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TIP PROJECT: R-5707

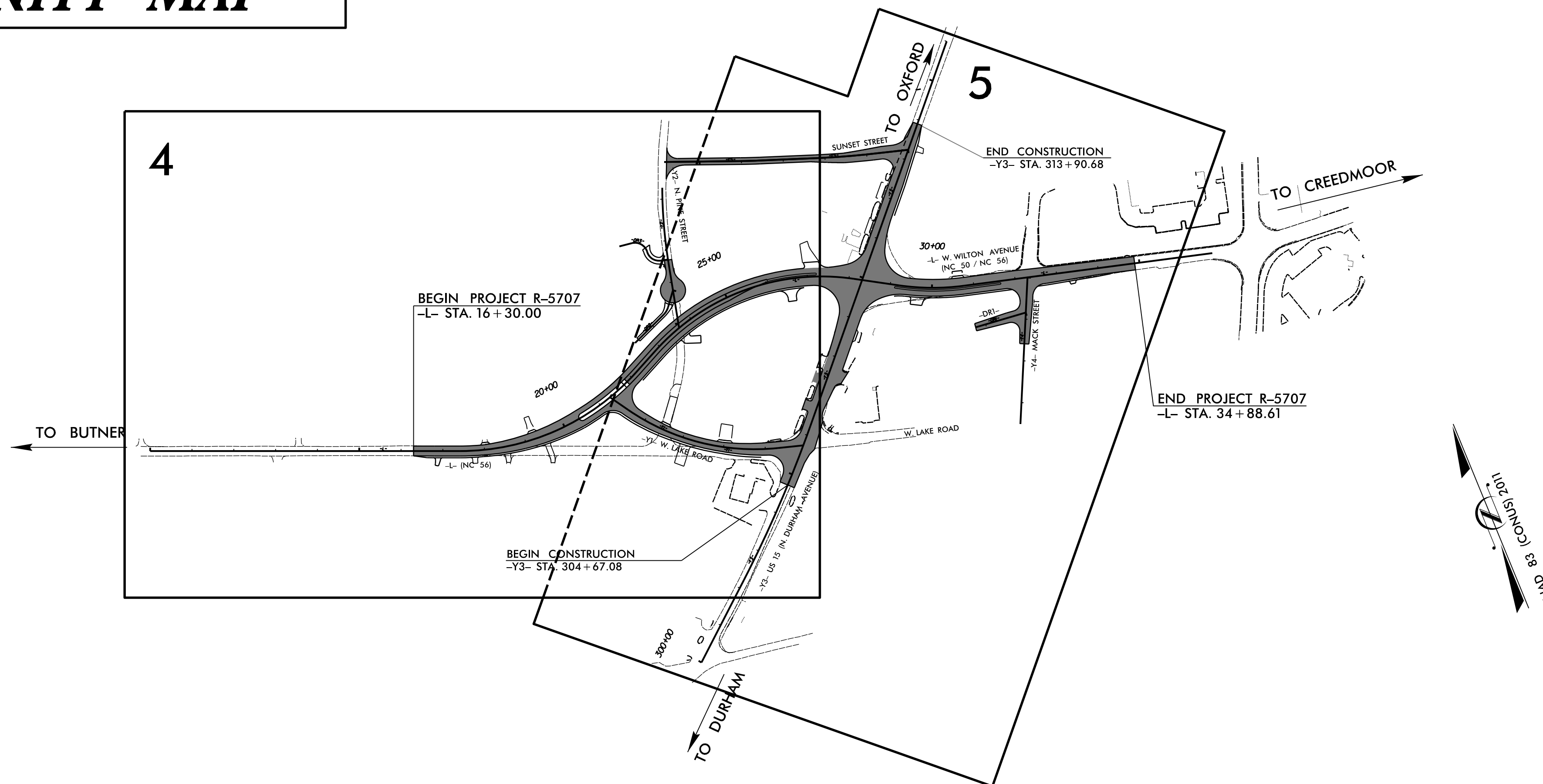
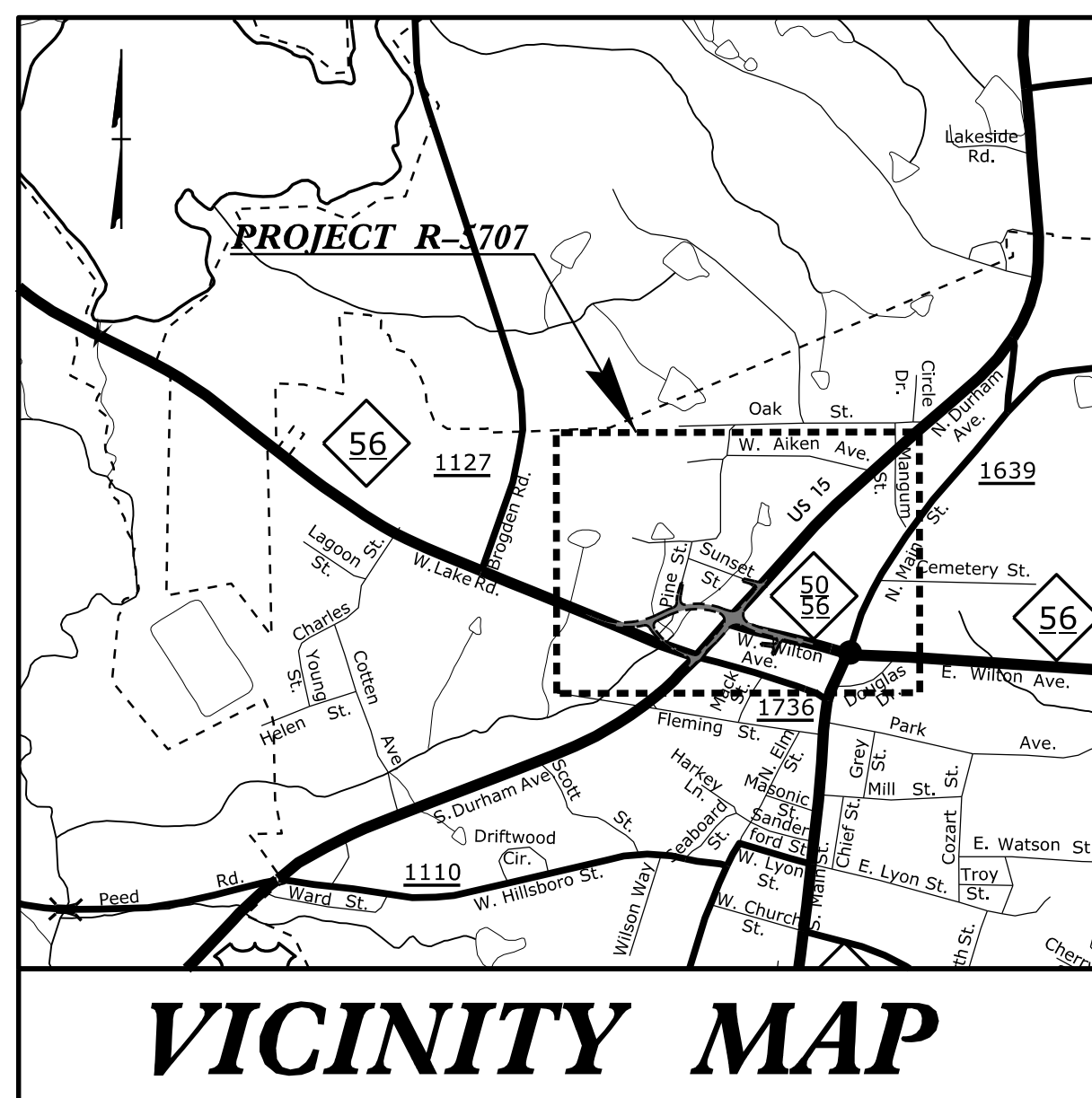
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GRANVILLE COUNTY

**LOCATION: NC 56 (W. LAKE ROAD & W. WILTON AVENUE)
AT US 15 (N. DURHAM AVENUE) AND NC 50 IN CREEDMOOR**

TYPE OF WORK: GRADING, PAVING, DRAINAGE & SIGNALS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5707	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46379.1.1		PE	
46379.2.1		RW, UTIL.	
46379.3.1		CONST.	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	---X---
1622.01	Temporary Berms and Slope Drains	---T---
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	W
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	W
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	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
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	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

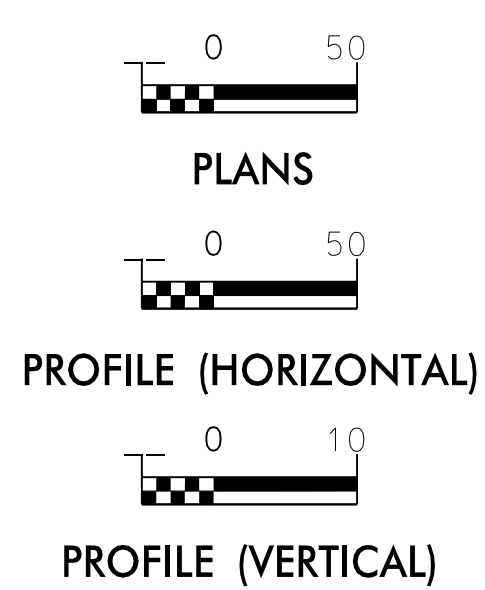
**THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.**

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

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

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

GRAPHIC SCALE



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

Prepared in the Office of:
CH Engineering
3220 Glen Royal Road
Raleigh, NC 27617

Designed by:
Brian A Wiles 3759
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:
Wes Chandler, PE

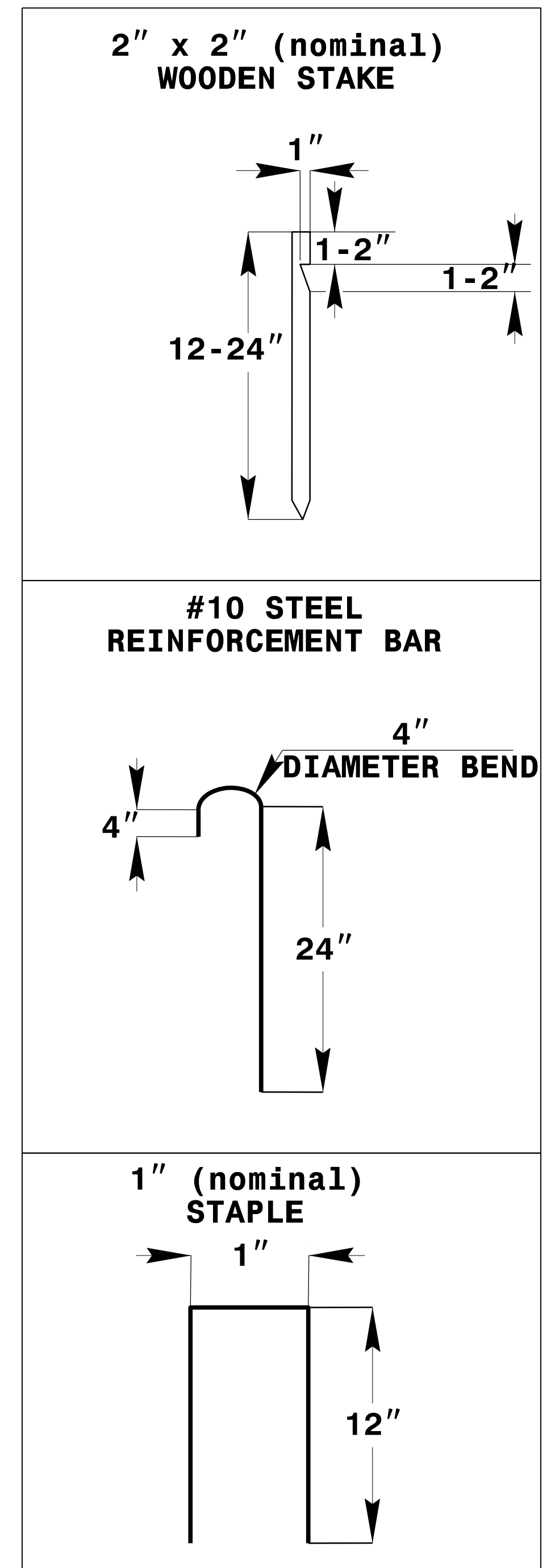
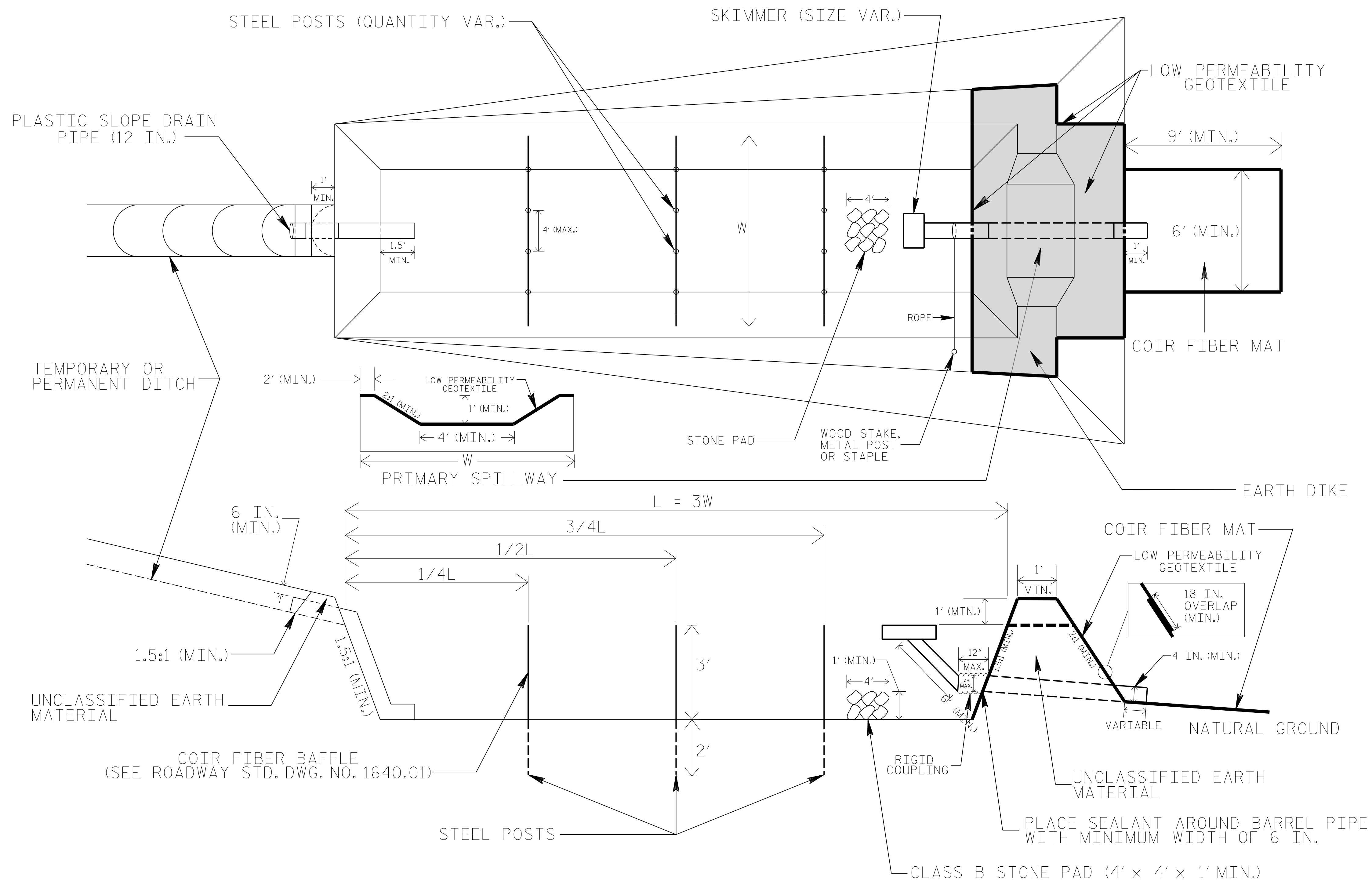
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 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. <i>R-5707</i>	SHEET NO. <i>EC-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL (EAST)



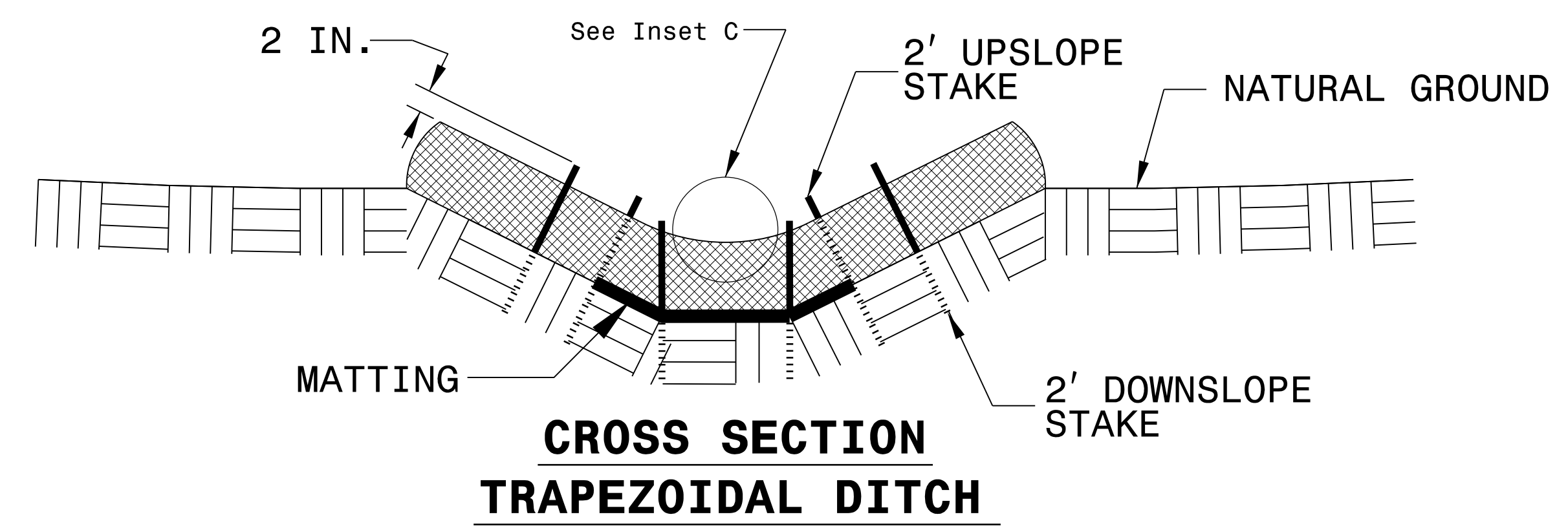
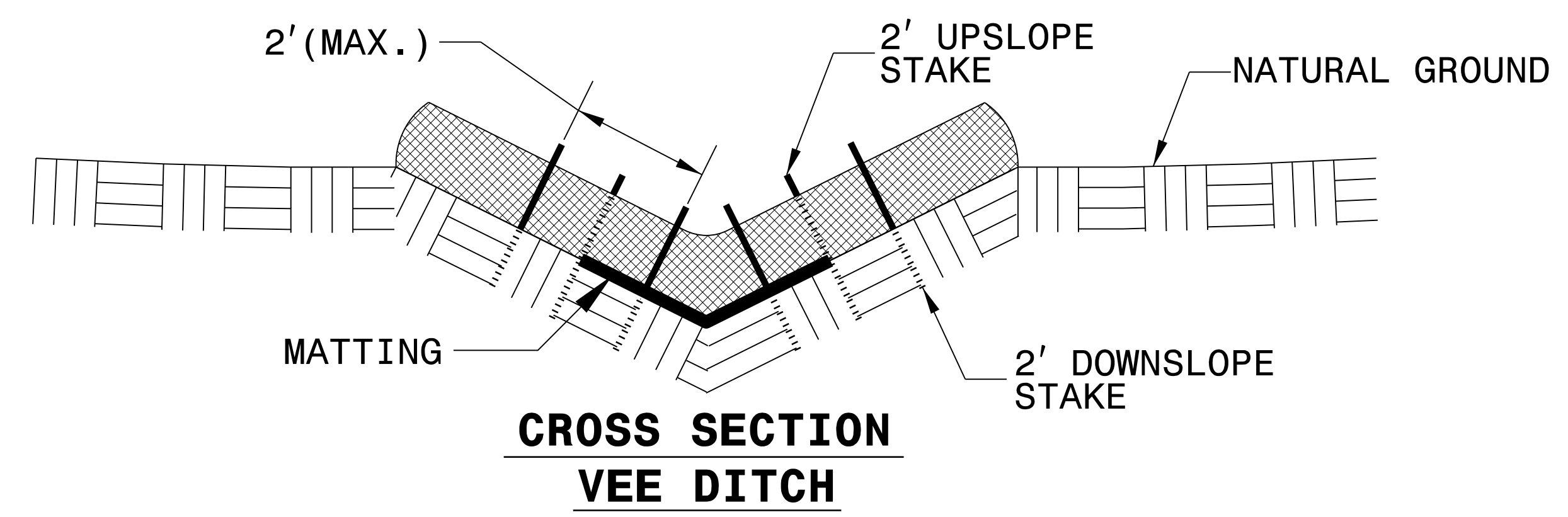
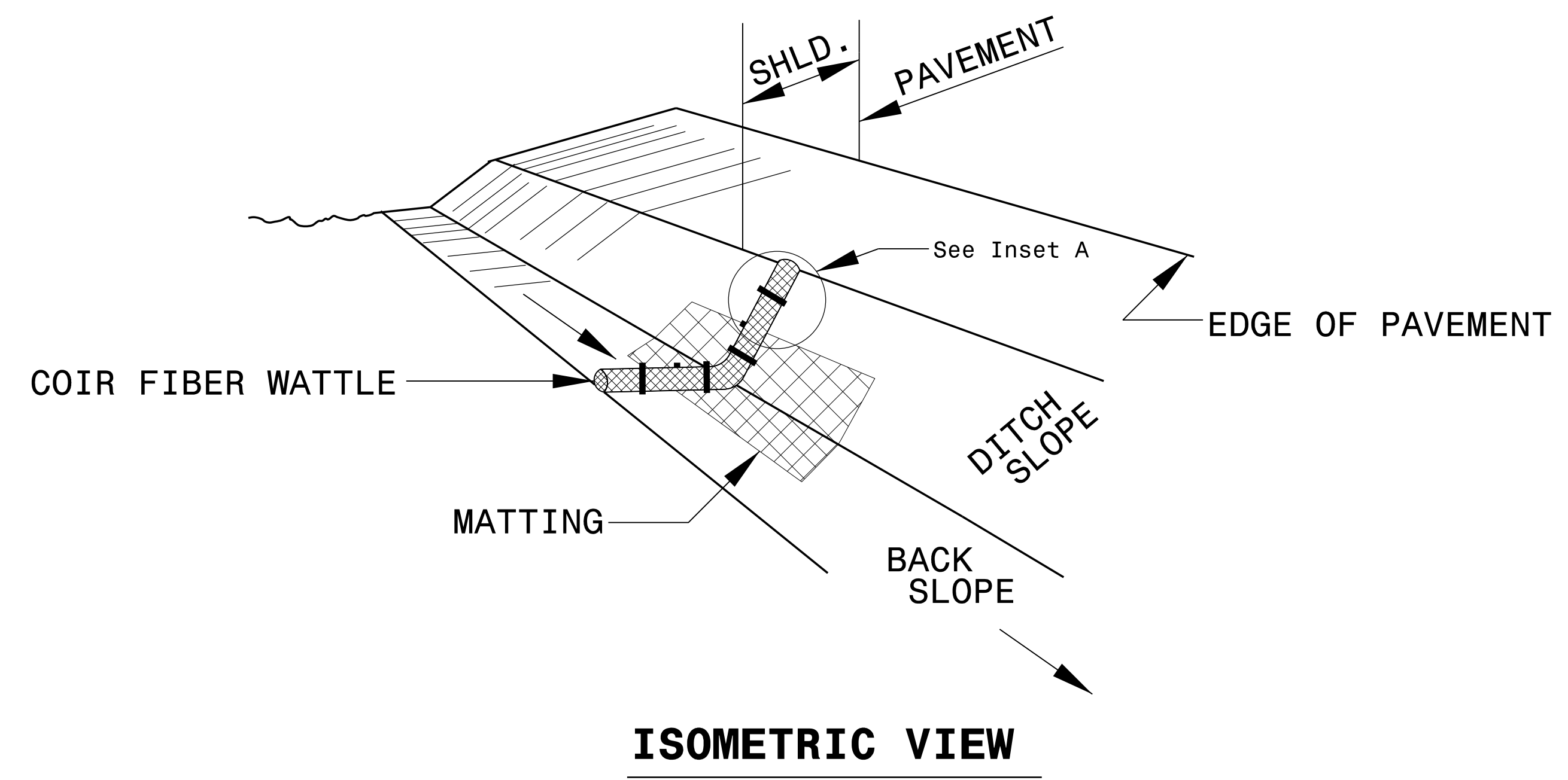
NOTES

- SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
- LIMIT EARTH DIKE HEIGHT TO 5 FT.
- FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
- DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING $Q/0.8$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
- PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
- LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

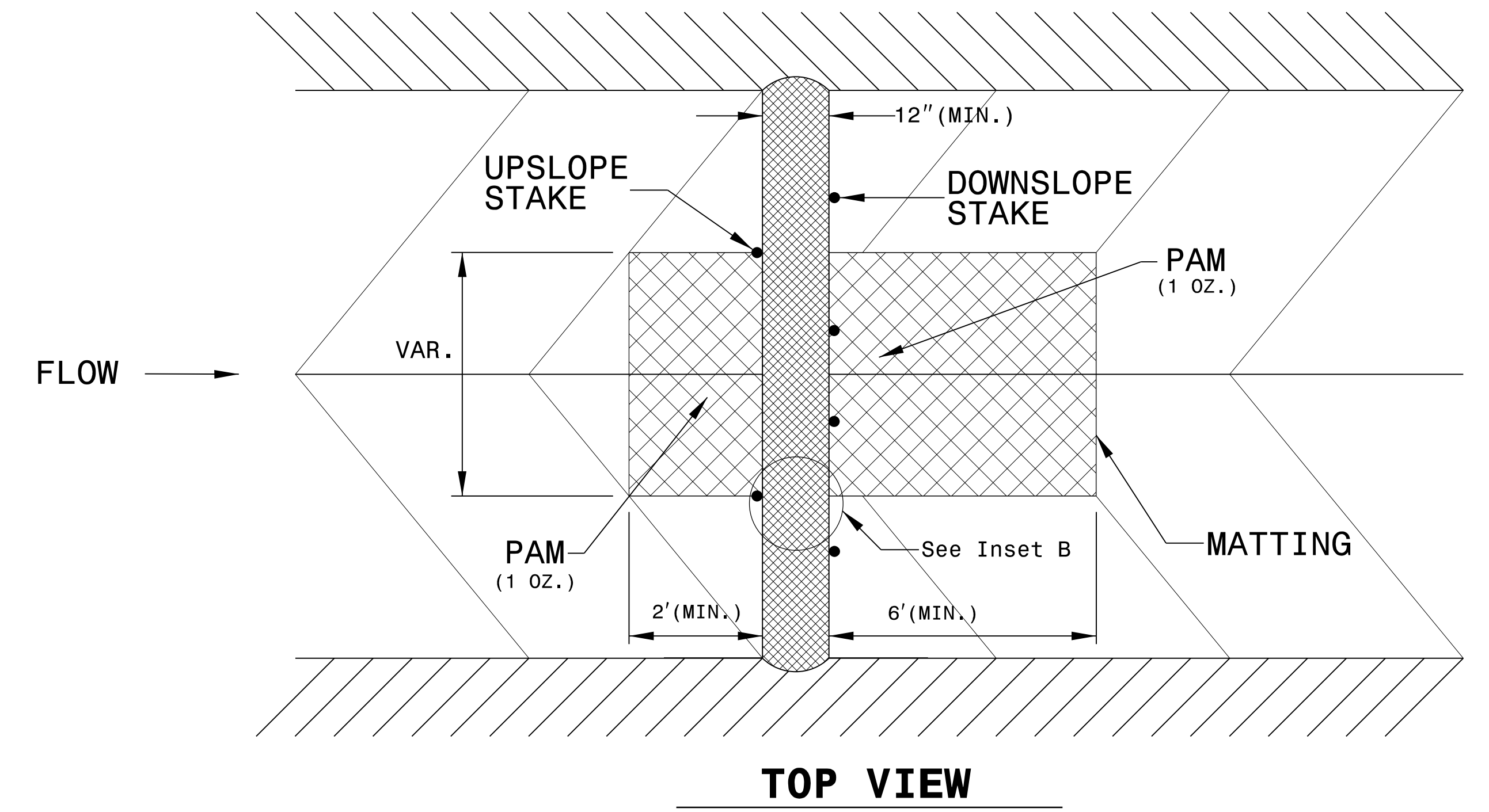
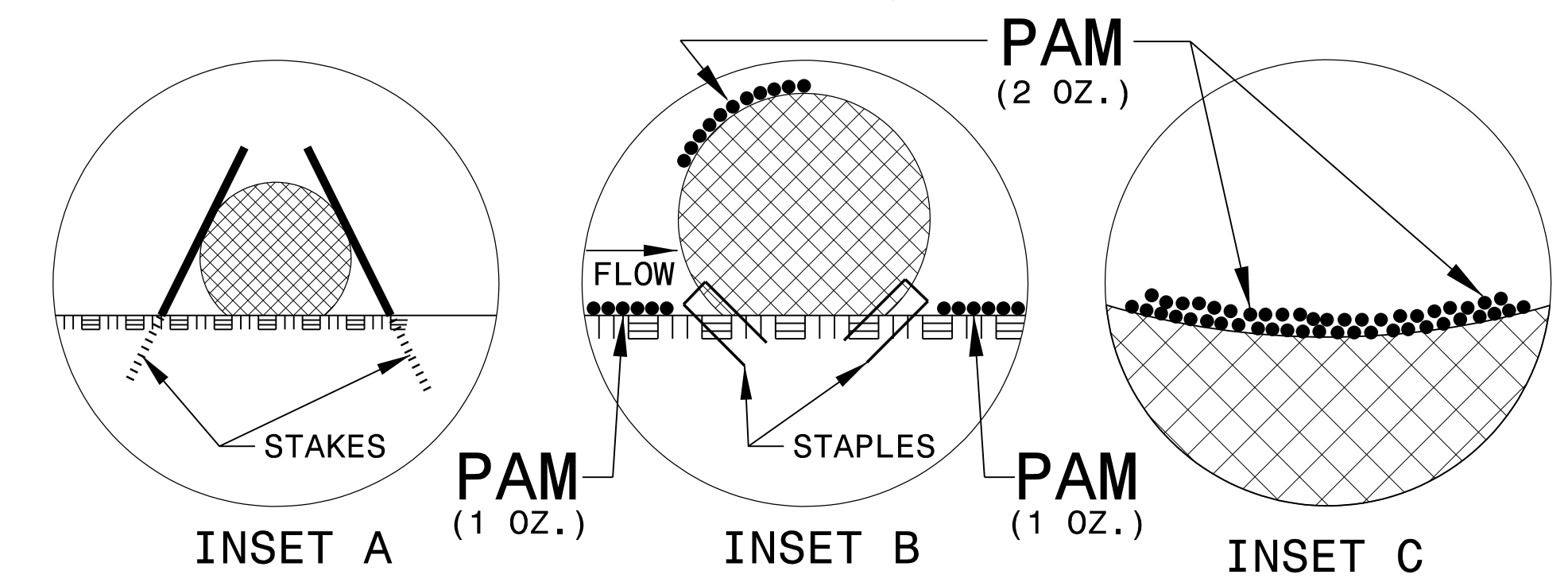
NOT TO SCALE

PROJECT REFERENCE NO. R-5707	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

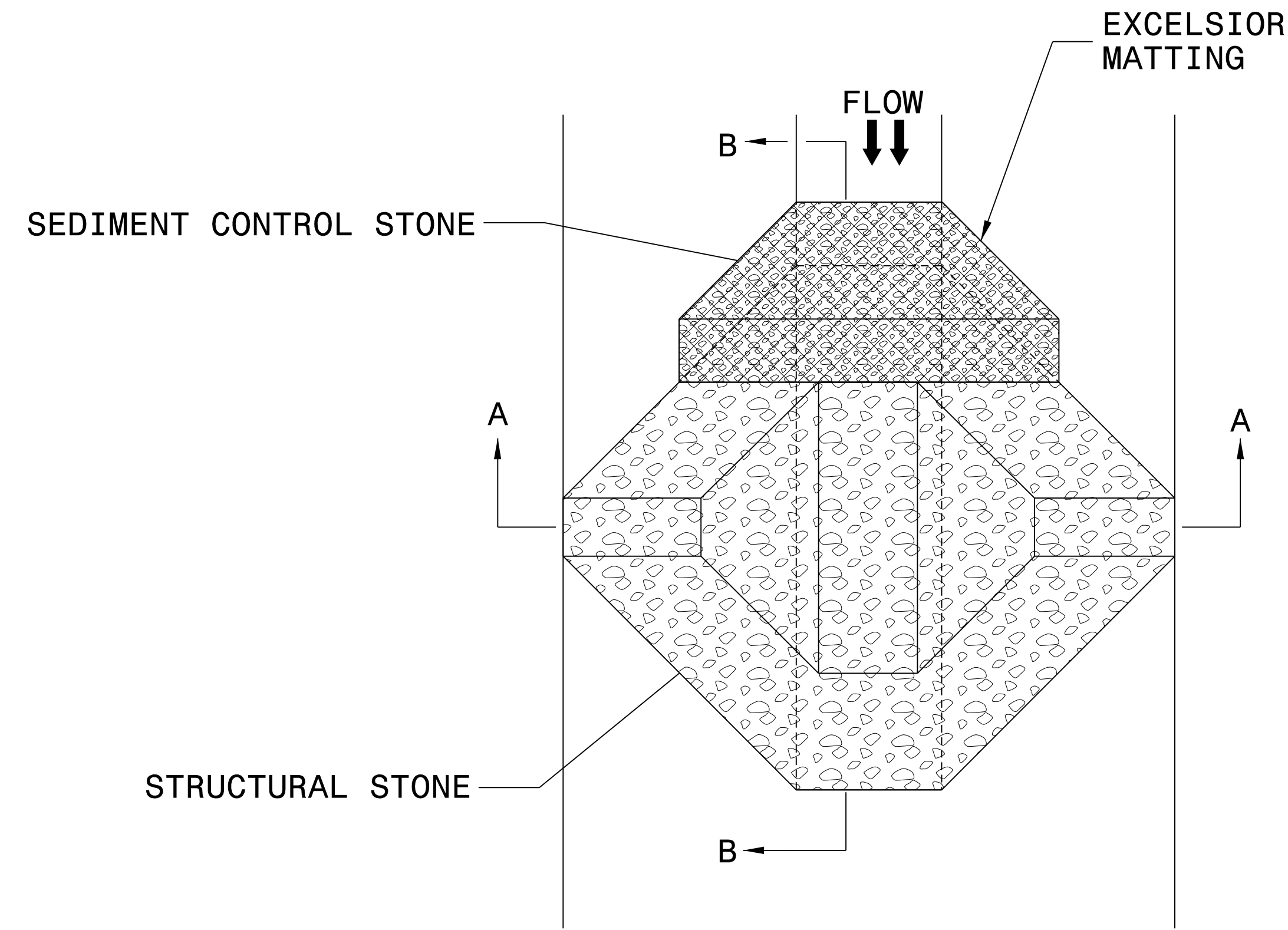


- NOTES:
- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 - INSTALL A MINIMUM OF 2 UPSLOPE 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.



PROJECT REFERENCE NO. W-5707	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

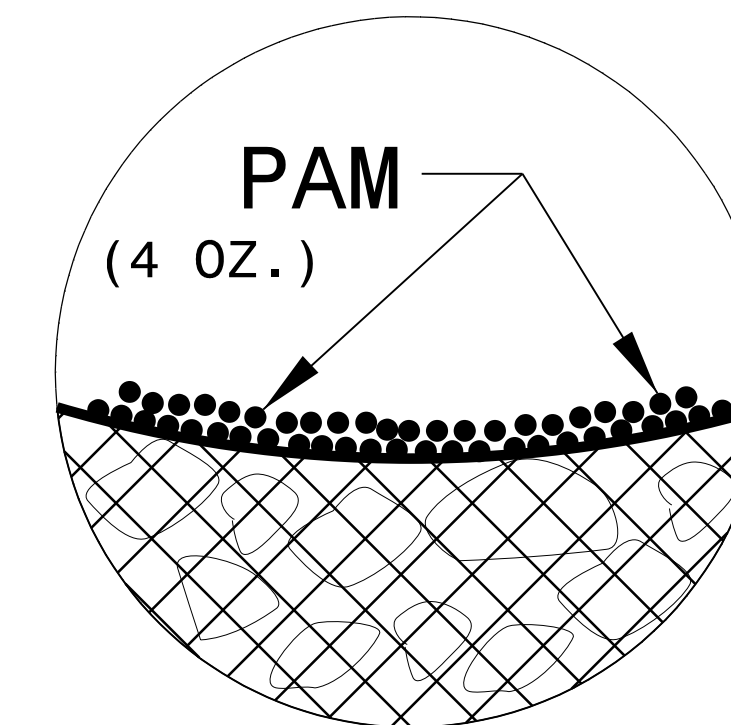
NOTES:

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

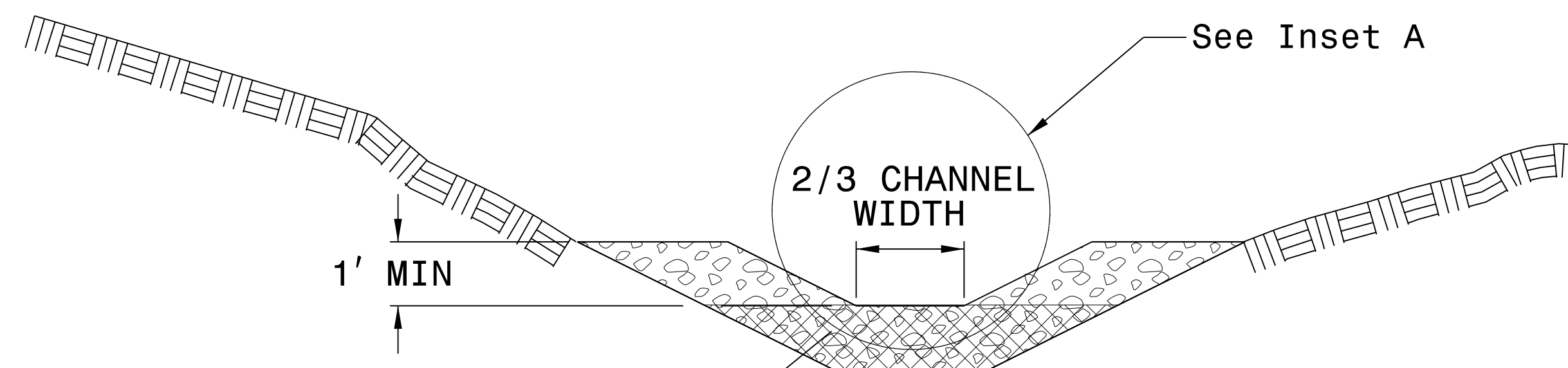
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

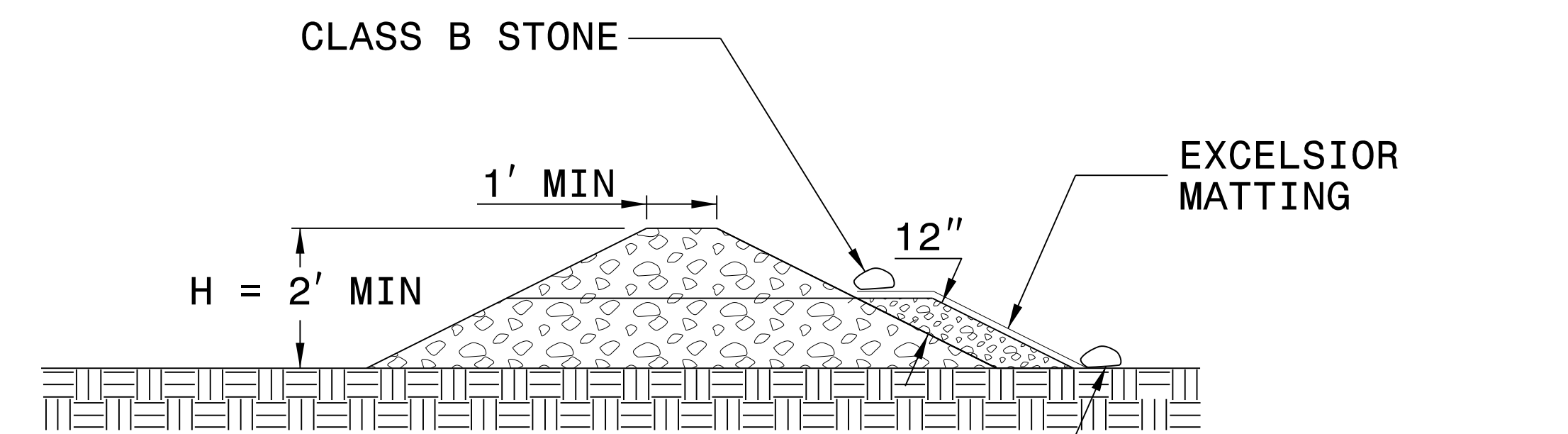
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

<small>PROJECT REFERENCE NO.</small> R-5707	<small>SHEET NO.</small> EC-3
<small>ROADWAY DESIGN ENGINEER</small>	<small>HYDRAULICS ENGINEER</small>

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

<small>CONST SHEET NO.</small>	<small>LINE</small>	<small>FROM STATION</small>	<small>TO STATION</small>	<small>SIDE</small>	<small>ESTIMATE (SY)</small>
4	-L-	16+30	17+50	RT	85
4	-L-	17+50	18+50	RT	60
4	-L-	21+00	21+58	LT	60
4	-L-	24+00	25+50	RT	105
4	-Y2-	200+50	202+00	LT	90
4	-Y2-	201+00	202+00	RT	60
5	-Y3-	311+00	313+00	RT	140
5	-Y4-	400+40	401+72.5	LT	95
		<small>SUBTOTAL</small>			695
<small>MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER</small>					200
				<small>TOTAL</small>	895
				<small>SAY</small>	895

MATTING FOR EROSION CONTROL

<small>CONST SHEET NO.</small>	<small>LINE</small>	<small>FROM STATION</small>	<small>TO STATION</small>	<small>SIDE</small>	<small>ESTIMATE (SY)</small>

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DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.		SHEET NO.	
R-5707		EC-3A	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SOIL STABILIZATION TIMEFRAMES

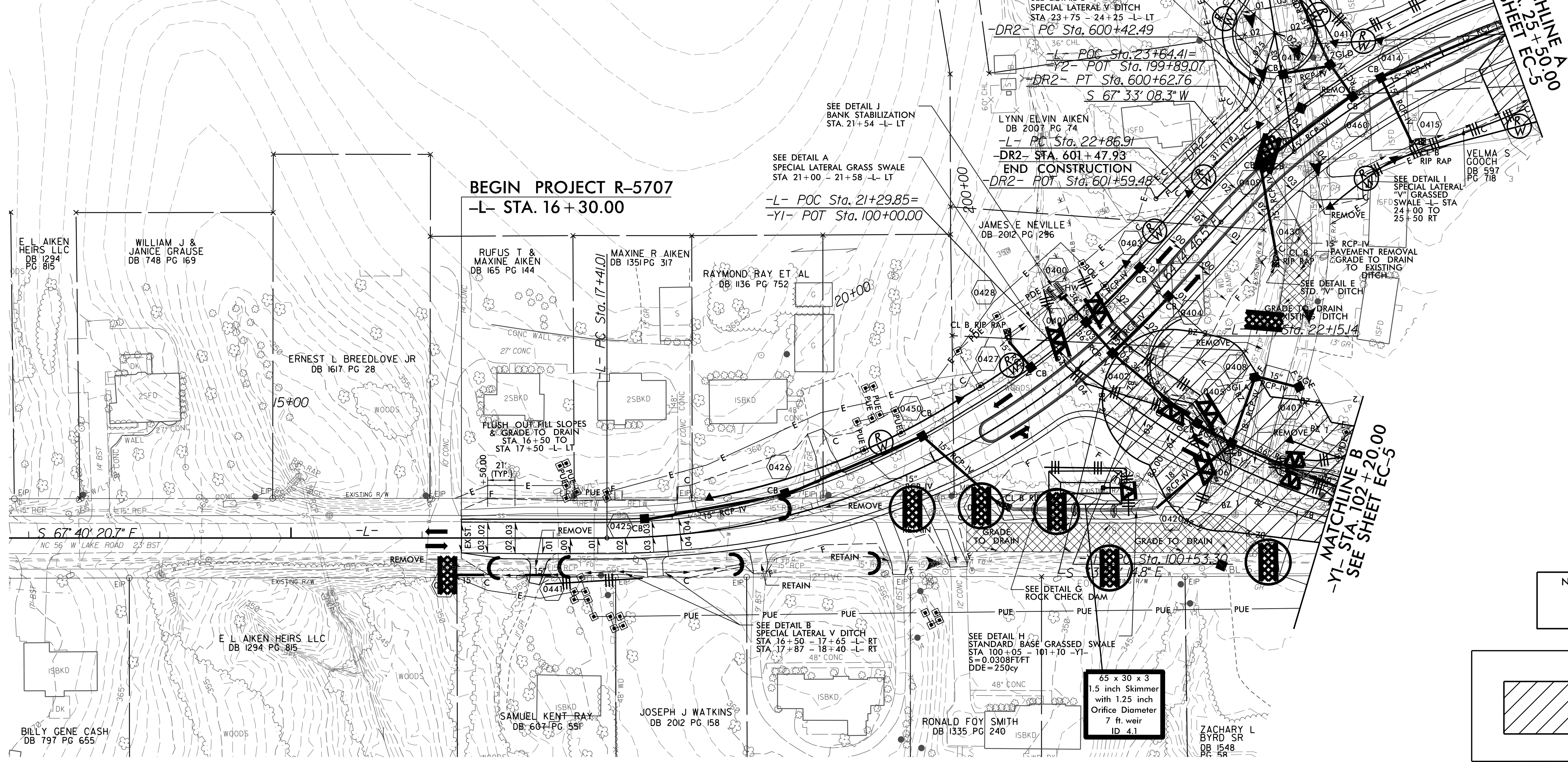
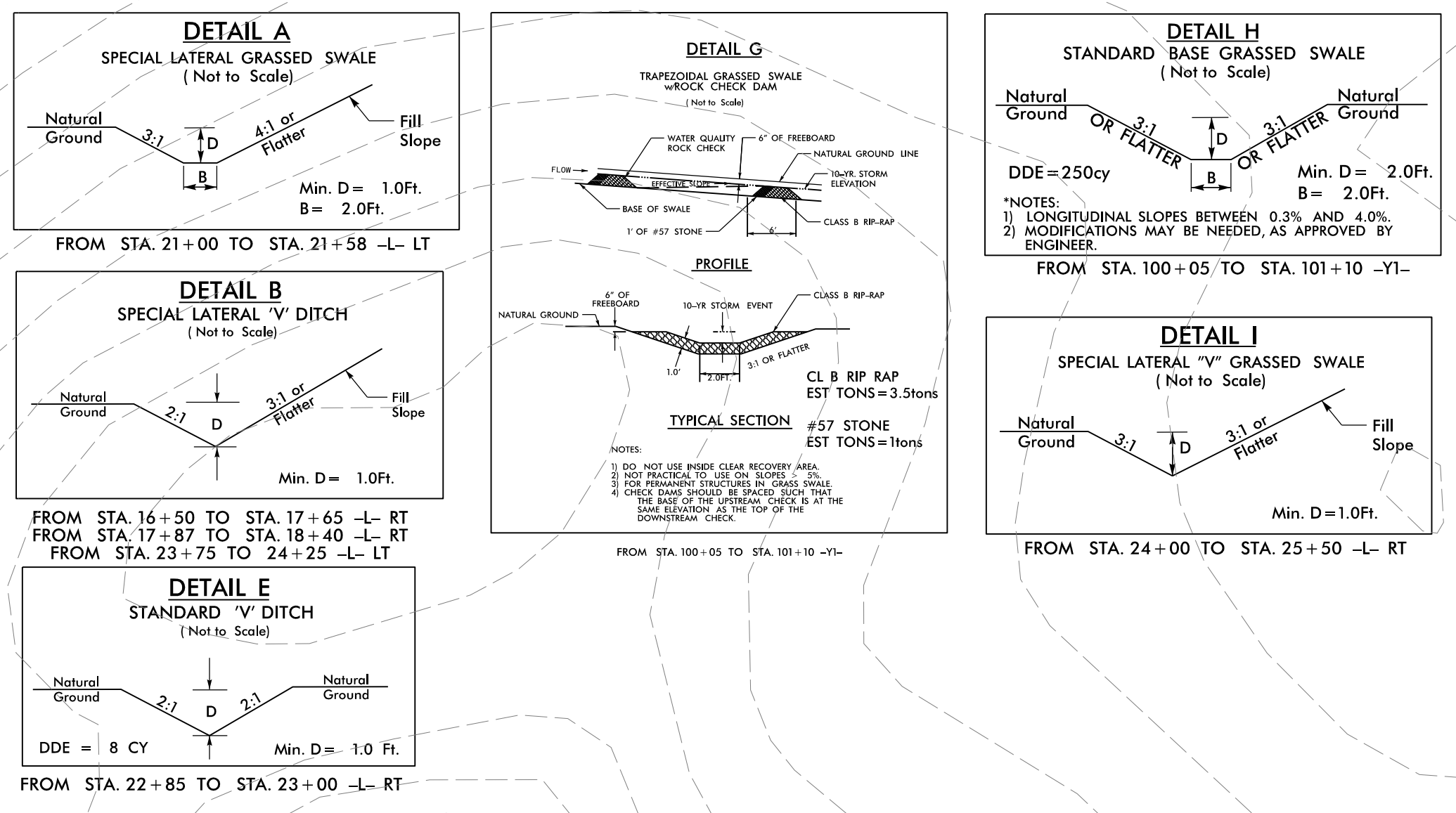
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 4

-L-	-Y1-	-Y2-	-DR2-	-DR3-	-Y5-
PI Sta 19+93.04 Δ = 48' 04" 52.7" (LT) D = 10' 08" 27.0" L = 474.14' T = 252.03' R = 565.00' e = .04 Runoff = 84 (PC) Runoff = 124 (PT)	PI Sta 25+72.30 Δ = 56' 19" 59.4" (RT) D = 10' 44" 58.8" L = 524.05' T = 285.39' R = 533.00' e = .04 Runoff = 124	PI Sta 102+50.12 Δ = 40' 32" 08.7" (LT) D = 10' 44" 58.8" L = 377.09' T = 196.82' R = 533.00' e = .04 Runoff = 84	PI Sta 202+38.14 Δ = 8' 52" 24.6" (RT) D = 4' 57" 38.4" L = 178.88' T = 89.62' R = 1,155.00'	PI Sta 600+52.85 Δ = 29' 01" 28.4" (RT) D = 143' 14" 22.0" L = 20.26' T = 10.35' R = 40.00'	PI Sta 700+88.85 Δ = 87' 57" 10.2" (LT) D = 190' 59" 09.4" L = 46.05' T = 28.95' R = 30.00'

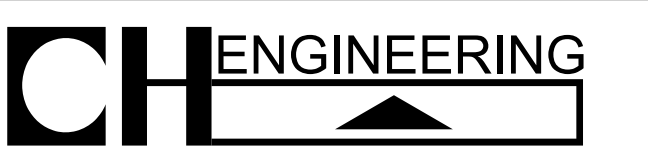


NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.



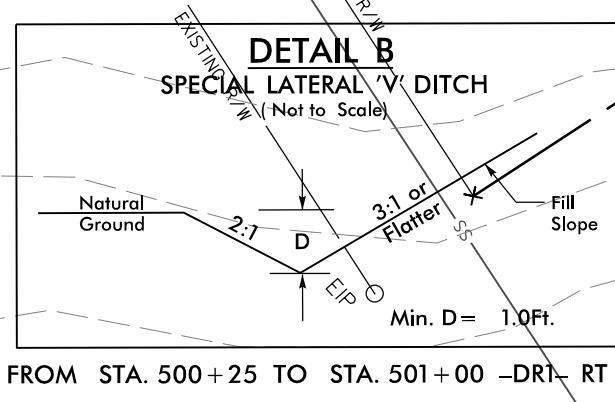
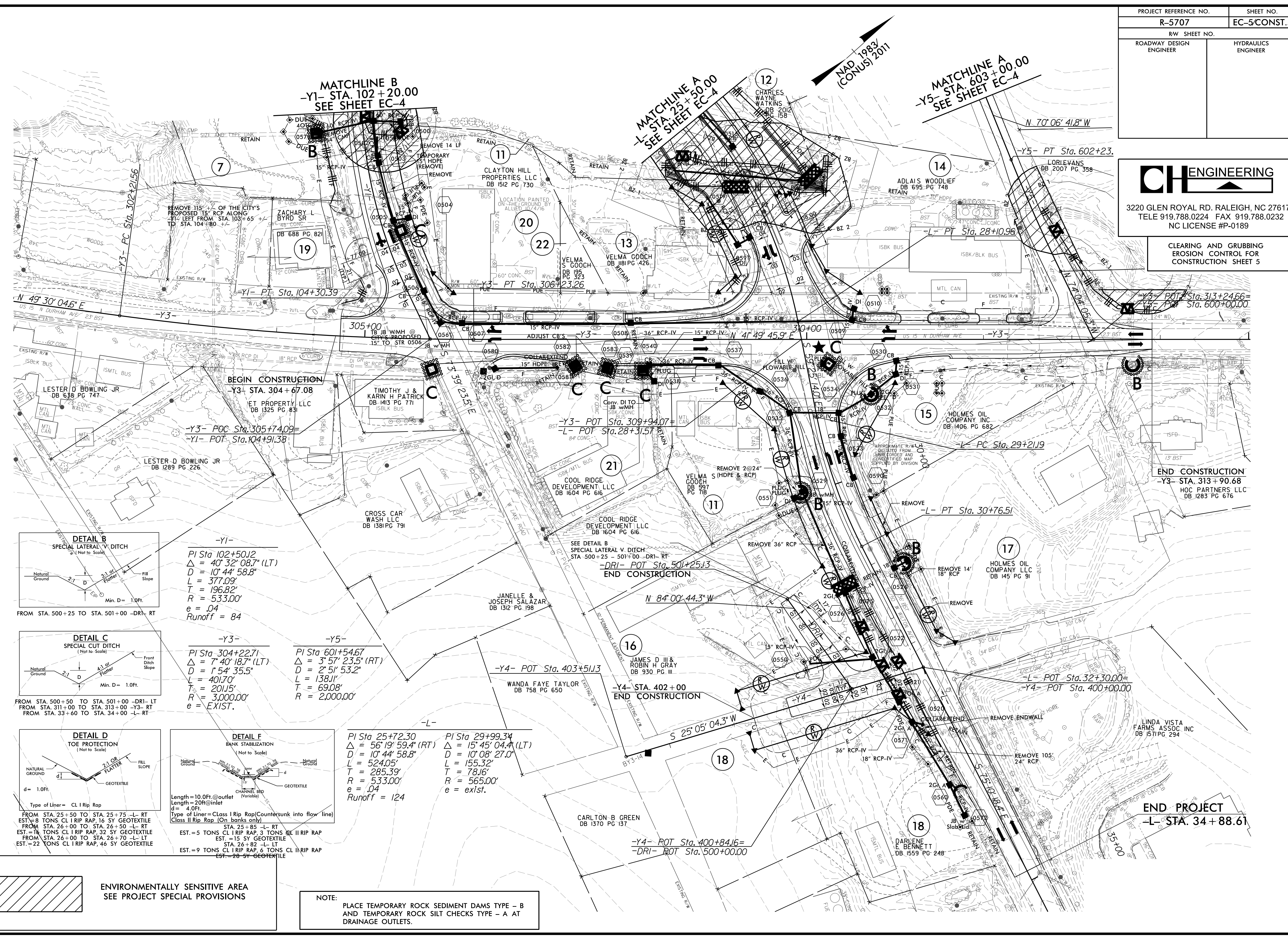
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 REVISIONS
 8/17/2018
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PROJECT REFERENCE NO.	SHEET NO.
R-5707	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

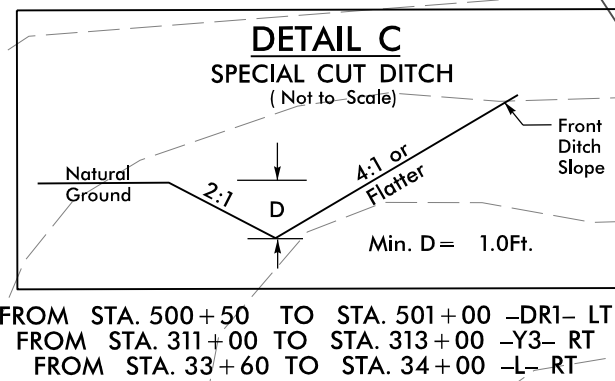


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 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 5

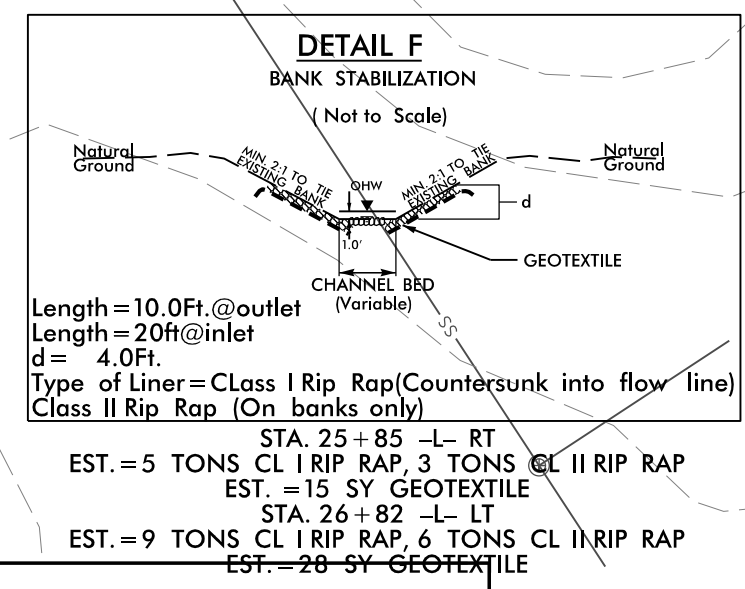
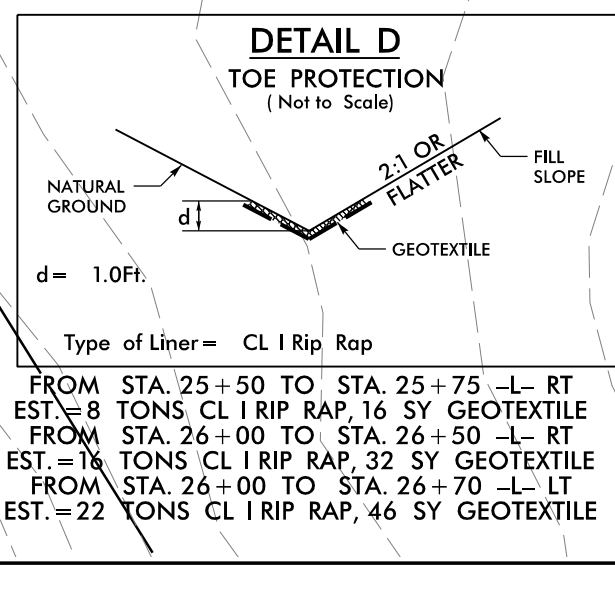


-Y1-
 PI Sta 102+50.12
 $\Delta = 40^\circ 32' 08.7" (LT)$
 $D = 10^\circ 44' 58.8"$
 $L = 377.09'$
 $T = 196.82'$
 $R = 533.00'$
 $e = .04$
 Runoff = 84



-Y3-
 PI Sta 304+22.71
 $\Delta = 7^\circ 40' 18.7" (LT)$
 $D = 1^\circ 54' 35.5"$
 $L = 401.70'$
 $T = 201.15'$
 $R = 3,000.00'$
 $e = EXIST.$

-Y5-
 PI Sta 601+54.67
 $\Delta = 3^\circ 57' 23.5" (RT)$
 $D = 2^\circ 51' 53.2"$
 $L = 138.11'$
 $T = 69.08'$
 $R = 2,000.00'$



-L-
 PI Sta 25+72.30
 $\Delta = 56^\circ 19' 59.4" (RT)$
 $D = 10^\circ 44' 58.8"$
 $L = 524.05'$
 $T = 285.39'$
 $R = 533.00'$
 $e = .04$
 Runoff = 124

PI Sta 29+99.34
 $\Delta = 15^\circ 45' 04.4" (LT)$
 $D = 10^\circ 08' 27.0"$
 $L = 155.32'$
 $T = 78.16'$
 $R = 565.00'$
 $e = exist.$

ENVIRONMENTALLY SENSITIVE AREA
 SEE PROJECT SPECIAL PROVISIONS

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

REVISIONS

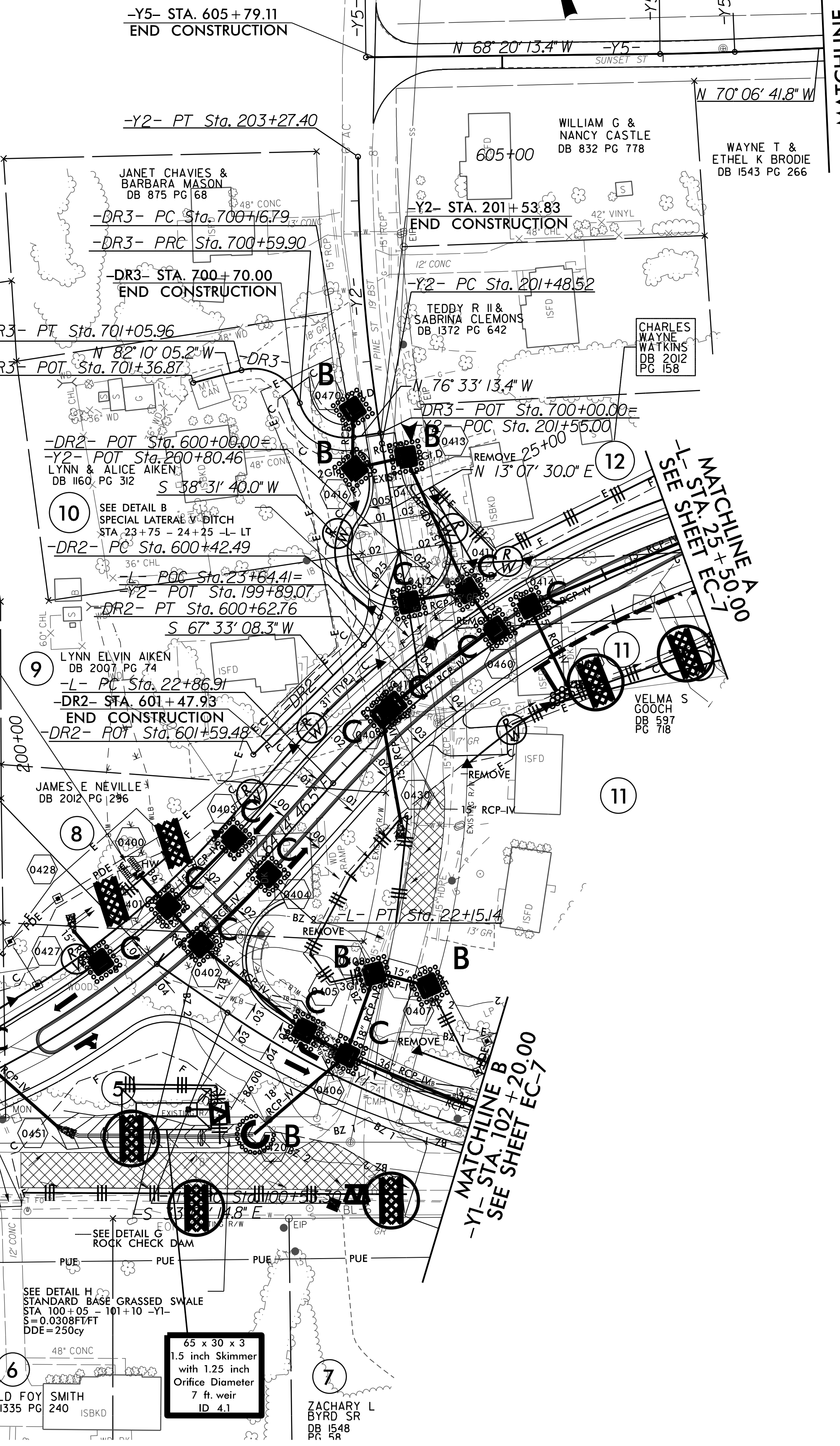
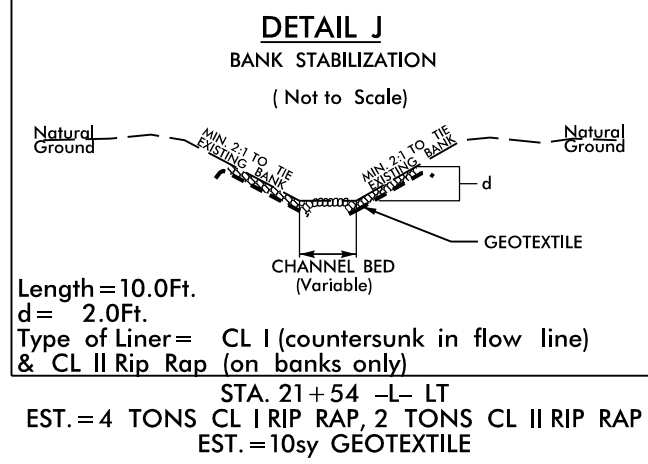
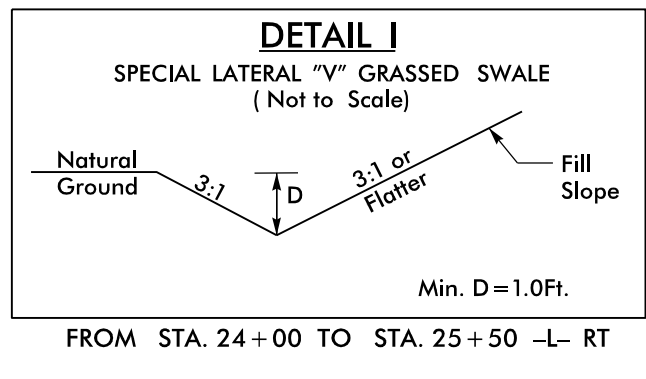
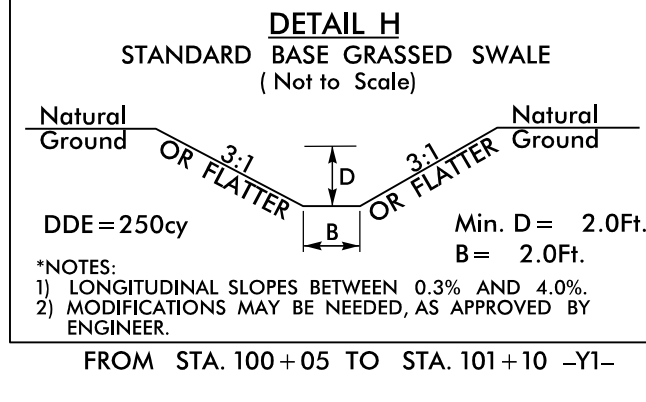
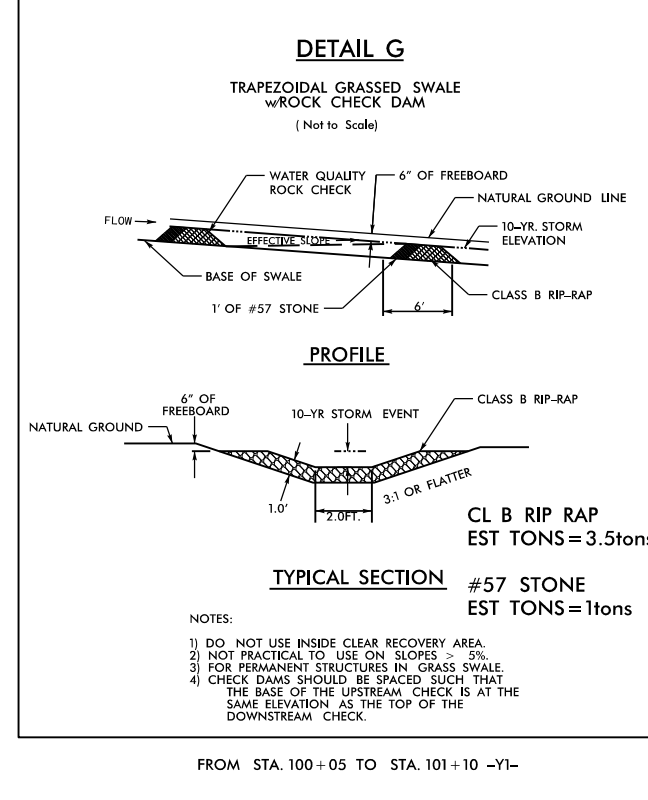
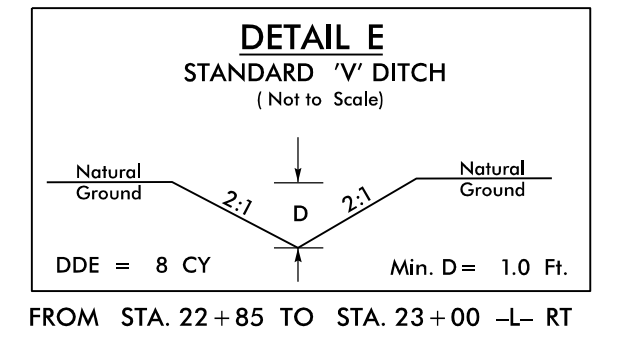
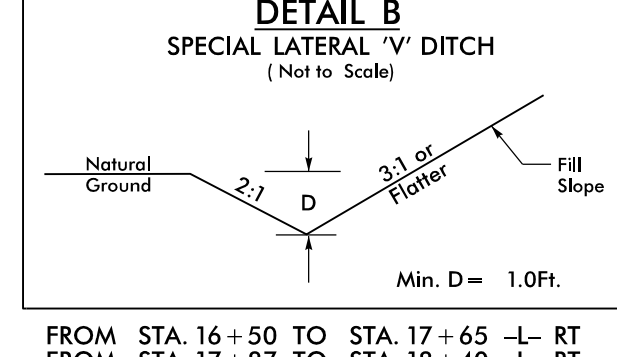
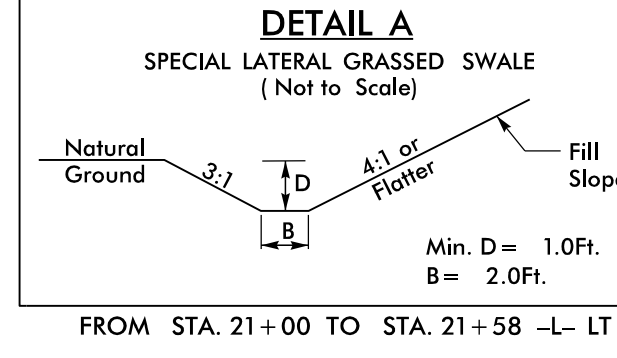
8/17/99

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8/17/99

REVISIONS

-L-	-Y1-	-Y2-	-DR2-	-DR3-	-Y5-
PI Sta 19+93.04	PI Sta 25+72.30	PI Sta 102+50.12	PI Sta 202+38.14	PI Sta 600+52.85	PI Sta 700+88.85
$\Delta = 48' 04" 52.7" (LT)$	$\Delta = 56' 19" 59.4" (RT)$	$\Delta = 40' 32" 08.7" (LT)$	$\Delta = 8' 52" 24.6" (RT)$	$\Delta = 29' 01" 28.4" (RT)$	$\Delta = 87' 57" 10.2" (LT)$
$D = 10' 08" 27.0"$	$D = 10' 44" 58.8"$	$D = 10' 44" 58.8"$	$D = 4' 57" 38.4"$	$D = 143' 14" 22.0"$	$D = 190' 59" 09.4"$
$L = 474.14'$	$L = 524.05'$	$L = 377.09'$	$L = 178.88'$	$L = 20.26'$	$L = 46.05'$
$T = 252.03'$	$T = 285.39'$	$T = 196.82'$	$T = 89.62'$	$T = 10.35'$	$T = 28.95'$
$R = 565.00'$	$R = 533.00'$	$R = 533.00'$	$R = 1,155.00'$	$R = 40.00'$	$R = 30.00'$
$e = .04$	$e = .04$	$e = .04$			$R = 1,500.00'$
Runoff = 84 (PC)	Runoff = 124	Runoff = 124			
Runoff = 124 (PT)					

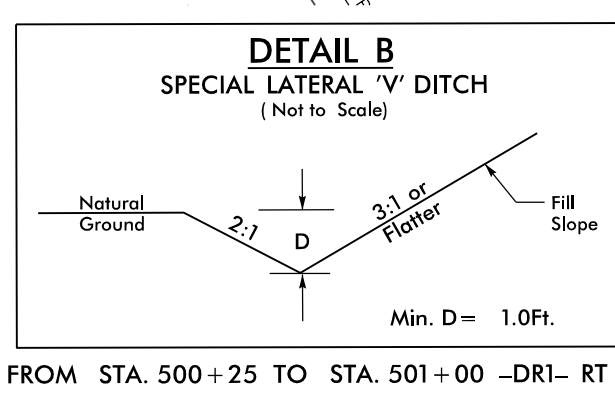
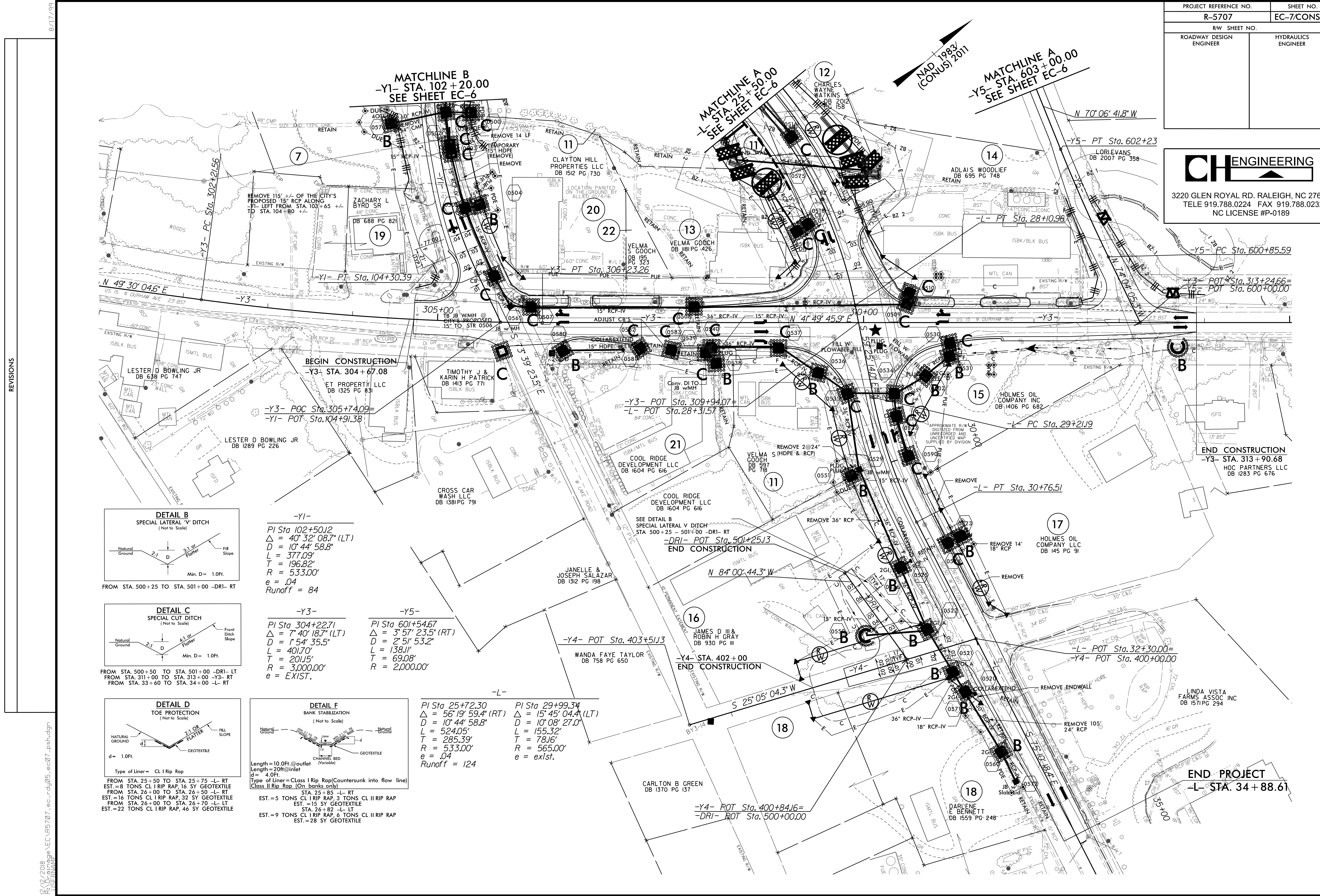


PROJECT REFERENCE NO. R-5707		SHEET NO. EC-6/CONST.4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
3220 GLEN ROYAL RD, RALEIGH, NC 27617 TELE 919.788.0224 FAX 919.788.0232 NC LICENSE #P-0189			

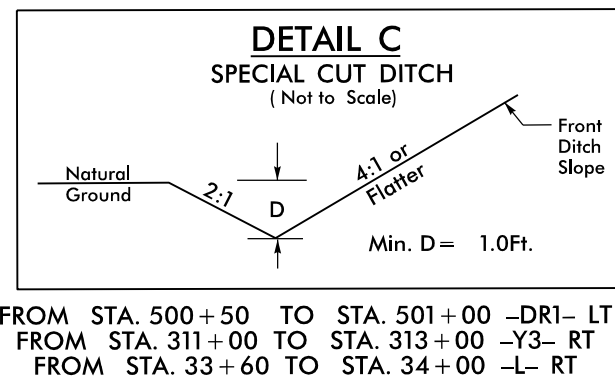
8/17/2018
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PROJECT REFERENCE NO.	SHEET NO.
R-5707	EC-7/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CH ENGINEERING
 3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

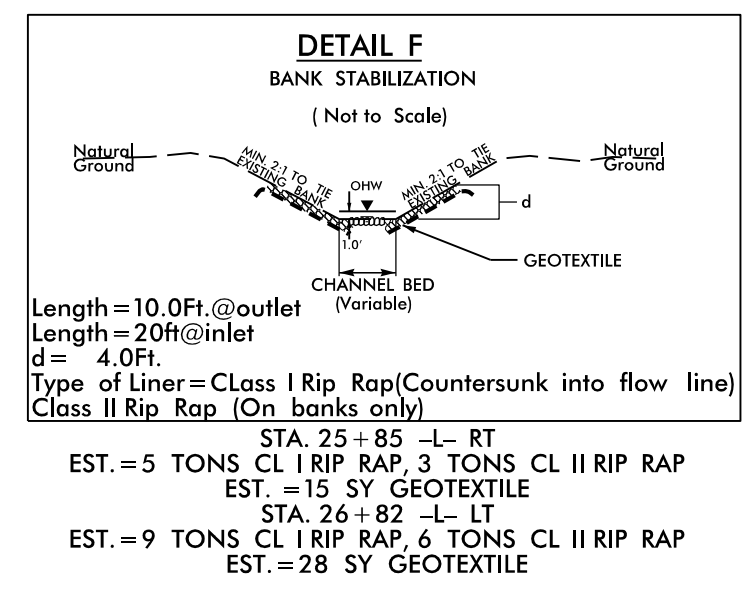
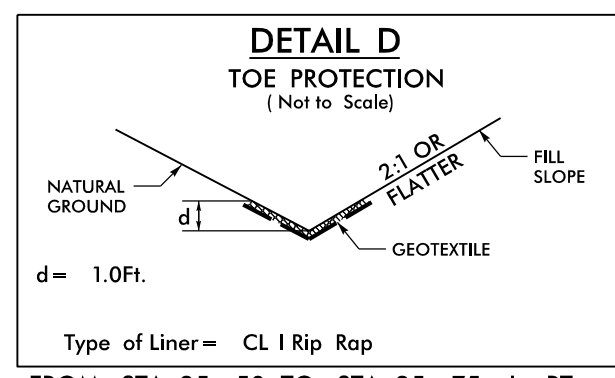


-Y1-
 PI Sta 102+50.12
 $\Delta = 40' 32'' 08.7'' (LT)$
 $D = 10' 44'' 58.8''$
 $L = 377.09'$
 $T = 196.82'$
 $R = 533.00'$
 $e = .04$
 Runoff = 84



-Y3-
 PI Sta 304+22.71
 $\Delta = 7' 40'' 18.7'' (LT)$
 $D = 1' 54'' 35.5''$
 $L = 401.70'$
 $T = 201.15'$
 $R = 3,000.00'$
 $e = EXIST.$

-Y5-
 PI Sta 601+54.67
 $\Delta = 3' 57'' 23.5'' (RT)$
 $D = 2' 51'' 53.2''$
 $L = 138.11'$
 $T = 69.08'$
 $R = 2,000.00'$



-L-
 PI Sta 25+72.30
 $\Delta = 56' 19'' 59.4'' (RT)$
 $D = 10' 44'' 58.8''$
 $L = 524.05'$
 $T = 285.39'$
 $R = 533.00'$
 $e = .04$
 Runoff = 124

PI Sta 29+99.34
 $\Delta = 15' 45'' 04.4'' (LT)$
 $D = 10' 08'' 27.0''$
 $L = 155.32'$
 $T = 78.16'$
 $R = 565.00'$
 $e = exist.$

REVISIONS

8/17/99

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