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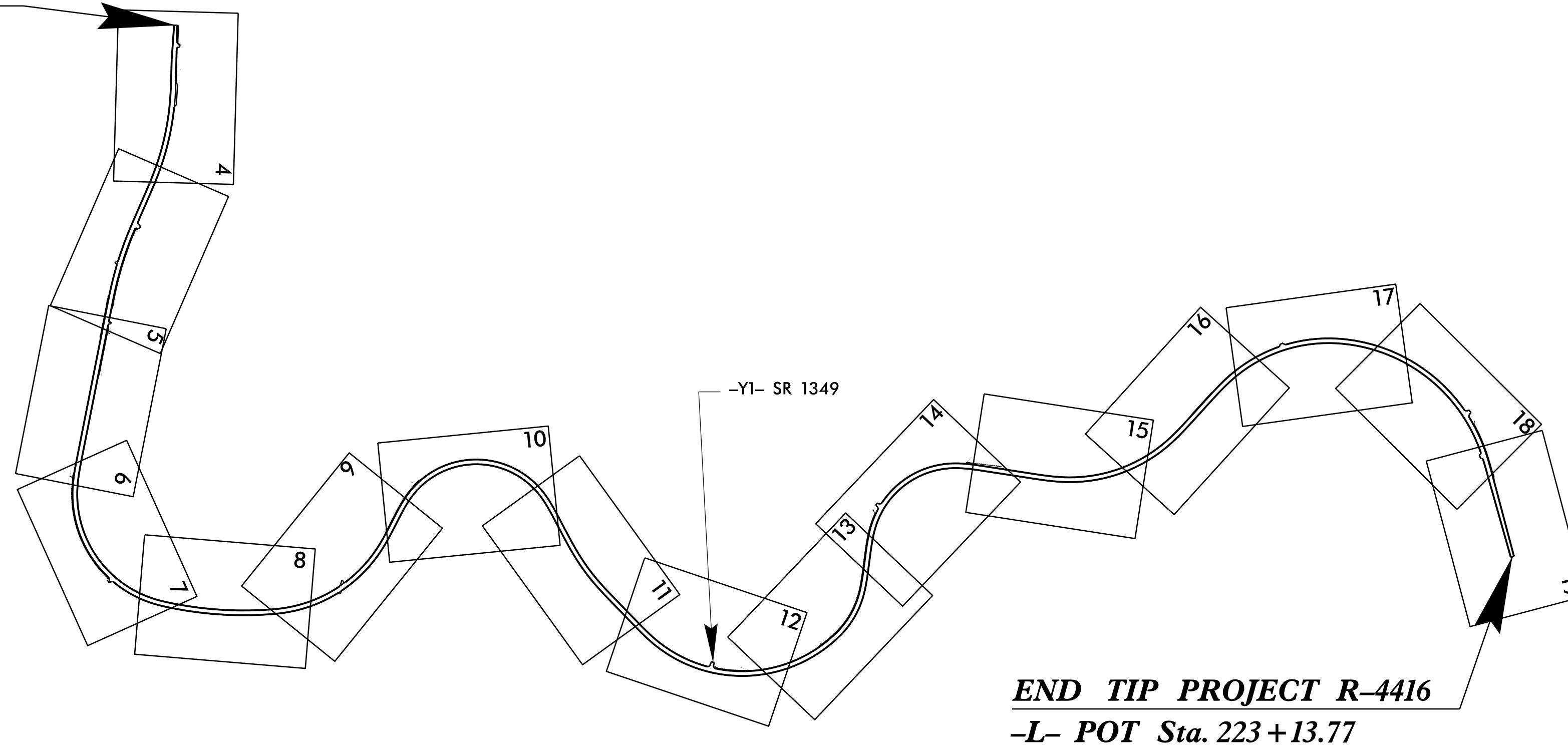
TIP PROJECT: R-4416

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

**LOCATION: US 64 FROM 1.5 MI. EAST OF THE WEST END OF SR 1349
TO 1.8 MI. EAST OF THE EAST END OF SR 1349**

TYPE OF WORK: GRADING AND PAVING

BEGIN TIP PROJECT R-4416
-L- POT Sta. 10+00.00



END TIP PROJECT R-4416
-L- POT Sta. 223+13.77

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4416	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

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

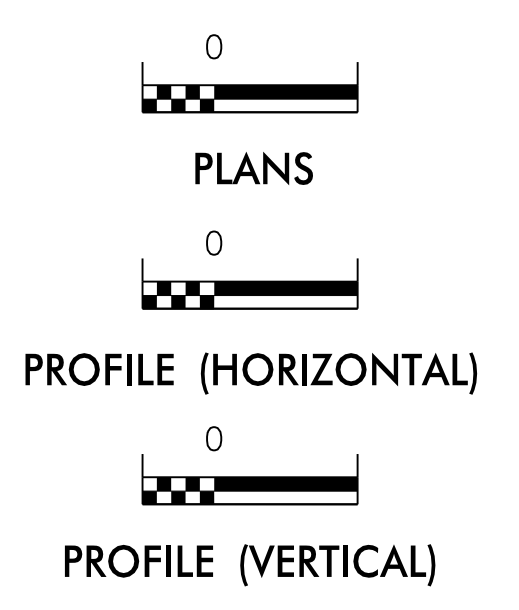
**THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.**

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

**HIGH QUALITY WATER(S) EXIST
ON THIS PROJECT**

High Quality Water Zone(s) Exist
From Sta. APPROX. STA. 206+50
to Sta. END
Refer To E. C. Special Provisions
for Special Considerations.

GRAPHIC SCALE



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.**

Prepared in the Office of:
ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Designed by:

JENNIFER PARISH **3451**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

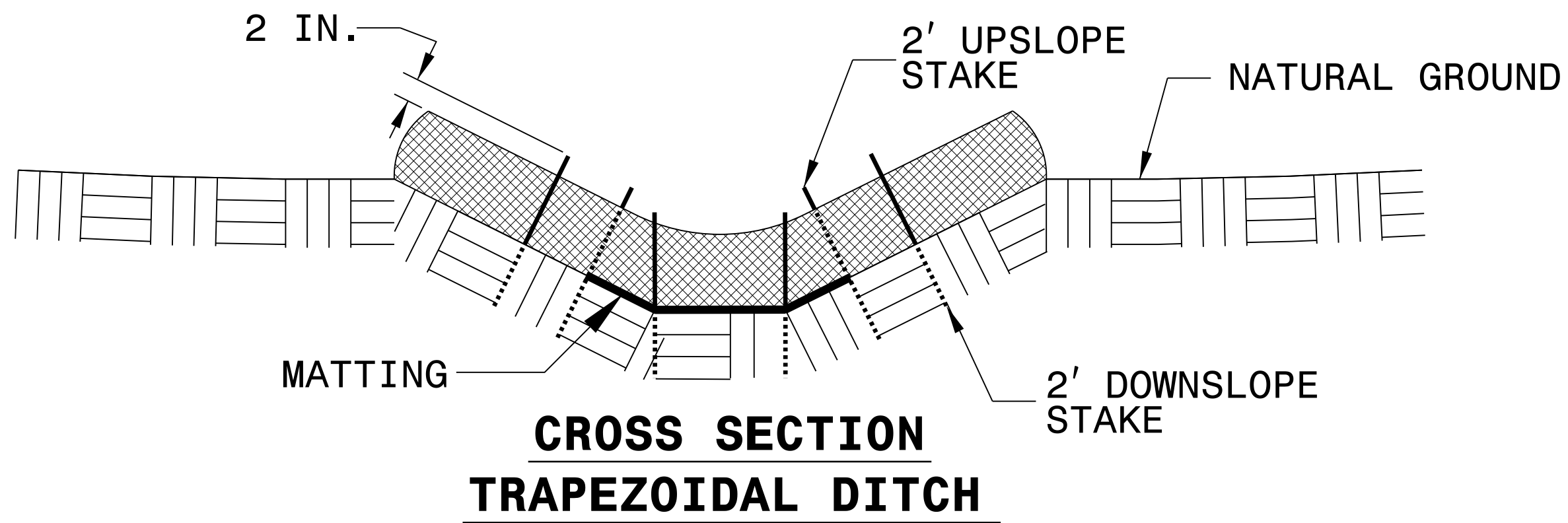
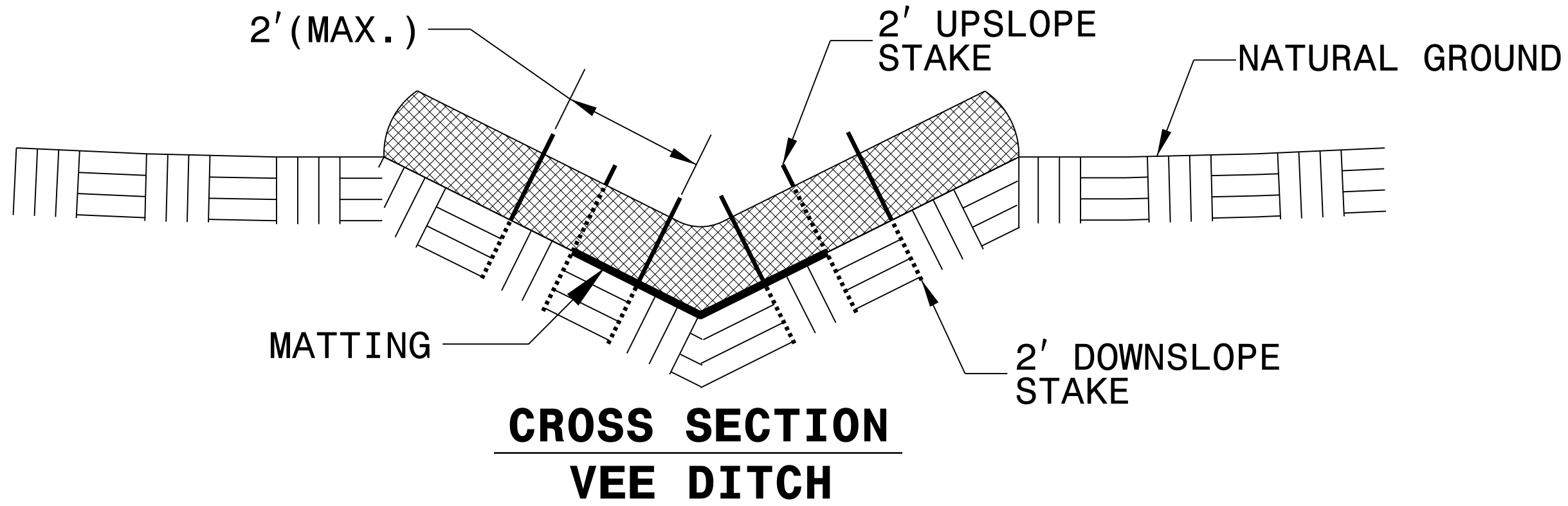
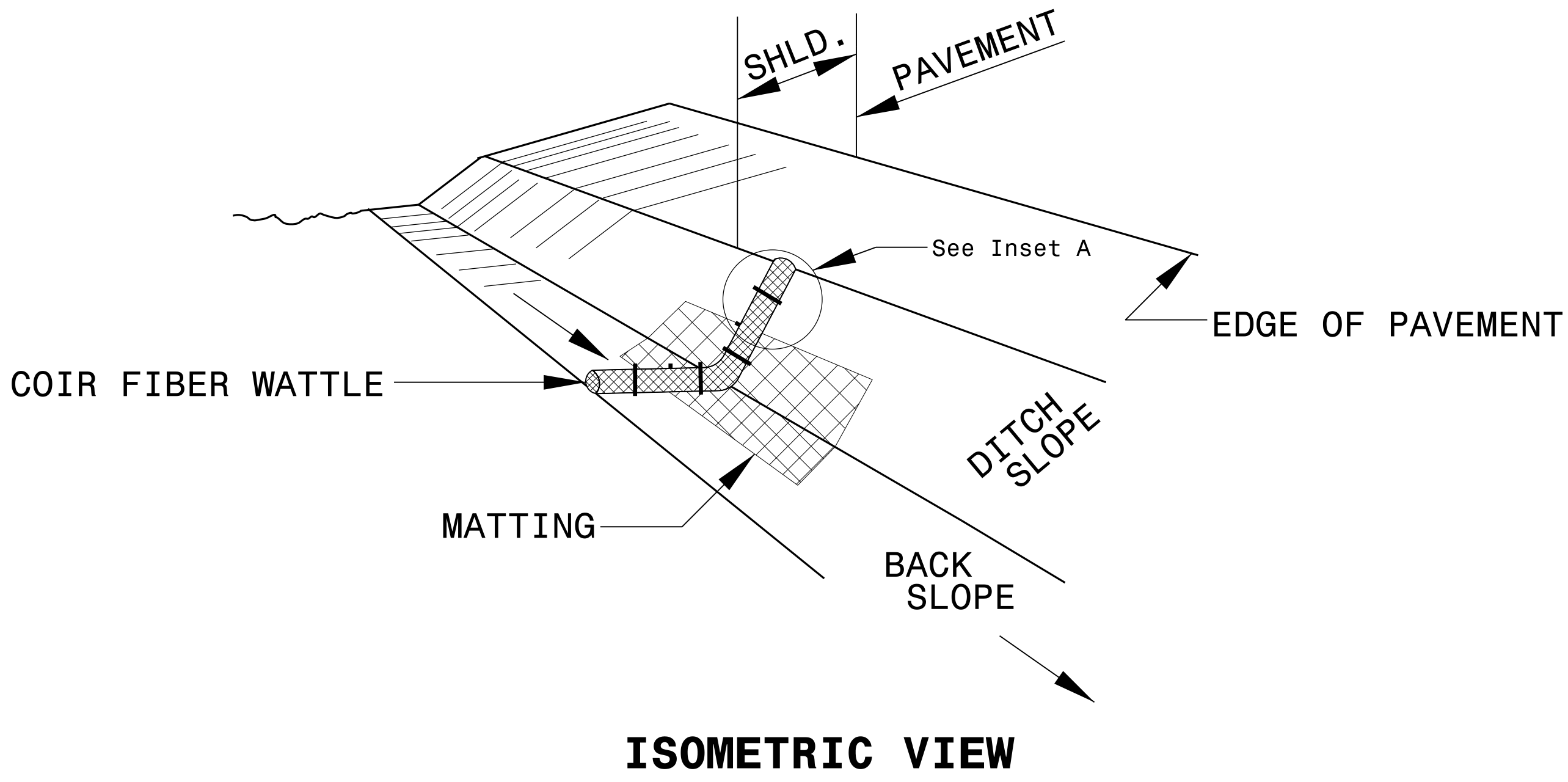
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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	

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PROJECT REFERENCE NO. R-4416	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE 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.

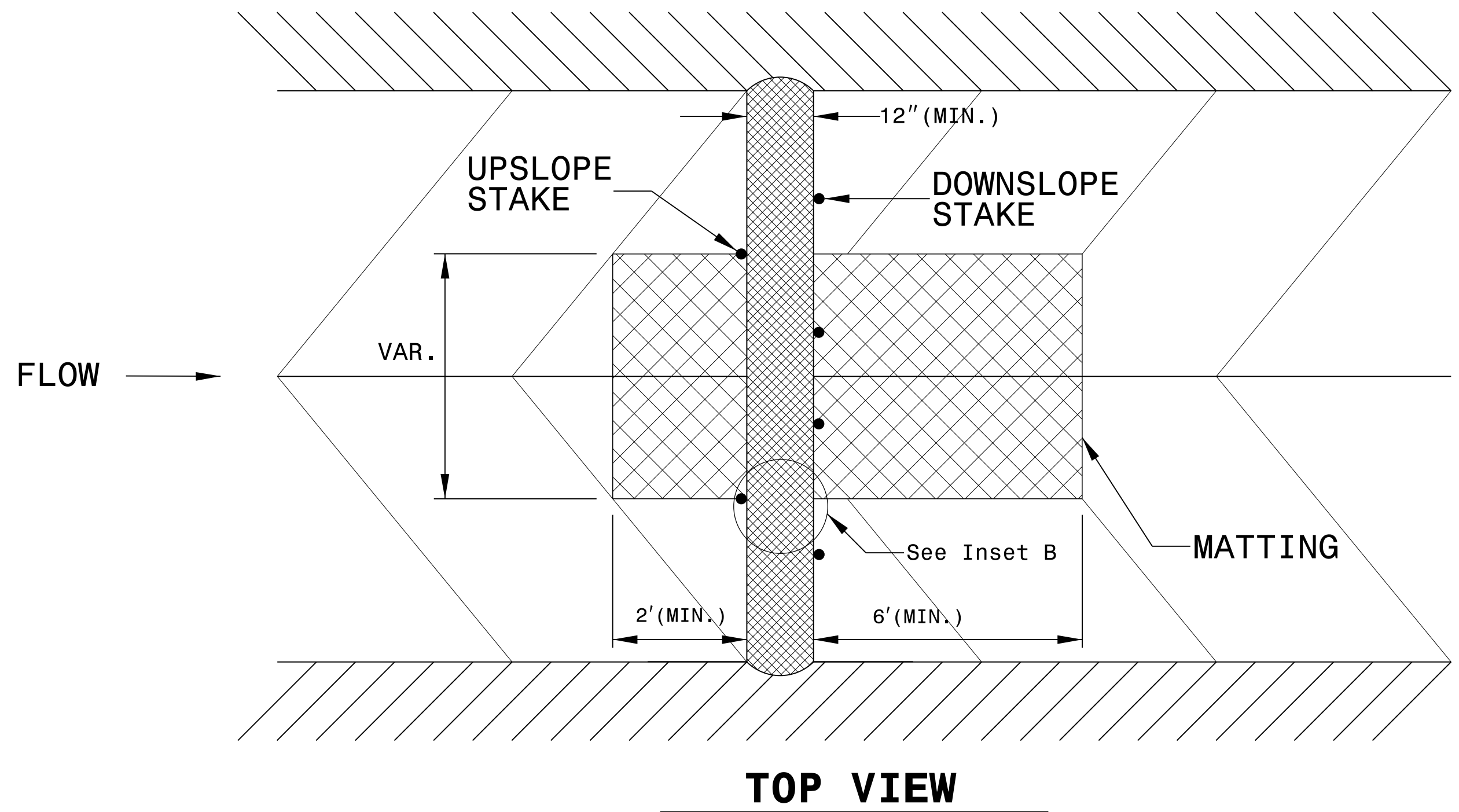
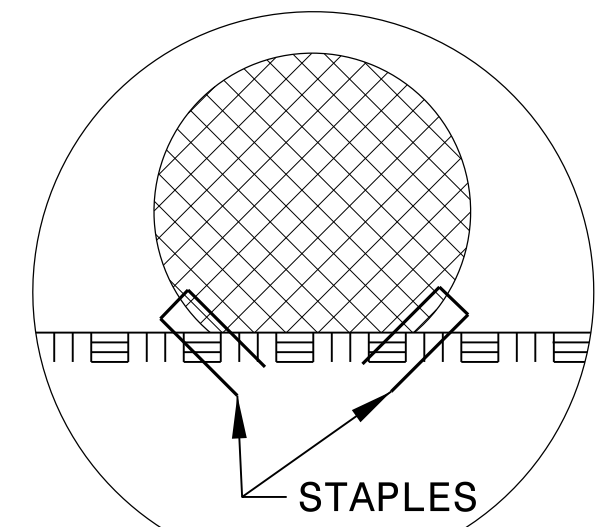
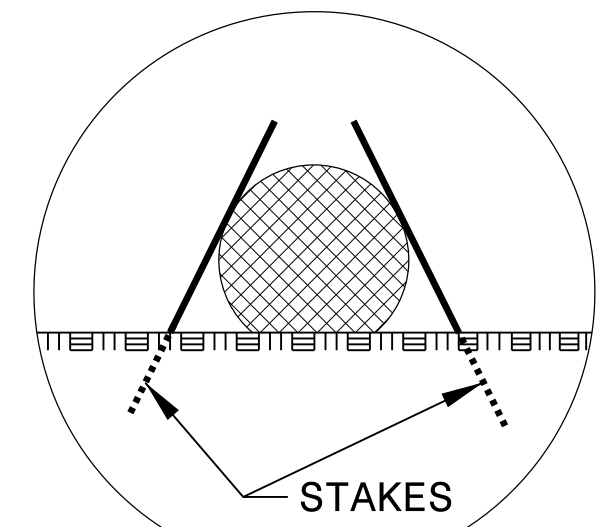
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.

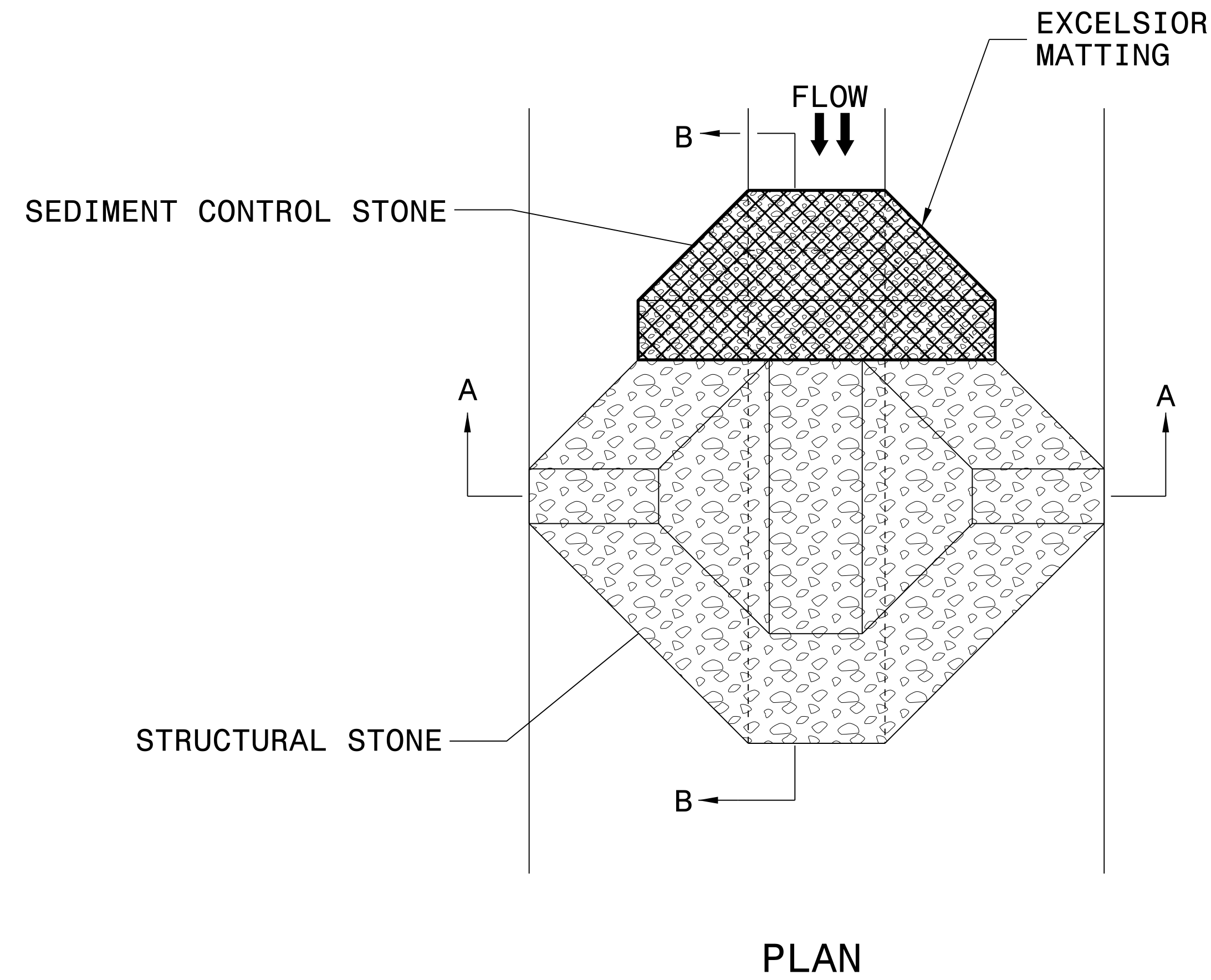
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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



PROJECT REFERENCE NO. R-4416	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



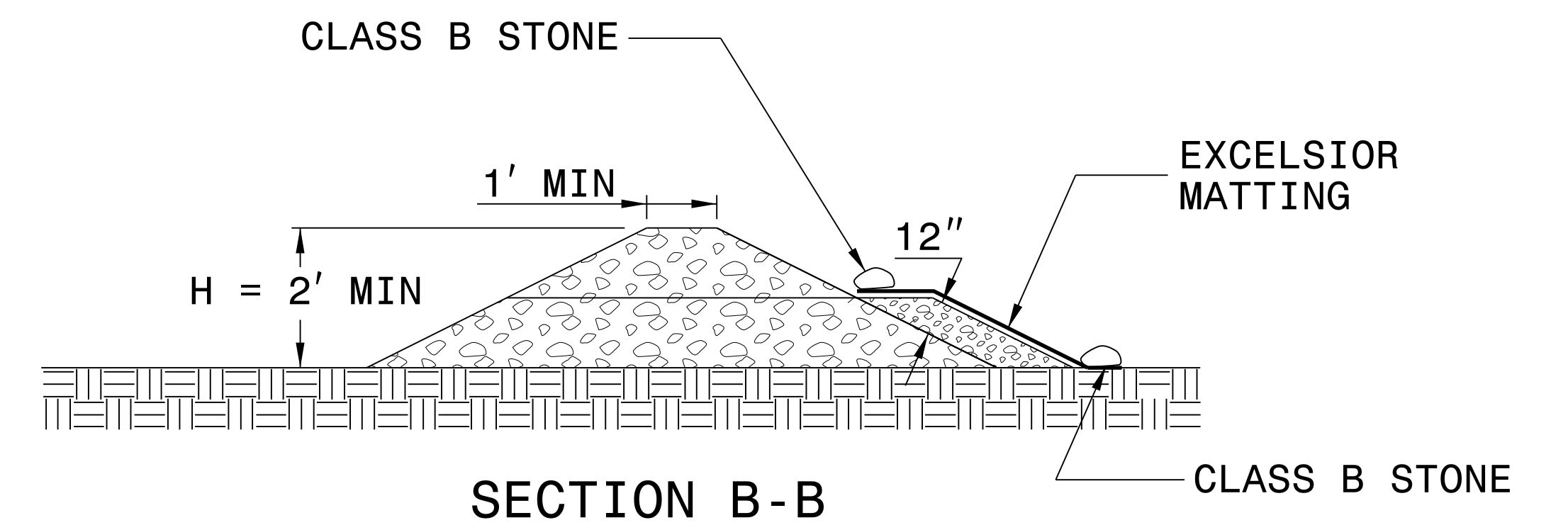
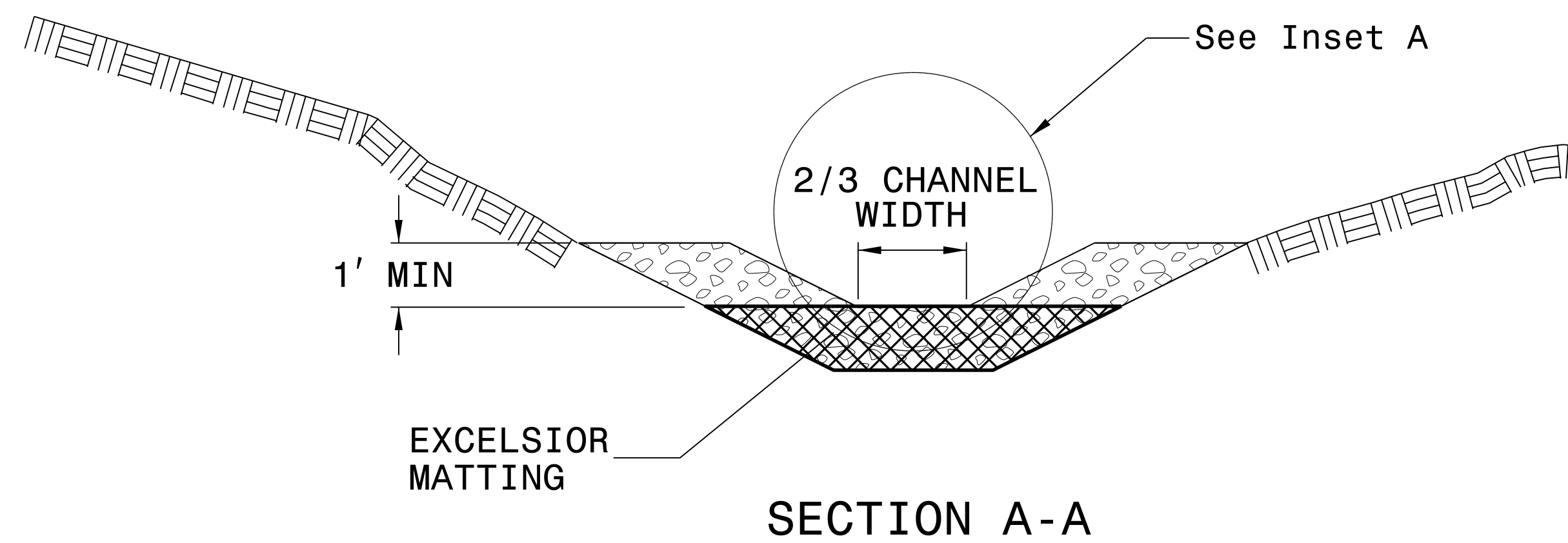
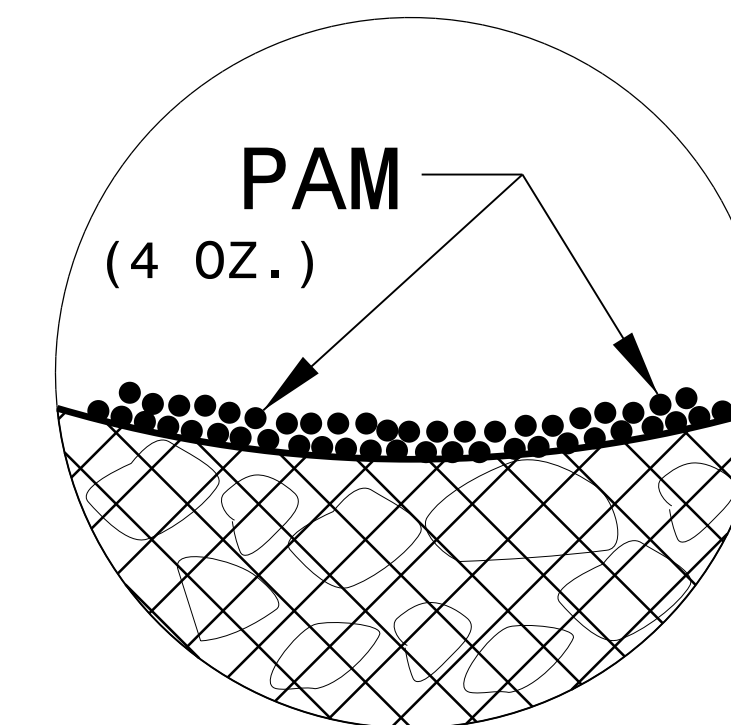
NOTES:

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.



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

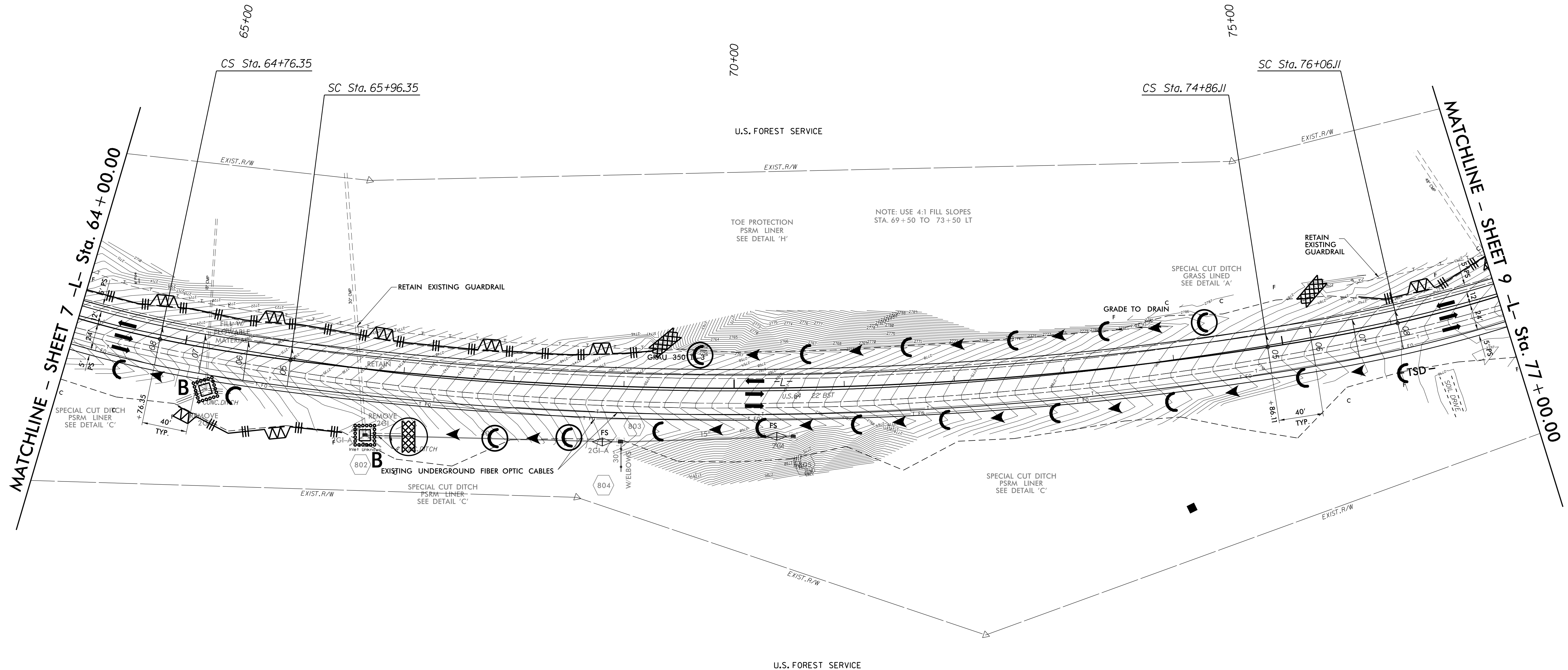
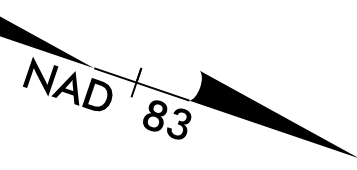
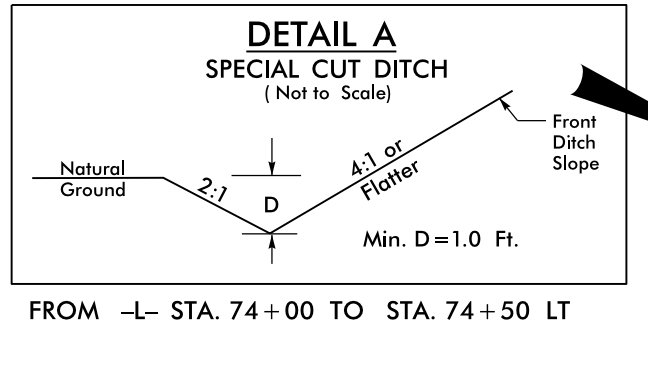
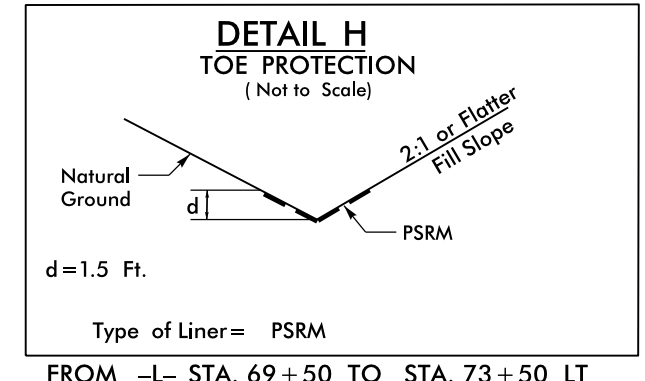
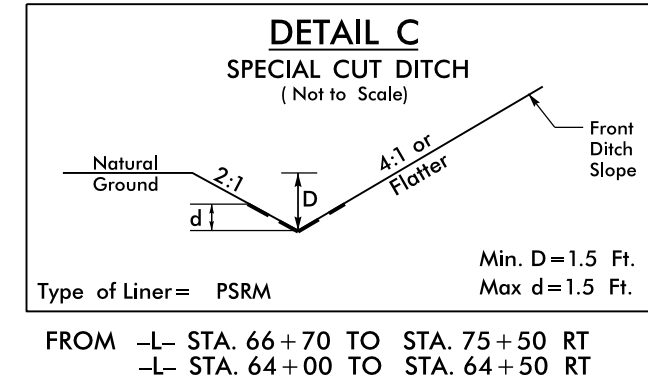
PROJECT REFERENCE NO. <i>R-4416</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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. R-4416	SHEET NO. EC-8/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE				
PI Sta 59+44.52 Δ = 76° 05' 26.1" (LT) D = 5° 52' 35.4" L = 1,294.83' T = 763.00' R = 975.00' Ds = 50mph SE = .08	PIs Sta 65+25.79 Θs = 1° 05' 03.4" Ls = 120.00' LT = 70.62' ST = 49.44'	PI Sta 70+44.18 Δ = 16° 04' 55.0" (LT) D = 1° 48' 26.8" L = 889.76' T = 447.83' R = 3,170.00' Ds = 60mph SE = .05	PIs Sta 75+55.15 Θs = 1° 05' 03.7" Ls = 120.00' LT = 69.04' ST = 51.01'	PI Sta 81+32.59 Δ = 47° 22' 36.4" (LT) D = 4° 46' 28.7" L = 992.26' T = 526.47' R = 1,200.00' Ds = 60mph SE = .08



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

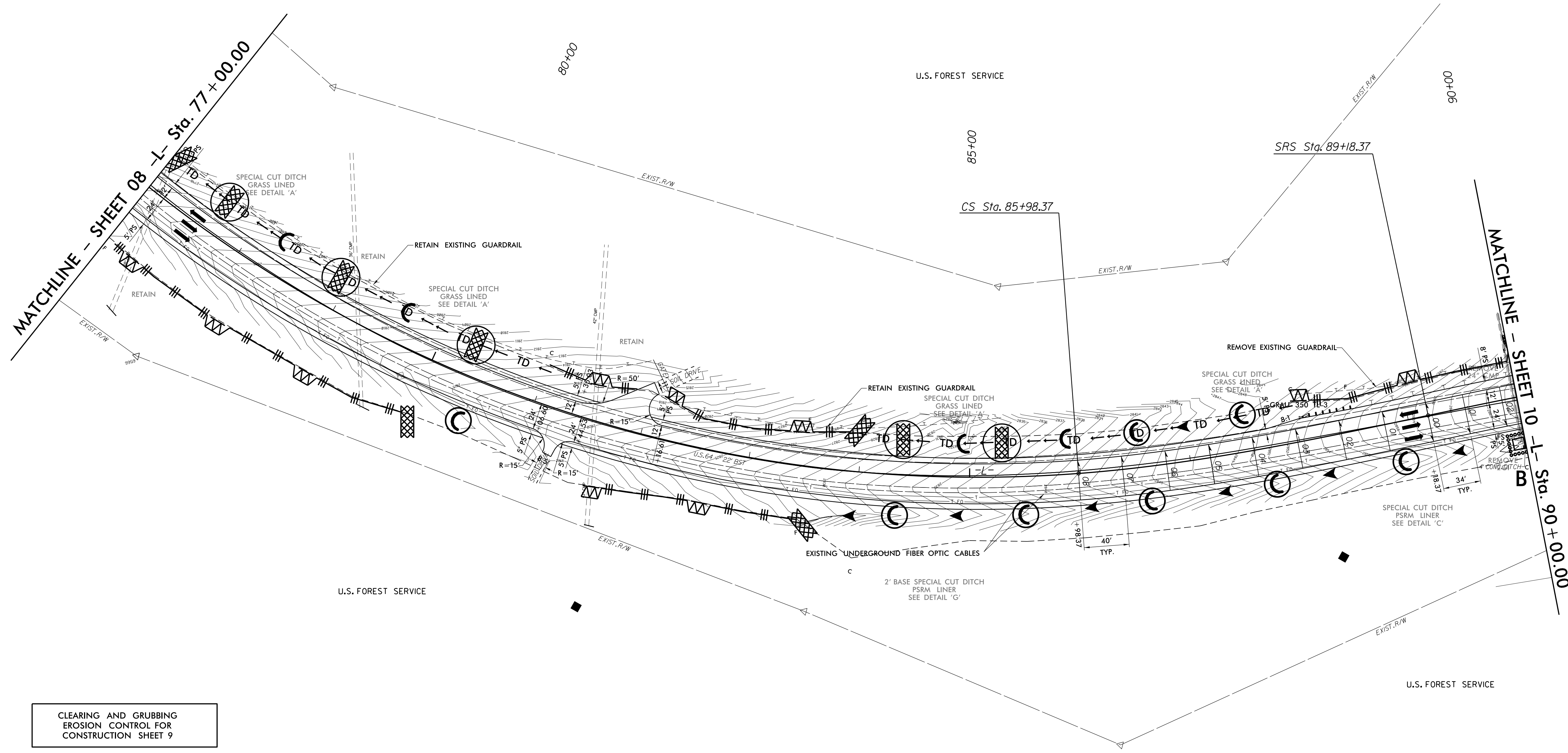
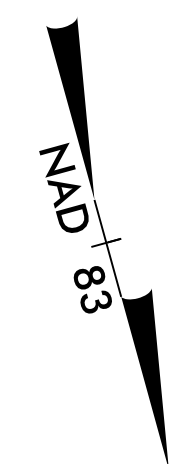
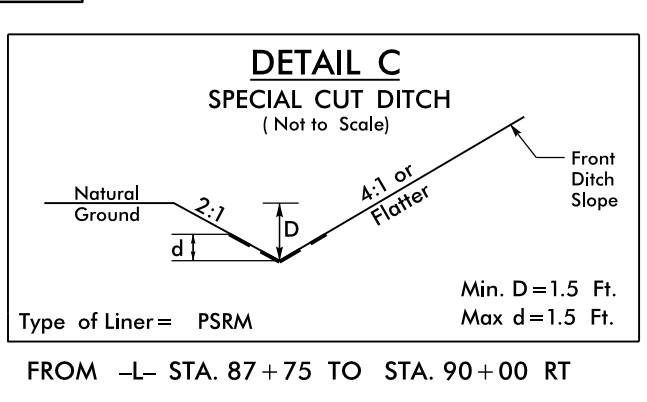
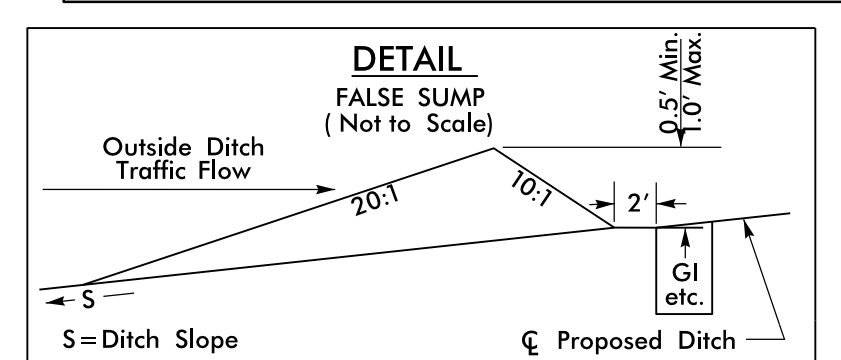
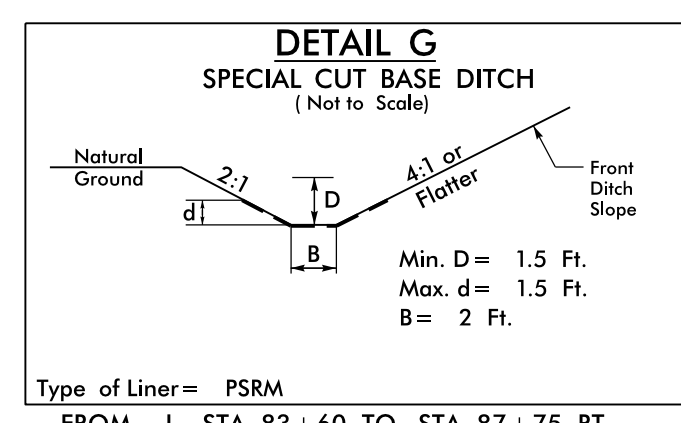
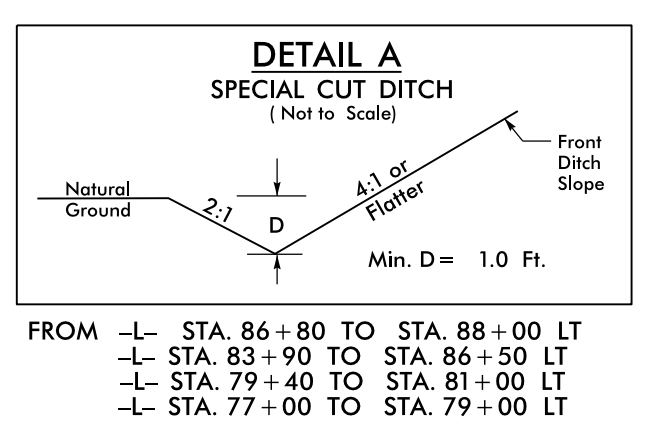
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

FOR -L- PROFILE SEE SHEET 22

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PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-9/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE	
PI Sta 81+32.59	PIs Sta 87+05.22
$\Delta = 47^{\circ} 22' 36.4" (LT)$	$\theta_s = 7^{\circ} 38' 22.0"$
$D = 4' 46' 28.7"$	$L_s = 320.00'$
$L = 992.26'$	$LT = 213.53'$
$T = 526.47'$	$ST = 106.85'$
$R = 1,200.00'$	
$D_s = 60\text{mph}$	
$SE = .08$	



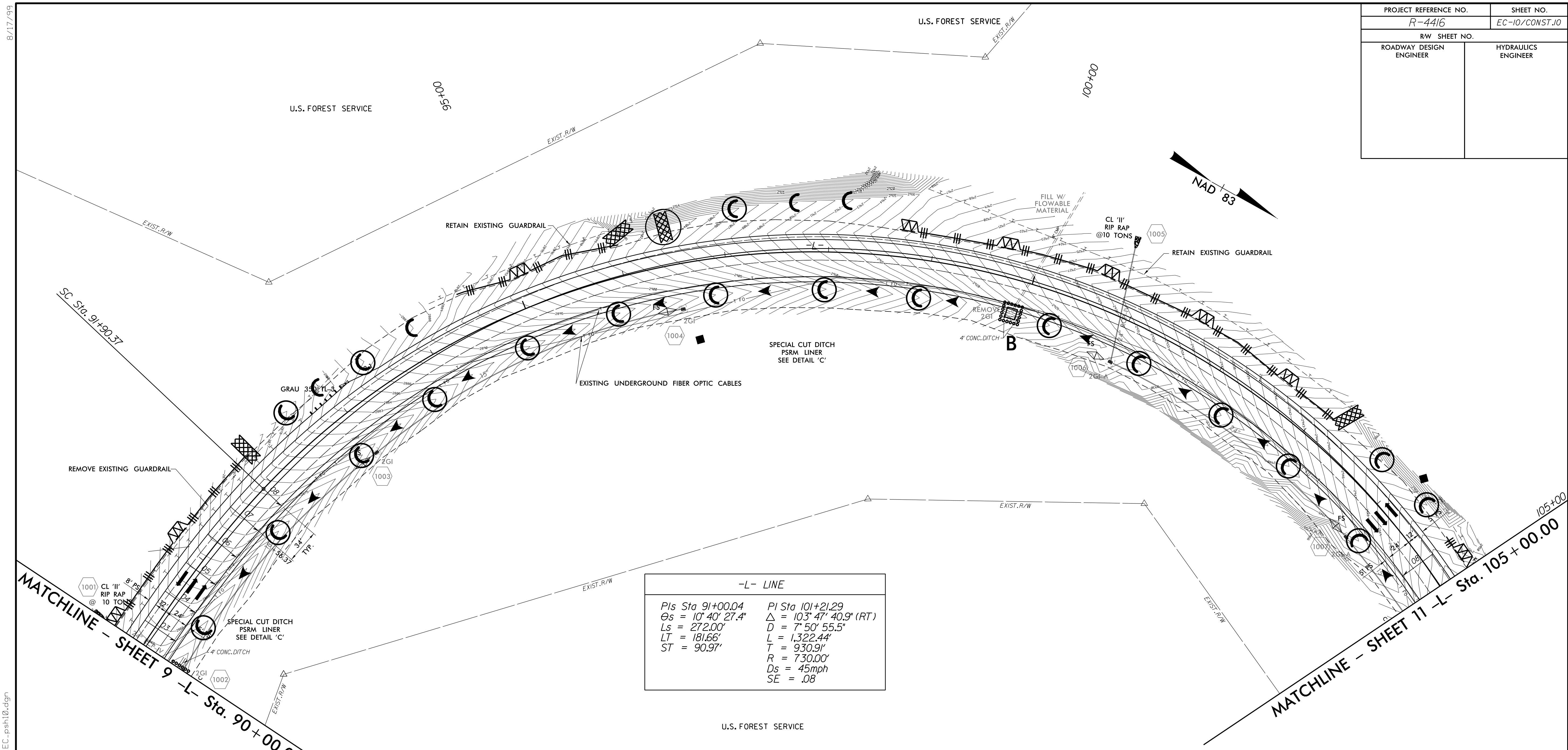
CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 9

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

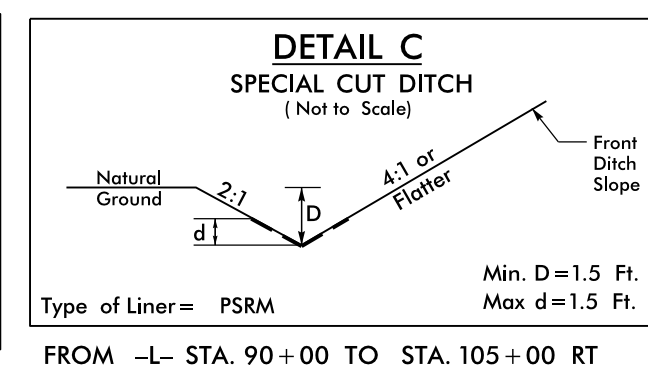
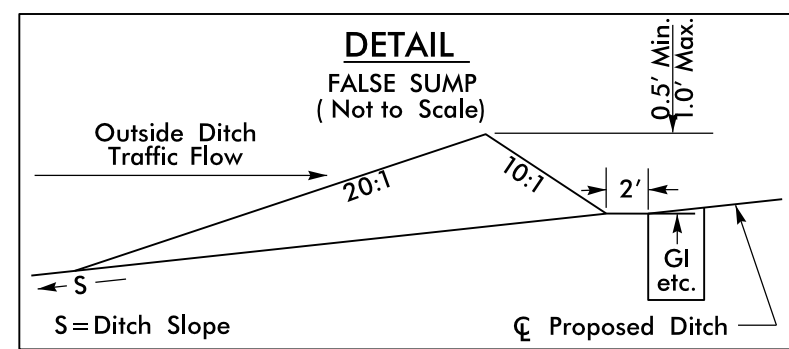
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PROJECT REFERENCE NO. R-4416	SHEET NO. EC-10/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L- LINE	
PIs Sta 91+00.04	PI Sta 101+21.29
$\theta_s = 10^\circ 40' 27.4''$	$\Delta = 103^\circ 47' 40.9''$ (RT)
$L_s = 272.00'$	$D = 7^\circ 50' 55.5''$
$LT = 181.66'$	$L = 1,322.44'$
$ST = 90.97'$	$T = 930.9'$
	$R = 7,300.0'$
	$D_s = 45\text{mph}$
	$SE = .08$



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

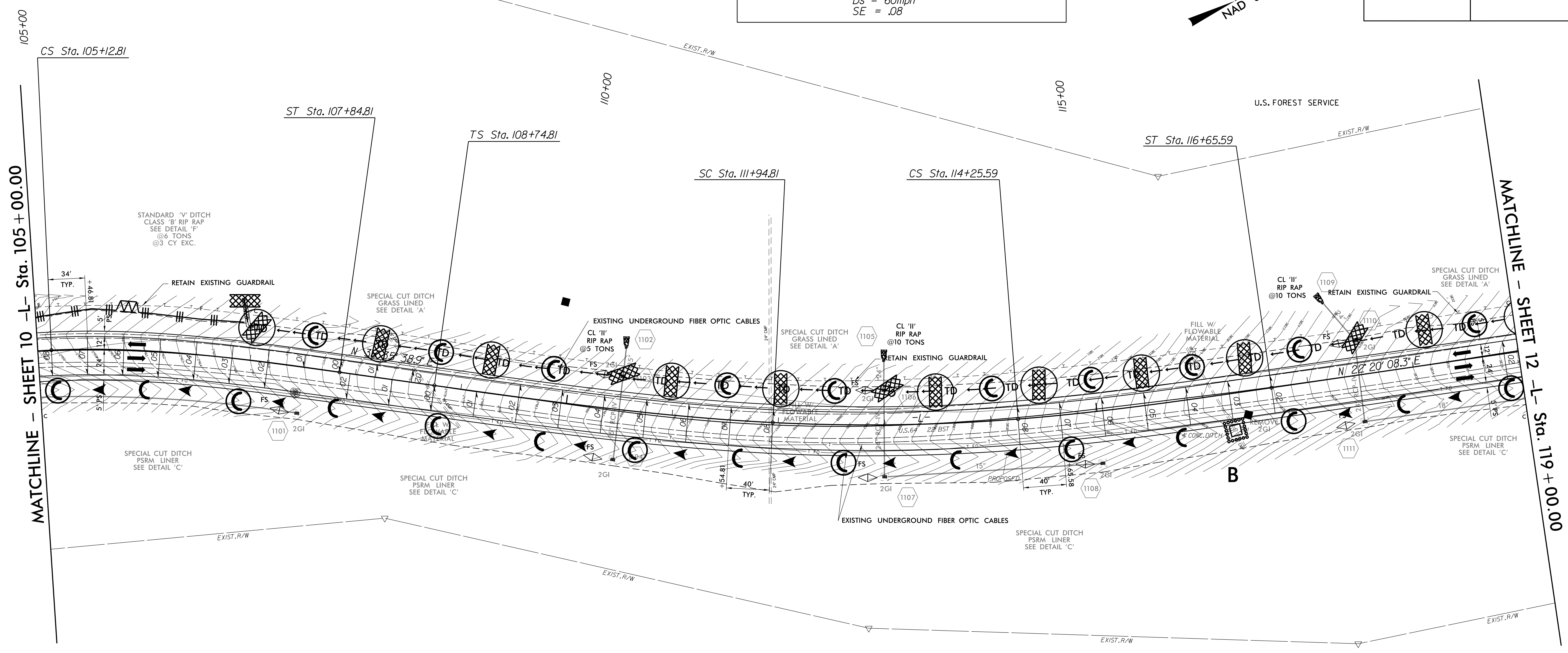
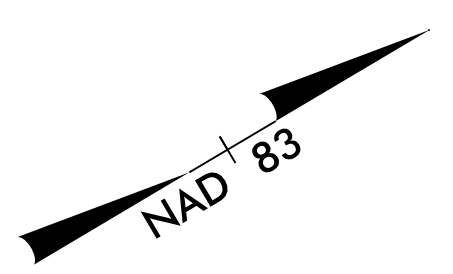
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

FOR -L- PROFILE SEE SHEET 23

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PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-11/CONST.II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

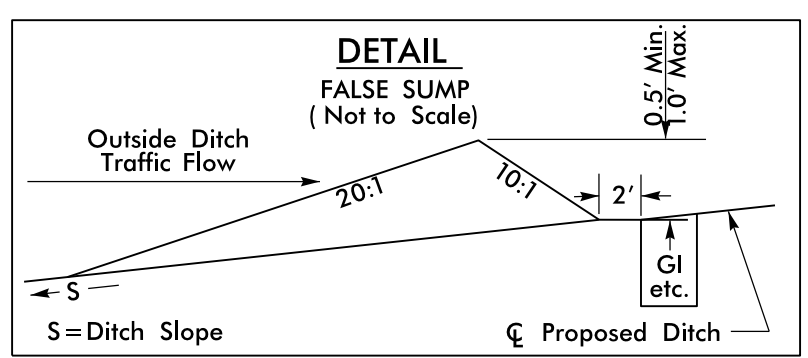
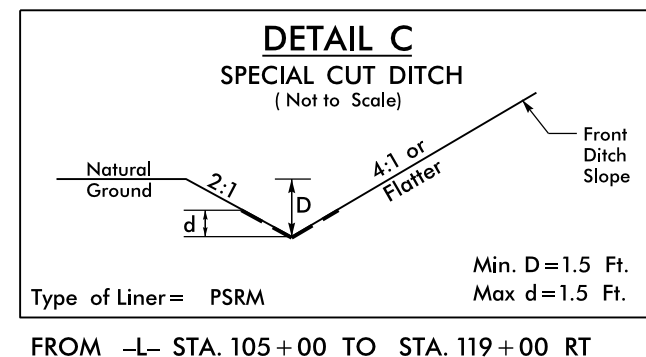
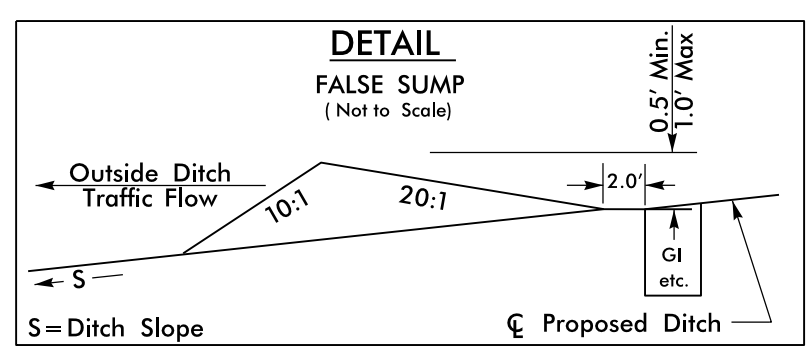
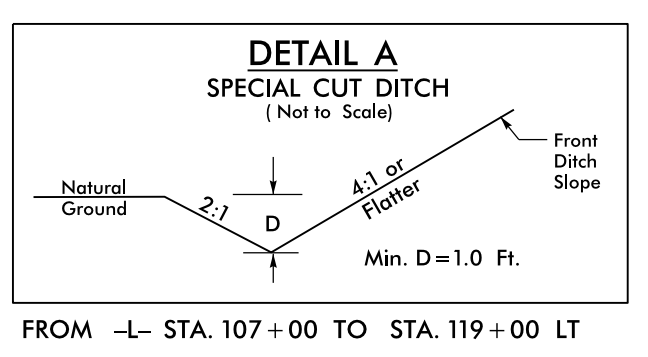
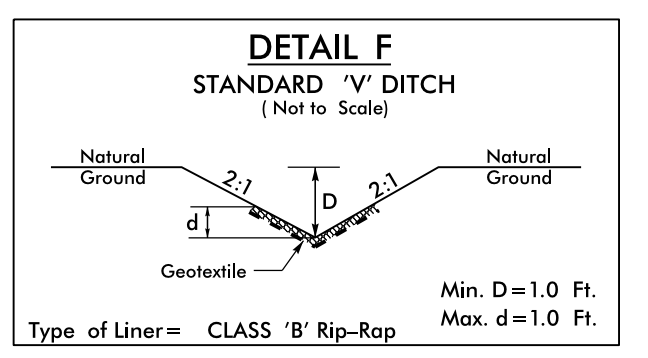
-L- LINE		
PIs Sta 110+88.23	PI Sta 113+10.36	PIs Sta 115+05.62
$\theta_s = 5^\circ 05' 34.6''$	$\Delta = 7^\circ 20' 45.0''$ (LT)	$\theta_s = 3^\circ 49' 11.0''$
Ls = 320.00'	D = 3°10' 59.2"	Ls = 240.00'
LT = 213.42'	L = 230.78'	LT = 160.04'
ST = 106.75'	T = 115.55'	ST = 80.03'
	R = 1,800.00'	
	Ds = 60mph	
	SE = .08	



-L- LINE	
PI Sta 101+21.29	PIs Sta 106+03.78
$\Delta = 103^\circ 47' 40.9''$ (RT)	$\theta_s = 10^\circ 40' 27.4''$
D = 7° 50' 55.5"	Ls = 272.00'
L = 1,322.44'	LT = 181.66'
T = 930.91'	ST = 90.97'
R = 730.00'	
Ds = 45mph	
SE = .08	

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.

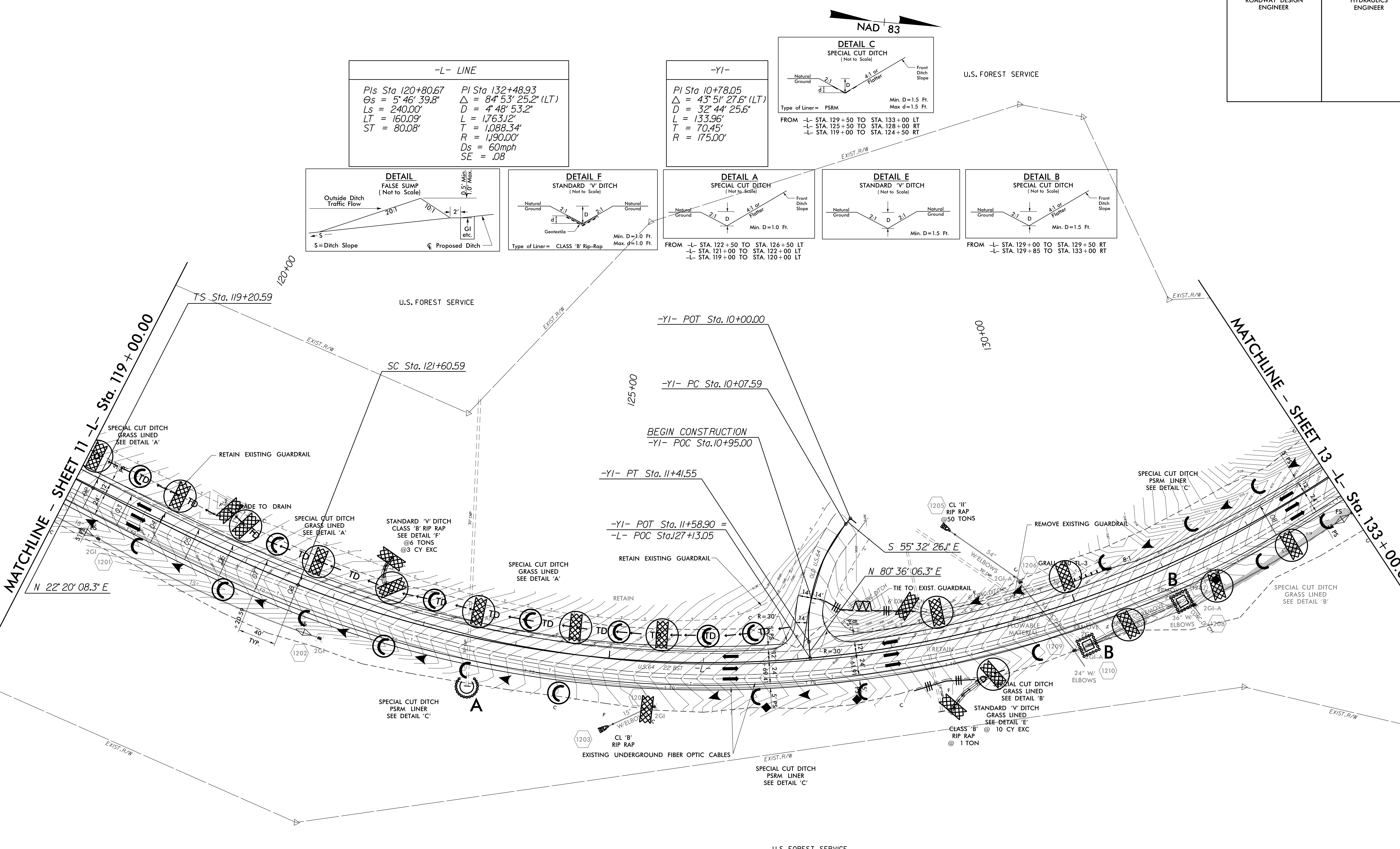


FOR -L- PROFILE SEE SHEET 23 & 24

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PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-12/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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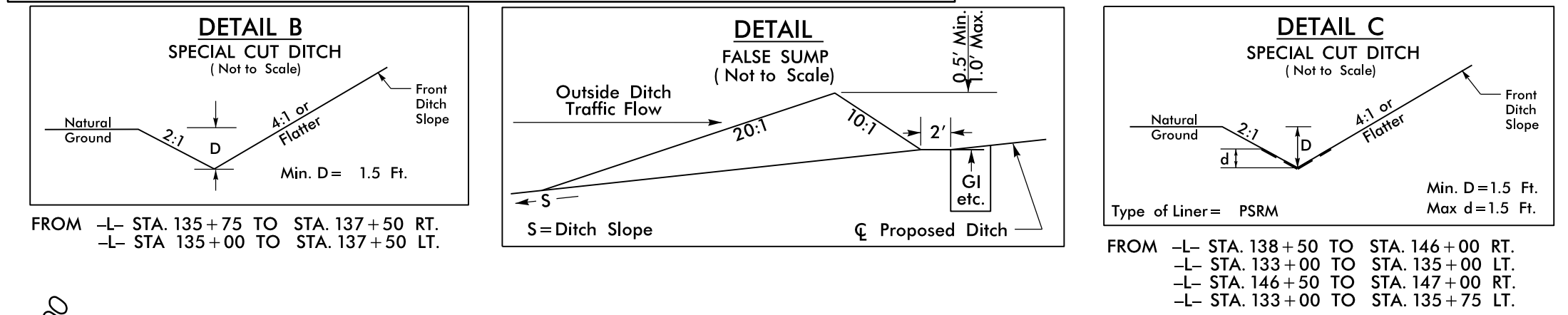
CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 12

NOTE:
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 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.

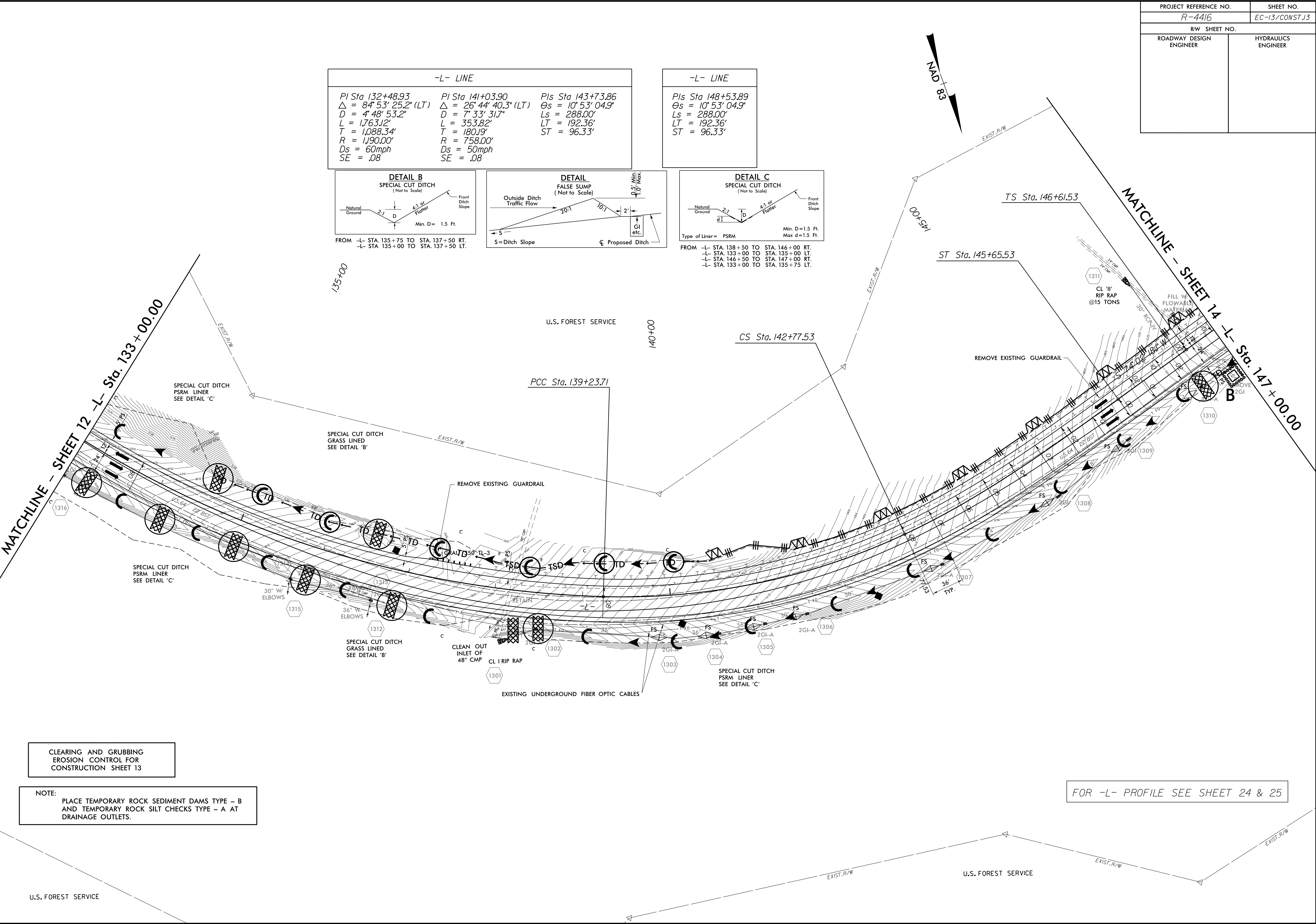
FOR -L- PROFILE SEE SHEET 24

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-13/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE			-L- LINE	
PI Sta 132+48.93	PI Sta 141+03.90	PIs Sta 143+73.86	PIs Sta 148+53.89	
$\Delta = 84^{\circ} 53' 25.2" (LT)$	$\Delta = 26^{\circ} 44' 40.3" (LT)$	$\Theta_s = 10^{\circ} 53' 04.9"$	$\Theta_s = 10^{\circ} 53' 04.9"$	
$D = 4^{\circ} 48' 53.2"$	$D = 7^{\circ} 33' 31.7"$	$L_s = 288.00'$	$L_s = 288.00'$	
$L = 1,763.12'$	$L = 353.82'$	$LT = 192.36'$	$LT = 192.36'$	
$T = 1,088.34'$	$T = 180.19'$	$ST = 96.33'$	$ST = 96.33'$	
$R = 1,190.00'$	$R = 758.00'$			
$D_s = 60\text{mph}$	$D_s = 50\text{mph}$			
$SE = .08$	$SE = .08$			



8/17/99
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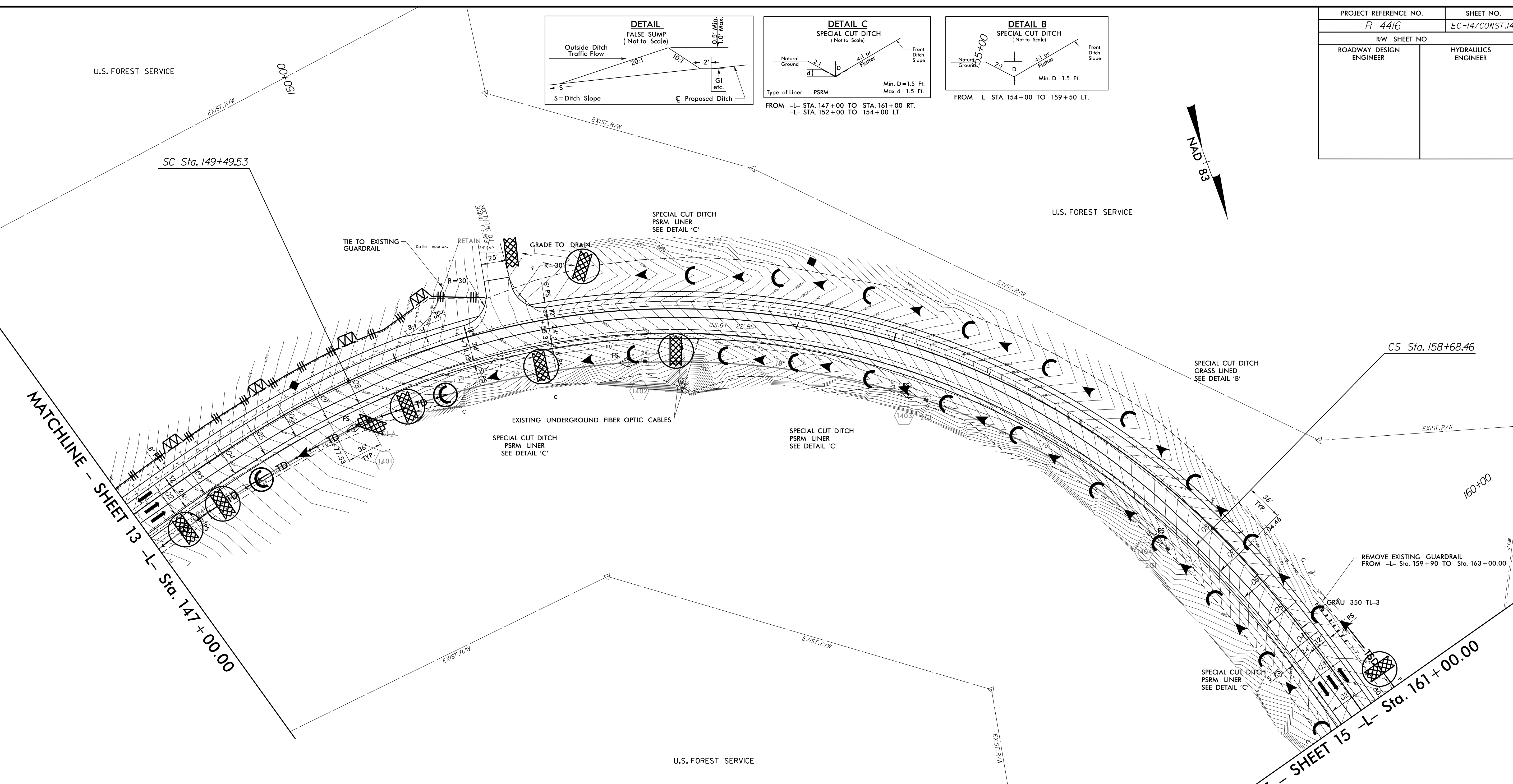
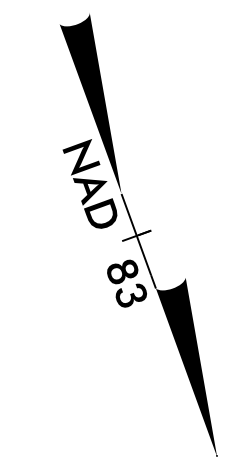
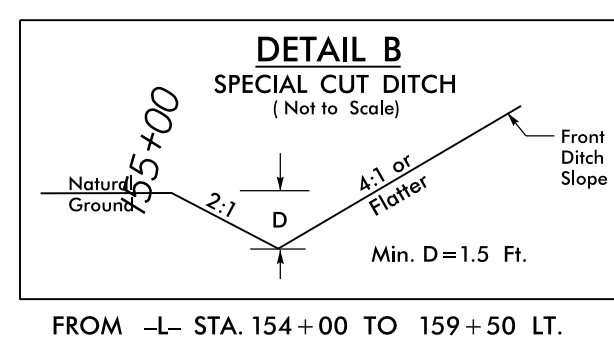
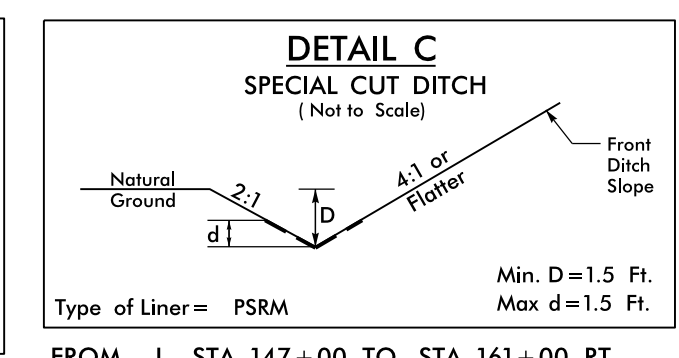
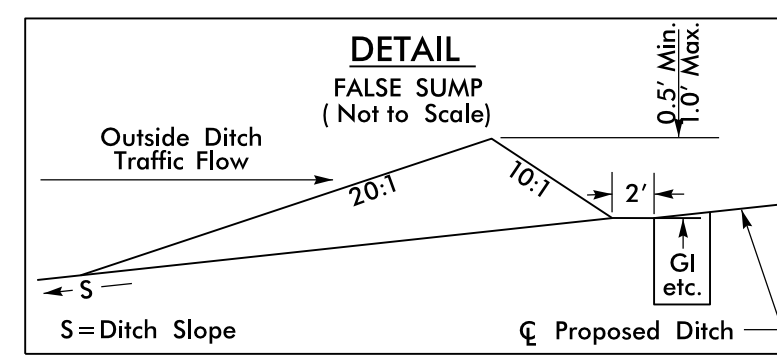


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13

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

FOR -L- PROFILE SEE SHEET 24 & 25

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-14/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L- LINE		
PIs Sta 148+53.89	PI Sta 154+74.98	PIs Sta 159+64.79
$\theta_s = 10^\circ 53' 04.9''$	$\Delta = 69^\circ 27' 36.2''$ (RT)	$\theta_s = 10^\circ 53' 04.9''$
$L_s = 288.00'$	$D = 7' 33' 31.7''$	$L_s = 288.00'$
$LT = 192.36'$	$L = 918.93'$	$LT = 192.36'$
$ST = 96.33'$	$T = 525.45'$	$ST = 96.33'$
	$R = 758.00'$	
	$D_s = 50\text{mph}$	
	$SE = .08$	

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.

FOR -L- PROFILE SEE SHEET 25

8/17/99
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 User: j208

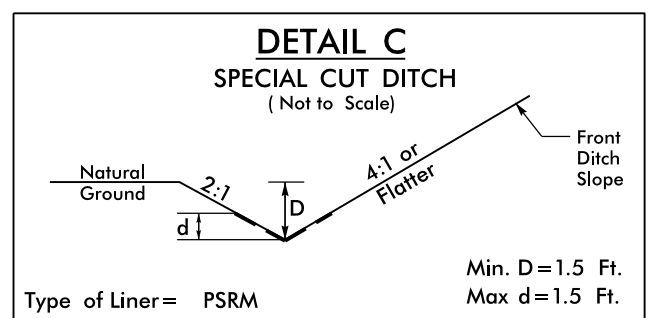
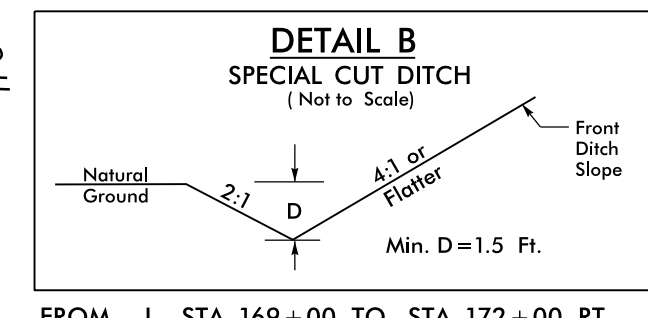
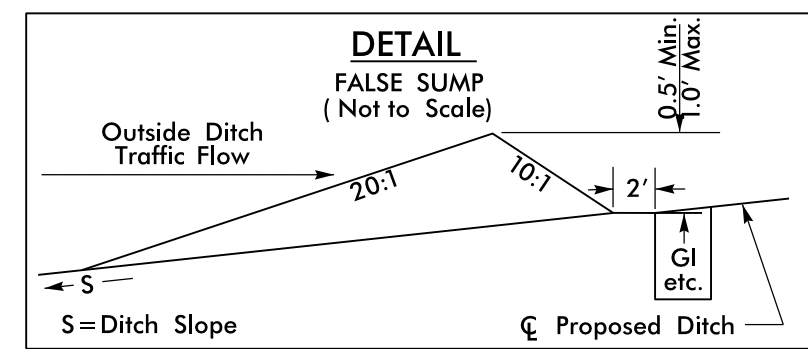
PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-15/CONST.15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE

Pls Sta 159+64.79
 $\theta_s = 10^\circ 53' 04.9''$
 $L_s = 288.00'$
 $LT = 192.36'$
 $ST = 96.33'$

-L- LINE

Pls Sta 167+60.96 Pl Sta 173+71.80
 $\theta_s = 7^\circ 03' 06.4''$ $\Delta = 42^\circ 24' 29.6''$ (LT)
 $L_s = 320.00'$ $D = 4^\circ 24' 26.5''$
 $LT = 213.50'$ $L = 962.21'$
 $ST = 106.82'$ $R = 1,300.00'$
 $D_s = 60\text{mph}$
 $SE = .08$

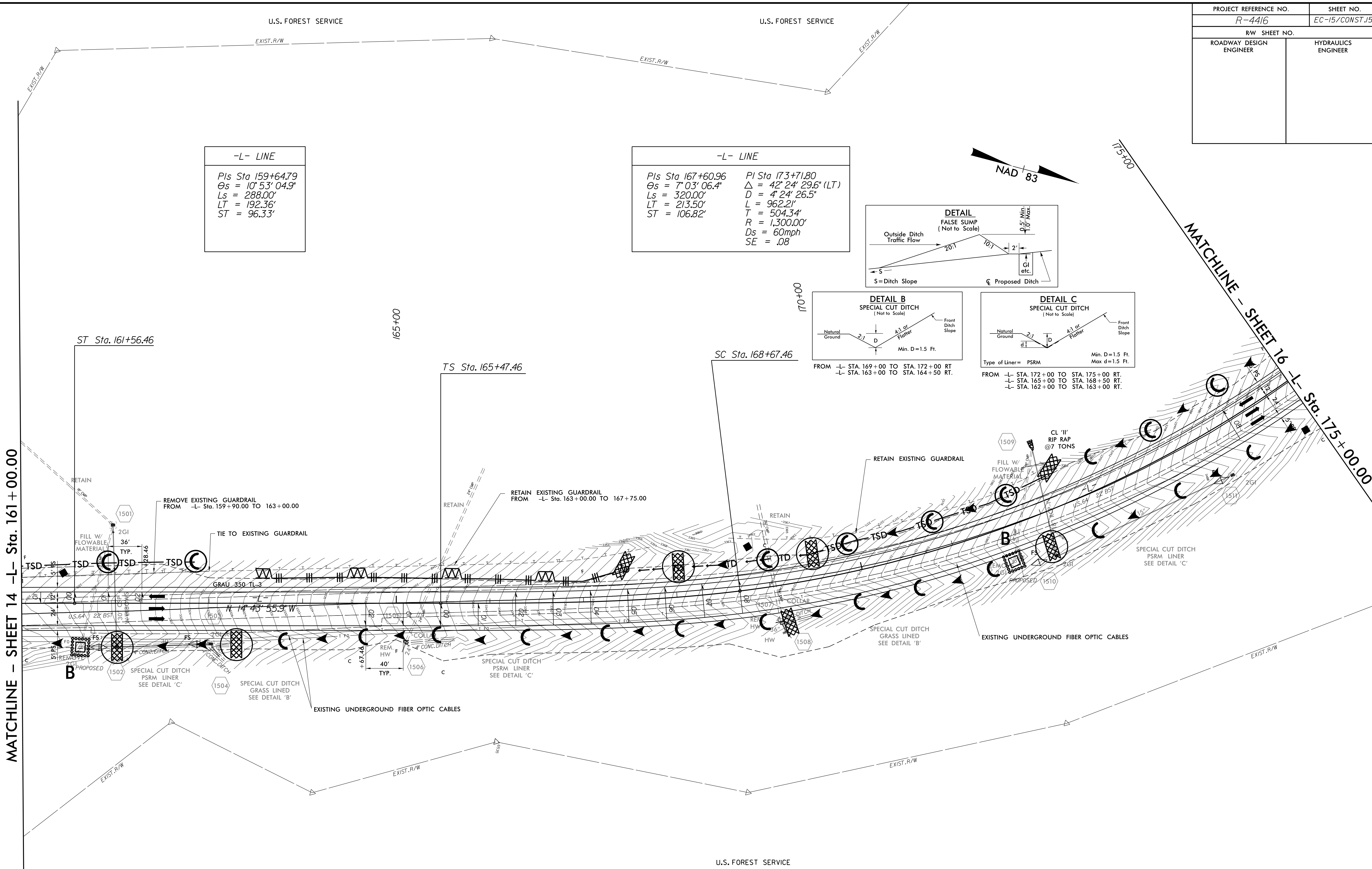


FROM -L- STA. 169+00 TO STA. 172+00 RT
 -L- STA. 163+00 TO STA. 164+50 RT.

FROM -L- STA. 172+00 TO STA. 175+00 RT.
 -L- STA. 165+00 TO STA. 168+50 RT.
 -L- STA. 162+00 TO STA. 163+00 RT.

MATCHLINE - SHEET 14 -L- Sta. 161+00.00

MATCHLINE - SHEET 16 -L- Sta. 175+00.00



CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 15

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

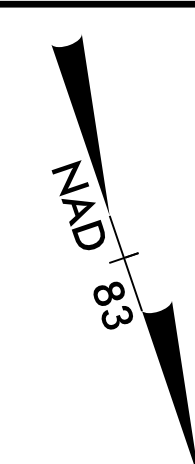
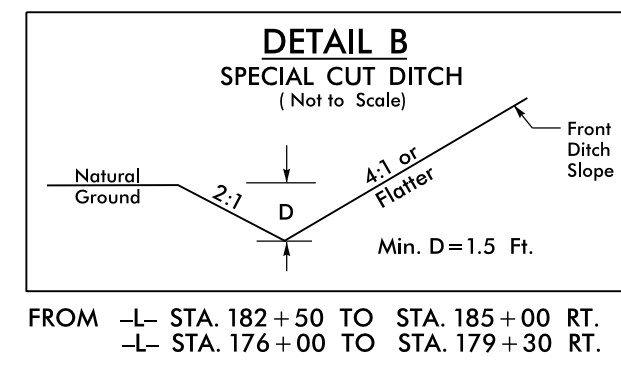
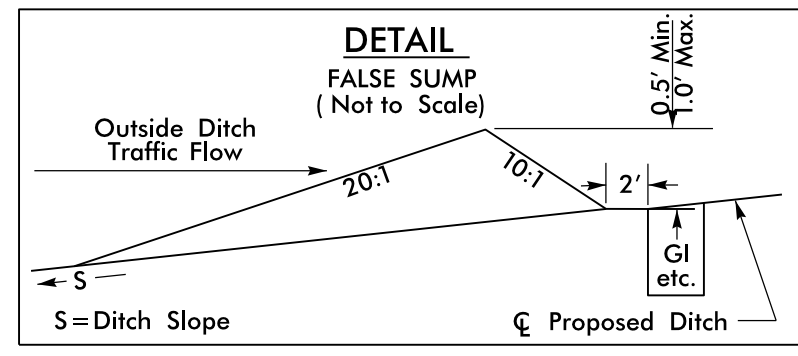
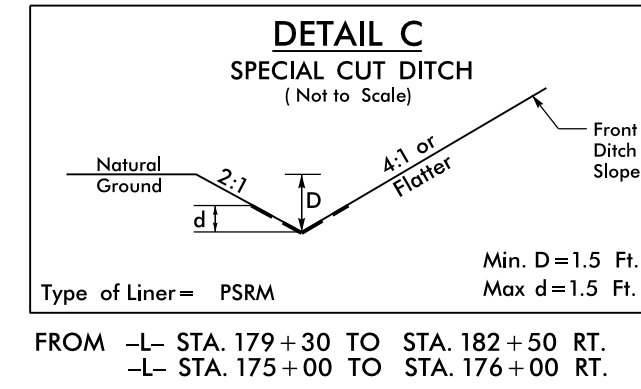
FOR -L- PROFILE SEE SHEET 25 & 26

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PROJECT REFERENCE NO. R-4416	SHEET NO. EC-16/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

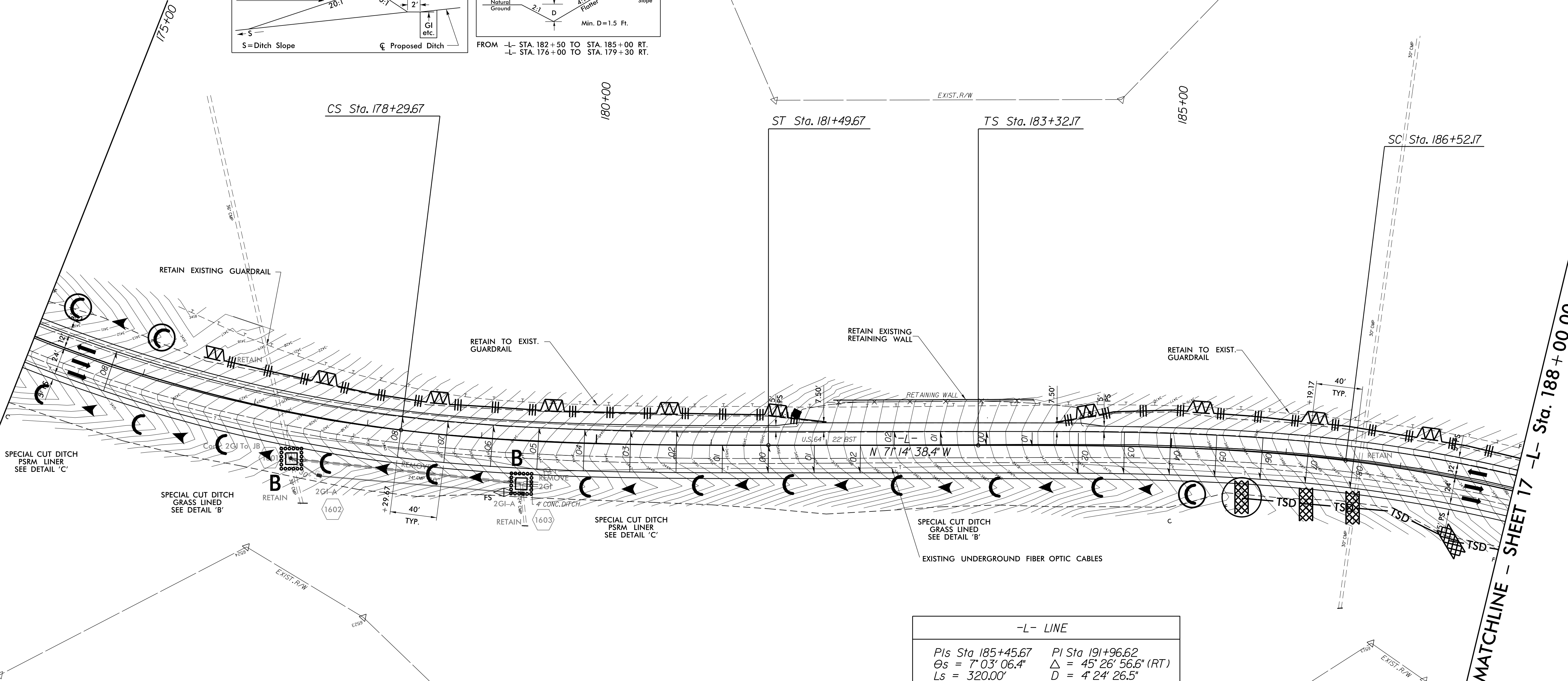
-L- LINE

PI Sta 173+71.80	PIs Sta 179+36.49
$\Delta = 42^\circ 24' 29.6"$ (LT)	$\Theta_s = 7^\circ 03' 06.4"$
D = 4' 24' 26.5"	Ls = 320.00'
L = 962.21'	LT = 213.50'
T = 504.34'	ST = 106.82'
R = 1,300.00'	
Ds = 60mph	
SE = .08	



U.S. FOREST SERVICE

EXIST. R/W



-L- LINE

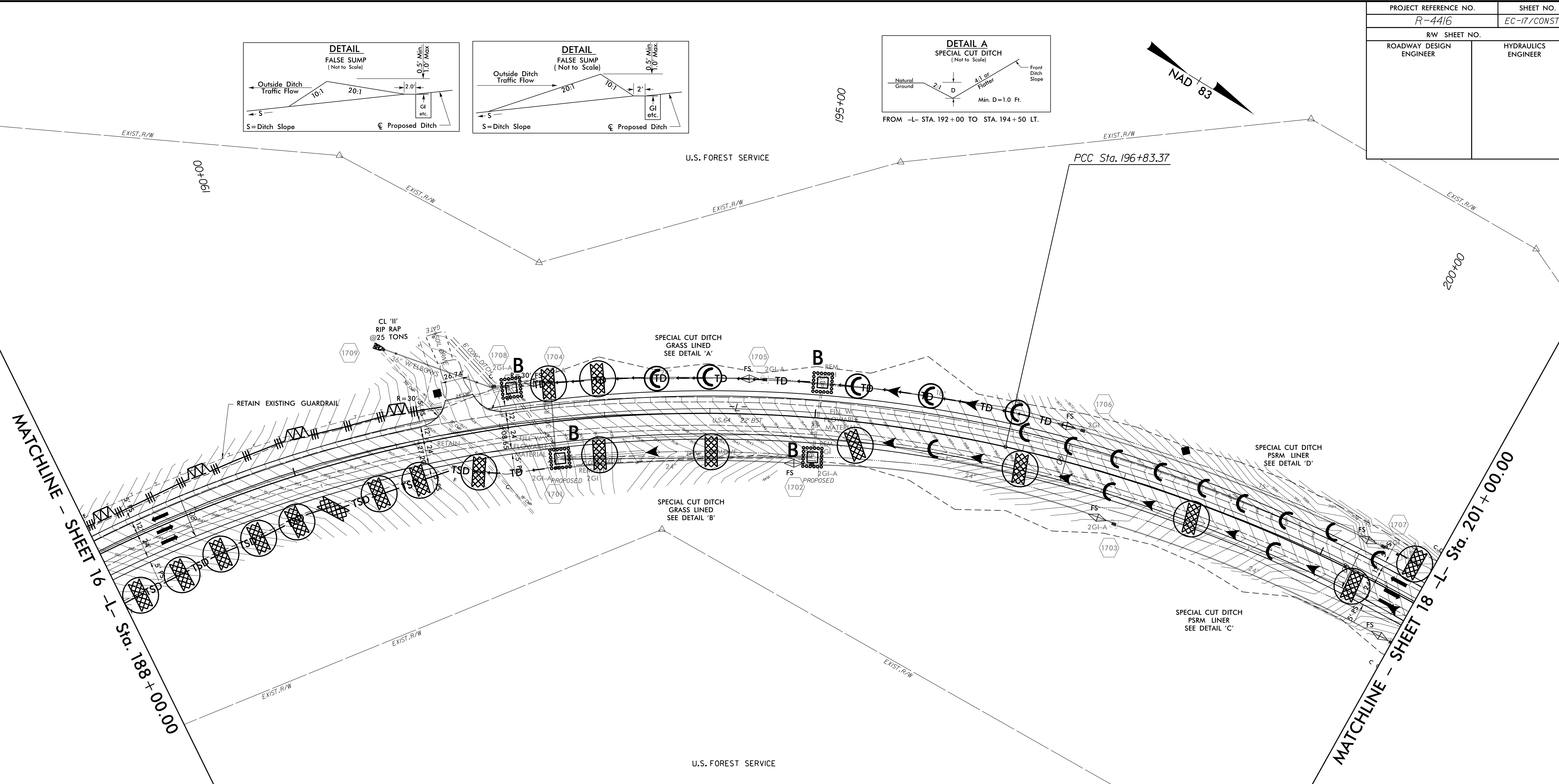
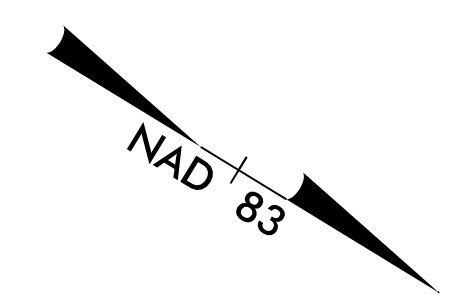
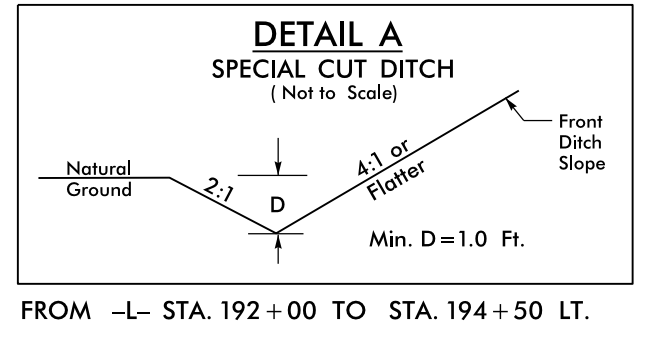
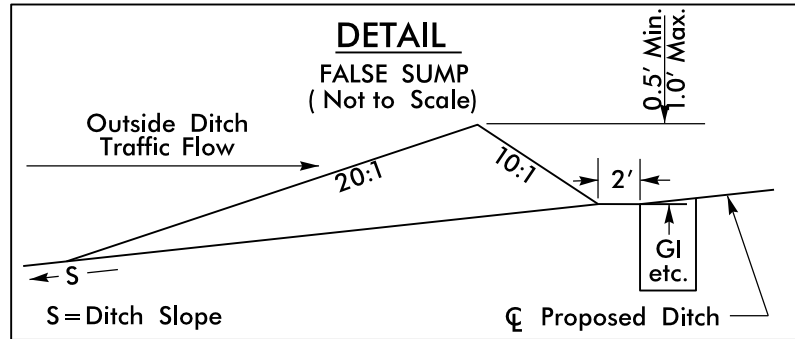
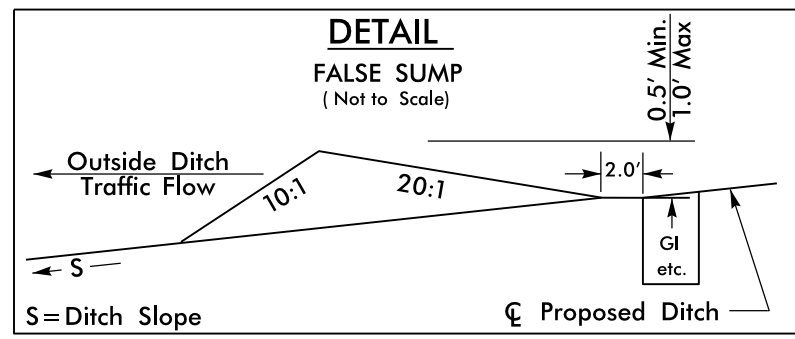
PIs Sta 185+45.67	PI Sta 191+96.62
$\Theta_s = 7^\circ 03' 06.4"$	$\Delta = 45^\circ 26' 56.6"$ (RT)
Ls = 320.00'	D = 4' 24' 26.5"
LT = 213.50'	L = 1,031.21'
ST = 106.82'	T = 544.46'
	R = 1,300.00'
	Ds = 60mph
	SE = .08

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16

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

FOR -L- PROFILE SEE SHEET 26

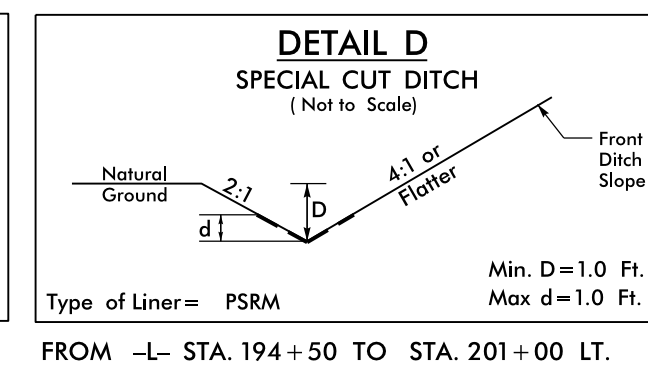
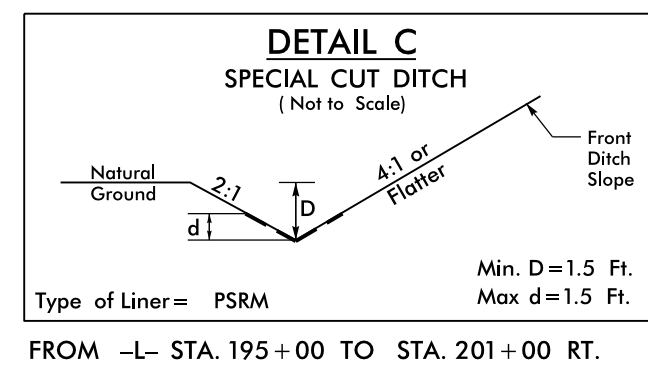
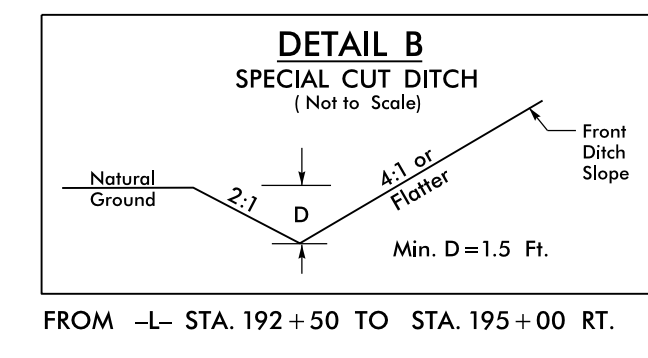
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D:\PROJECTS\2006\16\EC-16\REV\2410.dgn
C:\Users\jray\Documents\2-11-2006\16\EC-16\REV\2410.dgn



-L- LINE	
PI Sta 191+96.62	PI Sta 205+90.11
$\Delta = 45^{\circ} 26' 56.6"$ (RT)	$\Delta = 64^{\circ} 02' 18.7"$ (RT)
D = 4' 24" 26.5"	D = 3' 57" 05.2"
L = 1,031.21'	L = 1,620.64'
T = 544.46'	T = 906.74'
R = 1,300.00'	R = 1,450.00'
Ds = 60mph	Ds = 60mph
SE = .08	SE = .08

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 17

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



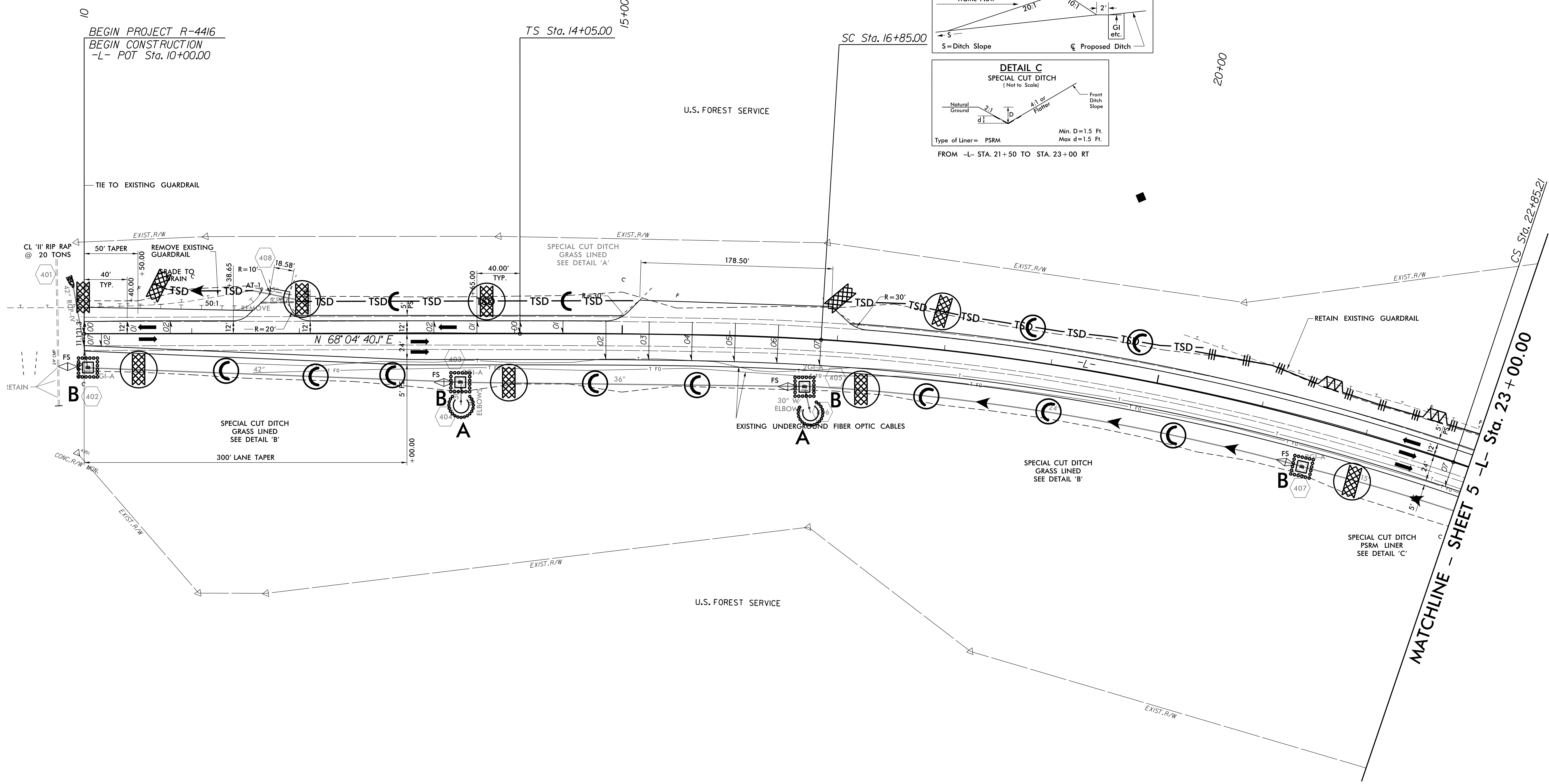
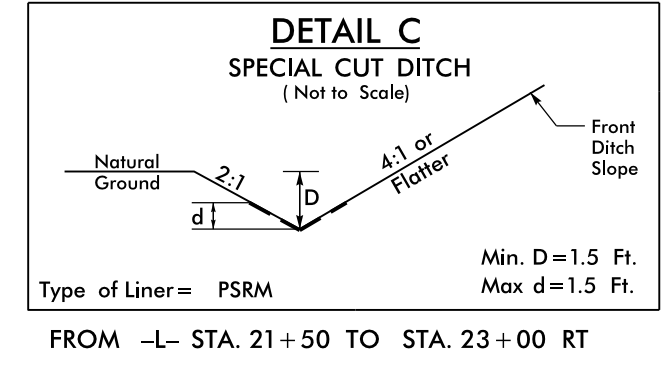
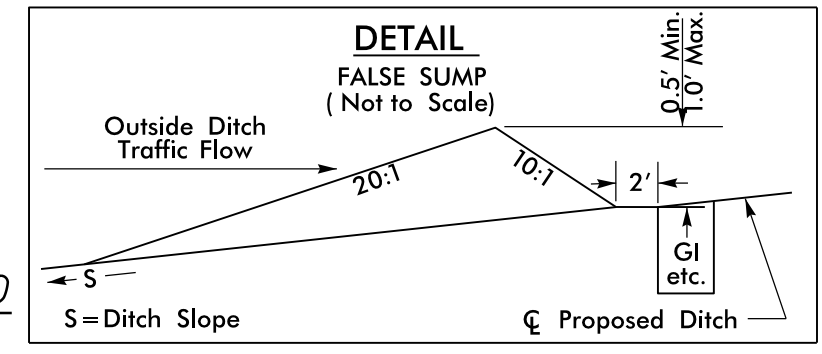
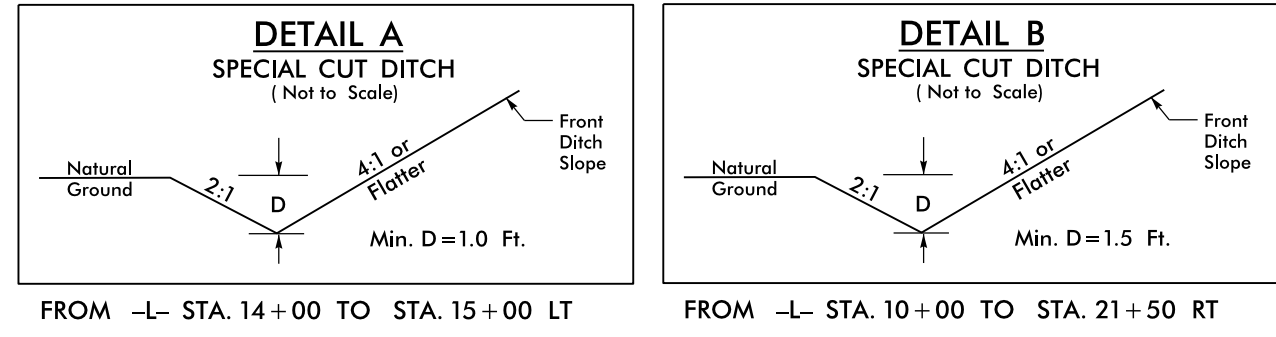
FOR -L- PROFILE SEE SHEET 26 & 27

8/17/99

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PROJECT REFERENCE NO. R-4416	SHEET NO. EC-20/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE		
PIs Sta 15+91.70	PI Sta 19+86.82	PIs Sta 23+78.58
$\Theta_s = 3^\circ 29' 15.2''$	$\Delta = 14^\circ 57' 07.1''$ (RT)	$\Theta_s = 3^\circ 29' 15.2''$
$L_s = 280.00'$	$D = 2^\circ 29' 28.0''$	$L_s = 280.00'$
$LT = 186.70'$	$L = 600.21'$	$LT = 186.70'$
$ST = 93.37'$	$T = 301.82'$	$ST = 93.37'$
	$R = 2,300.00'$	
	$D_s = 60\text{mph}$	
	$SE = .07$	

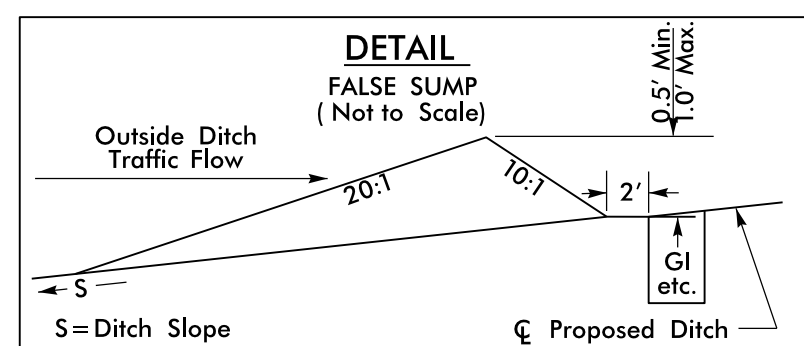


FOR -L- PROFILE SEE SHEET 20

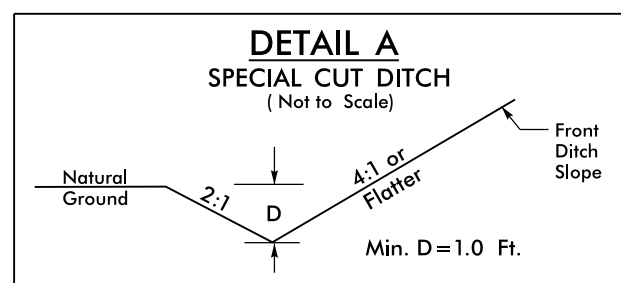
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PROJECT REFERENCE NO.		SHEET NO.	
		EC-21/CONST.5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

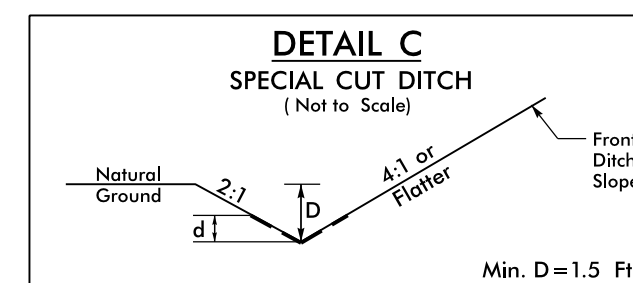
-L- LINE
 Pls Sta 23+78.58
 $\theta_s = 3^\circ 29' 15.2''$
 $L_s = 280.00'$
 $LT = 186.70'$
 $ST = 93.37'$



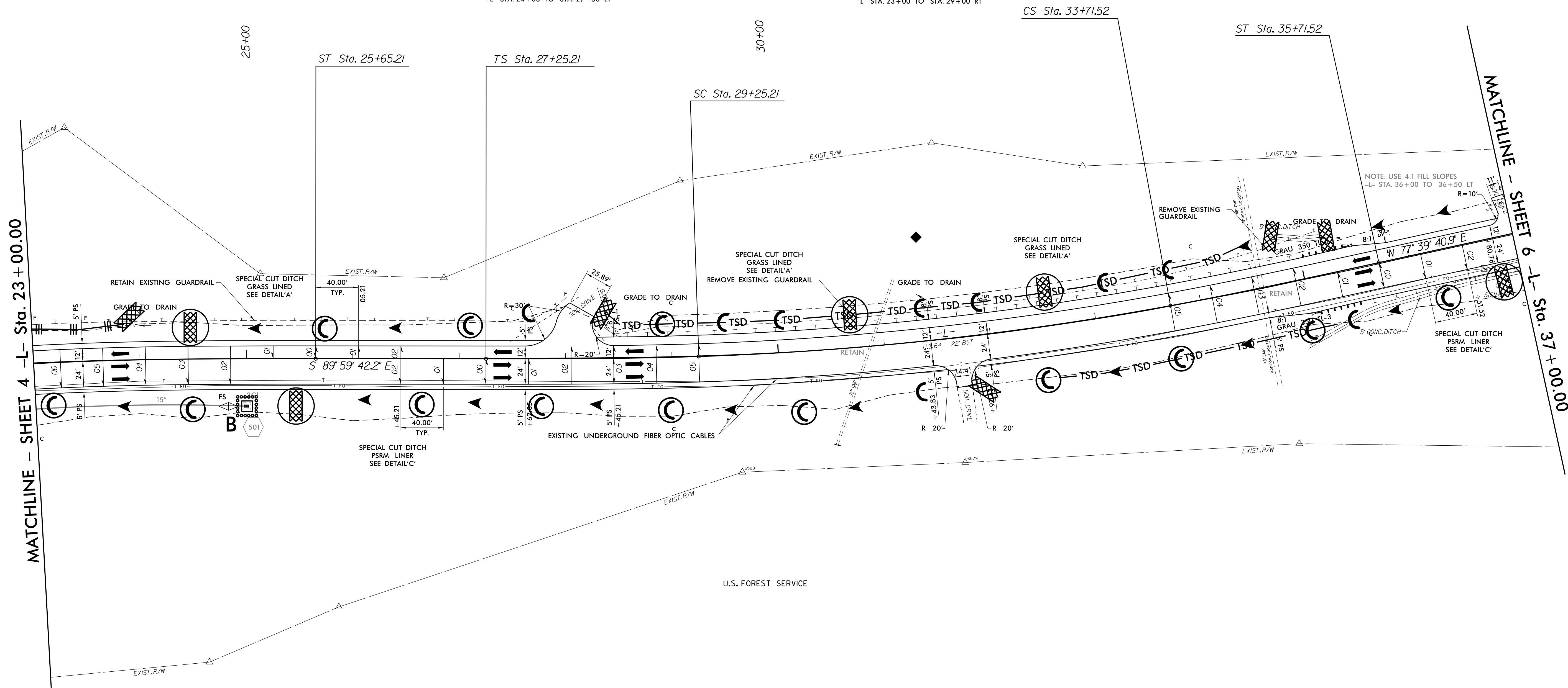
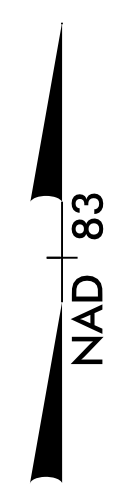
-L- LINE
 Pls Sta 28+58.55 Pls Sta 31+48.78 Pls Sta 34+38.19
 $\theta_s = 1^\circ 54' 35.5''$ $\Delta = 8^\circ 31' 25.9''$ (LT) $\theta_s = 1^\circ 54' 35.5''$
 $L_s = 200.00'$ $D = 1^\circ 54' 35.5''$ $L_s = 200.00'$
 $LT = 133.34'$ $T = 446.31'$ $LT = 133.34'$
 $ST = 66.67'$ $R = 3,000.00'$ $ST = 66.67'$



FROM -L- STA. 31+50 TO STA. 34+00 LT
 -L- STA. 29+00 TO STA. 31+00 LT
 -L- STA. 24+00 TO STA. 27+50 LT



Type of Liner = PSRM
 FROM -L- STA. 35+30 TO STA. 37+00 RT
 -L- STA. 23+00 TO STA. 29+00 RT



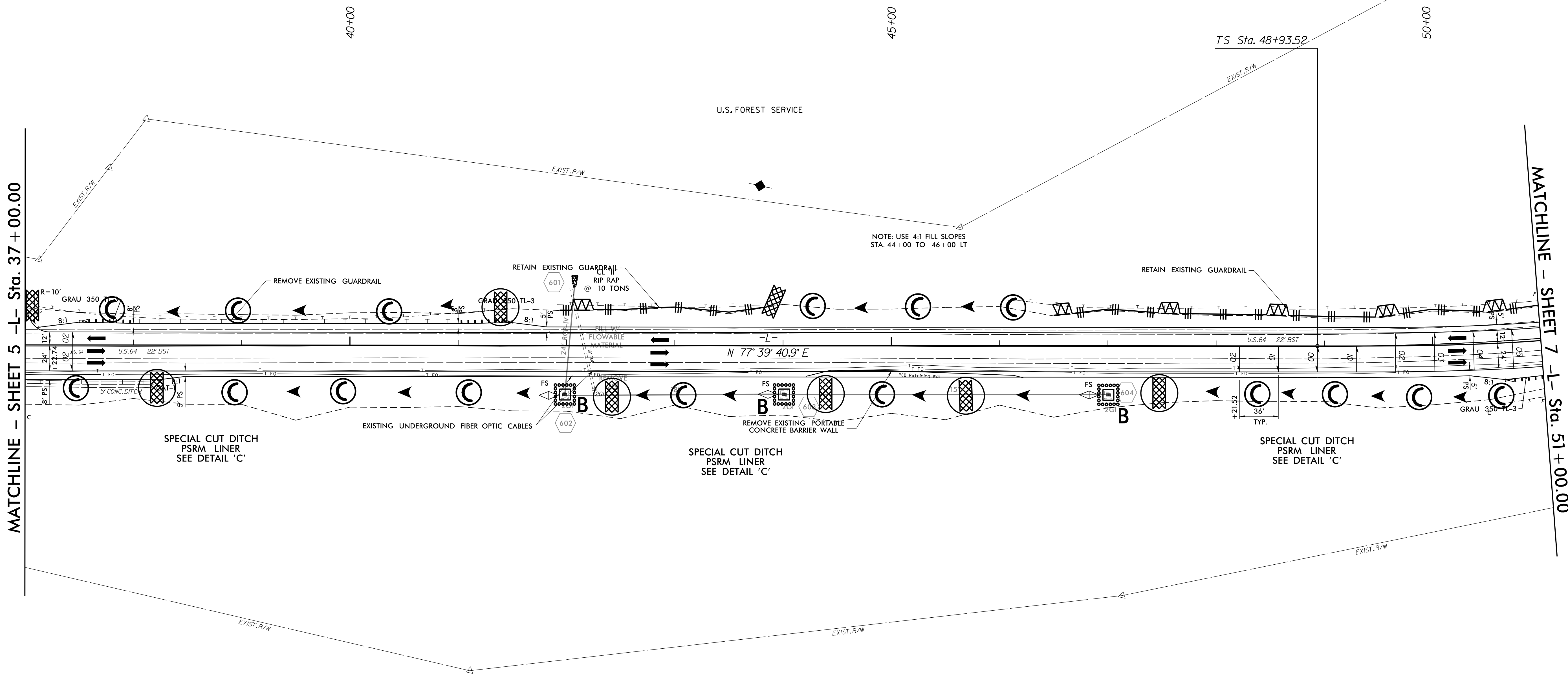
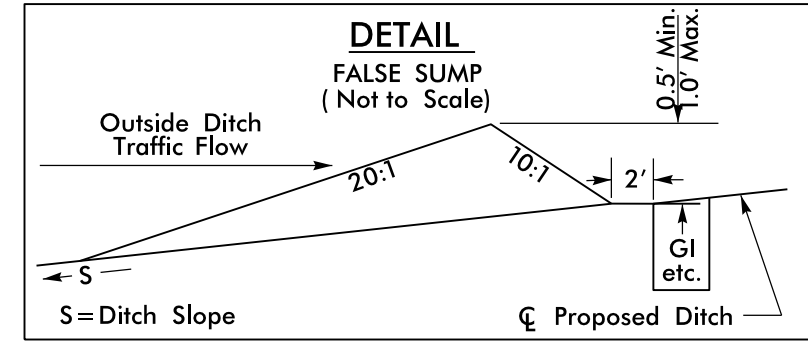
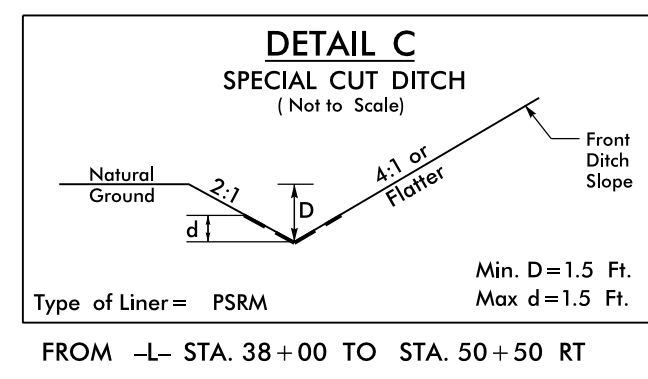
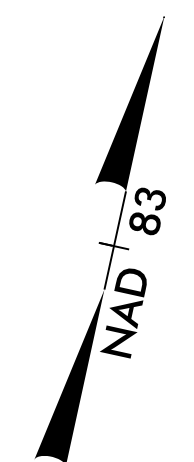
NOTE: USE 4:1 FILL SLOPES
 -L- STA. 36+00 TO 36+50 LT
 $R=10'$
 $N 77^\circ 39' 40.9'' E$
 $8.1:1$
 $8.1:1$
 $8.1:1$
 $5' GENC. DITCH$
 $40.00'$
 SPECIAL CUT DITCH PSRM LINER SEE DETAIL 'C'

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FOR -L- PROFILE SEE SHEET 20

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-22/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE
 PIs Sta 50+85.74
 $\theta_s = 8^\circ 27' 43.7''$
 $L_s = 288.00'$
 $LT = 192.22'$
 $ST = 96.20'$



NOTE: USE 4:1 FILL SLOPES
 STA. 44+00 TO 46+00 LT

MATCHLINE - SHEET 5 -L- Sta. 37 + 00.00

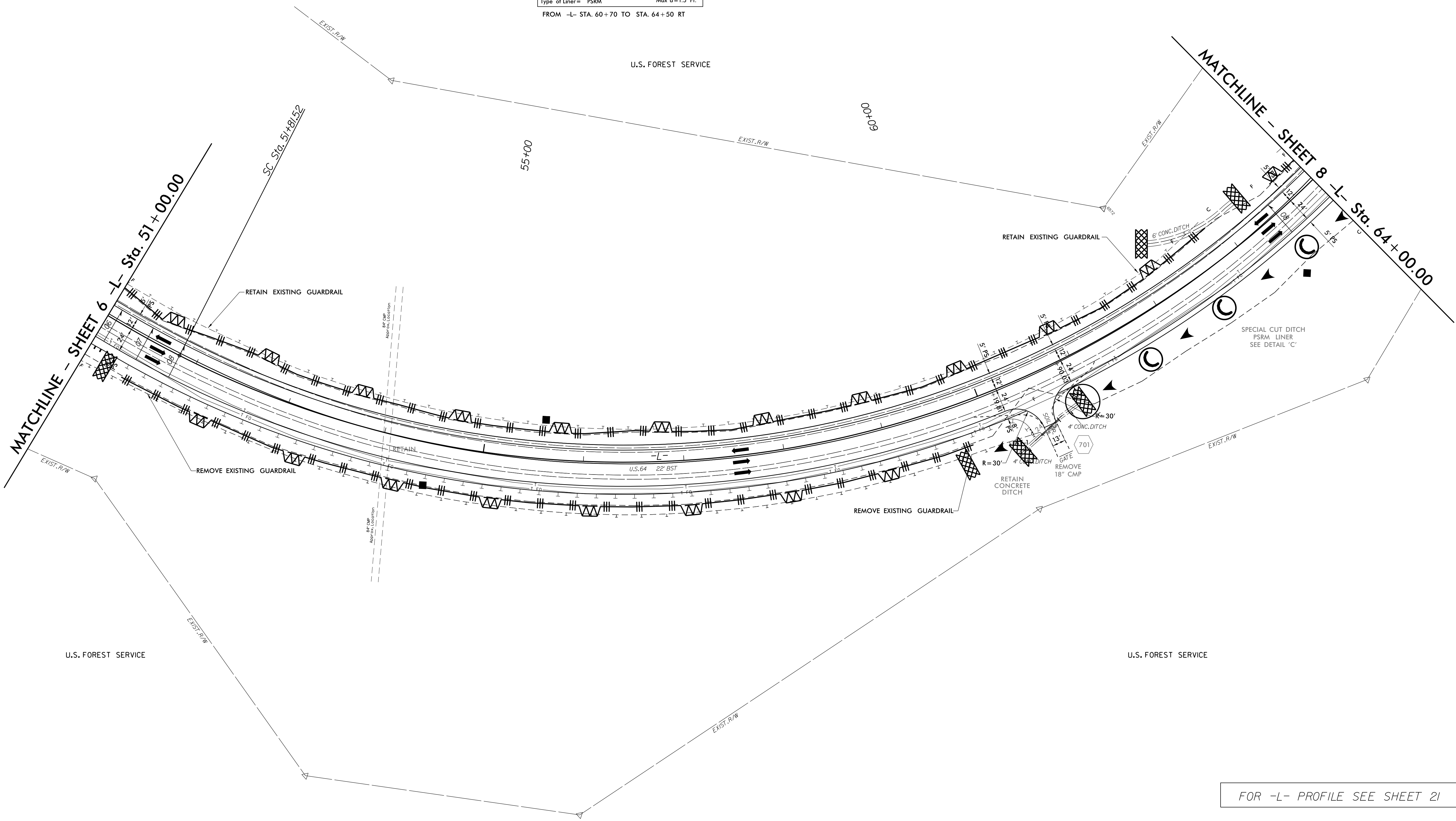
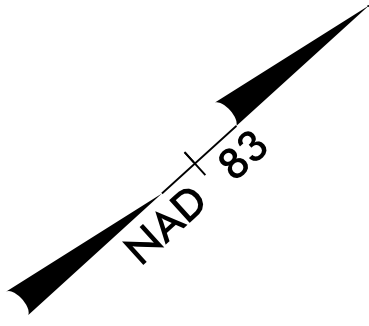
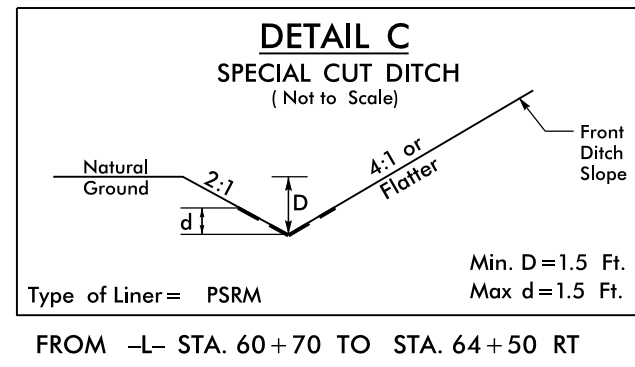
MATCHLINE - SHEET 7 -L- Sta. 51 + 00.00

FOR -L- PROFILE SEE SHEET 21

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 User: jferrell

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-23/CONST.7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE	
PIs Sta 50+85.74	PI Sta 59+44.52
$\theta_s = 8^\circ 27' 43.7''$	$\Delta = 76^\circ 05' 26.1''$ (LT)
$L_s = 288.00'$	$D = 5^\circ 52' 35.4''$
$LT = 192.22'$	$L = 1,294.83'$
$ST = 96.20'$	$T = 763.00'$
	$R = 975.00'$
	$D_s = 60\text{mph}$
	$SE = .08$



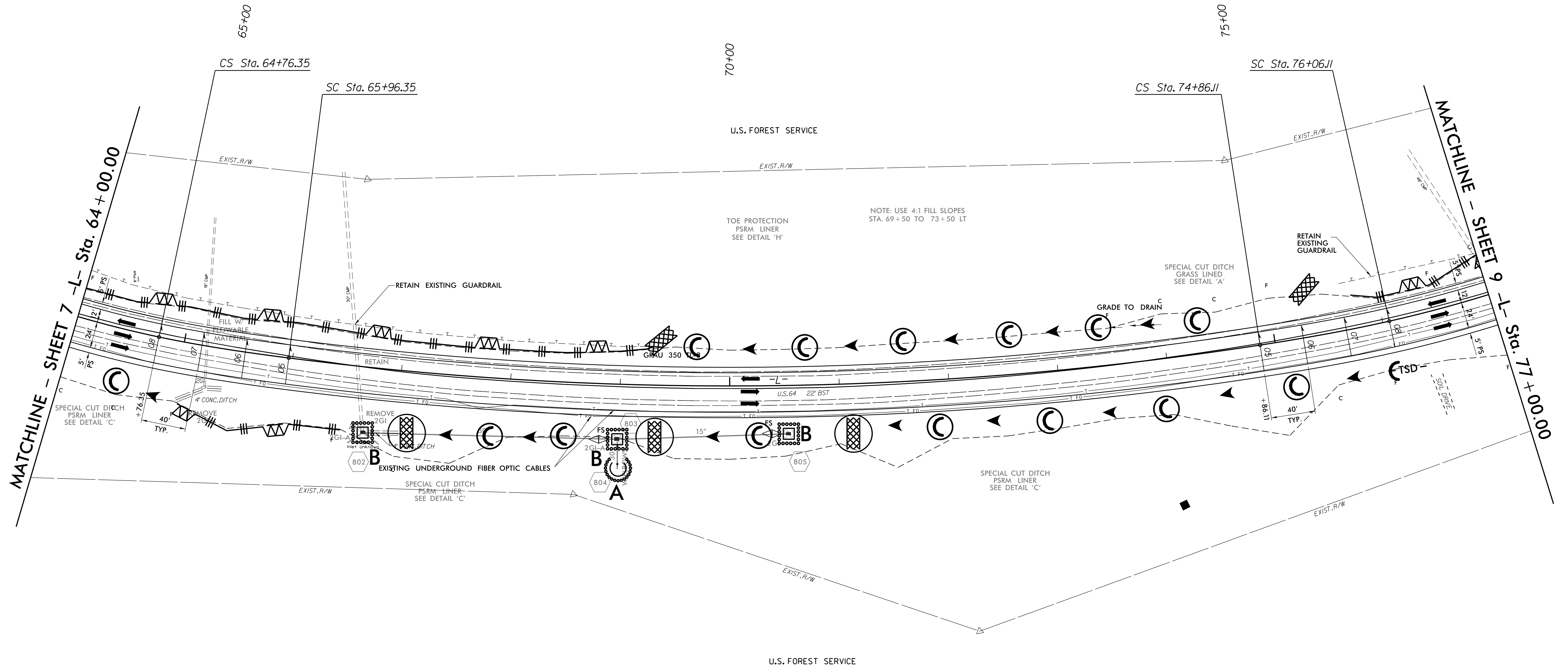
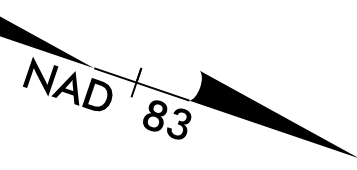
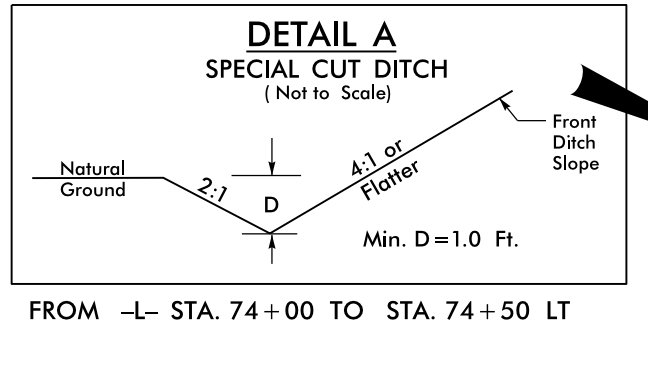
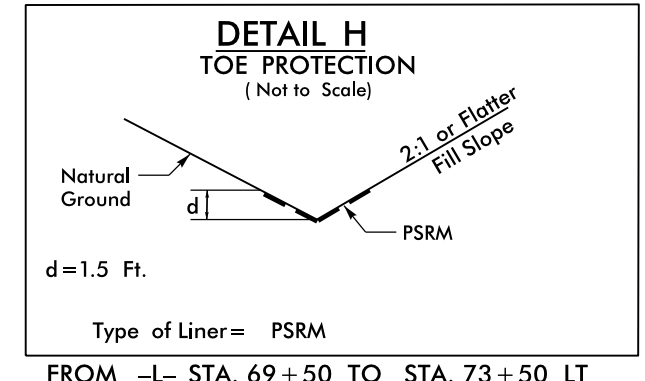
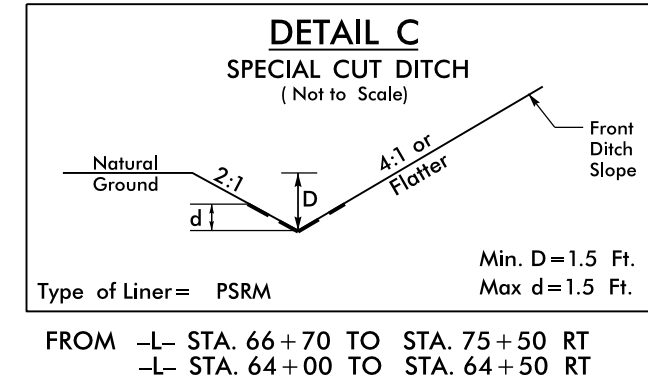
FOR -L- PROFILE SEE SHEET 21

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-24/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE				
PI Sta 59+44.52	PIs Sta 65+25.79	PI Sta 70+44.18	PIs Sta 75+55.15	PI Sta 81+32.59
$\Delta = 76^{\circ}05'26.1"$ (LT)	$\Theta s = 1^{\circ}05'03.4"$	$\Delta = 16^{\circ}04'55.0"$ (LT)	$\Theta s = 1^{\circ}05'03.7"$	$\Delta = 47^{\circ}22'36.4"$ (LT)
$D = 5^{\circ}52'35.4"$	$\Theta s = 3^{\circ}31'33.9"$	$D = 1^{\circ}48'26.8"$	$\Theta s = 2^{\circ}51'53.6"$	$D = 4^{\circ}46'28.7"$
$L = 1,294.83'$	$Ls = 120.00'$	$L = 889.76'$	$Ls = 120.00'$	$L = 992.26'$
$T = 763.00'$	$LT = 70.62'$	$T = 447.83'$	$LT = 69.04'$	$T = 526.47'$
$R = 975.00'$	$ST = 49.44'$	$R = 3,170.00'$	$ST = 51.01'$	$R = 1,200.00'$
$Ds = 50\text{mph}$		$Ds = 60\text{mph}$		$Ds = 60\text{mph}$
$SE = .08$		$SE = .05$		$SE = .08$



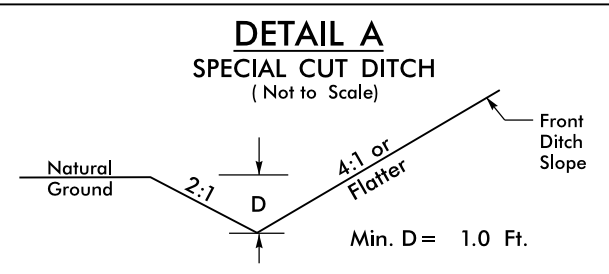
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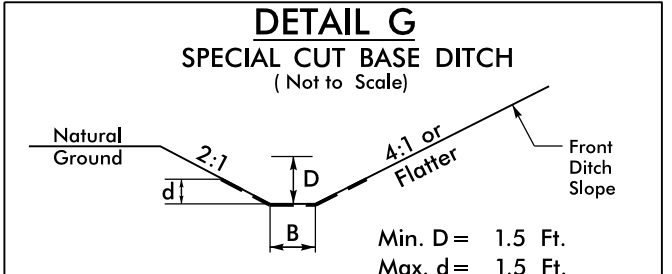
FOR -L- PROFILE SEE SHEET 22

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-25/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

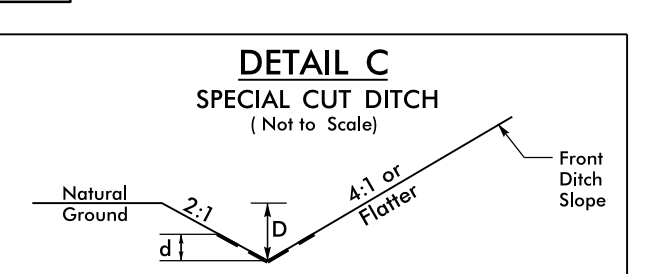
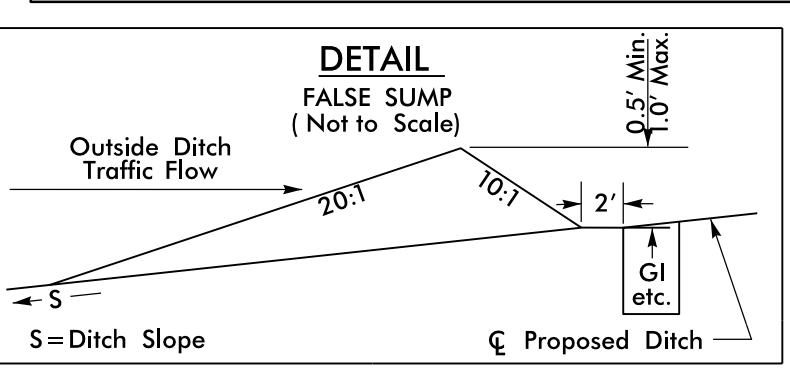
-L- LINE	
PI Sta 81+32.59	PIs Sta 87+05.22
$\Delta = 47^{\circ} 22' 36.4" (LT)$	$\theta_s = 7^{\circ} 38' 22.0"$
$D = 4' 46' 28.7"$	$L_s = 320.00'$
$L = 992.26'$	$LT = 213.53'$
$T = 526.47'$	$ST = 106.85'$
$R = 1,200.00'$	
$D_s = 60\text{mph}$	
$SE = .08$	



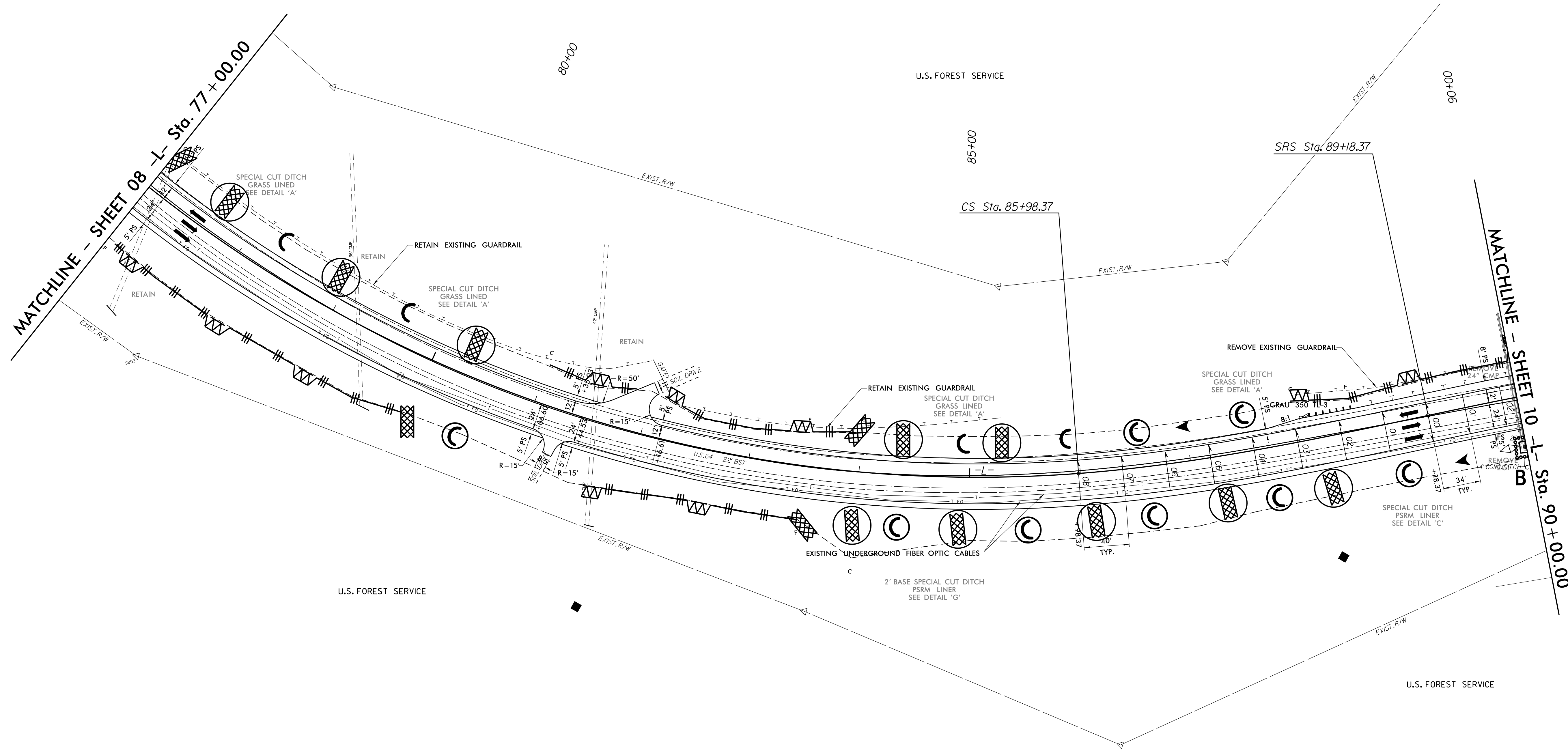
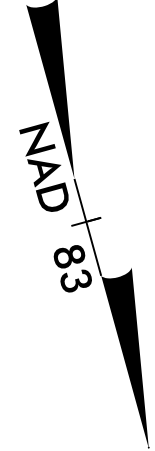
FROM -L- STA. 86+80 TO STA. 88+00 LT
 -L- STA. 83+90 TO STA. 86+50 LT
 -L- STA. 79+40 TO STA. 81+00 LT
 -L- STA. 77+00 TO STA. 79+00 LT



Type of Liner = PSRM
 FROM -L- STA. 83+60 TO STA. 87+75 RT



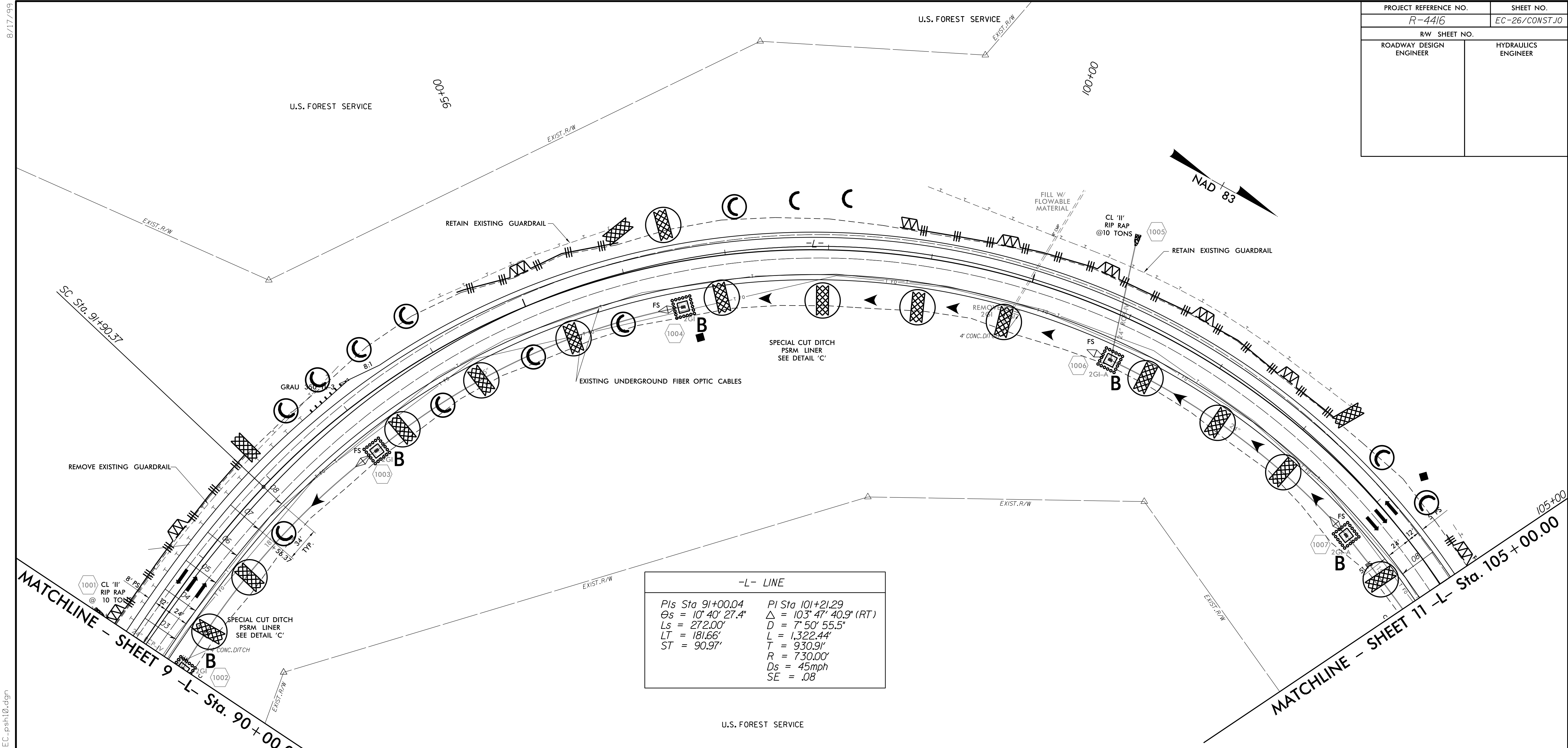
Type of Liner = PSRM
 FROM -L- STA. 87+75 TO STA. 90+00 RT



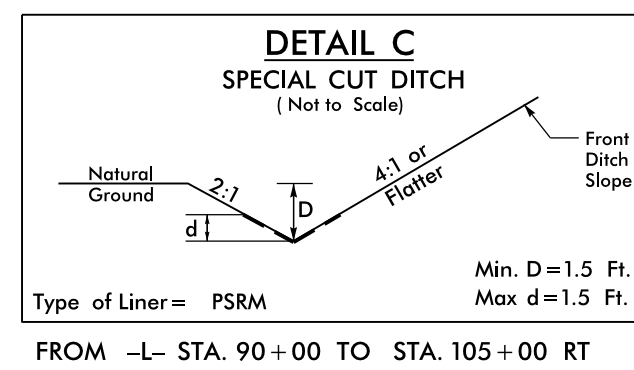
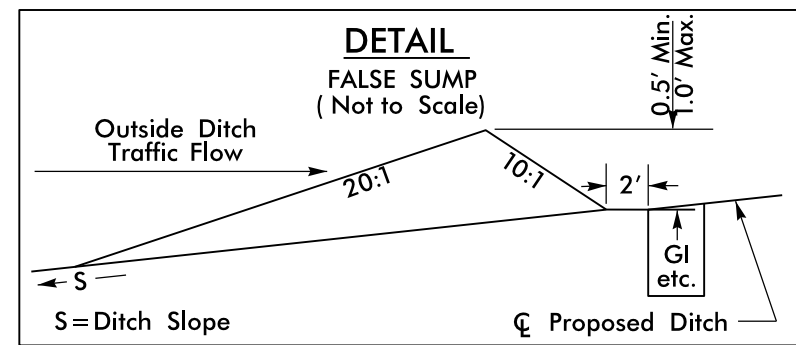
FOR -L- PROFILE SEE SHEET 22

8/17/99
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 User: jessie
 Date: 2/11/2006 10:30 AM

PROJECT REFERENCE NO. R-4416	SHEET NO. EC-26/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L- LINE	
PIs Sta 91+00.04	PI Sta 101+21.29
$\theta_s = 10^\circ 40' 27.4''$	$\Delta = 103^\circ 47' 40.9''$ (RT)
$L_s = 272.00'$	$D = 7^\circ 50' 55.5''$
$LT = 181.66'$	$L = 1,322.44'$
$ST = 90.97'$	$T = 930.9'$
	$R = 7,300.0'$
	$D_s = 45\text{mph}$
	$SE = .08$

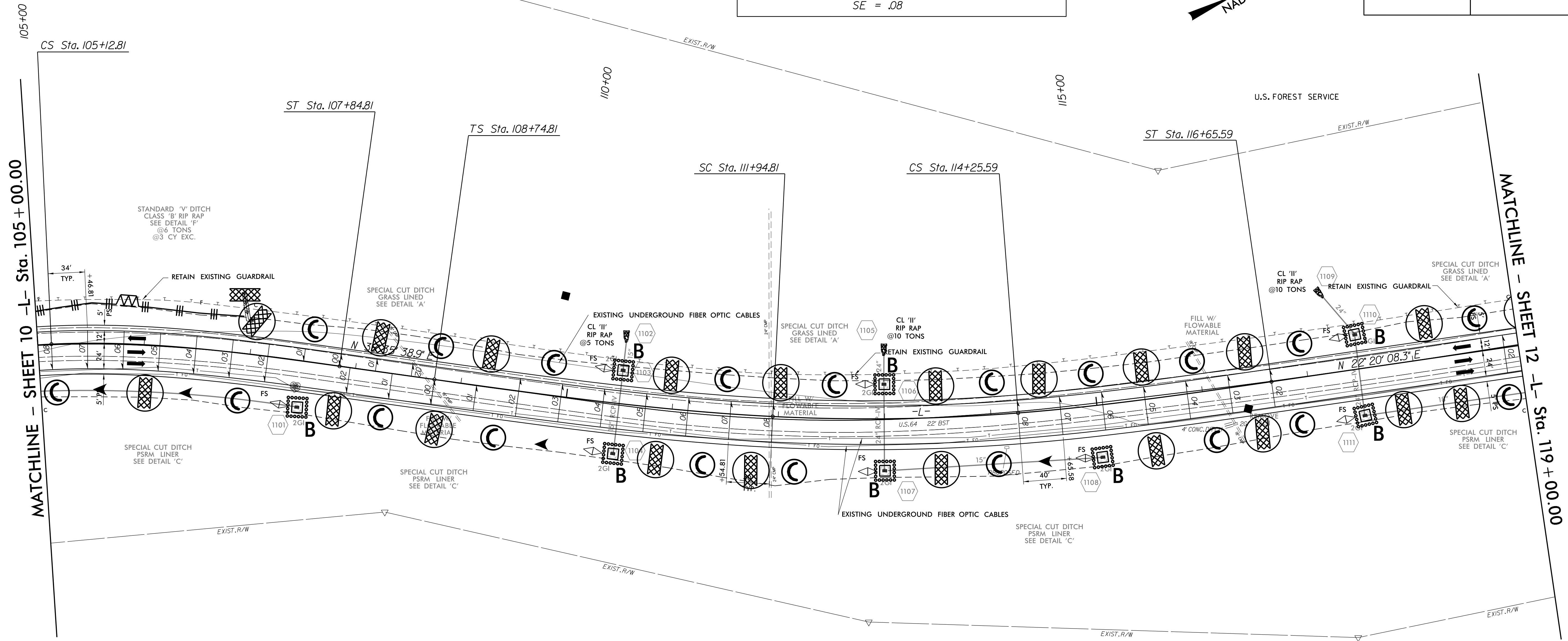
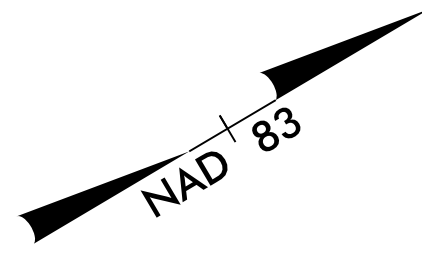


FOR -L- PROFILE SEE SHEET 23

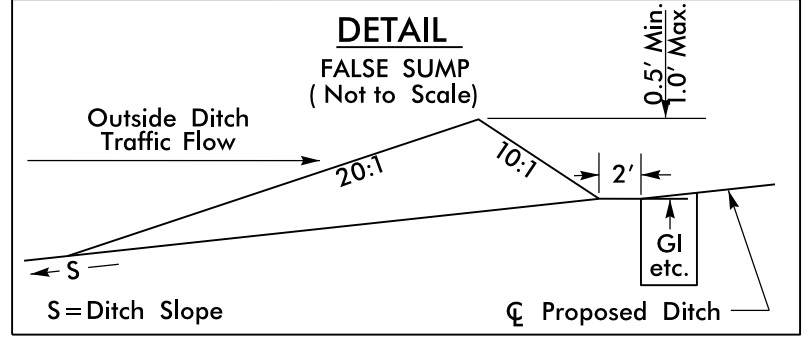
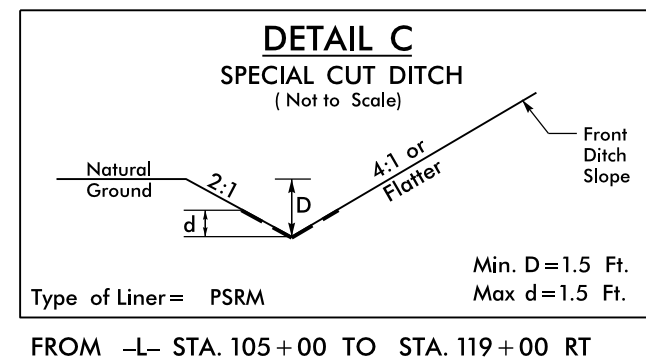
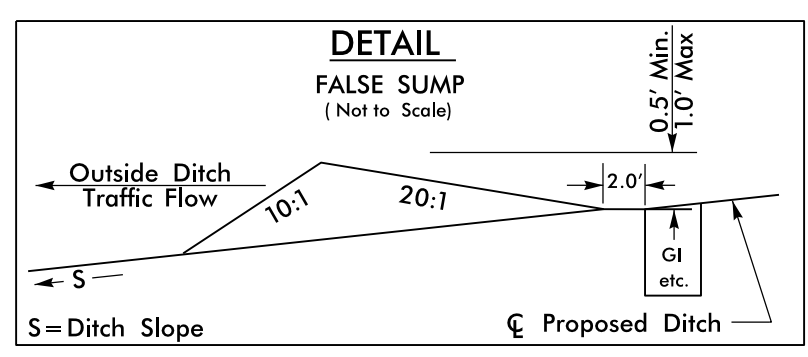
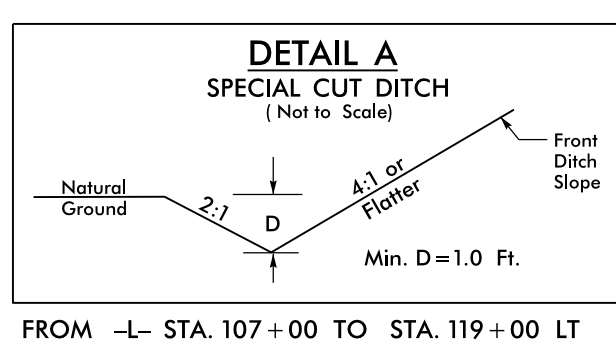
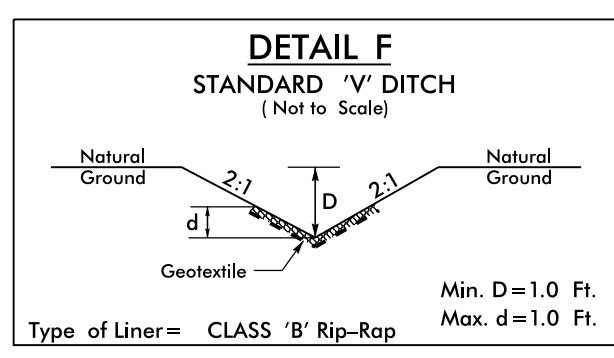
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 C:\FEB 2006\JTB\Projects\2006\2-11-2006\R-4416-EC-psht10.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-27/CONST.II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE		
PIs Sta 110+88.23	PI Sta 113+10.36	PIs Sta 115+05.62
$\Theta_s = 5^\circ 05' 34.6"$	$\Delta = 7^\circ 20' 45.0" (LT)$	$\Theta_s = 3^\circ 49' 11.0"$
$L_s = 320.00'$	$D = 3^\circ 10' 59.2"$	$L_s = 240.00'$
$LT = 213.42'$	$L = 230.78'$	$LT = 160.04'$
$ST = 106.75'$	$T = 115.55'$	$ST = 80.03'$
	$R = 1,800.00'$	
	$D_s = 60\text{mph}$	
	$SE = .08$	



-L- LINE	
PI Sta 101+21.29	PIs Sta 106+03.78
$\Delta = 103^\circ 47' 40.9" (RT)$	$\Theta_s = 10^\circ 40' 27.4"$
$D = 7^\circ 50' 55.5"$	$L_s = 272.00'$
$L = 1,322.44'$	$LT = 181.66'$
$T = 930.91'$	$ST = 90.97'$
$R = 730.00'$	
$D_s = 45\text{mph}$	
$SE = .08$	



FOR -L- PROFILE SEE SHEET 23 & 24

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 JRB
 11/22/06

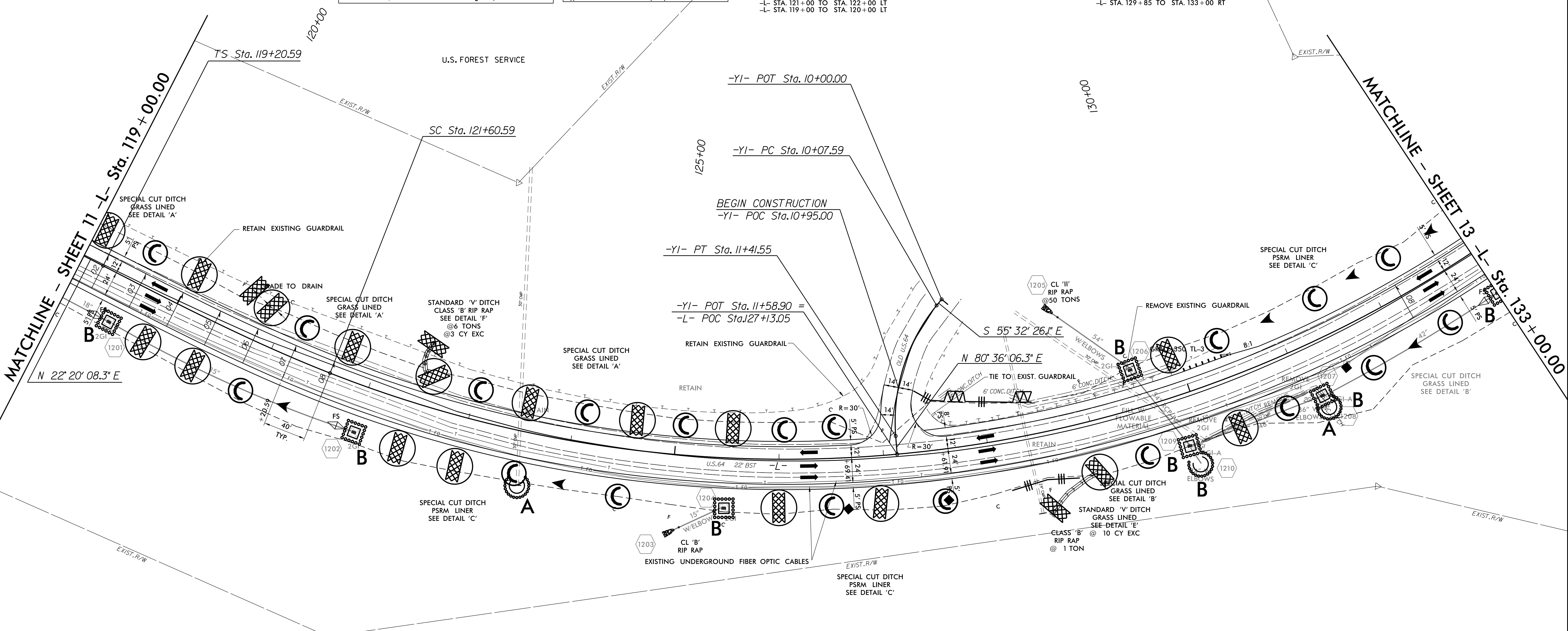
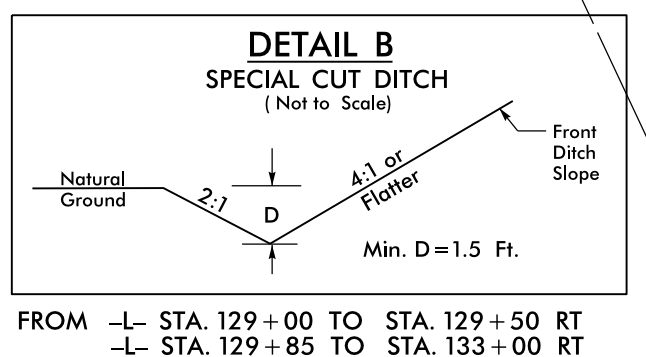
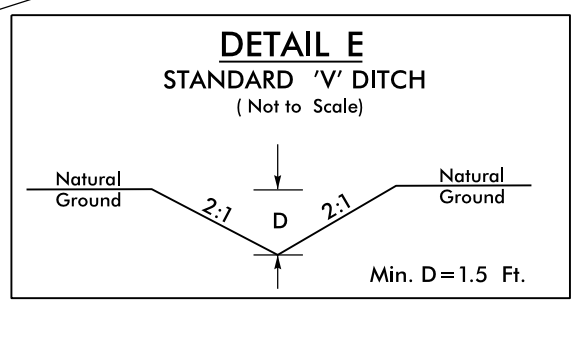
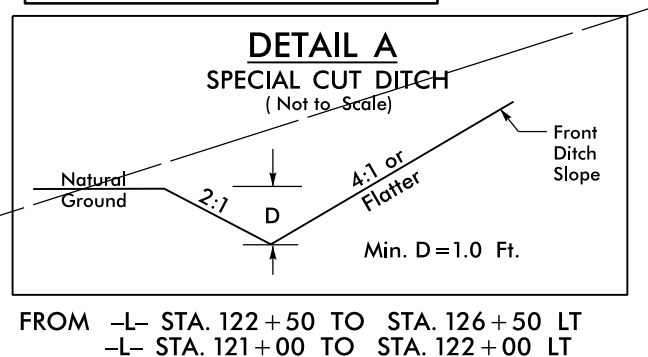
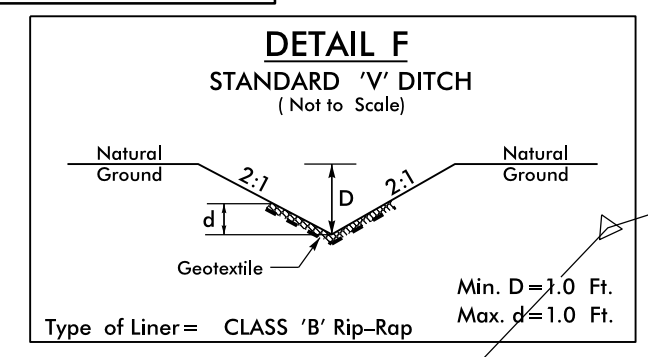
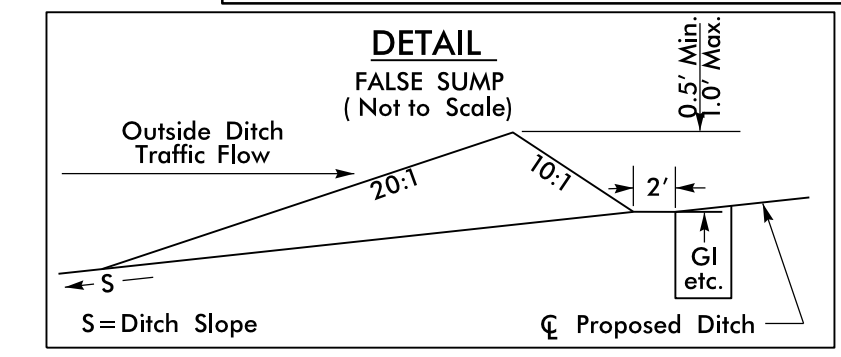
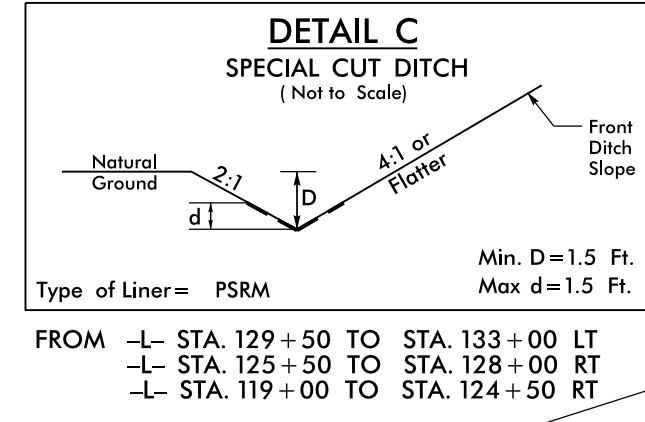
PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-28/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83

-L- LINE	
PIs Sta 120+80.67	PI Sta 132+48.93
$\Theta_s = 5^\circ 46' 39.8"$	$\Delta = 84^\circ 53' 25.2" (LT)$
$L_s = 240.00'$	$D = 4^\circ 48' 53.2"$
$LT = 160.09'$	$L = 1,763.12'$
$ST = 80.08'$	$T = 1,088.34'$
	$R = 1,190.00'$
	$D_s = 60\text{mph}$
	$SE = .08$

-YI-	
PI Sta 10+78.05	
$\Delta = 43^\circ 51' 27.6" (LT)$	
$D = 32^\circ 44' 25.6"$	
$L = 133.96'$	
$T = 70.45'$	
$R = 175.00'$	



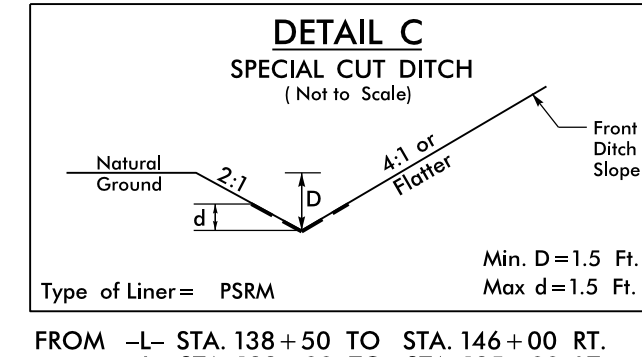
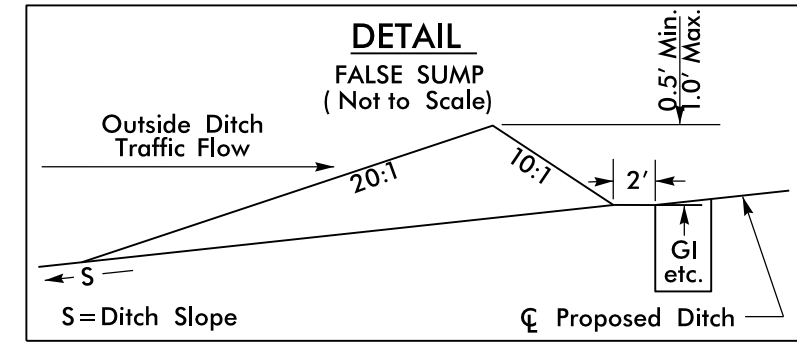
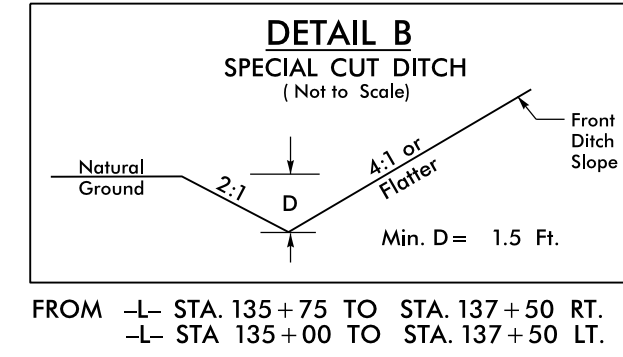
FOR -L- PROFILE SEE SHEET 24

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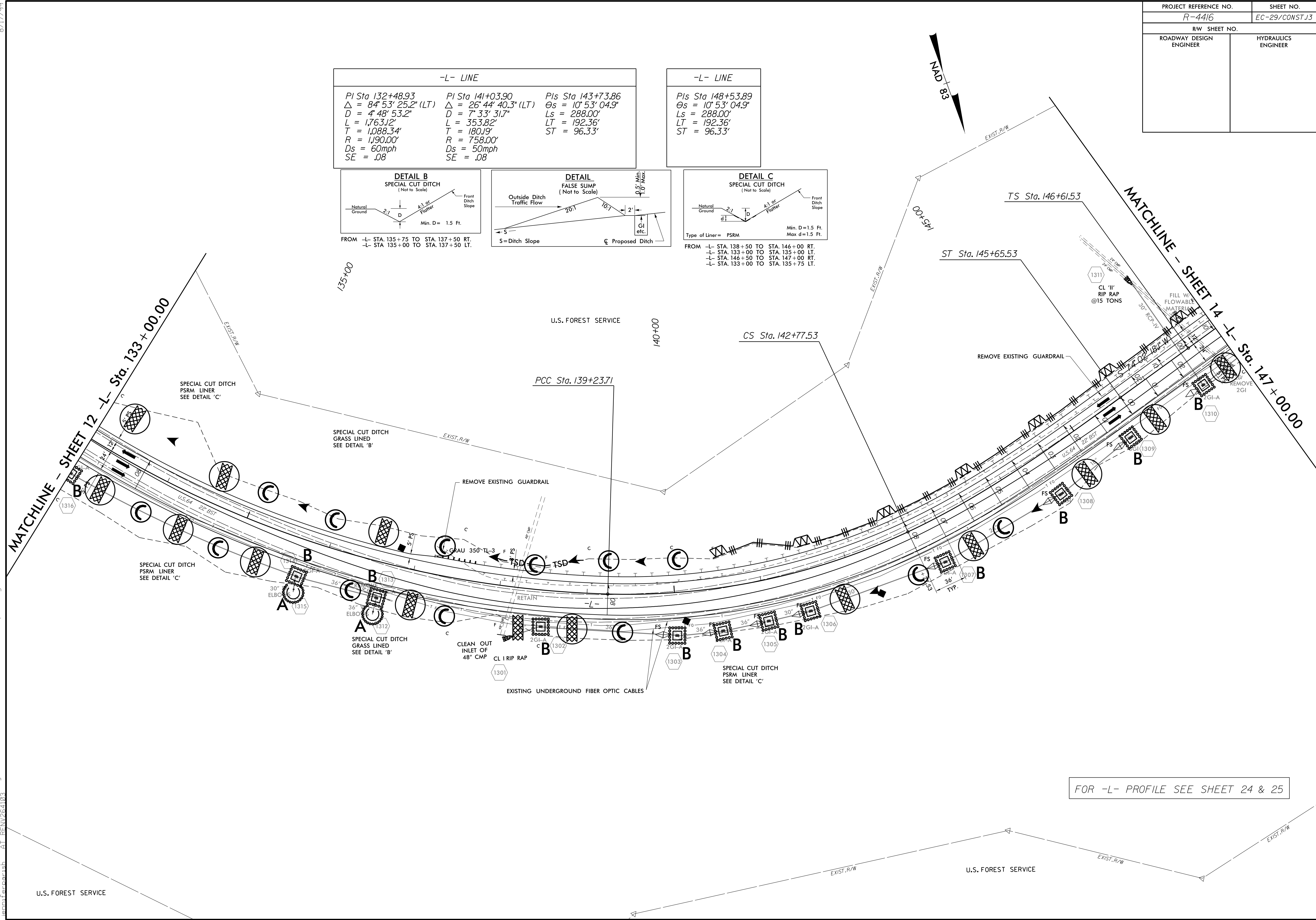
PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-29/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- LINE		
PI Sta 132+48.93	PI Sta 141+03.90	PIs Sta 143+73.86
$\Delta = 84^{\circ} 53' 25.2''$ (LT)	$\Delta = 26^{\circ} 44' 40.3''$ (LT)	$\Theta_s = 10^{\circ} 53' 04.9''$
$D = 4^{\circ} 48' 53.2''$	$D = 7^{\circ} 33' 31.7''$	$L_s = 288.00'$
$L = 1,763.12'$	$L = 353.82'$	$LT = 192.36'$
$T = 1,088.34'$	$T = 180.19'$	$ST = 96.33'$
$R = 1,190.00'$	$R = 758.00'$	
$D_s = 60\text{mph}$	$D_s = 50\text{mph}$	
$SE = .08$	$SE = .08$	

-L- LINE
PIs Sta 148+53.89
$\Theta_s = 10^{\circ} 53' 04.9''$
$L_s = 288.00'$
$LT = 192.36'$
$ST = 96.33'$

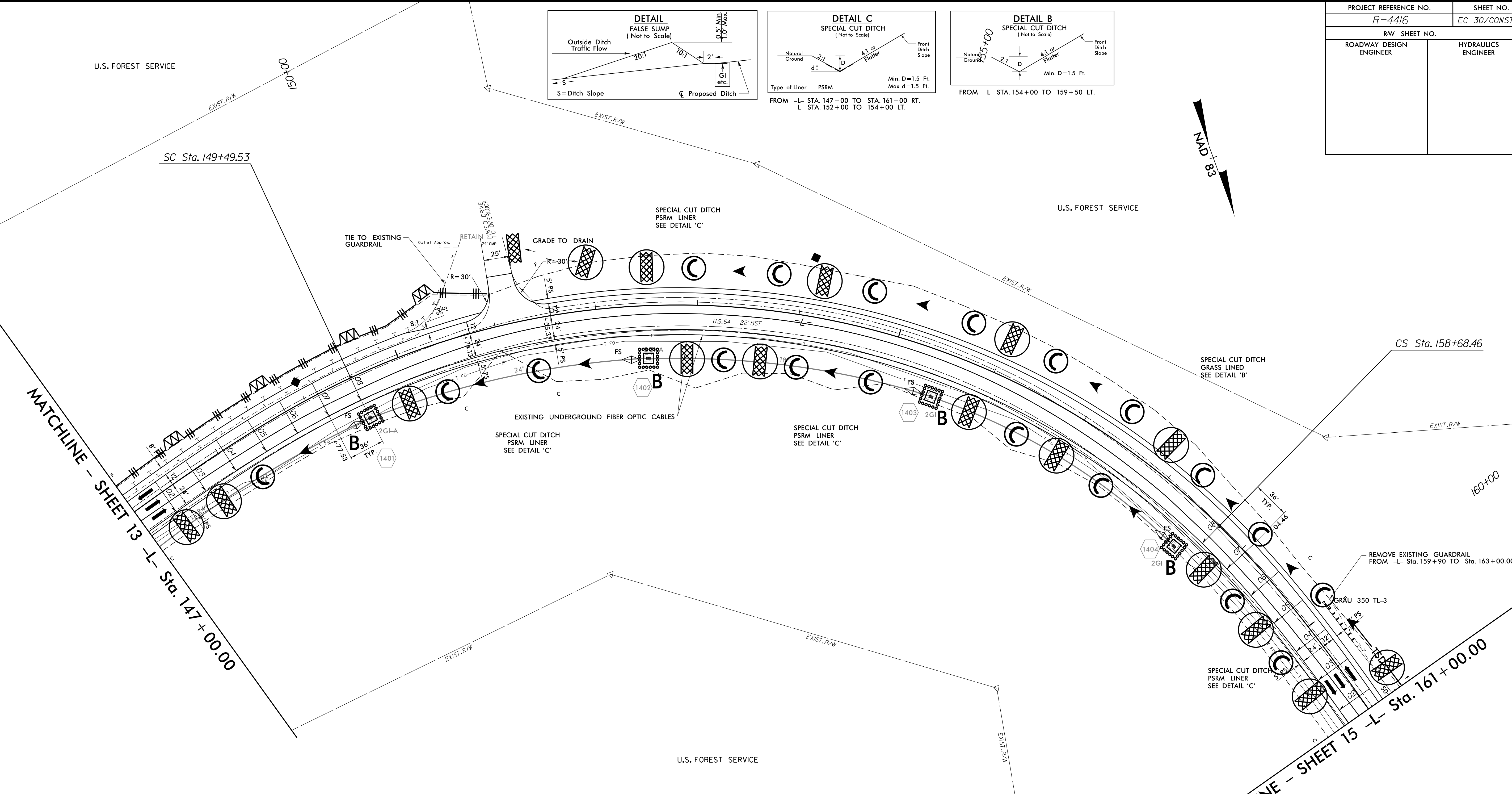
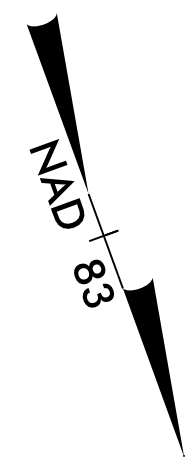
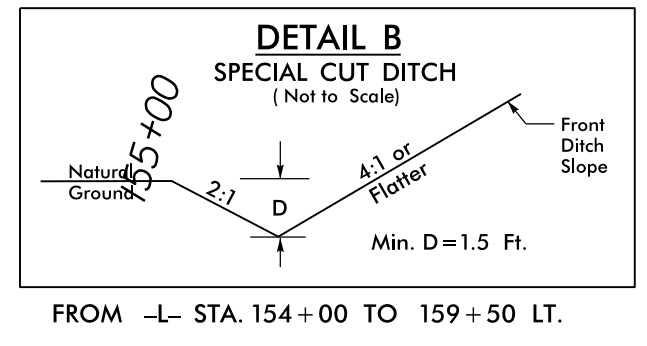
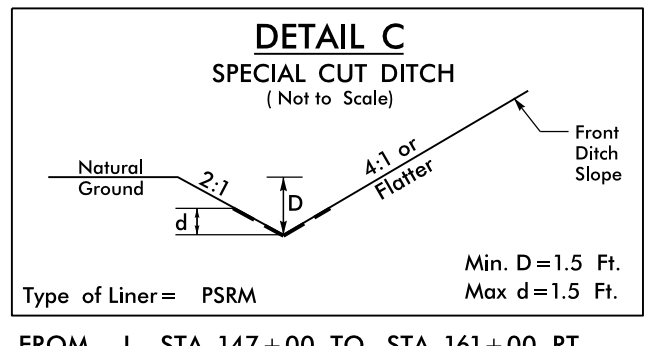
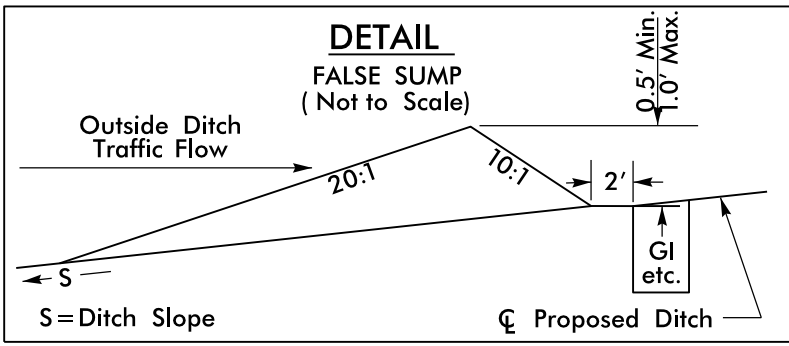


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FOR -L- PROFILE SEE SHEET 24 & 25

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-30/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCHLINE - SHEET 13 -L- Sta. 147+00.00

MATCHLINE - SHEET 15 -L- Sta. 161+00.00

-L- LINE		
PIs Sta 148+53.89	PI Sta 154+74.98	PIs Sta 159+64.79
$\theta_s = 10^\circ 53' 04.9''$	$\Delta = 69^\circ 27' 36.2''$ (RT)	$\theta_s = 10^\circ 53' 04.9''$
$L_s = 288.00'$	$D = 7^\circ 33' 31.7''$	$L_s = 288.00'$
$LT = 192.36'$	$L = 918.93'$	$LT = 192.36'$
$ST = 96.33'$	$T = 525.45'$	$ST = 96.33'$
	$R = 758.00'$	
	$D_s = 50\text{mph}$	
	$SE = .08$	

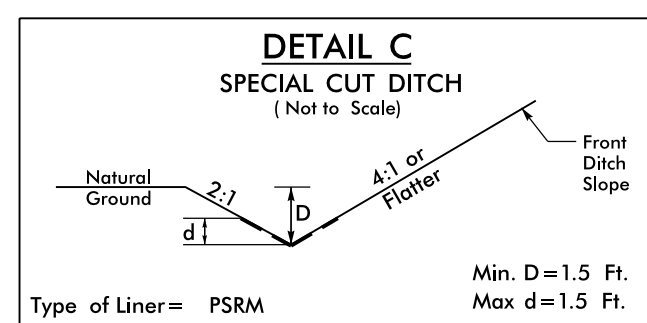
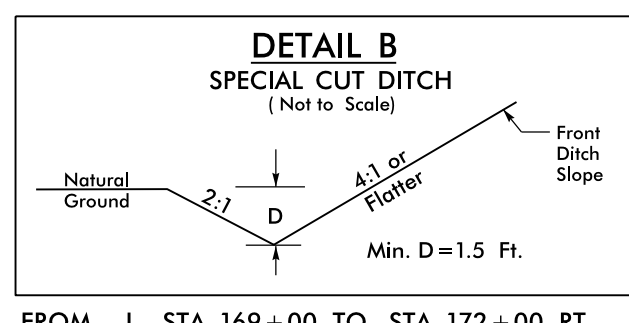
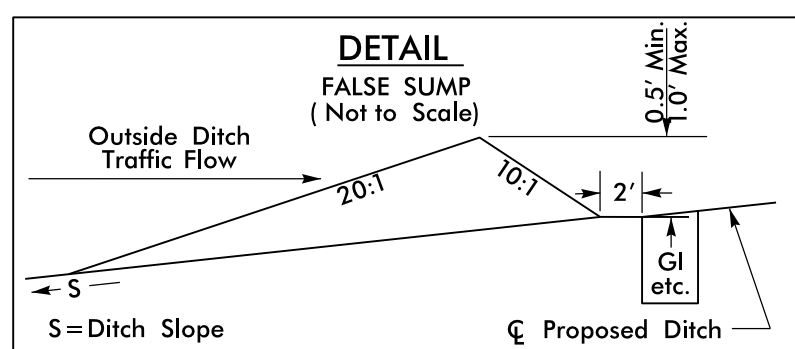
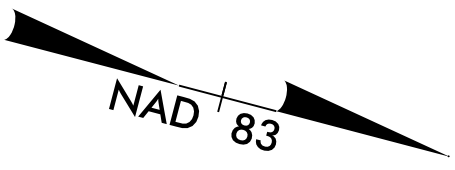
FOR -L- PROFILE SEE SHEET 25

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PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-31/CONST.15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

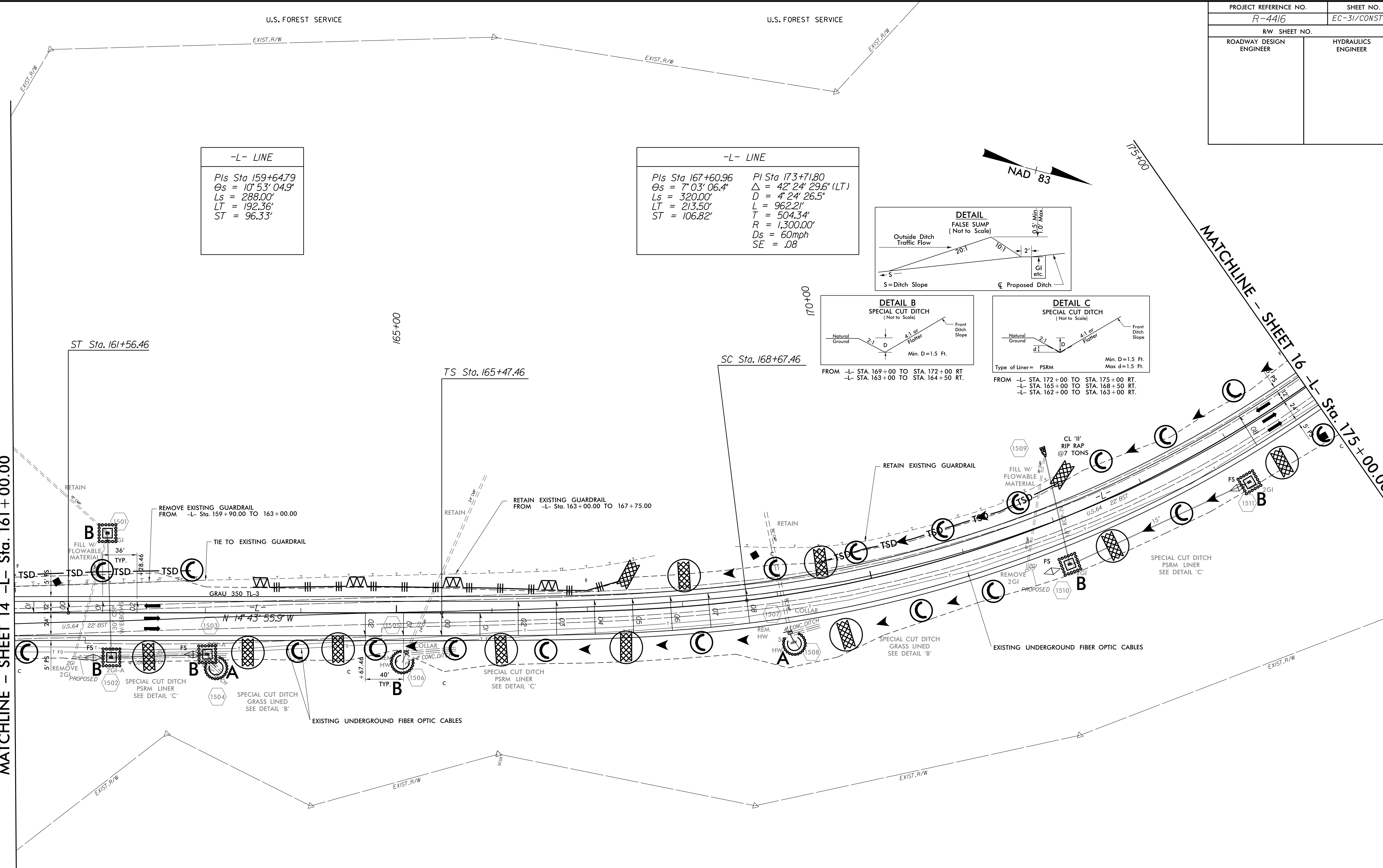
-L- LINE
Pls Sta 159+64.79 $\theta_s = 10' 53' 04.9"$ $L_s = 288.00'$ $LT = 192.36'$ $ST = 96.33'$

-L- LINE
Pls Sta 167+60.96 Pl Sta 173+71.80 $\theta_s = 7' 03' 06.4"$ $\Delta = 42' 24' 29.6" (LT)$ $L_s = 320.00'$ $D = 4' 24' 26.5"$ $LT = 213.50'$ $L = 962.21'$ $ST = 106.82'$ $T = 504.34'$ $R = 1,300.00'$ $D_s = 60\text{mph}$ $SE = .08$



MATCHLINE - SHEET 14 -L- Sta. 161+00.00

MATCHLINE - SHEET 16 -L- Sta. 175+00.00

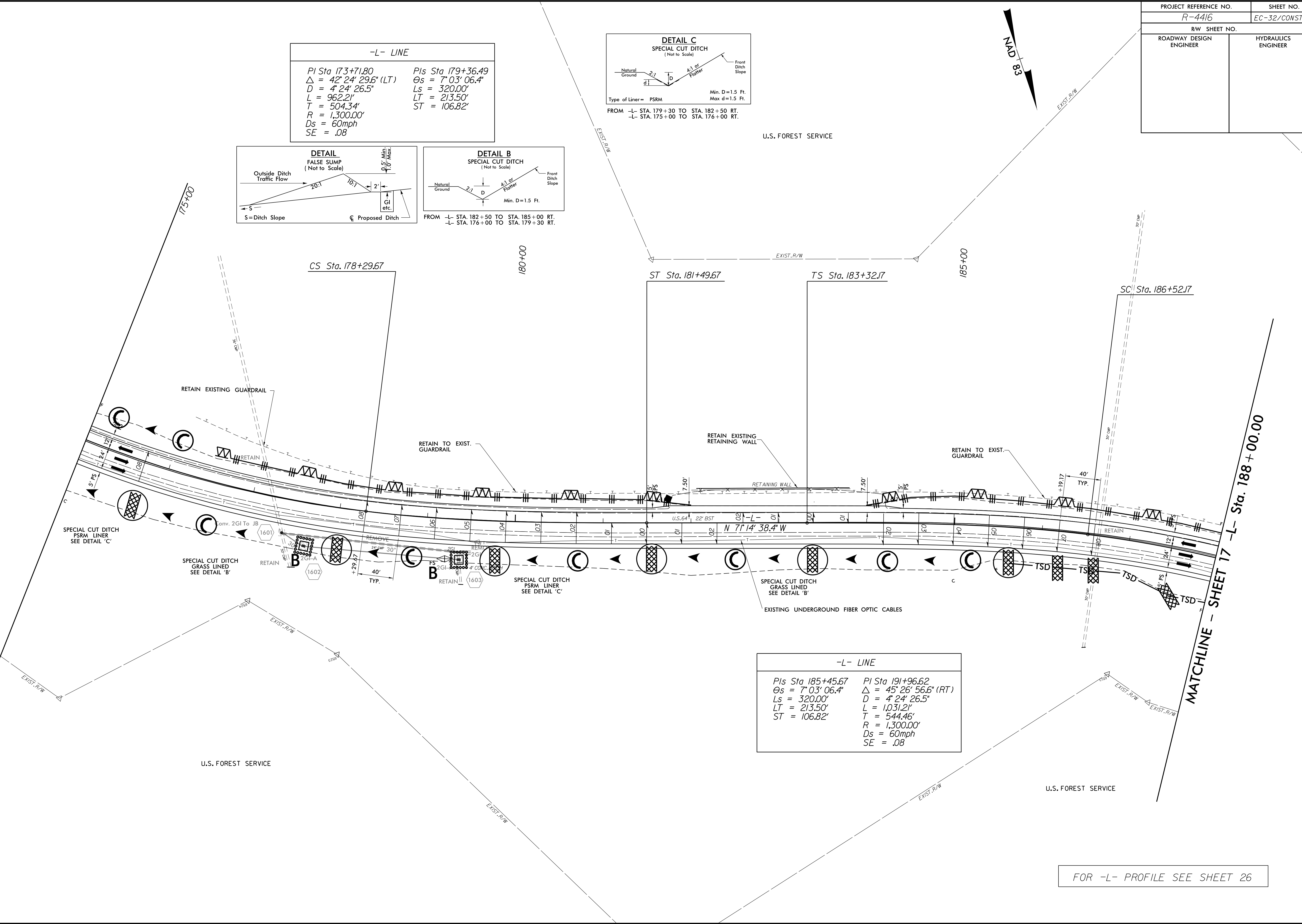
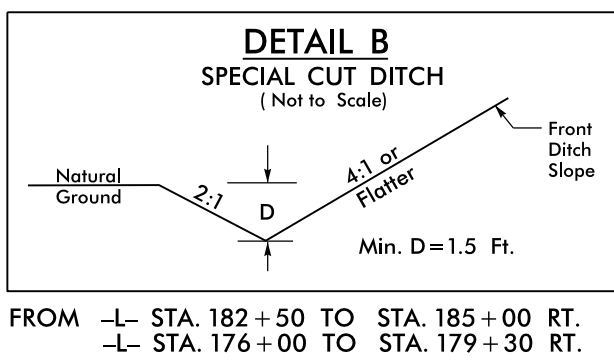
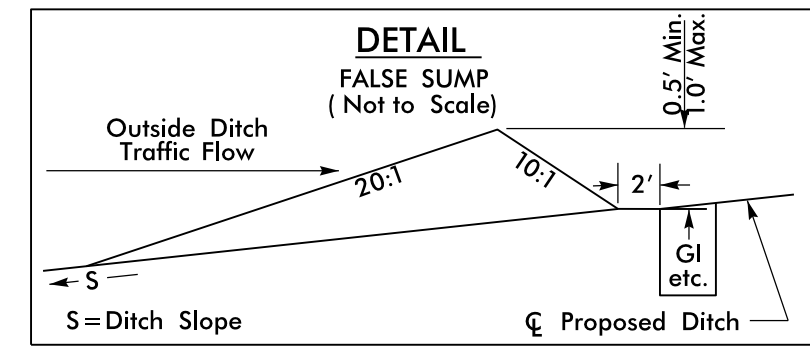
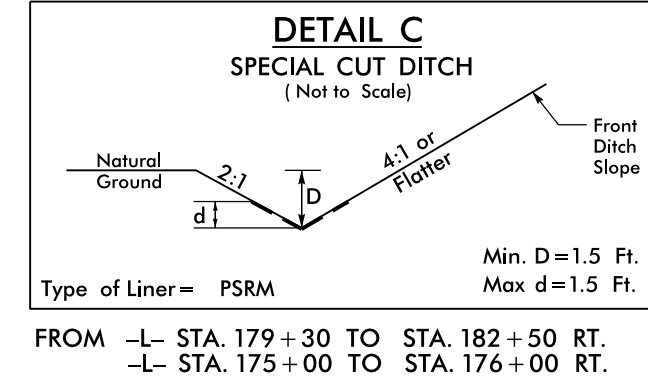


FOR -L- PROFILE SEE SHEET 25 & 26

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7-FEB-2006 12:26
User: jerry

PROJECT REFERENCE NO.	SHEET NO.
R-4416	EC-32/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

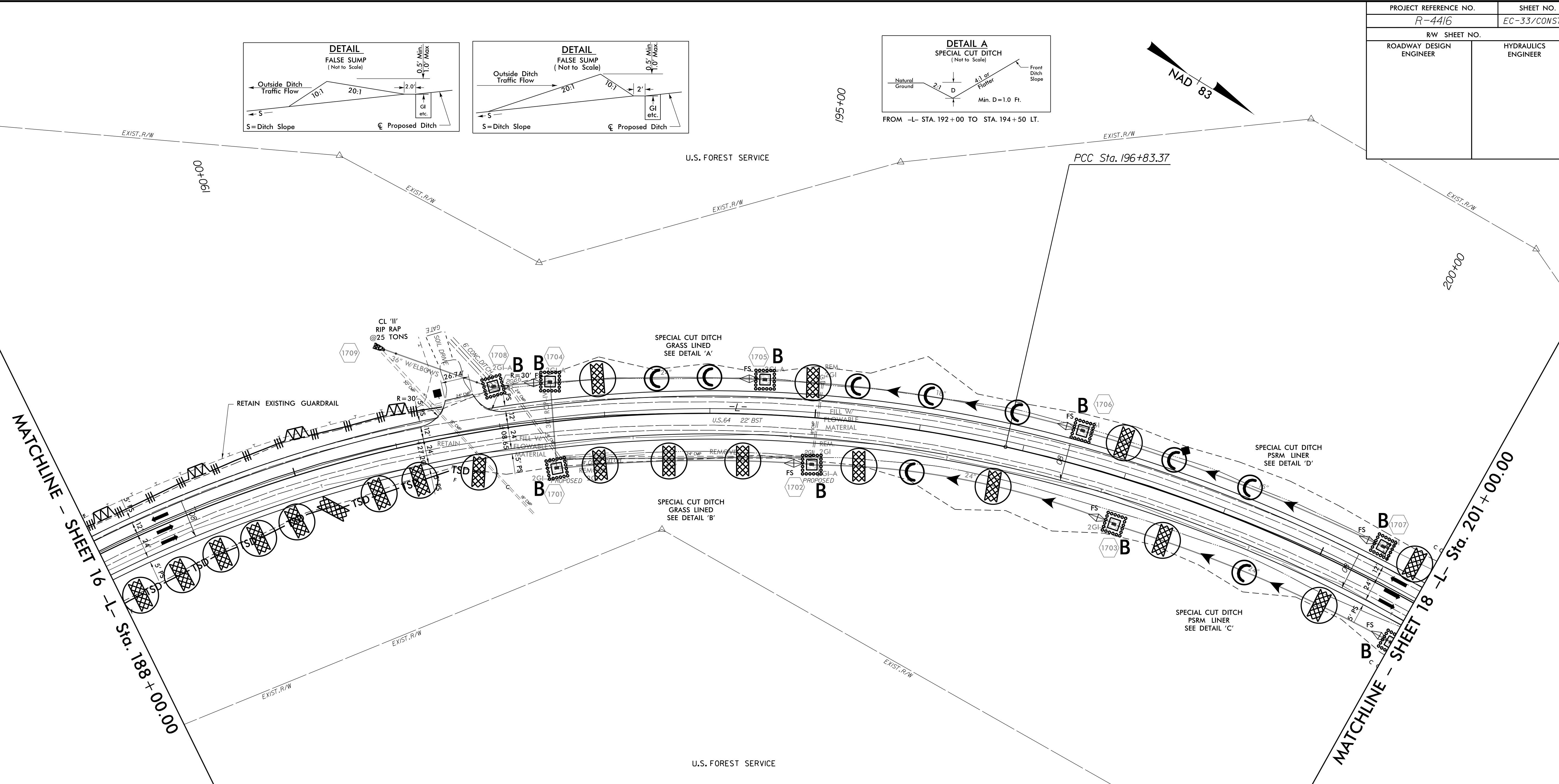
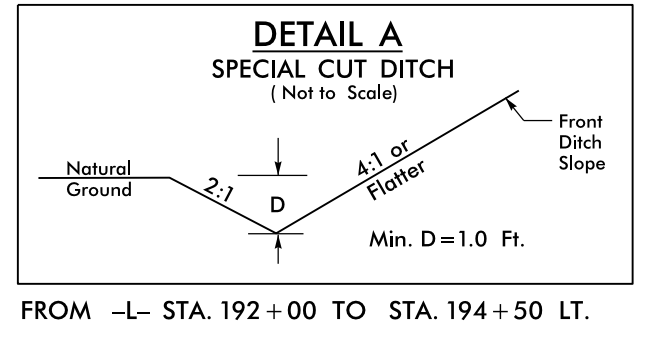
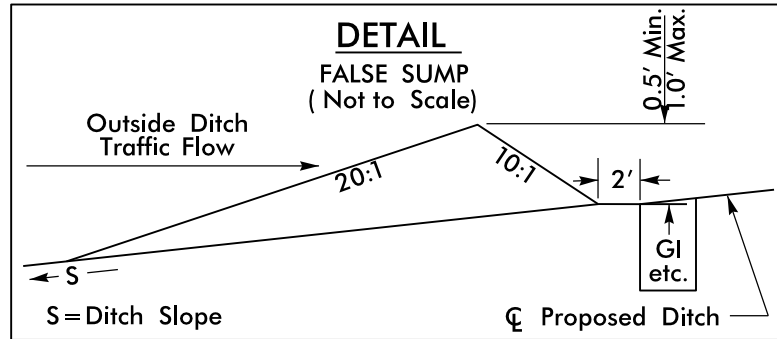
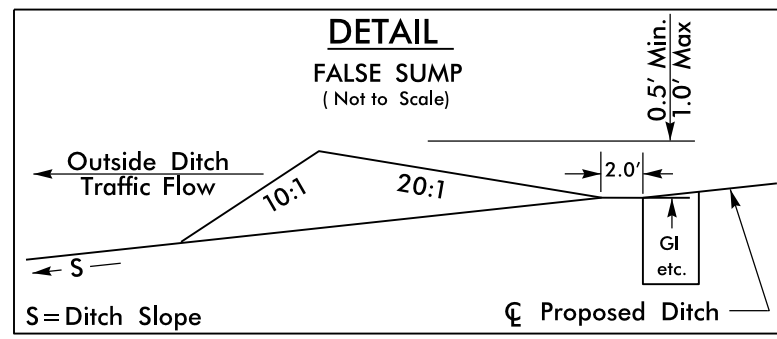
-L- LINE	
PI Sta 173+71.80	PIs Sta 179+36.49
$\Delta = 42^\circ 24' 29.6"$ (LT)	$\Theta_s = 7^\circ 03' 06.4"$
$D = 4' 24' 26.5"$	$L_s = 320.00'$
$L = 962.21'$	$LT = 213.50'$
$T = 504.34'$	$ST = 106.82'$
$R = 1,300.00'$	
$D_s = 60\text{mph}$	
$SE = .08$	



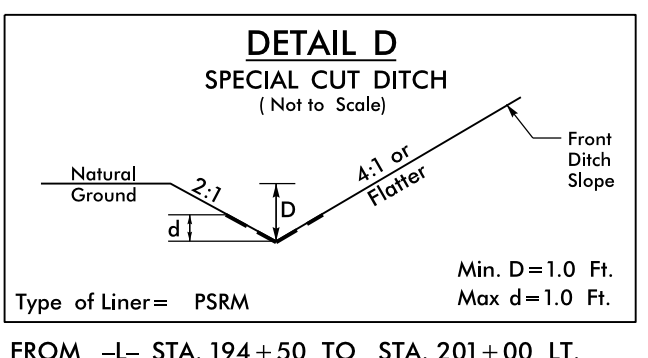
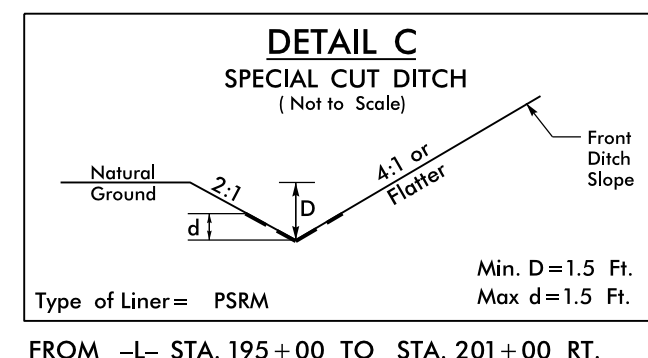
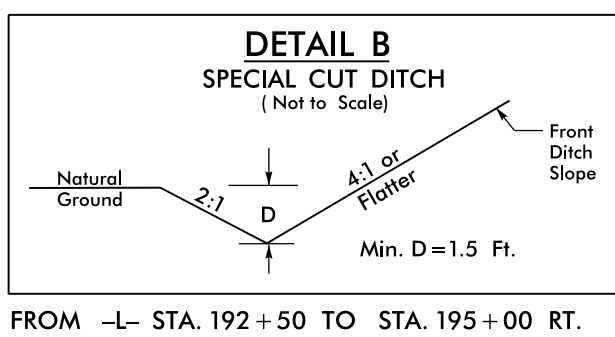
-L- LINE	
PIs Sta 185+45.67	PI Sta 191+96.62
$\Theta_s = 7^\circ 03' 06.4"$	$\Delta = 45^\circ 26' 56.6"$ (RT)
$L_s = 320.00'$	$D = 4' 24' 26.5"$
$LT = 213.50'$	$L = 1,031.21'$
$ST = 106.82'$	$T = 544.46'$
	$R = 1,300.00'$
	$D_s = 60\text{mph}$
	$SE = .08$

FOR -L- PROFILE SEE SHEET 26

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-L- LINE	
PI Sta 191+96.62	PI Sta 205+90.11
$\Delta = 45^{\circ} 26' 56.6''$ (RT)	$\Delta = 64^{\circ} 02' 18.7''$ (RT)
$D = 4' 24' 26.5''$	$D = 3' 57' 05.2''$
$L = 1,031.21'$	$L = 1,620.64'$
$T = 544.46'$	$T = 906.74'$
$R = 1,300.00'$	$R = 1,450.00'$
$Ds = 60\text{mph}$	$Ds = 60\text{mph}$
$SE = .08$	$SE = .08$



FOR -L- PROFILE SEE SHEET 26 & 27

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 jclay

