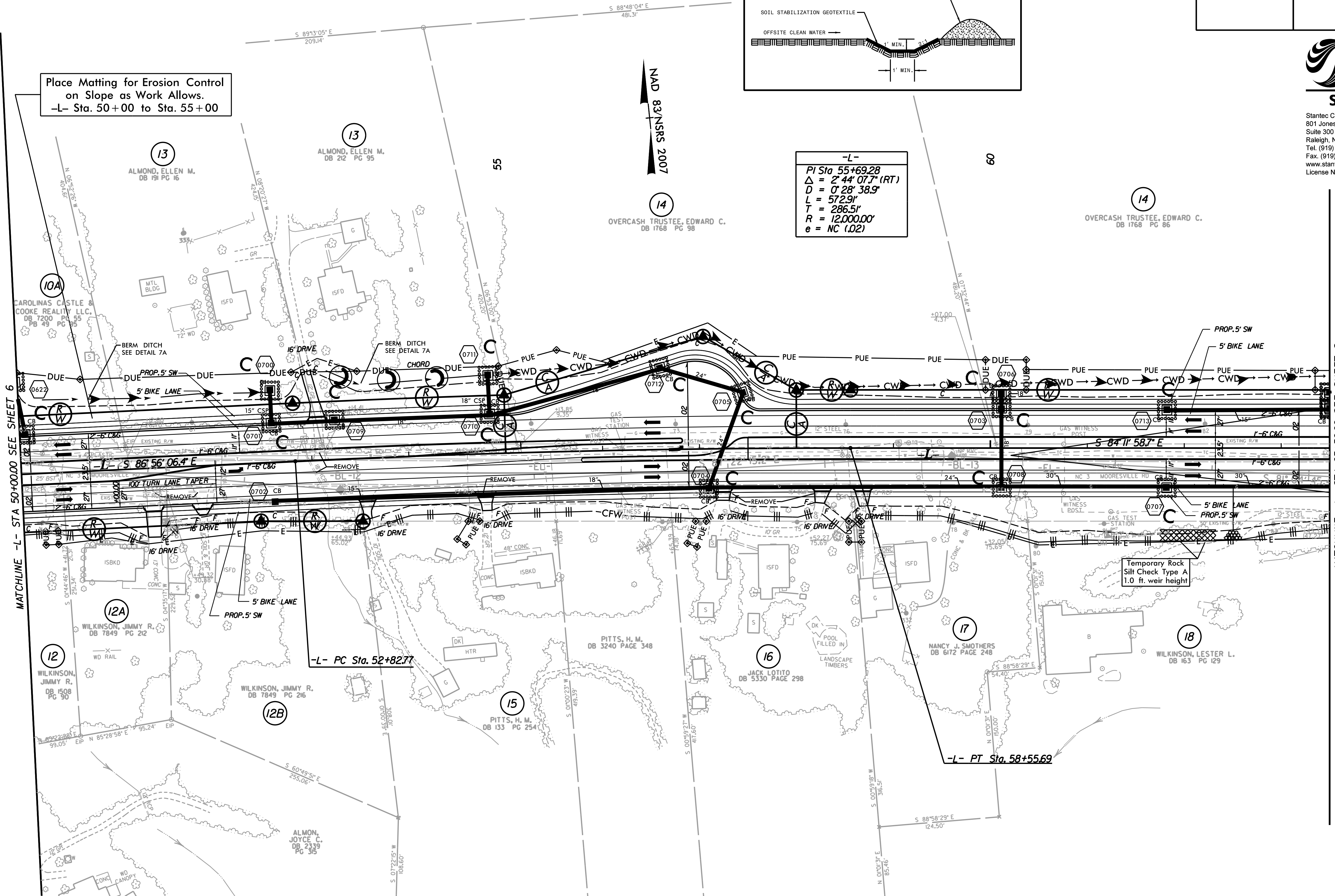
MATCHLINE -L- STA. 50+00+00 SEE SHEET 7

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-22/CONST.7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 50+00 to Sta. 55+00

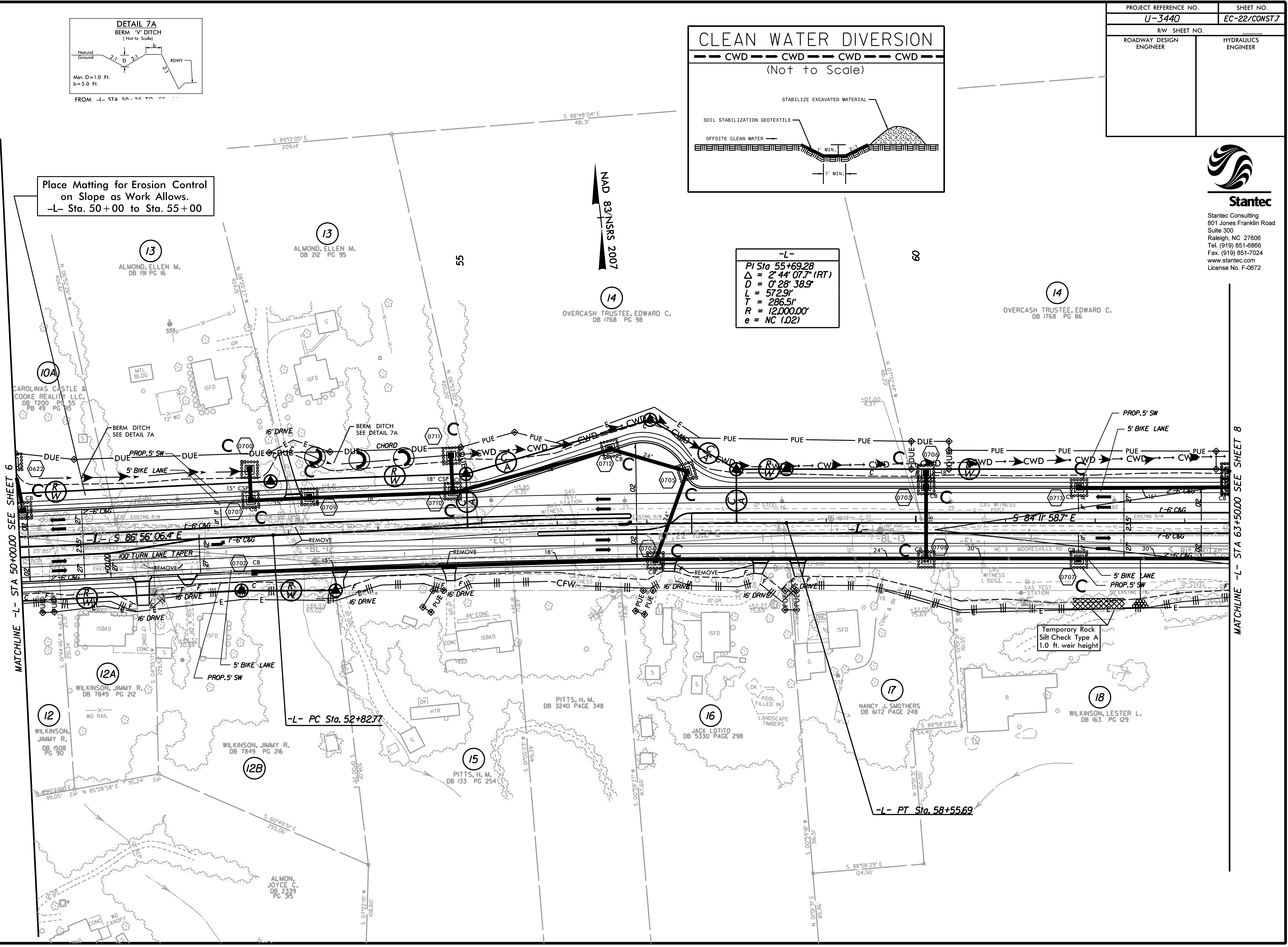
-L-
 PI Sta 55+69.28
 $\Delta = 2' 44" 07.7" (RT)$
 $D = 0' 28" 38.9"$
 $L = 572.9'$
 $T = 286.5'$
 $R = 12,000.00'$
 $e = NC (.02)$



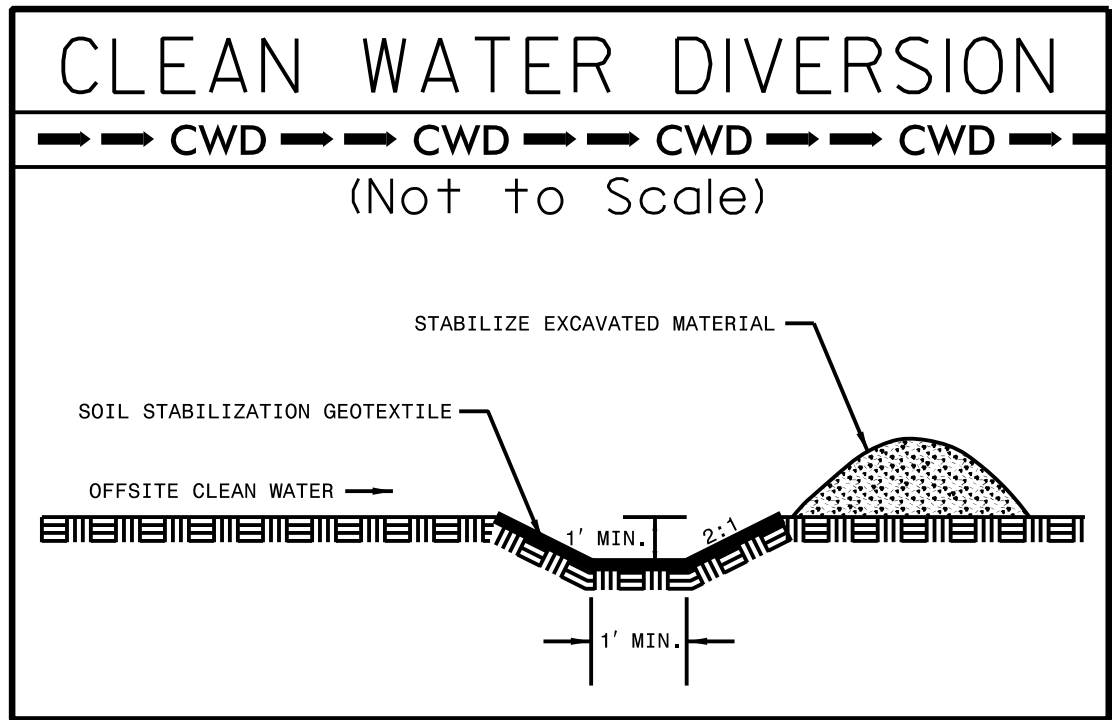
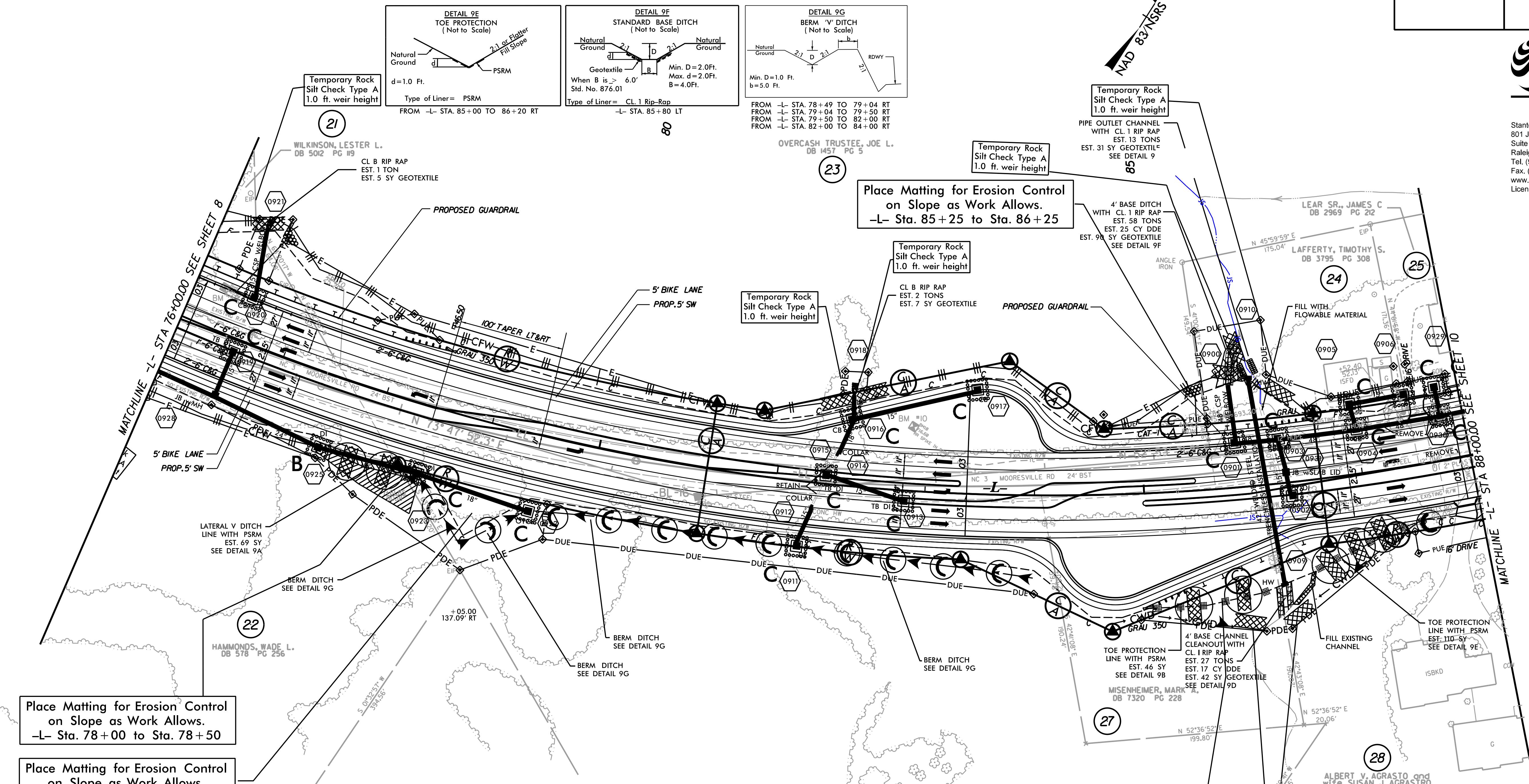
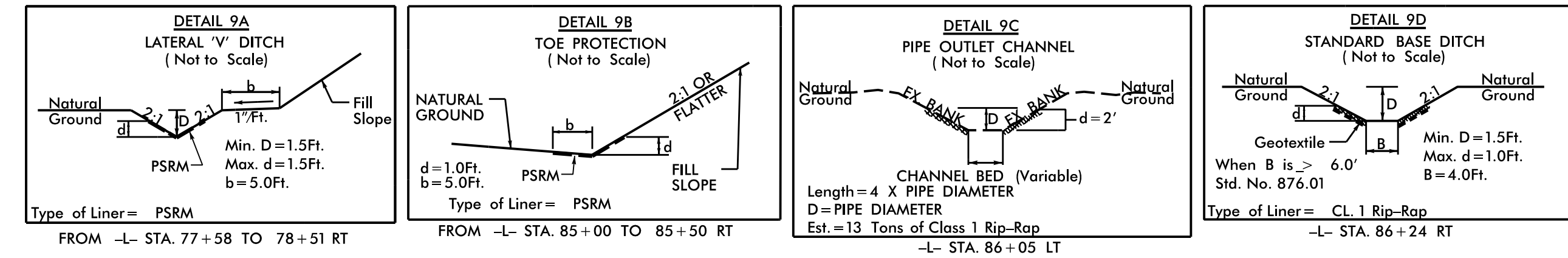
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MATCHLINE -L- STA 50+00.00 SEE SHEET 6

MATCHLINE -L- STA 63+50.00 SEE SHEET 8

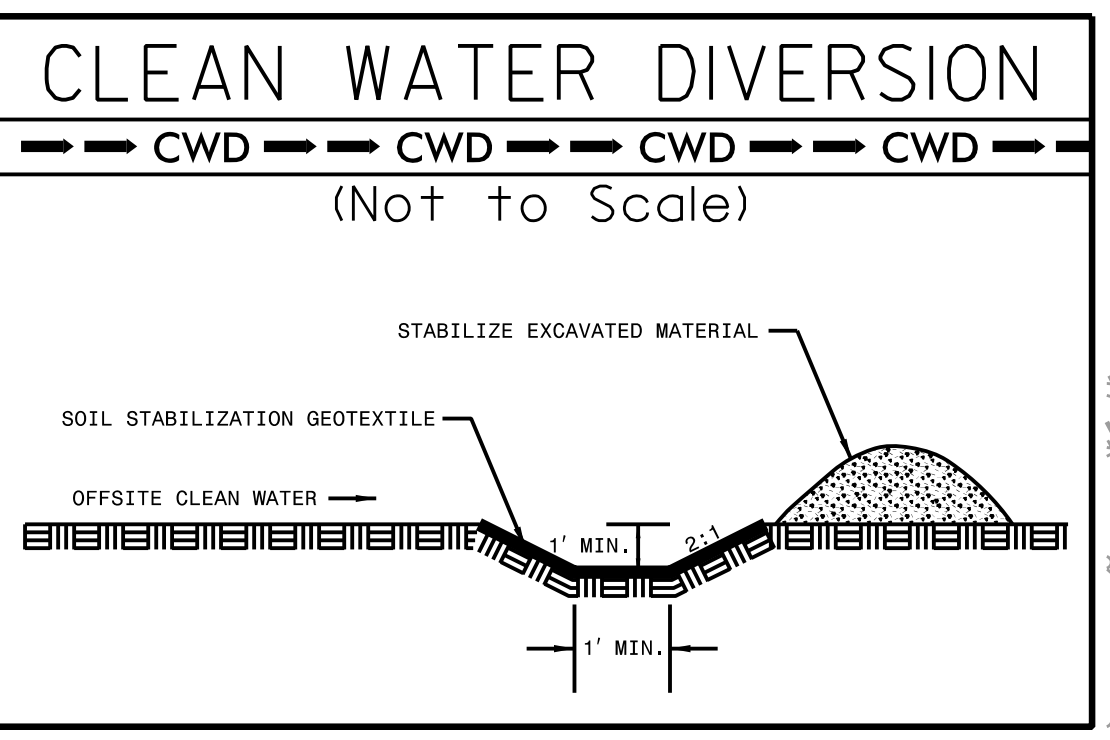
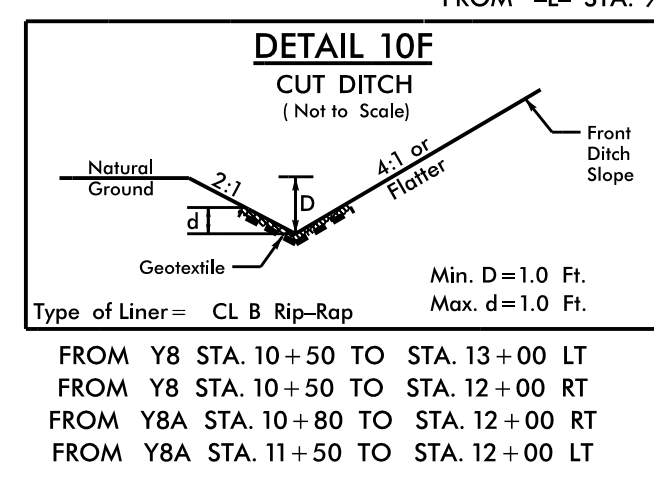
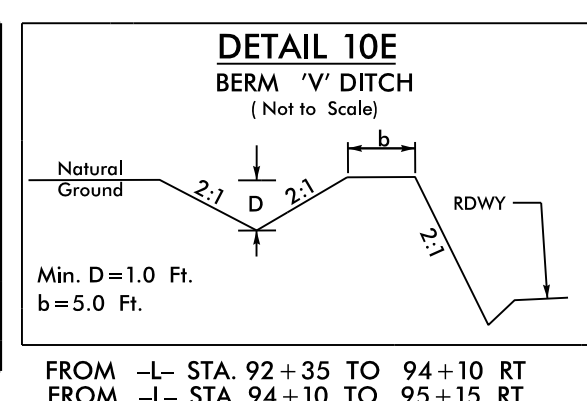
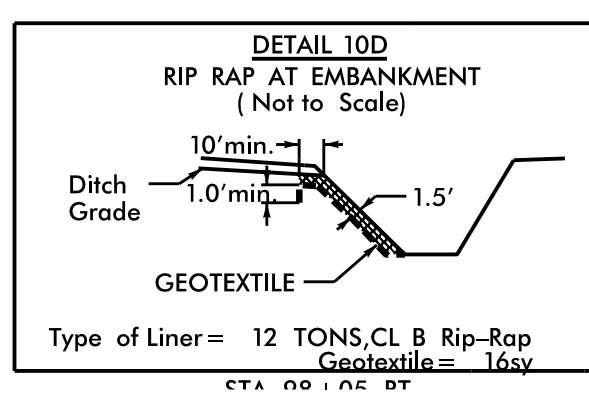
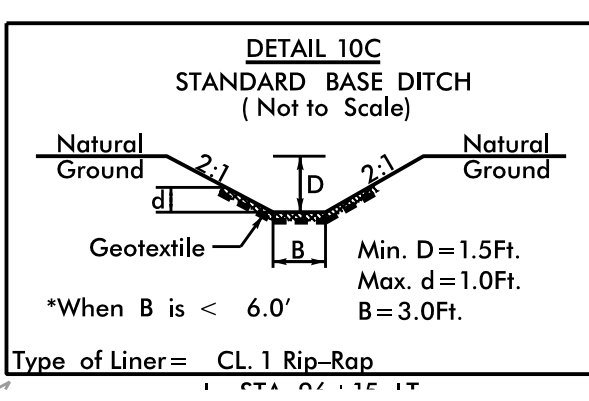
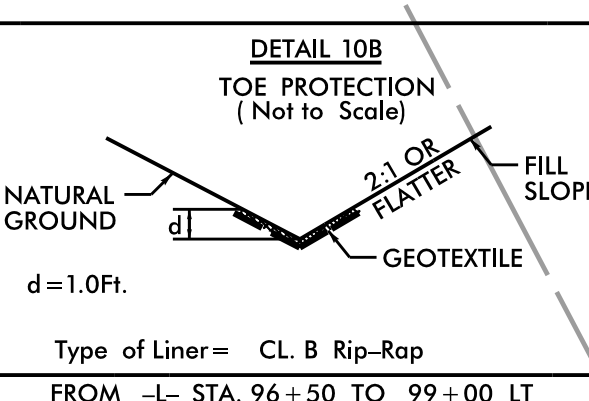
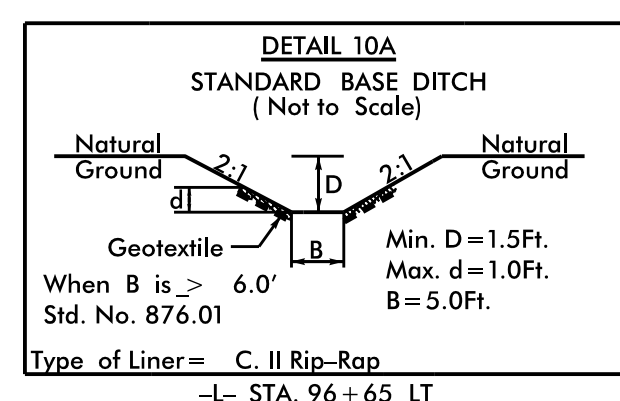


PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-24/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

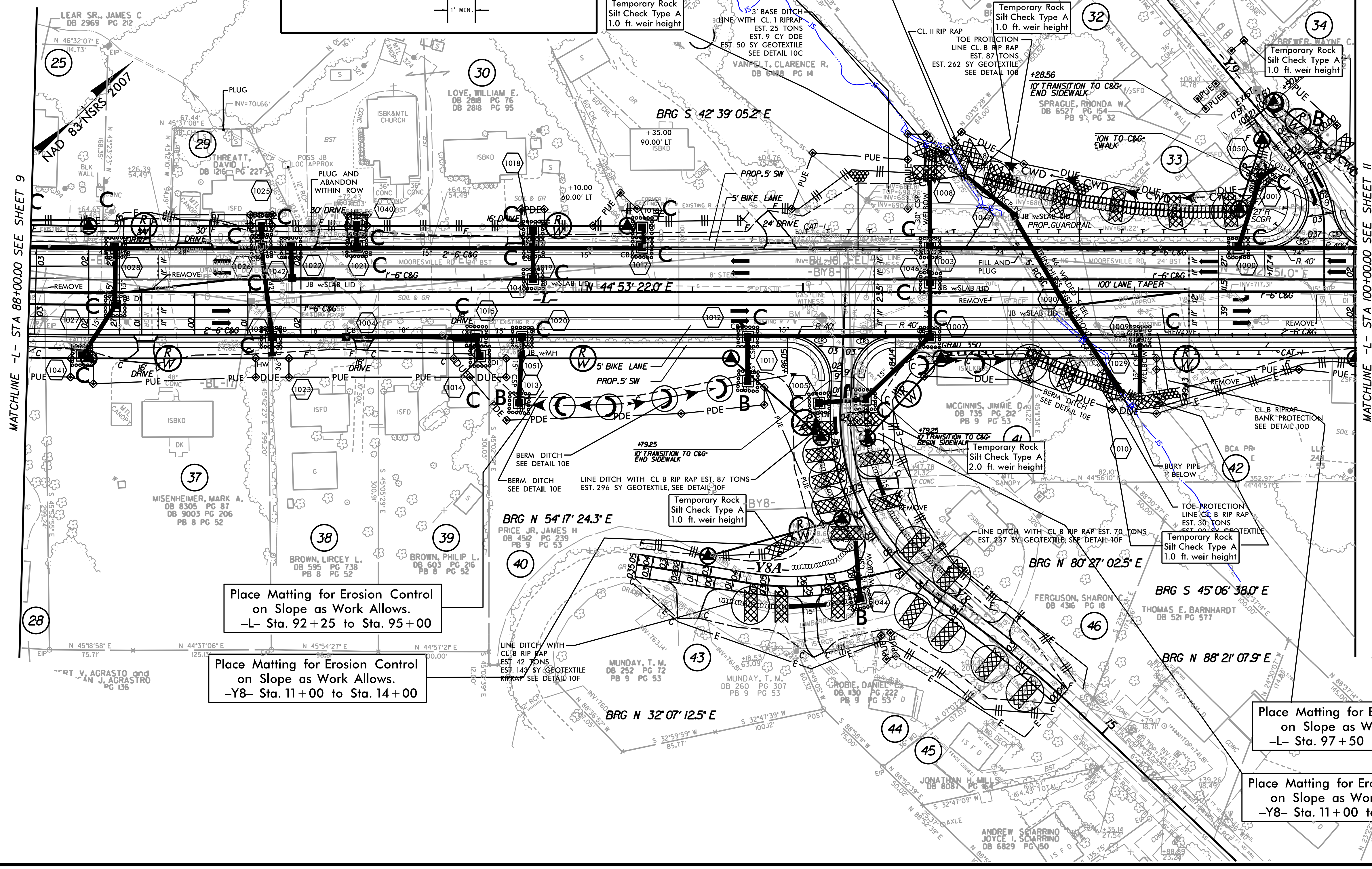


NAD 83/NTS 2007

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-25/CONST JO
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 95+00 to Sta. 99+00



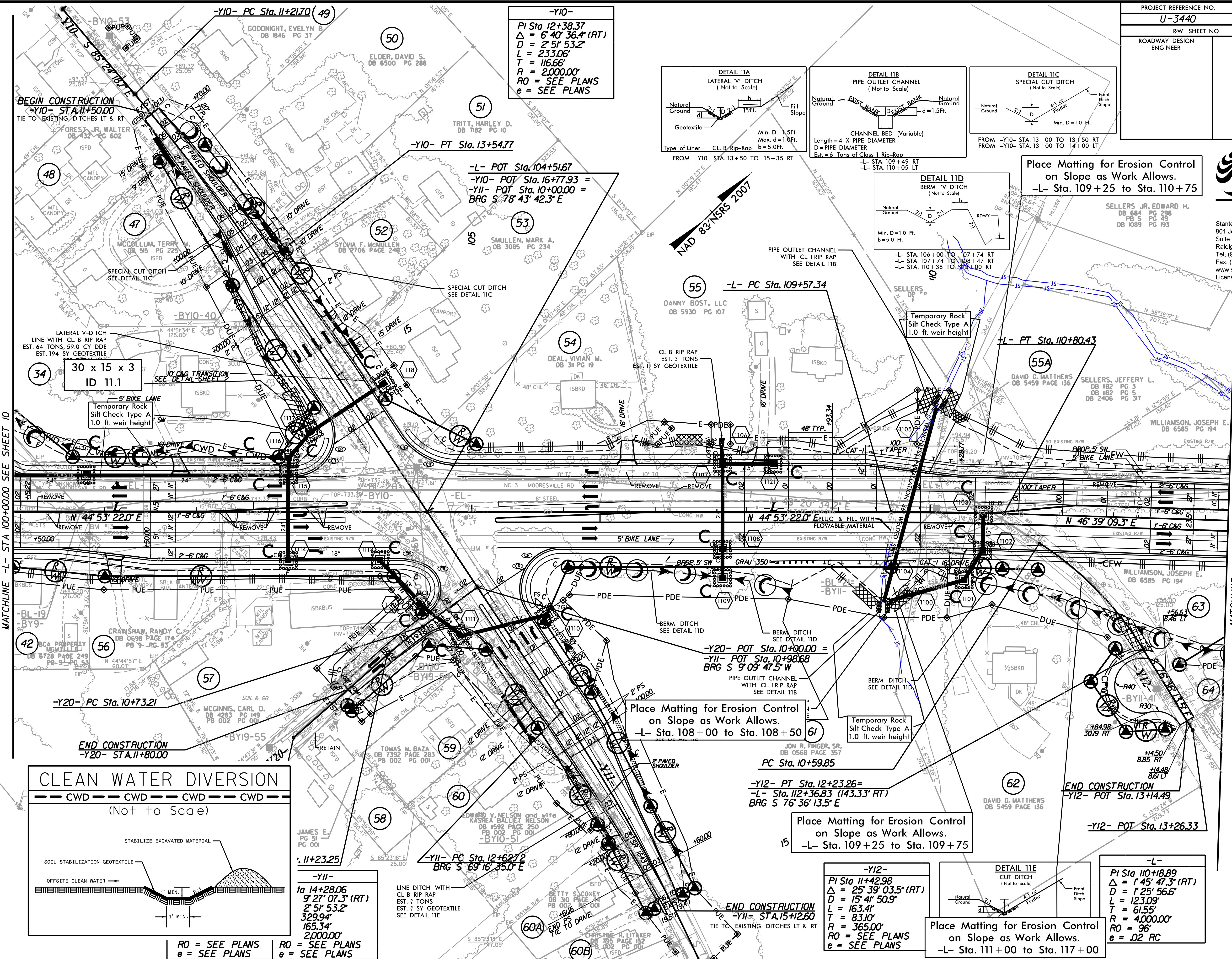
MATCHLINE -L- STA 88+00.00 SEE SHEET 9

MATCHLINE -L- STA 100+00.00 SEE SHEET 11

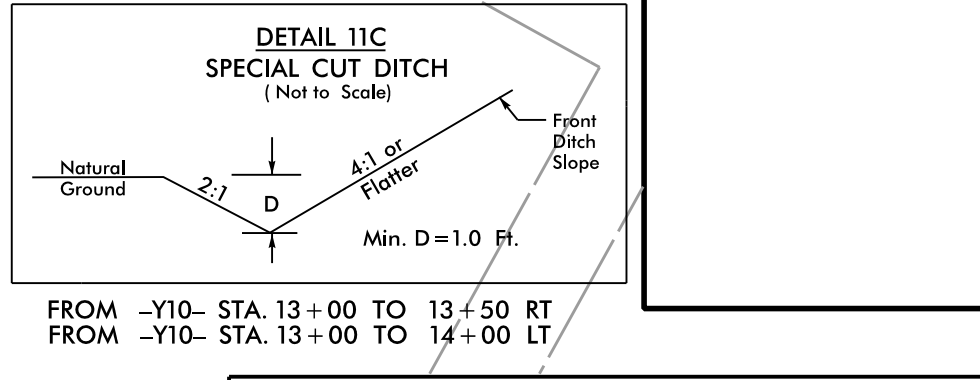
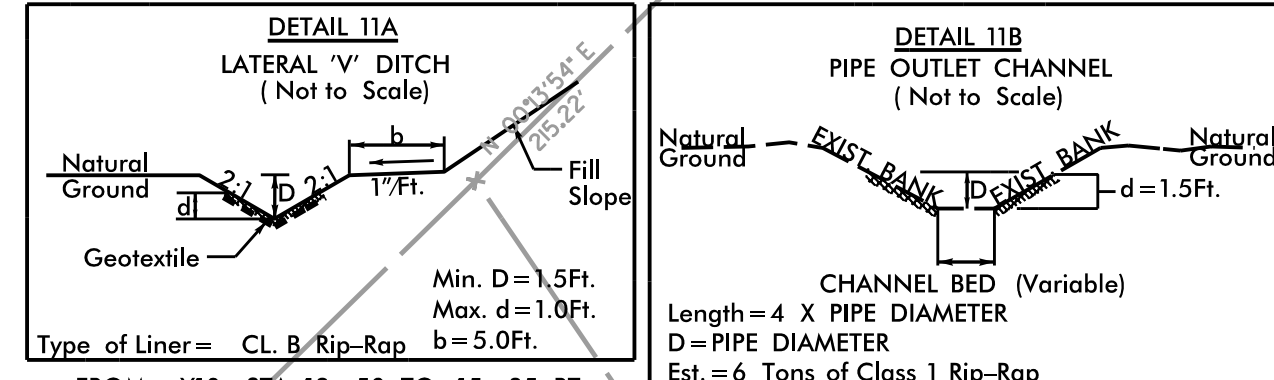




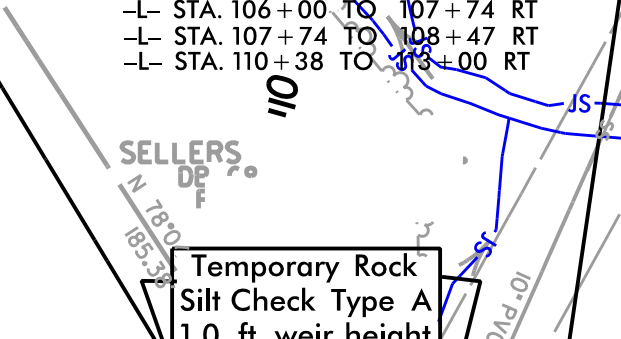
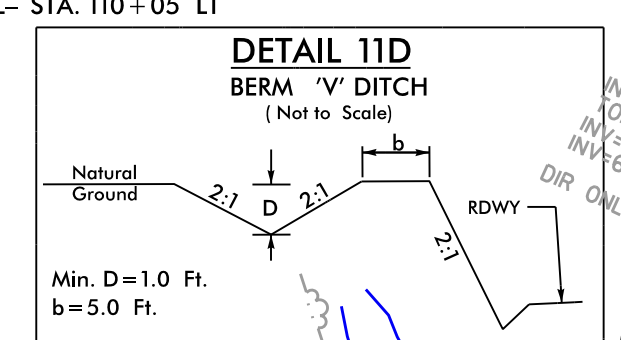
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-Y10-
 PI Sta 12+38.37
 $\Delta = 6' 40' 36.4''$ (RT)
 $D = 2' 51' 53.2''$
 $L = 233.06'$
 $T = 116.66'$
 $R = 2,000.00'$
 $RO = \text{SEE PLANS}$
 $e = \text{SEE PLANS}$



Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 109+25 to Sta. 110+75



30 x 15 x 3
 ID 11.1

5' BIKE LANE
 Temporary Rock Silt Check Type A
 1.0 ft. weir height



CLEAN WATER DIVERSION
 CWD - CWD - CWD - CWD
 (Not to Scale)

SOIL STABILIZATION GEOTEXTILE
 OFFSITE CLEAN WATER

1' MIN. 2' 1' MIN.

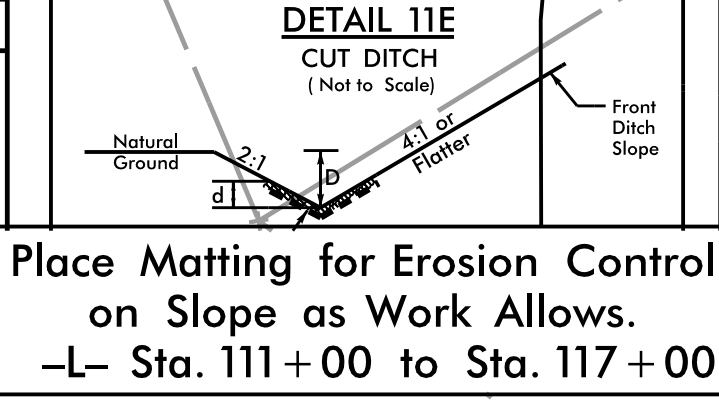
-Y11-
 PI Sta 14+28.06
 $\Delta = 9' 27' 07.3''$ (RT)
 $D = 2' 51' 53.2''$
 $L = 329.94'$
 $T = 165.34'$
 $R = 2,000.00'$
 $RO = \text{SEE PLANS}$
 $e = \text{SEE PLANS}$

LINE DITCH WITH CL B RIP RAP EST. 2 TONS EST. 1 SY GEOTEXTILE SEE DETAIL 11E

Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 108+00 to Sta. 108+50

Place Matting for Erosion Control on Slope as Work Allows.
 -L- Sta. 109+25 to Sta. 109+75

-Y12-
 PI Sta 11+42.98
 $\Delta = 25' 39' 03.5''$ (RT)
 $D = 15' 41' 50.9''$
 $L = 163.41'$
 $T = 83.10'$
 $R = 365.00'$
 $RO = \text{SEE PLANS}$
 $e = \text{SEE PLANS}$



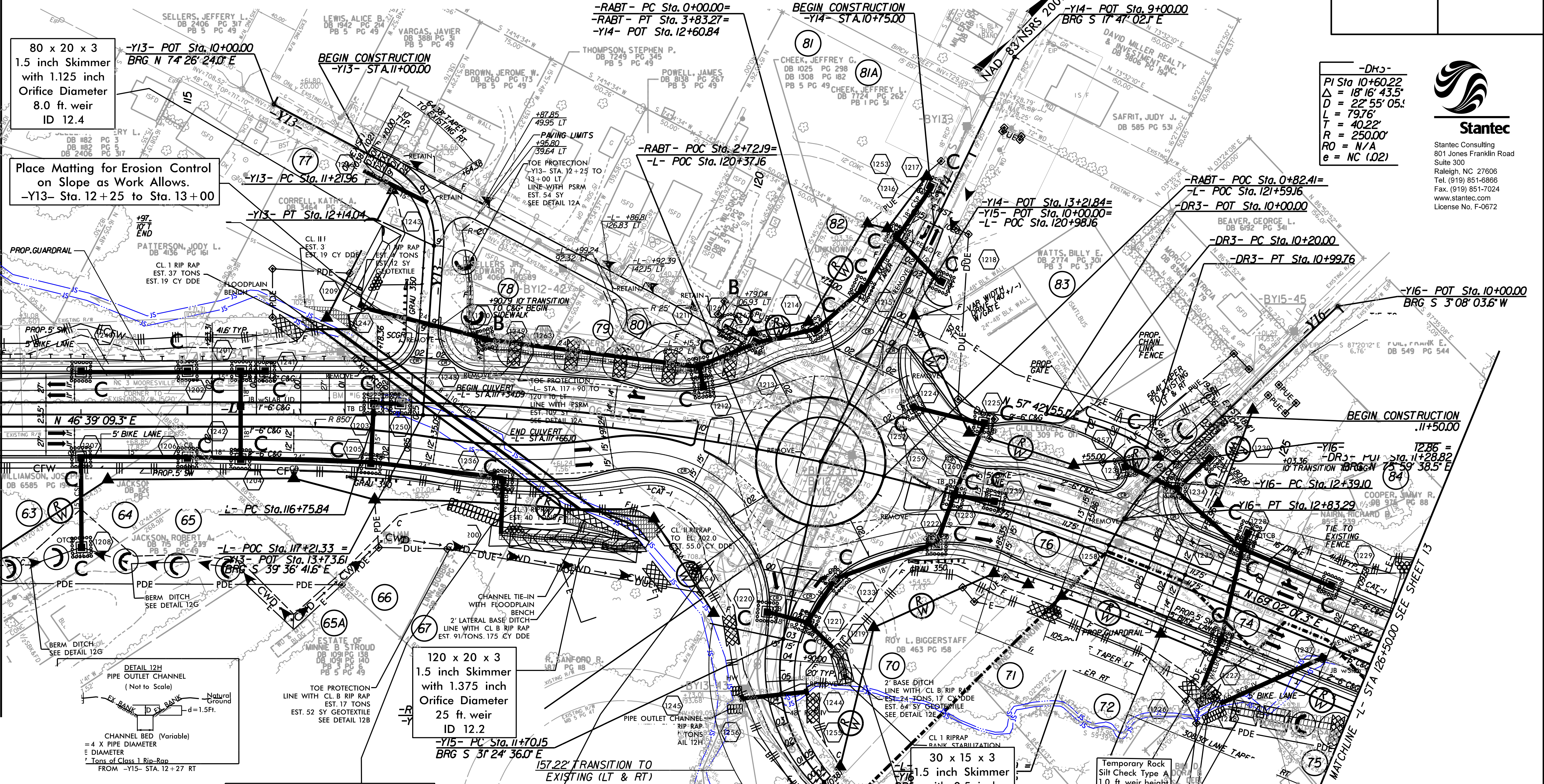
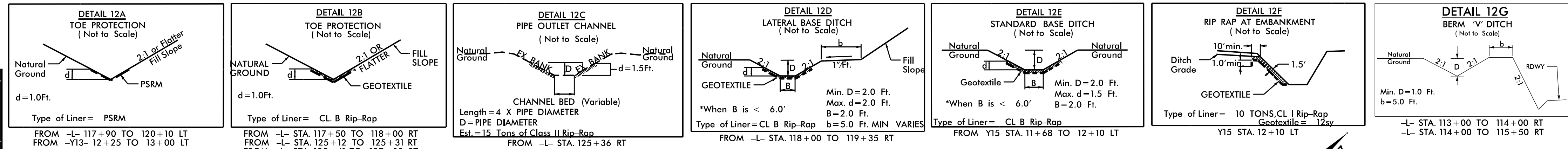
-L-
 PI Sta 110+18.89
 $\Delta = 1' 45' 47.3''$ (RT)
 $D = 1' 25' 56.6''$
 $L = 123.09'$
 $T = 61.55'$
 $R = 4,000.00'$
 $RO = 96'$
 $e = .02 RC$

END CONSTRUCTION
 -Y12- POT Sta. 13+26.33

MATCHLINE -L- STA 100+00.00 SEE SHEET 10

MATCHLINE -L- STA 113+25.00 SEE SHEET 12

PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-27/CONST J2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



80 x 20 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
8.0 ft. weir
ID 12.4

Place Matting for Erosion Control
on Slope as Work Allows.
-Y13- Sta. 12 + 25 to Sta. 13 + 00

120 x 20 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
25 ft. weir
ID 12.2

Place Matting for Erosion Control
on Slope as Work Allows.
-L- Sta. 117 + 50 to Sta. 119 + 50

Place Matting for Erosion Control
on Slope as Work Allows.
-RDAB- Sta. 2 + 00 to Sta. 2 + 50

-L-
PI Sta 120+71.54
 $\Delta = 22' 22" 58.0'$ (RT)
D = 2' 51" 53.2"
L = 781.31'
T = 395.70'
R = 2,000.00'
e = .025

-Y15- PT Sta. 13+15.73
END CONSTRUCTION
-Y15- POT Sta. 13+89.74
BRG S 87°00' 58.2" E

-Y15-
PI Sta 12+49.25
 $\Delta = 55' 36" 22.2'$ (LT)
D = 38" 11' 49.9"
L = 145.58'
T = 79.10'
R = 150.00'
RO = SEE PLANS
e = SFF PLANS

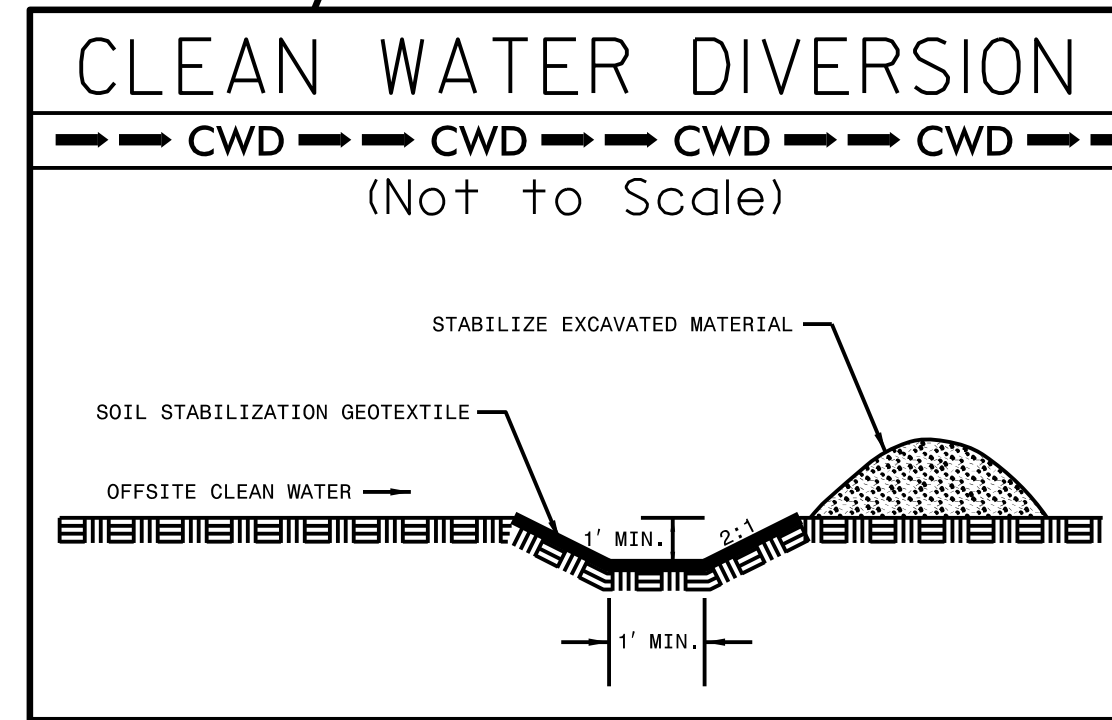
(69) Place Matting for Erosion Control
on Slope as Work Allows.
-L- Sta. 123 + 50 to Sta. 126 + 75

30 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
13ft. weir
ID 12.1

25 x 20 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4.0 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 12.5

-DR3-
PI Sta 10+60.22
 $\Delta = 18' 16" 43.5'$
D = 22' 55" 05.1"
L = 797.6'
T = 40.22'
R = 2500.00'
RO = N/A
e = NC (.02)

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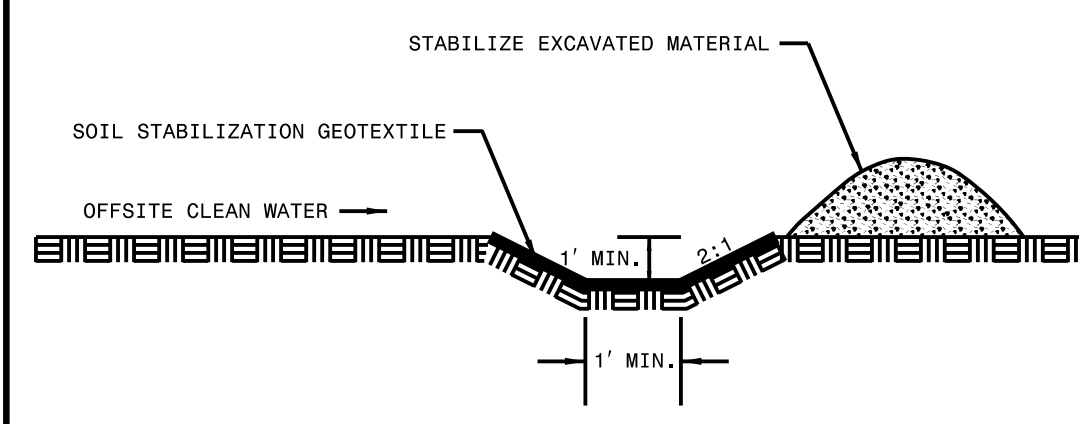


PROJECT REFERENCE NO.	SHEET NO.
U-3440	EC-28/CONSTJ3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEAN WATER DIVERSION

--- CWD --- CWD --- CWD --- CWD
(Not to Scale)



-L-
PI Sta 133+14.77
 $\Delta = 3'55''58.4$ (LT)
 $D = 0'21''29.2$
 $L = 1,098.27'$
 $T = 549.35'$
 $R = 16,000.00'$
 $e = NC (0.2)$

NAD 83/NRS 2007

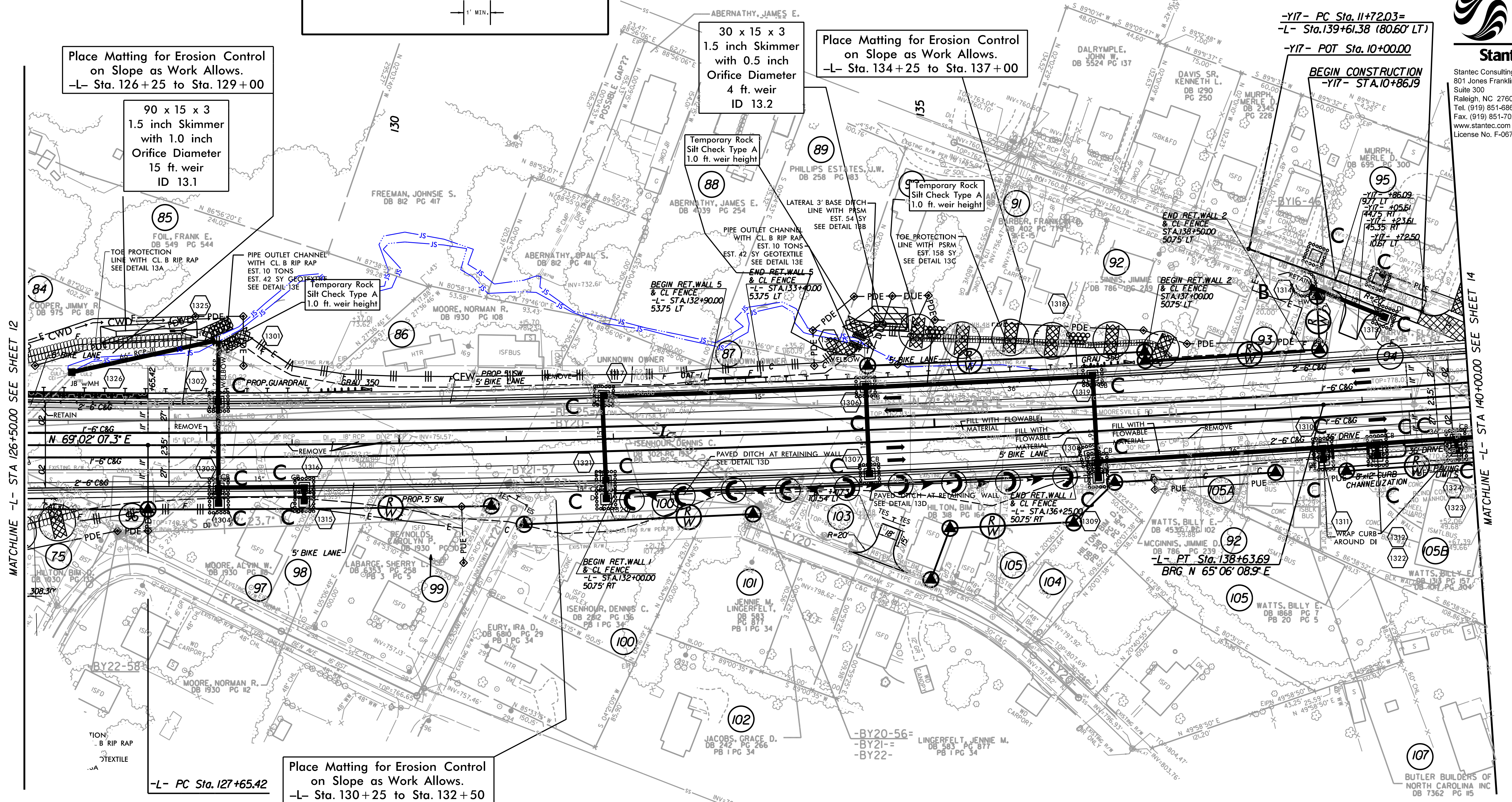
Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 126+25 to Sta. 129+00

90 x 15 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
15 ft. weir
ID 13.1

30 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 13.2

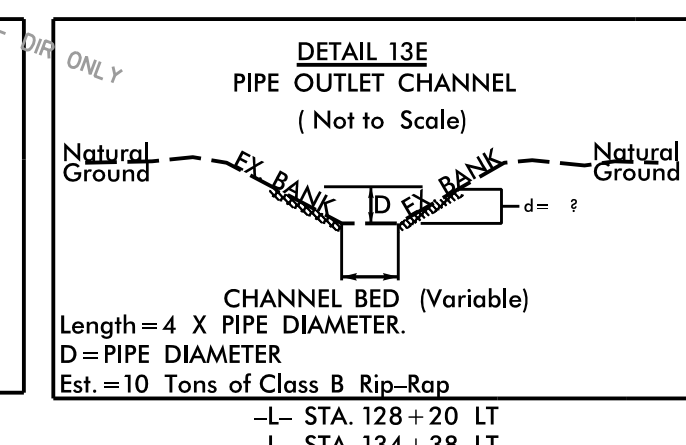
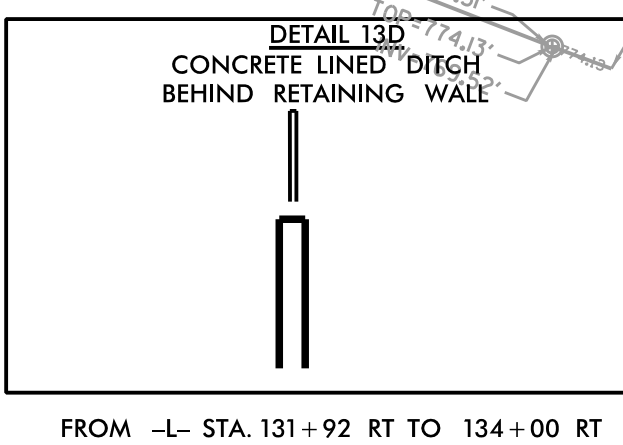
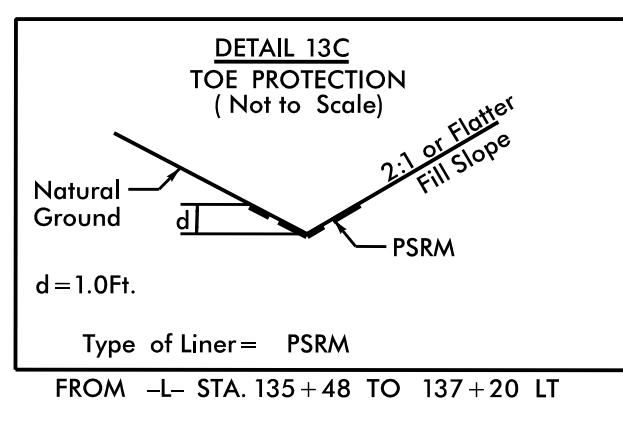
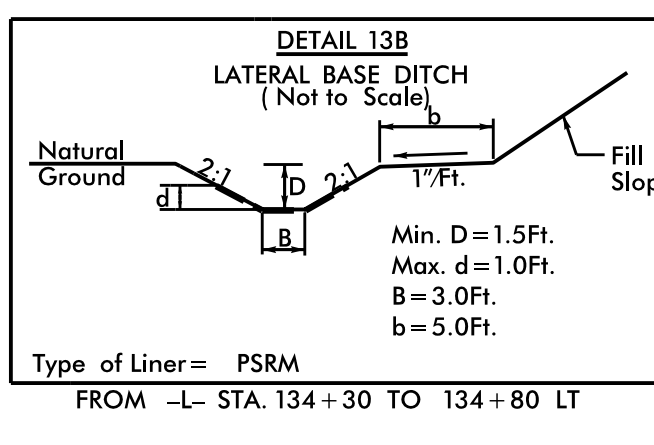
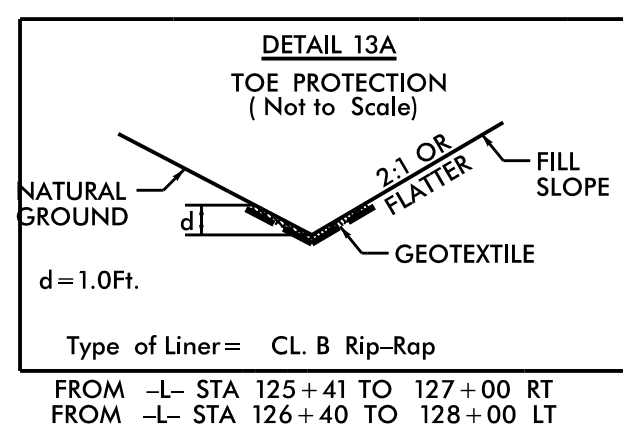
Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 134+25 to Sta. 137+00

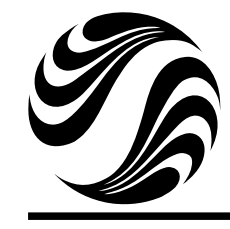
-Y17- PC Sta. 11+72.03=
-L- Sta. 139+61.38 (80.60' LT)
-Y17- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y17- STA. 10+86.19



MATCHLINE -L- STA 126+50.00 SEE SHEET 12

MATCHLINE -L- STA 140+00.00 SEE SHEET 14



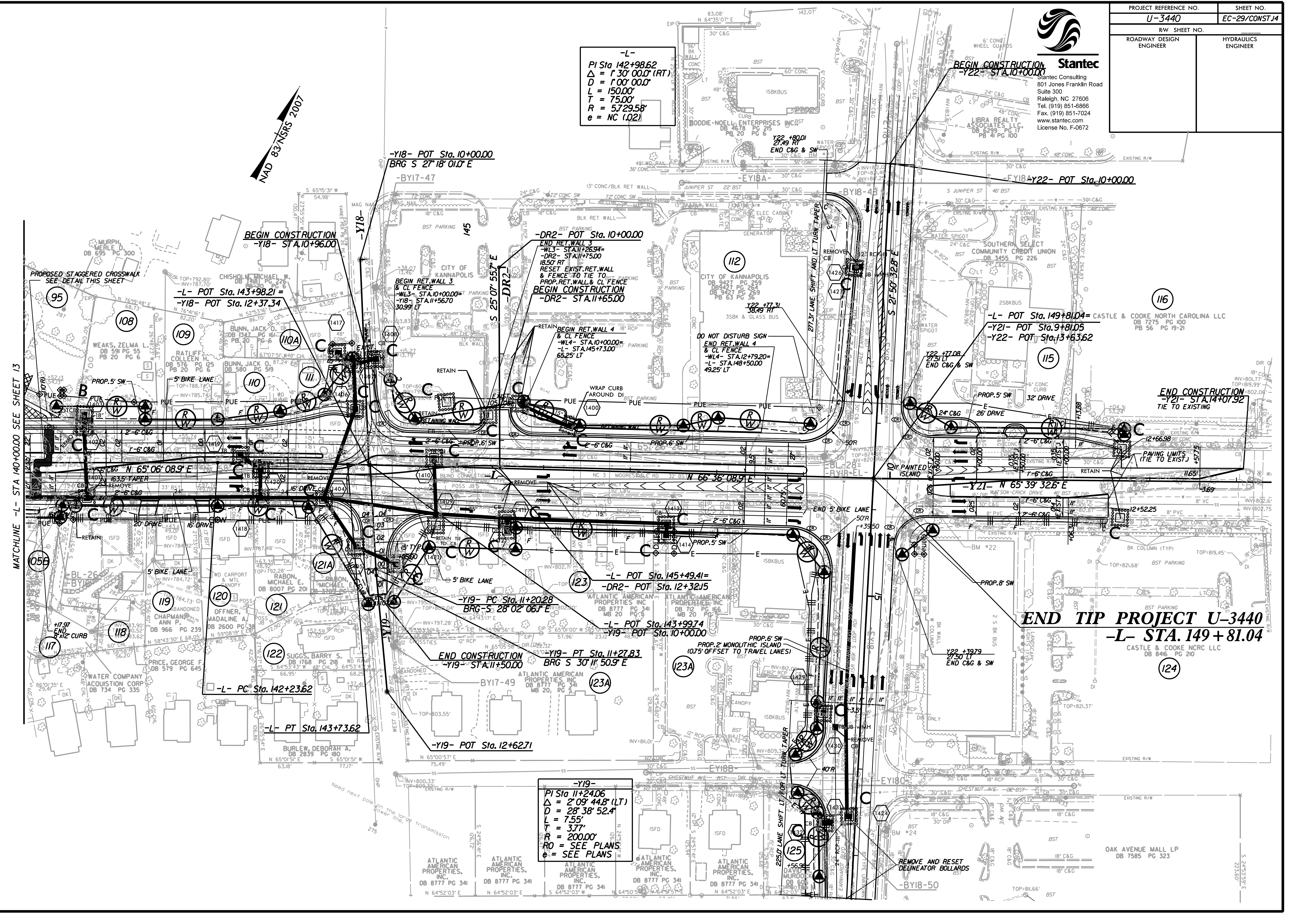


PROJECT REFERENCE NO. U-3440	SHEET NO. EC-29/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L-
 PI Sta 142+98.62
 $\Delta = 1' 30'' 00.0''$ (RT)
 D = 1'00' 00.0"
 L = 150.0'
 T = 75.0'
 R = 5,729.58'
 e = NC (1.02)

-Y19-
 PI Sta 11+24.06
 $\Delta = 2' 09'' 44.8''$ (LT)
 D = 28' 38'' 52.4"
 L = 7.55'
 T = 3.77'
 R = 200.00'
 RO = SEE PLANS
 e = SEE PLANS



NAD 83 NSRS 2007

MATCHLINE -L- STA 140+00.00 SEE SHEET 13

END TIP PROJECT U-3440
-L- STA. 149 + 81.04
 CASTLE & COOKE NCR LLC
 DB 8416 PG 210

END CONSTRUCTION
-Y21- STA.14+07.92
 TIE TO EXISTING

-L- POT Sta. 149+81.04= CASTLE & COOKE NORTH CAROLINA LLC
-Y21- POT Sta.9+81.05
-Y22- POT Sta.13+63.62

BEGIN CONSTRUCTION
-Y18- STA.10+96.00

-DR2- POT Sta. 10+00.00
END RET. WALL 3
-WL3- STA.11+28.34=
-DR2- STA.11+75.00
 18.50 RT
RESET EXIST. RET. WALL
& FENCE TO TIE TO
PROP. RET. WALL & CL FENCE
BEGIN CONSTRUCTION
-DR2- STA.11+65.00

-L- POT Sta. 143+98.21=
-Y18- POT Sta. 12+37.34

BEGIN RET. WALL 4
& CL FENCE
-WL4- STA.10+00.00=
-L- STA.145+73.00
 65.25' LT

-Y21- N 65° 39' 32.6" E

-L- POT Sta. 145+49.41=
-DR2- POT Sta. 12+32.15

-Y19- PC Sta. 11+20.28
BRG S 28° 02' 06.1" E

-L- POT Sta. 143+99.74
-Y19- POT Sta. 10+00.00

END CONSTRUCTION
-Y19- PT Sta. 11+27.83
BRG S 30° 11' 50.9" E

-L- PC Sta. 142+23.62

-L- PT Sta. 143+73.62

-Y19- POT Sta. 12+62.71

OAK AVENUE MALL LP
 DB 7585 PG 323

S 24° 53' 19" E
 223.60'