STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HENDERSON COUNTY

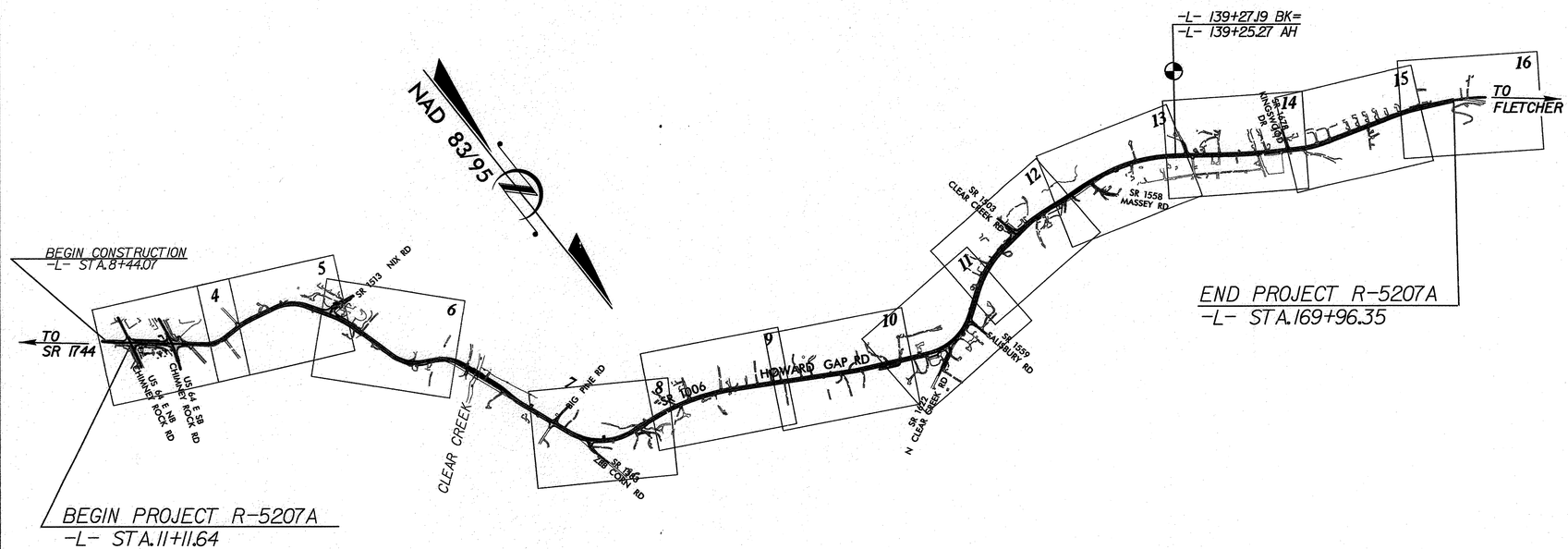
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

LOCATION: SR 1006 (HOWARD GAP ROAD.) FROM US 64 EAST TO BRIDGE 20

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, SIGNALS, AND UTILITIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5207A	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
45393.2.2		PE, R/W, UTIL.
45393.3.2		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	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	SW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

CONTRACT #: C203138

GRAPHIC SCALE

25 0 50

PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

2012 STANDARD SPECIFICATIONS

PLANS PREPARED BY:

TGS ENGINEERS

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PLANS PREPARED FOR:

NCDOT DIVISION 14
NCDOT Contact:
RALPH CANNADY
DIVISION CONTRACT MANAGER

RIGHT OF WAY DATE:
NOVEMBER 19, 2010

LETTING DATE:
MAY 21, 2013

JIMMY L. TERRY JR.
PROJECT ENGINEER
LEVEL III CERTIFICATION
NUMBER 3145

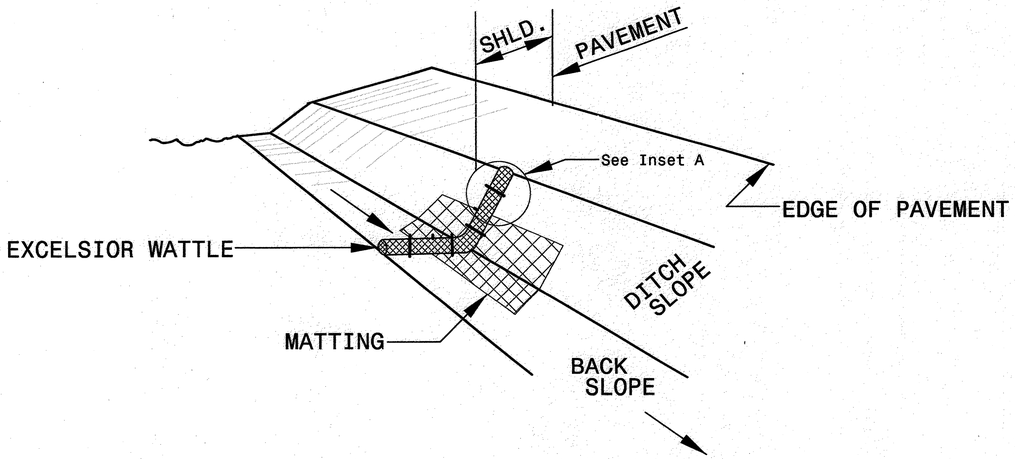
Roadway Standard Drawings

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

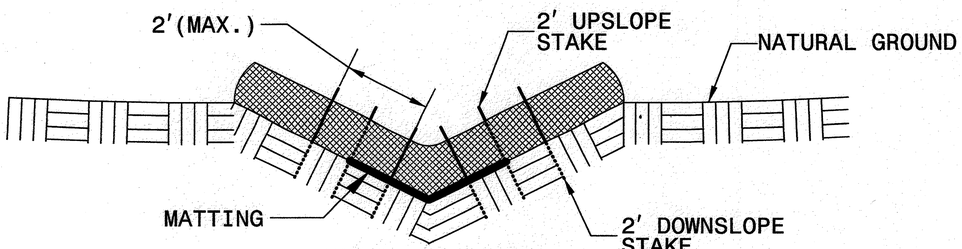
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type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

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

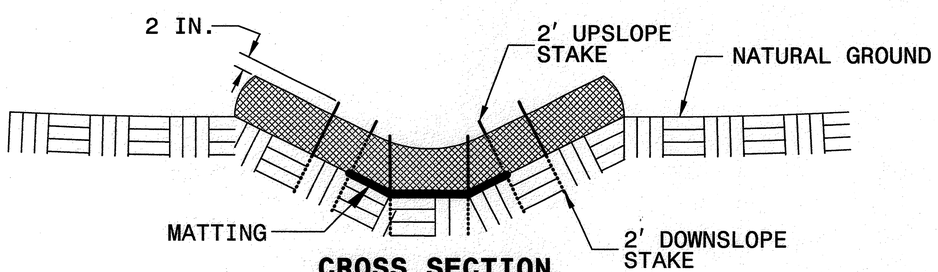
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

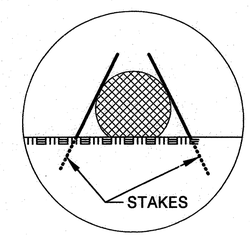
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

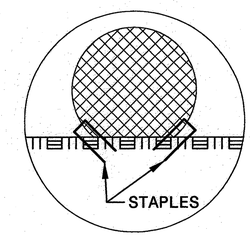
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

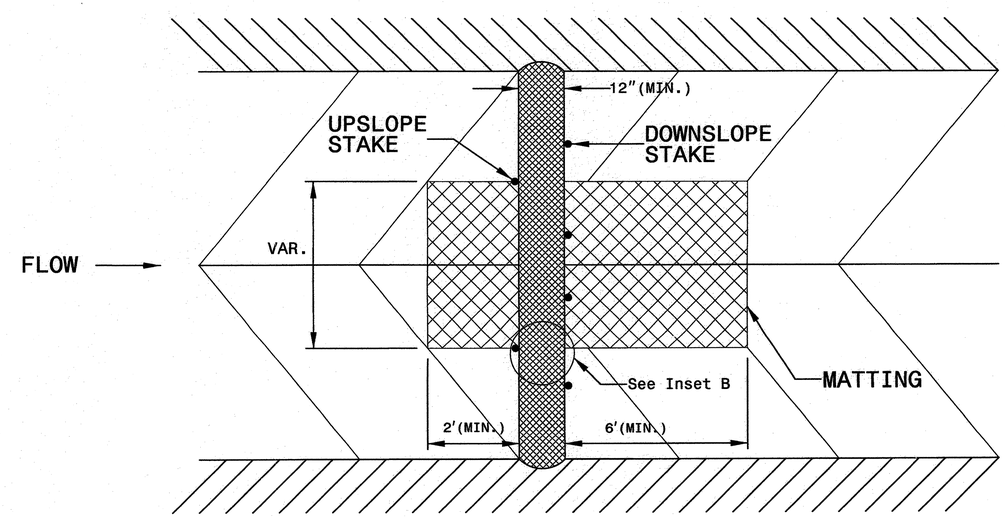
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



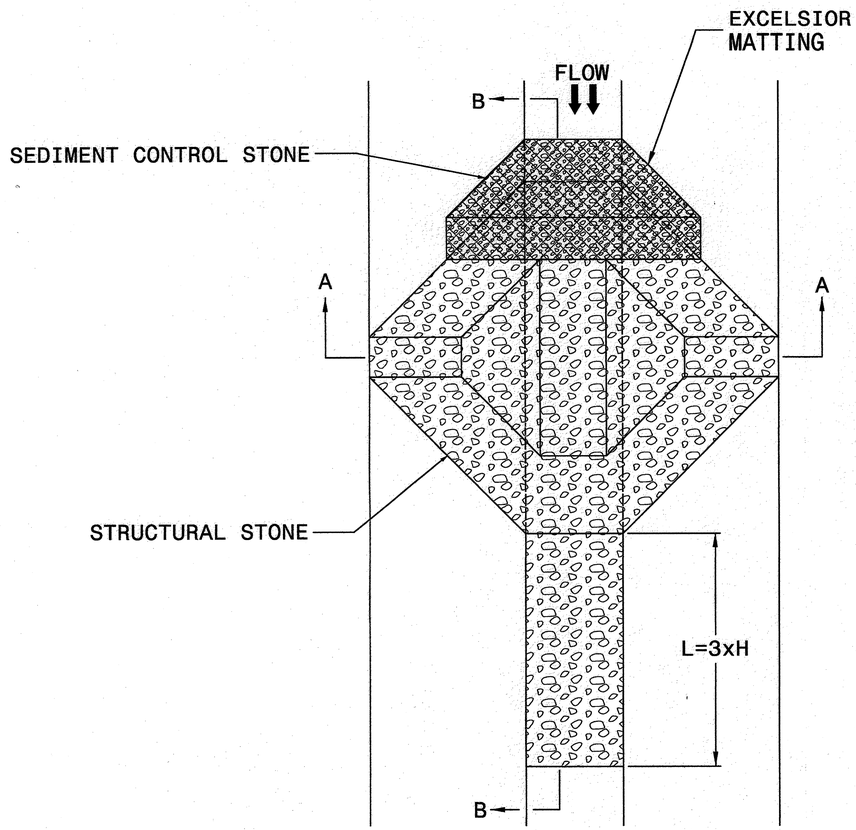
INSET B



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



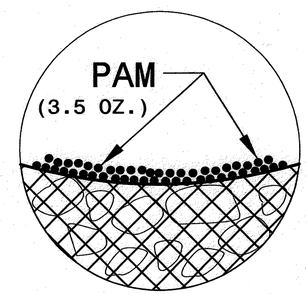
PLAN

NOTES

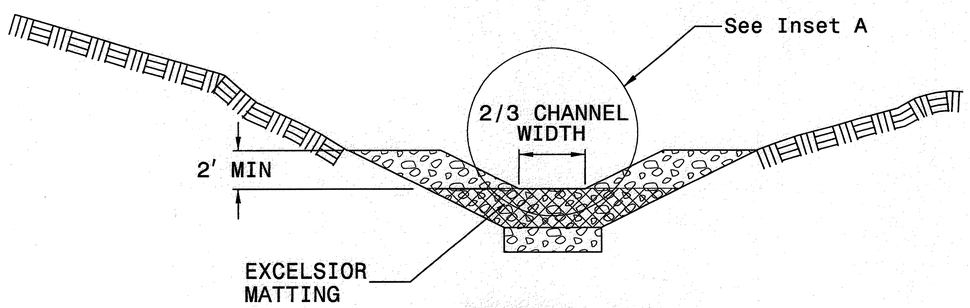
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

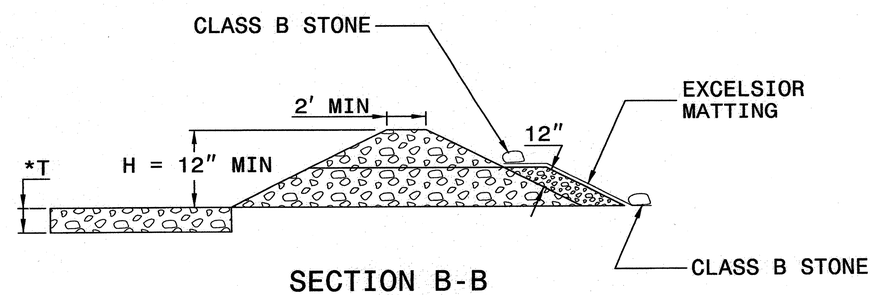
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
5	-L-	25+50	27+00	LT	65
5	-L-	30+00	34+00	RT	165
6	-L-	34+00	38+00	RT	165
7	-L-	52+00	54+50	RT	160
7	-L-	57+50	58+50	RT	45
7	-L-	58+50	61+50	RT	125
8	-L-	65+80	66+50	RT	30
9	-L-	81+00	83+50	LT	105
9	-L-	84+90	85+85	LT	40
9	-L-	85+85	87+00	LT	50
9	-L-	77+50	81+50	RT	165
10	-L-	96+00	104+00	LT	500
11	-L-	104+00	110+00	LT	245
11	-L-	111+50	113+00	LT	65
12	-L-	113+00	113+50	LT	25
12	-L-	122+60	125+00	LT	120
13	-L-	136+00	140+07	RT	255
14	-L-	141+50	146+00	RT	185
14	-L-	146+00	147+85	RT	115
14	-L-	149+00	151+80	RT	175
14	-L-	143+00	145+50	LT	105
14	-L-	145+50	147+50	LT	85
14	-L-	147+50	151+10	LT	145
15	-L-	153+50	157+50	RT	165
15	-L-	159+00	162+00	RT	125
15	-L-	163+00	168+50	RT	225
15	-L-	158+50	159+00	LT	20
15	-L-	163+00	165+00	LT	115
				TOTAL	3,785
				SAY	4,000

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
9	-L-	74+50	79+50	LT	205
11	-L-	110+00	113+00	RT	125
14	-L-	140+07	140+90	RT	35
14	-L-	151+80	152+50	RT	30
15	-L-	157+50	158+50	LT	40
				TOTAL	435
				SAY	500

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-3A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

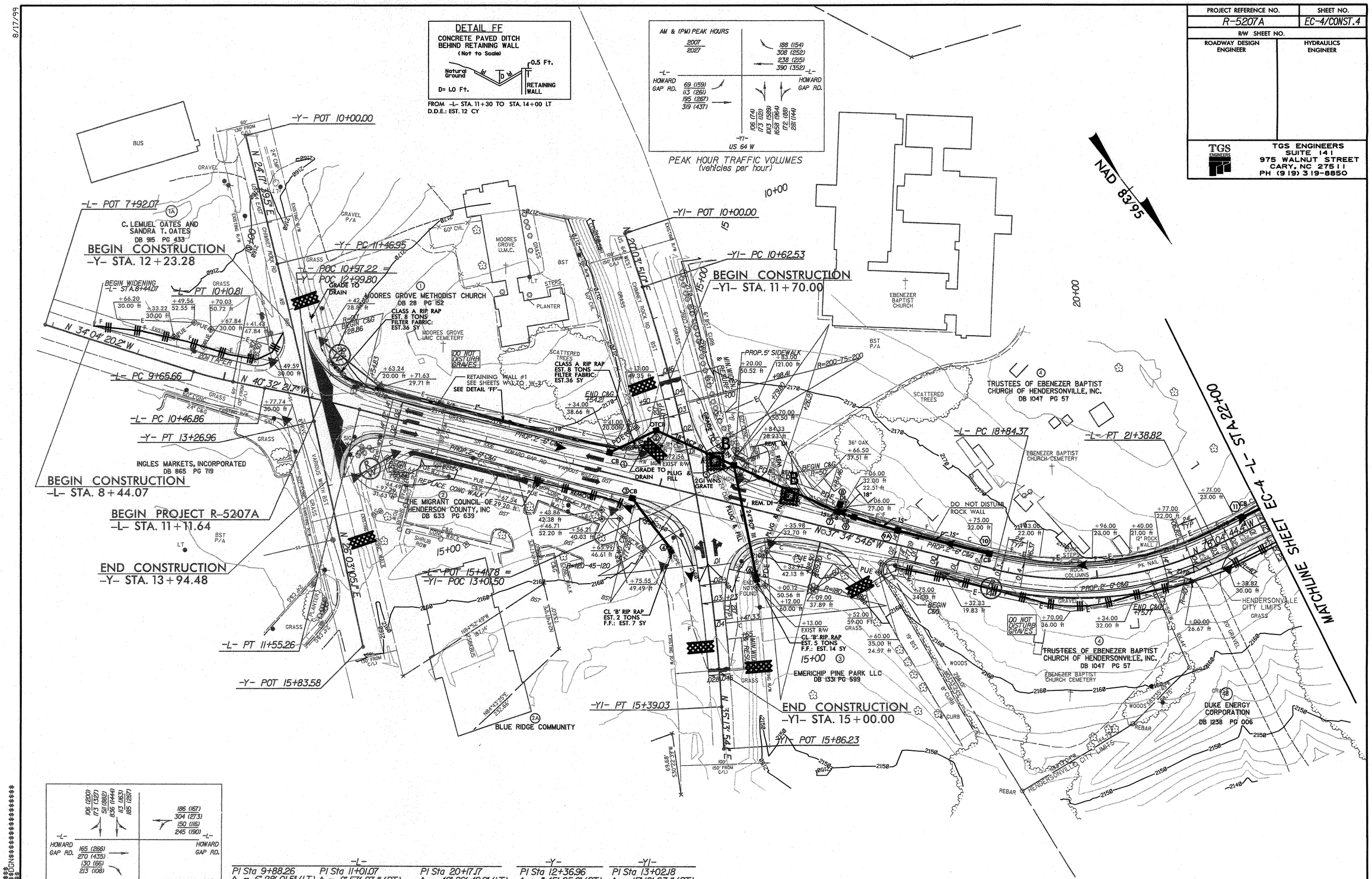
SOIL STABILIZATION TIMEFRAMES

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

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



-L-		
PI Sta 9+88.26	PI Sta 11+01.07	PI Sta 20+17.17
Δ = 6° 28' 01.5" (LT)	Δ = 2° 57' 27.1" (RT)	Δ = 40° 29' 49.9" (LT)
D = 14° 19' 26.2"	D = 2° 43' 42.1"	D = 15° 54' 55.8"
L = 45.15'	L = 108.40'	L = 254.45'
T = 22.60'	T = 54.21'	T = 132.80'
R = 400.00'	R = 2,100.00'	*R = 360.00'
SE = EXIST.	SE = EXIST.	SE = 0.04

-Y-	-Y1-
PI Sta 12+36.96	PI Sta 13+02.18
Δ = 1° 45' 25.6" (RT)	Δ = 15° 10' 03.1" (RT)
D = 0° 58' 33.9"	D = 3° 10' 59.2"
L = 180.02'	L = 476.50'
T = 90.02'	T = 239.65'
R = 5,870.00'	R = 1,800.00'
SE = EXIST.	SE = 0.04

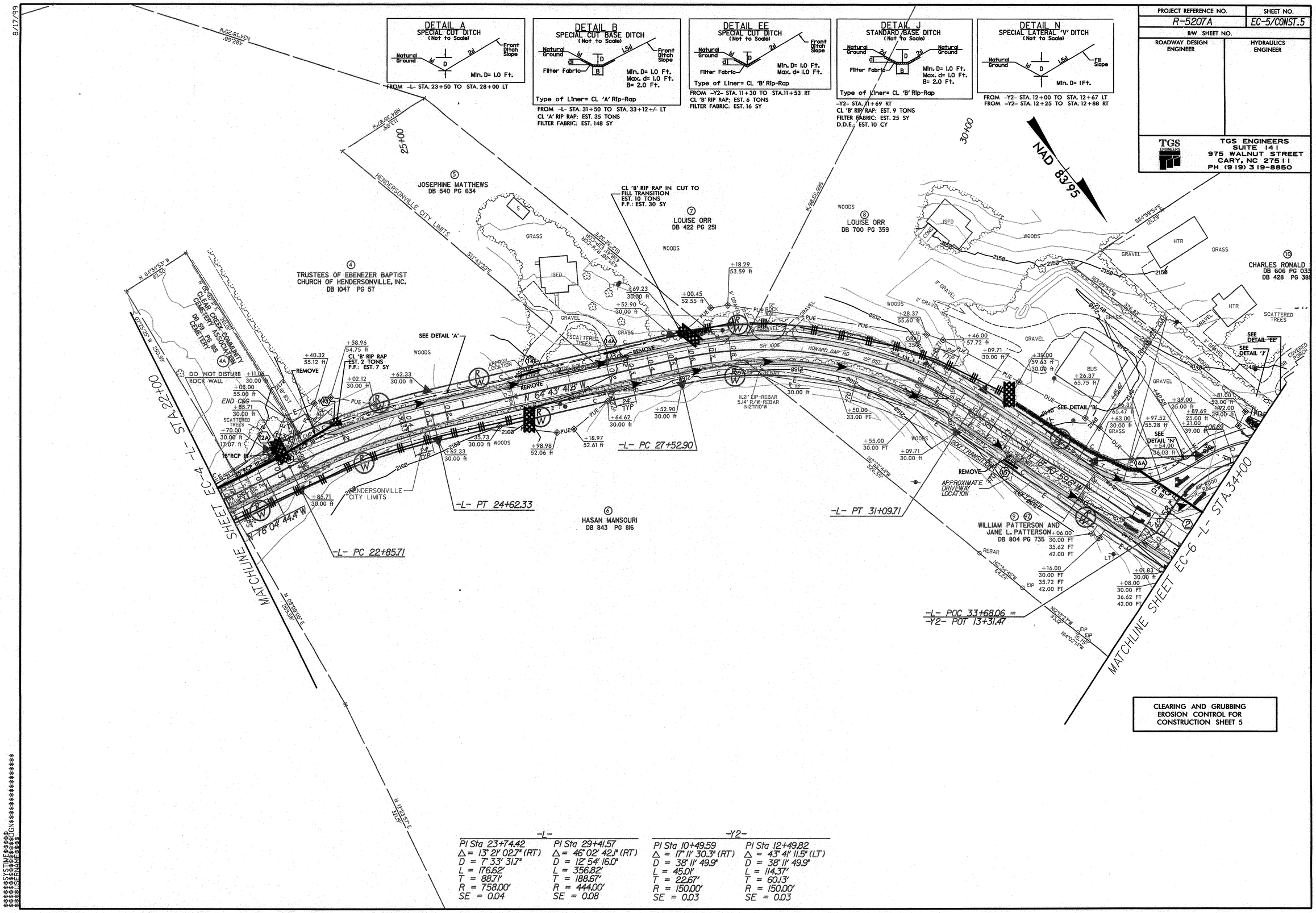
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$CELLNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

-L-	
PI Sta 23+74.42	PI Sta 29+41.57
Δ = 13° 21' 02.7" (RT)	Δ = 46° 02' 42.1" (RT)
D = 7° 33' 31.7"	D = 12° 54' 16.0"
L = 176.62'	L = 356.82'
T = 88.71'	T = 188.67'
R = 758.00'	R = 444.00'
SE = 0.04	SE = 0.08

-Y2-	
PI Sta 10+49.59	PI Sta 12+49.82
Δ = 17° 11' 30.3" (RT)	Δ = 43° 41' 11.5" (LT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 45.01'	L = 114.37'
T = 22.67'	T = 60.13'
R = 150.00'	R = 150.00'
SE = 0.03	SE = 0.03

SYSTIME$$$$ DGN$$$$ LINE$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-6/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
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DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 36+50 TO STA. 38+00 LT
CL 'B' RIP RAP: EST. 55 TONS
FILTER FABRIC: EST. 170 SY

DETAIL E
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= CL 'B' Rip-Rap

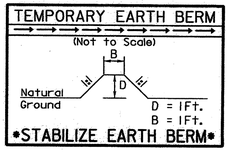
FROM -L- STA. 38+00 TO STA. 46+95 LT
CL 'B' RIP RAP: EST. 450 TONS
FILTER FABRIC: EST. 1400 SY

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)

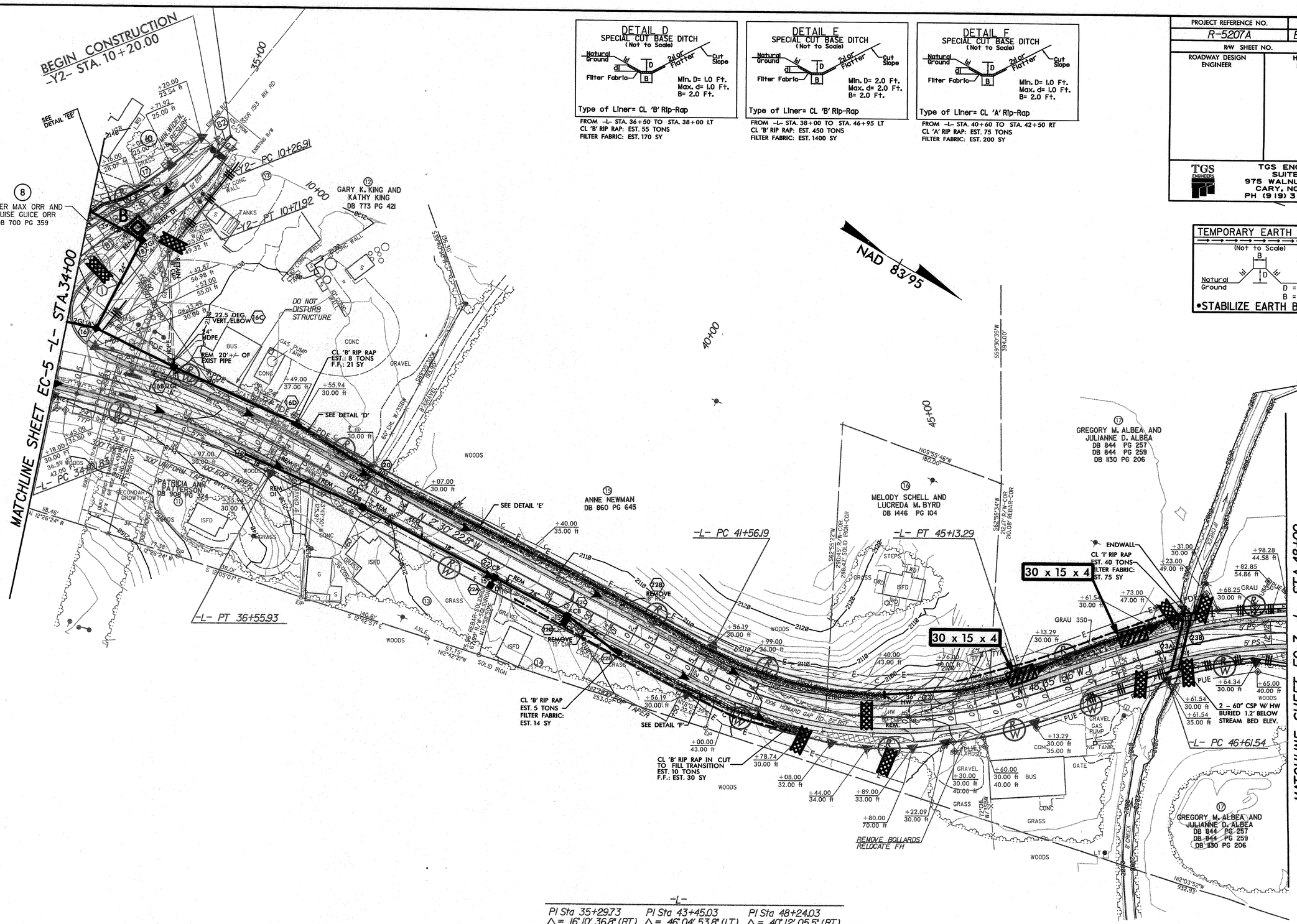
Type of Liner= CL 'A' Rip-Rap

FROM -L- STA. 40+60 TO STA. 42+50 RT
CL 'A' RIP RAP: EST. 75 TONS
FILTER FABRIC: EST. 200 SY

TEMPORARY EARTH BERM
(Not to Scale)



STABILIZE EARTH BERM



-L-

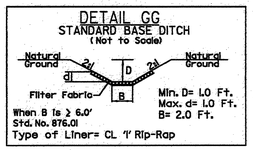
PI Sta 35+29.73	PI Sta 43+45.03	PI Sta 48+24.03
Δ = 16° 10' 36.8" (RT)	Δ = 46° 04' 53.8" (LT)	Δ = 40° 12' 05.5" (RT)
D = 6° 21' 58.3"	D = 12° 54' 16.0"	D = 12° 54' 16.0"
L = 254.11'	L = 357.10'	L = 311.53'
T = 127.90'	T = 188.84'	T = 162.49'
R = 900.00'	R = 444.00'	*R = 444.00'
SE = 0.06	SE = 0.08	SE = 0.04

(11)	PATRICIA ANN PATTERSON	DB 908 PG 324
(13)	MILDRED BANE, WIDOW	DB 423 PG 149
(14)	MARGARET P. HALFORD	DB 332 PG 357

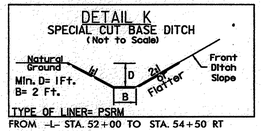
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

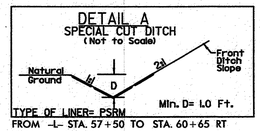
8/17/99



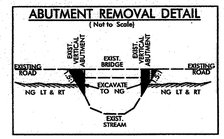
FROM -L- STA. 50+55 TO STA. 50+97 LT
(SEE -L- PROFILE FOR DITCH GRADE)
CL 'I' RIP RAP: EST. 40 TONS
FILTER FABRIC: EST. 65 SY
D.D.E.: EST. 10 CY

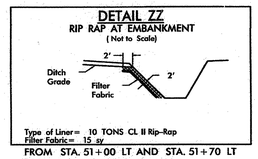


FROM -L- STA. 52+00 TO STA. 54+50 RT
PSRM = 160 SY

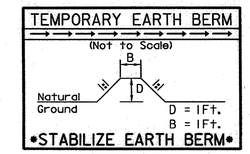


FROM -L- STA. 57+50 TO STA. 60+65 RT
PSRM = 90 SY



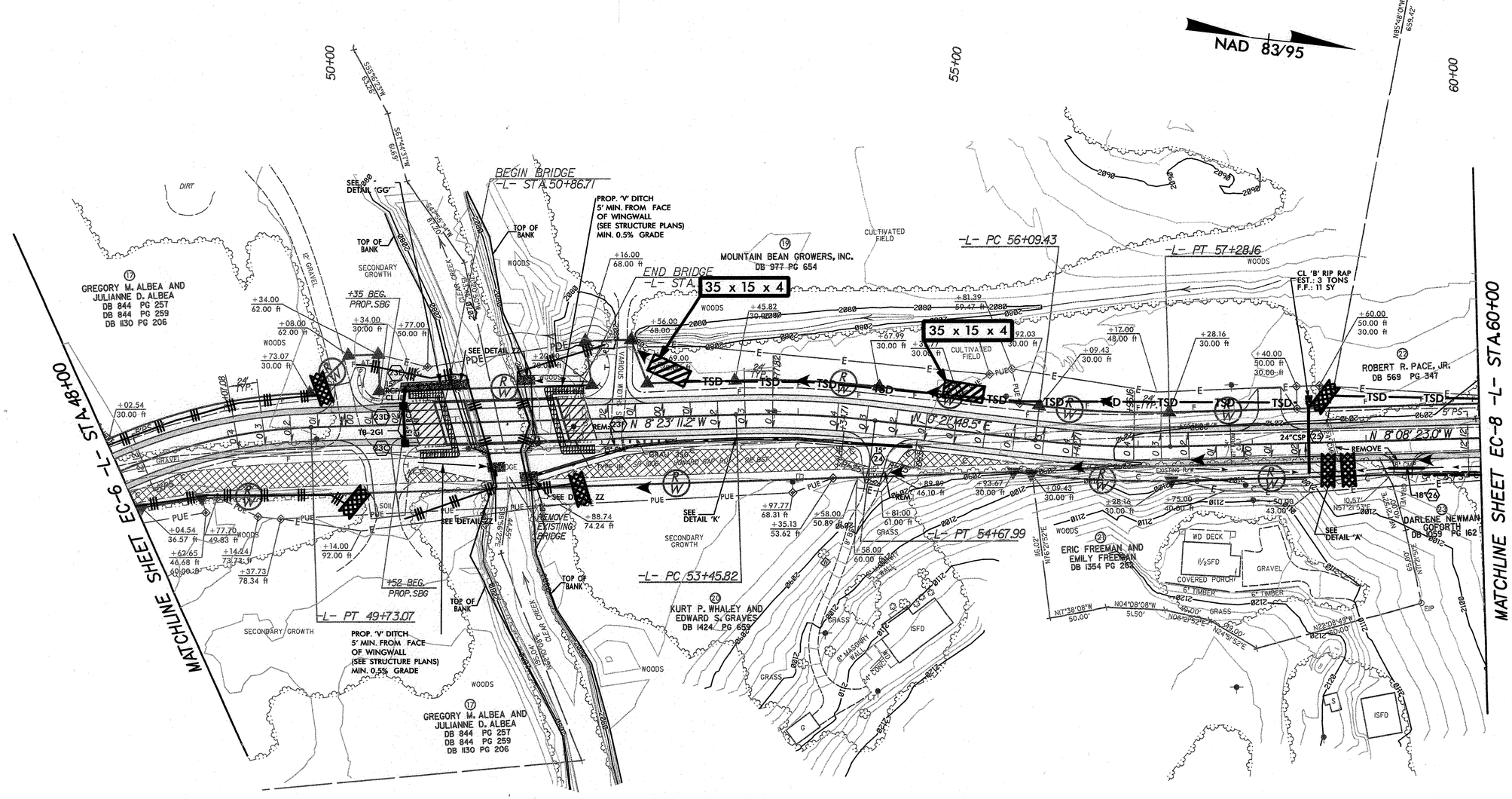


FROM STA. 51+00 LT AND STA. 51+70 LT
FROM STA. 51+30 RT AND STA. 51+60 RT
EST. 20 TONS CLASS II RIP RAP
EST. 30 SY FILTER FABRIC
EACH LOCATION



PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



-L-

PI Sta 48+24.03	PI Sta 54+07.03	PI Sta 56+68.91
Δ = 40° 12' 05.5" (RT)	Δ = 8° 44' 59.7" (RT)	Δ = 8° 30' 11.5" (LT)
D = 12° 54' 16.0"	D = 7° 09' 43.1"	D = 7° 09' 43.1"
L = 311.53'	L = 122.17'	L = 118.73'
T = 162.49'	T = 61.20'	T = 59.47'
*R = 444.00'	R = 800.00'	R = 800.00'
SE = 0.04	SE = 0.04	SE = 0.04

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A
AS STILLING BASIN WHERE APPLICABLE.

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$USERNAME$$$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-8/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
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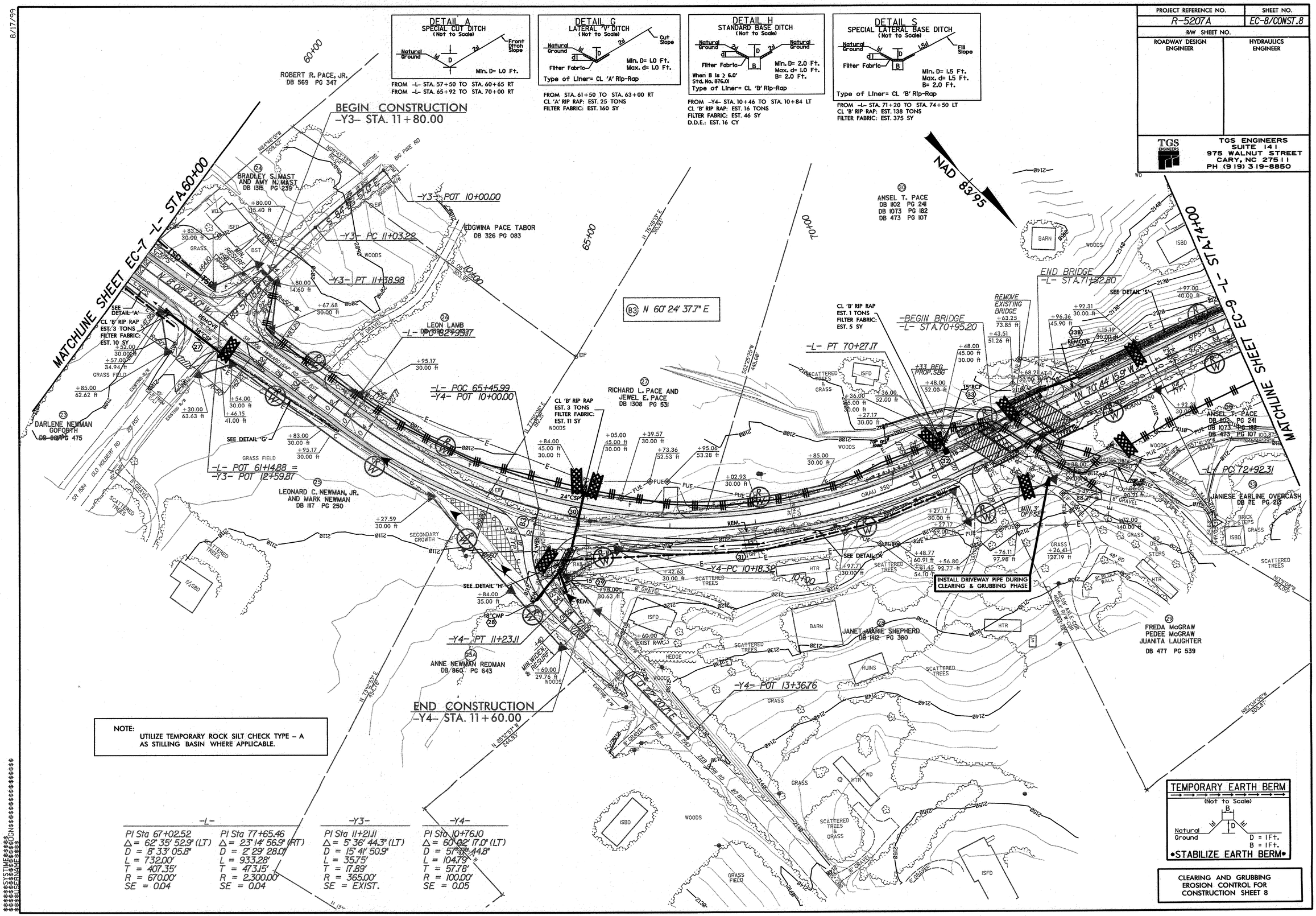
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



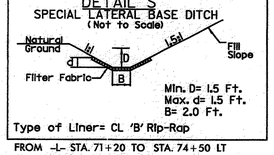
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-9/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL S
SPECIAL LATERAL BASE DITCH
(Not to Scale)

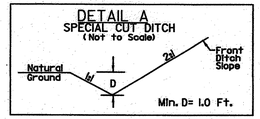


Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.

Type of Liner= CL 'B' Rip-Rap

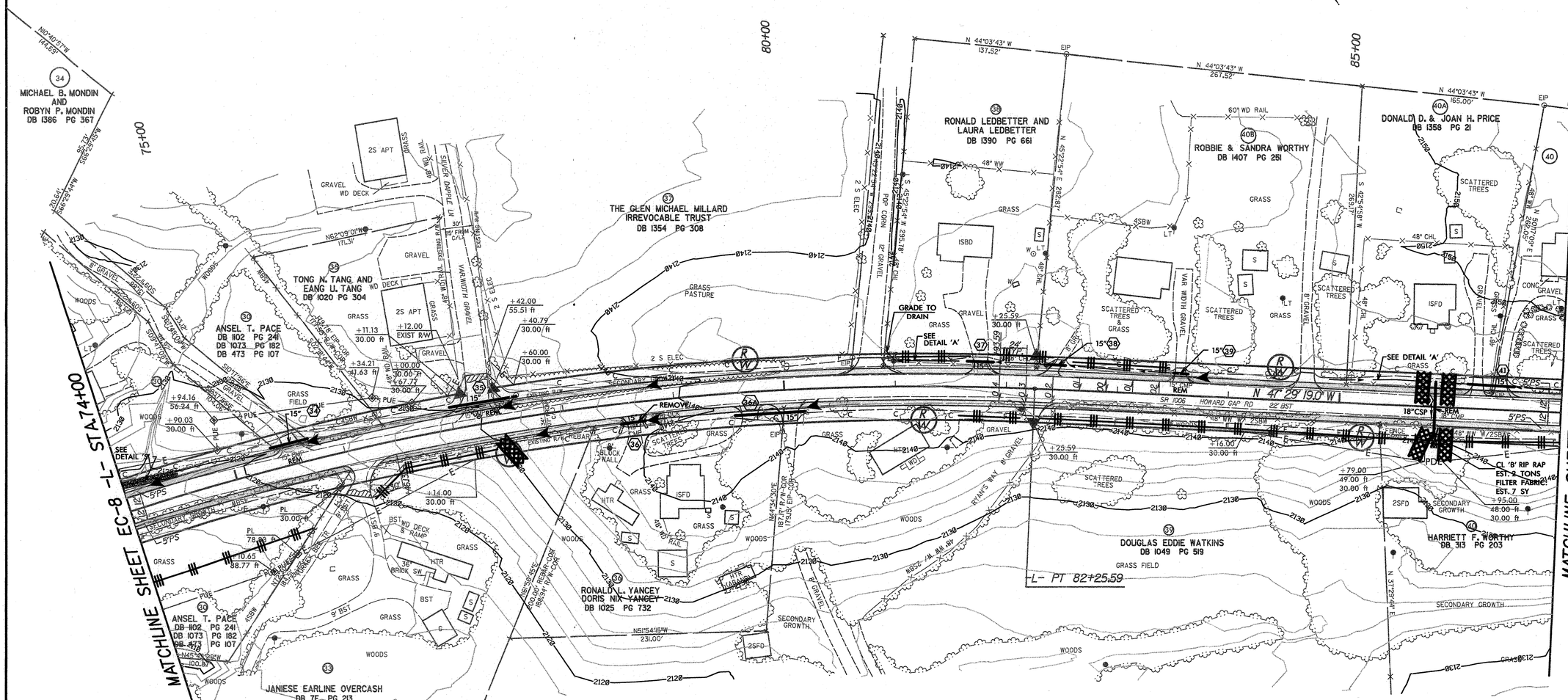
FROM -L- STA. 71+20 TO STA. 74+50 LT
CL 'B' RIP RAP: EST. 138 TONS
FILTER FABRIC: EST. 375 SY

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.

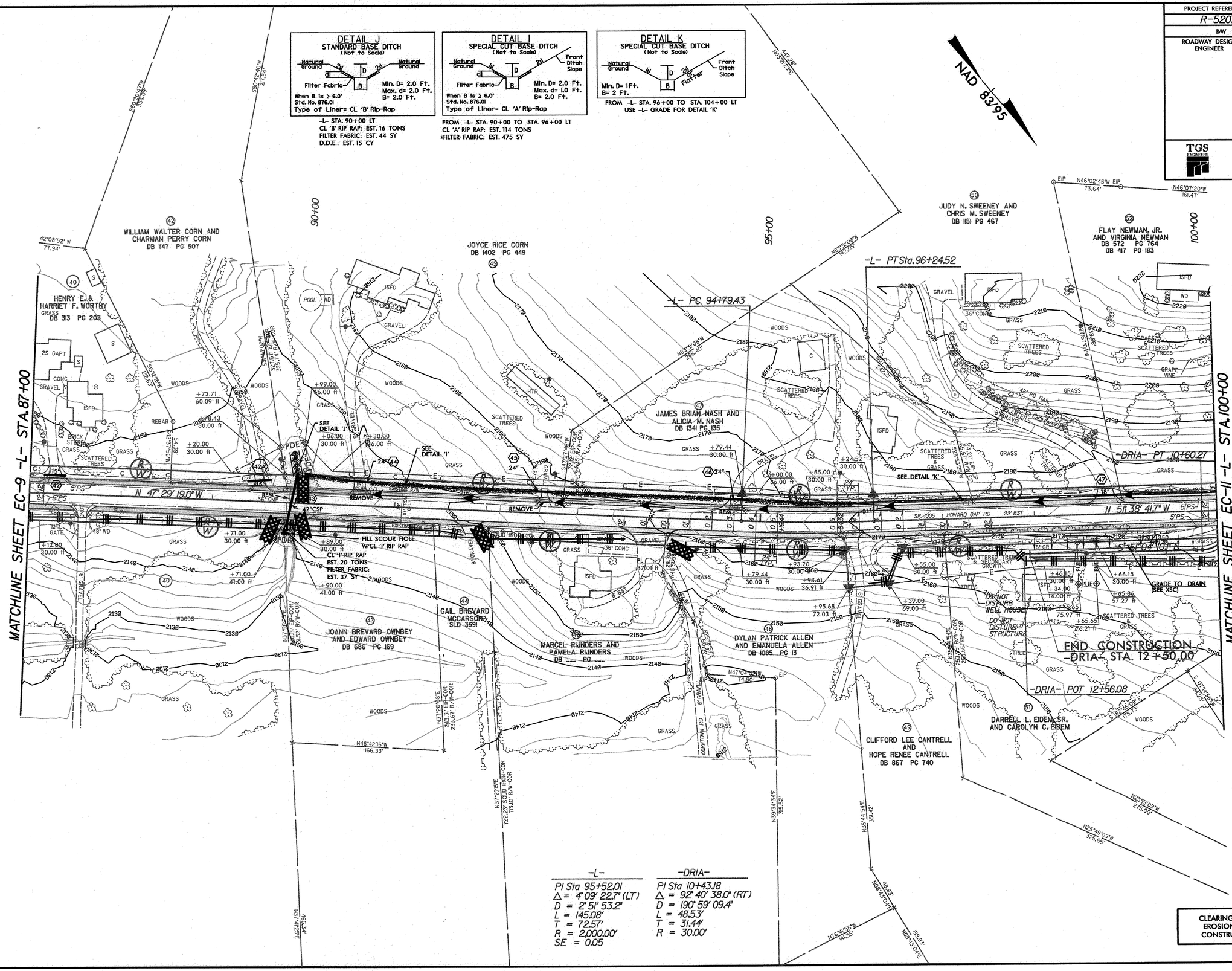
FROM -L- STA. 81+00 TO STA. 83+50 LT
FROM -L- STA. 84+90 TO 87+00 LT


NAD 83/95
MATCHLINE SHEET EC-8 -L- STA.74+00
MATCHLINE SHEET EC-10 -L- STA.87+00
MICHAEL B. MONDIN AND ROBYN P. MONDIN DB 1386 PG 367
TONG N. TANG AND EANG U. TANG DB 1020 PG 304
ANSEL T. PACE DB 1102 PG 241 DB 1073 PG 182 DB 473 PG 107
THE GLEN MICHAEL MILLARD IRREVOCABLE TRUST DB 1354 PG 308
RONALD LEDBETTER AND LAURA LEDBETTER DB 1390 PG 661
ROBBIE & SANDRA WORTHY DB 1407 PG 251
DONALD D. & JOAN H. PRICE DB 1358 PG 21
UNKNOWN
DOUGLAS EDDIE WATKINS DB 1049 PG 519
HARRIETT F. WORTHY DB 313 PG 203
RONALD L. YANCEY DORIS NIX YANCEY DB 1025 PG 732
JANIESE EARLINE OVERCASH DB 7E PG 213
-L- PT 82+25.59
GRADE TO DRAIN
SEE DETAIL 'A'
REMOVE
CL 'B' RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY
N 41° 29' 19.0" W
SR 1006 HOWARD GAP RD
N 44°03'43" W 137.52'
N 44°03'43" W 267.52'
N 44°03'43" W 165.00'
N 45°22'54" E 282.87'
S 45°22'54" W 295.78'
N 42°54'58" W 269.37'
N 50°17'00" E 262.05'
N 37°26'49" E
N 62°09'01" W 171.31'
N 51°54'15" W 231.00'
N 10°40'57" W 144.69'
N 50°50'45" E 88.64'
N 50°50'45" E 78.65'
N 45°40'28" W 100.87'
N 62°29'39" W 205.64'
N 62°29'39" W 205.64'
N 62°29'39" W 205.64

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-10/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

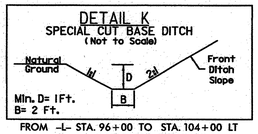
$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$DGN$$$$$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-11/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

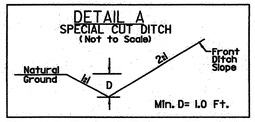
TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)

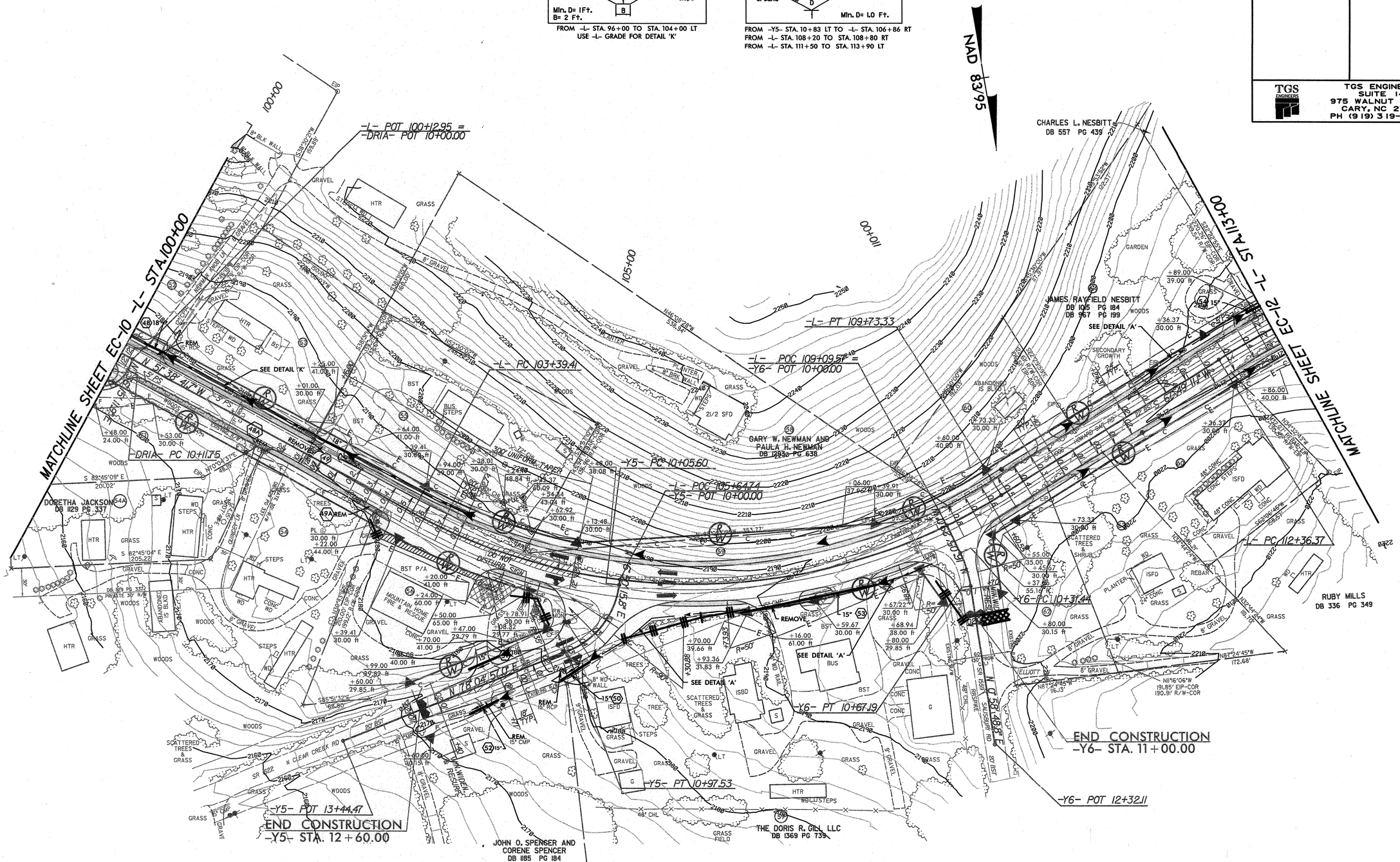


FROM -L- STA. 96+00 TO STA. 104+00 LT
USE -L- GRADE FOR DETAIL 'K'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM -Y5- STA. 10+83 LT TO -L- STA. 106+86 RT
FROM -L- STA. 108+20 TO STA. 108+80 RT
FROM -L- STA. 111+50 TO STA. 113+90 LT



-DRIA-	-Y5-	-L-		-Y6-
PI Sta 10+43.18	PI Sta 10+56.50	PI Sta 106+89.57	PI Sta 115+32.85	PI Sta 10+49.45
Δ = 92° 40' 38.0" (RT)	Δ = 61° 14' 41.2" (RT)	Δ = 60° 32' 07.1" (LT)	Δ = 28° 54' 46.0" (RT)	Δ = 17° 04' 17.8" (RT)
D = 190° 59' 09.4"	D = 66° 37' 22.8"	D = 9° 32' 57.5"	D = 4° 58' 56.1"	D = 47° 44' 47.3"
L = 48.53'	L = 91.93'	L = 633.92'	L = 580.32'	L = 35.75'
T = 31.44'	T = 50.91'	T = 350.16'	T = 296.48'	T = 18.01'
R = 30.00'	R = 86.00'	R = 600.00'	R = 1,150.00'	R = 120.00'
	SE = 0.04	SE = 0.08	SE = 0.04	SE = 0.01

CI	42.00' EIP-EIP 27.52' R/W-R/W N13°32'15"W

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 11

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-12/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

8/17/99

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — Front Ditch Slope — Min. D= 1.0 Ft.

FROM -L- STA. 111+50 TO STA. 113+90 LT
FROM -L- STA. 122+70 TO STA. 126+50 LT
FROM -L- STA. 123+75 TO STA. 125+00 RT

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — Front Ditch Slope — Filter Fabric — Min. D= 1.0 Ft. Max. d= 1.0 Ft.

Type of Liner= CL 'A' Rip-Rap

FROM -L- STA. 114+50 TO STA.119+00 LT
CL 'A' RIP RAP: EST. 56 TONS
FILTER FABRIC: EST. 230 SY

FROM -L- STA. 113+00 TO STA.120+00 RT
CL 'A' RIP RAP: EST. 133 TONS
FILTER FABRIC: EST. 545 SY
USE -L- GRADE

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground — Front Ditch Slope — Filter Fabric — Min. D= 1.0 Ft. Max. d= 1.0 Ft. B= 2.0 Ft.

Type of Liner= CL 'B' Rip-Rap

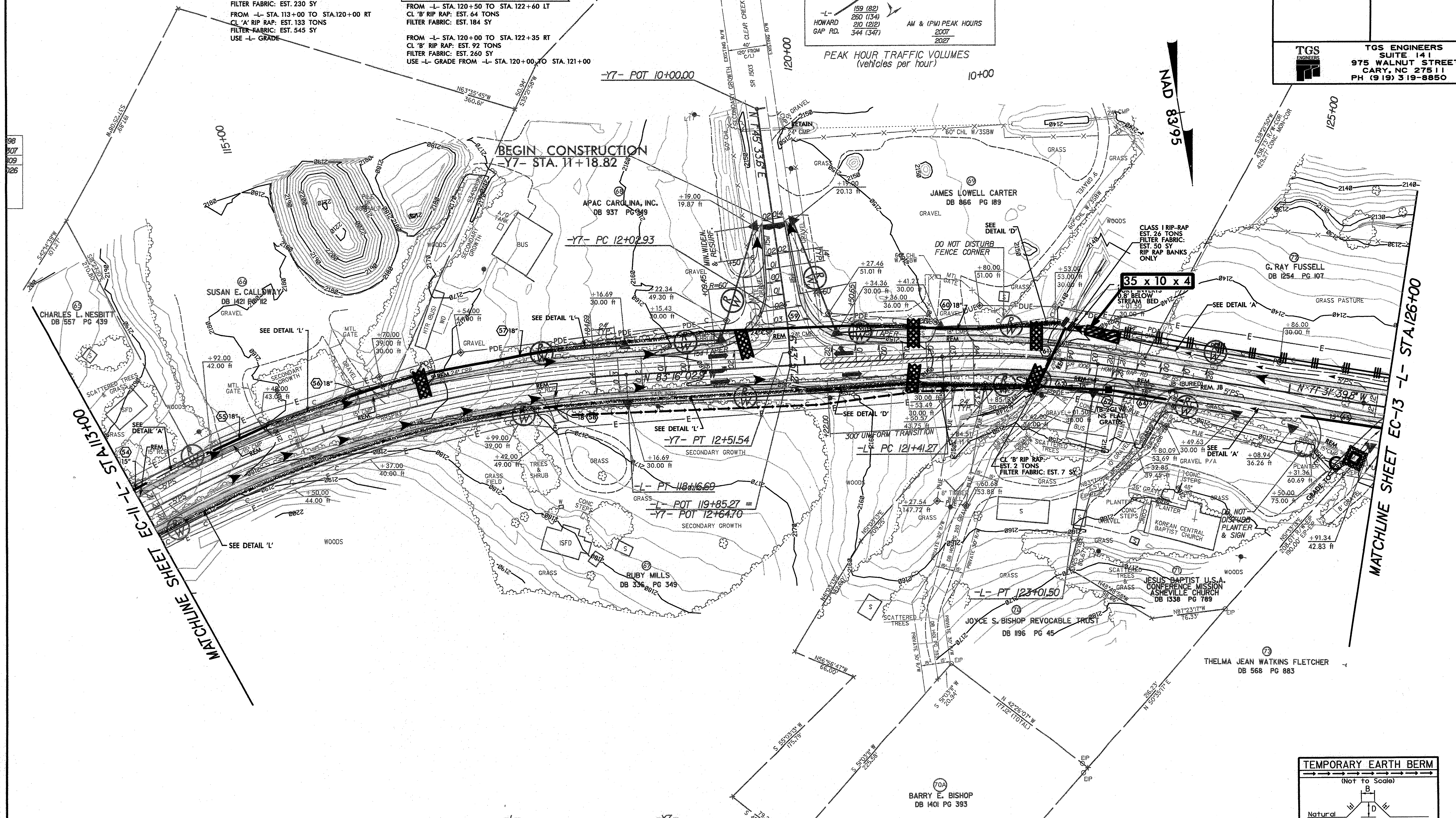
FROM -L- STA. 120+50 TO STA. 122+60 LT
CL 'B' RIP RAP: EST. 64 TONS
FILTER FABRIC: EST. 184 SY

FROM -L- STA. 120+00 TO STA. 122+35 RT
CL 'B' RIP RAP: EST. 92 TONS
FILTER FABRIC: EST. 260 SY
USE -L- GRADE FROM -L- STA. 120+00 TO STA. 121+00

PEAK HOUR TRAFFIC VOLUMES
(vehicles per hour)

-Y7- CLEAR CREEK RD.: 38 (129), 66 (121), 173 (172)
-L- HOWARD GAP RD.: 95 (103), 156 (168), 210 (268), 344 (439)
-L- HOWARD GAP RD.: 159 (82), 260 (134), 210 (212), 344 (347)

AM & (PM) PEAK HOURS
2007
2027



-L-	-L-	-Y7-
PI Sta 115+32.85	PI Sta 122+21.67	PI Sta 12+27.25
Δ = 28° 54' 46.0" (RT)	Δ = 11° 44' 23.0" (RT)	Δ = 4° 58' 23.5" (RT)
D = 4° 58' 56.1"	D = 7° 19' 36.6"	D = 10° 13' 53.0"
L = 580.32'	L = 160.23'	L = 48.61'
T = 296.48'	T = 80.40'	T = 24.32'
R = 1,150.00'	R = 782.00'	R = 560.00'
SE = 0.04	SE = 0.04	SE = 0.03

TEMPORARY EARTH BERM
(Not to Scale)

Natural Ground — D = 1 Ft. B = 1 Ft.

•STABILIZE EARTH BERM•

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 12

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-13/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

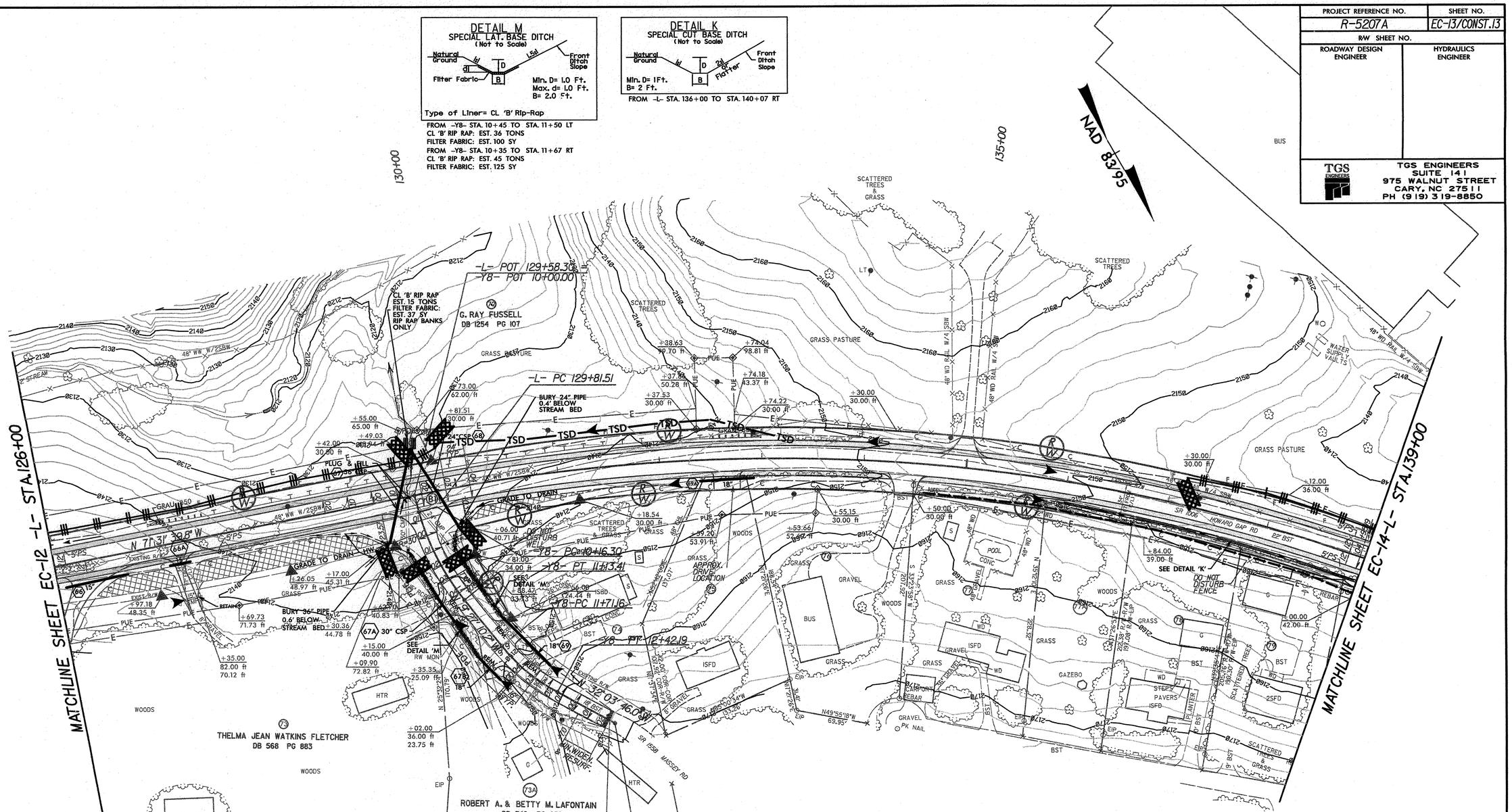
DETAIL M
SPECIAL LAT. BASE DITCH
(Not to Scale)

Type of Liner= CL 'B' Rip-Rap

FROM -Y8- STA. 10+45 TO STA. 11+50 LT
CL 'B' RIP RAP: EST. 36 TONS
FILTER FABRIC: EST. 100 SY
FROM -Y8- STA. 10+35 TO STA. 11+67 RT
CL 'B' RIP RAP: EST. 45 TONS
FILTER FABRIC: EST. 125 SY

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)

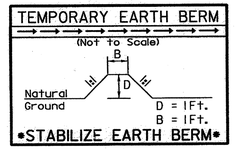
FROM -L- STA. 136+00 TO STA. 140+07 RT



PI Sta 10+65.53	PI Sta 12+07.14	PI Sta 134+66.49
Δ = 23° 11' 00.8" (LT)	Δ = 22° 36' 35.8" (LT)	Δ = 31° 19' 11.4" (RT)
D = 23° 52' 23.7"	D = 31° 49' 51.6"	D = 3° 18' 42.8"
L = 97.11'	L = 71.03'	L = 945.68'
T = 49.23'	T = 35.98'	T = 484.98'
R = 240.00'	R = 180.00'	R = 1,730.00'
SE = 0.04	SE = 0.04	SE = 0.04

74	ELIAS LOPEZ AND MARIA DIAZ-BARCO	DB 1285 PG 251
75	ROSEMARY RICO	DB 1340 PG 198
76	SUPERIOR TESTING SERVICES, INC.	DB 1155 PG 330
77A	MARIA ELENA CASTELEIRO, ISELA MACHADO AND OLGA Q. PRADO	DB 1306 PG 359
77	LOUIS JOHN NOA AND HEIDI LEOTA NOA	DB 1412 PG 190
78	JERONIMO GONZALEZ-ESTRADA AND ROSA I. GONZALEZ	DB 1294 PG 296
79	STANLEY LAWSON SCARBOROUGH	DB 710 PG 677

TEMPORARY EARTH BERM
(Not to Scale)



•STABILIZE EARTH BERM•

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13

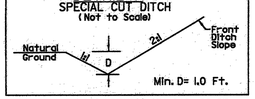
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-14/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

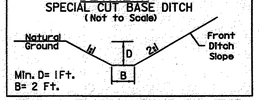
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



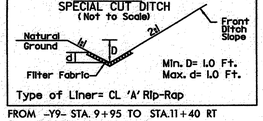
FROM -L- STA. 140+07 TO STA. 140+90 RT
FROM -L- STA. 143+00 TO STA. 145+50 LT
FROM -L- STA. 147+50 TO STA. 151+10 LT
FROM -L- STA. 151+80 TO STA. 152+50 RT

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)



FROM -L- STA. 136+00 TO STA. 140+07 RT
FROM -L- STA. 146+00 TO STA. 147+85 RT
FROM -L- STA. 149+00 TO STA. 151+80 RT

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= CL 'A' Rip-Rap

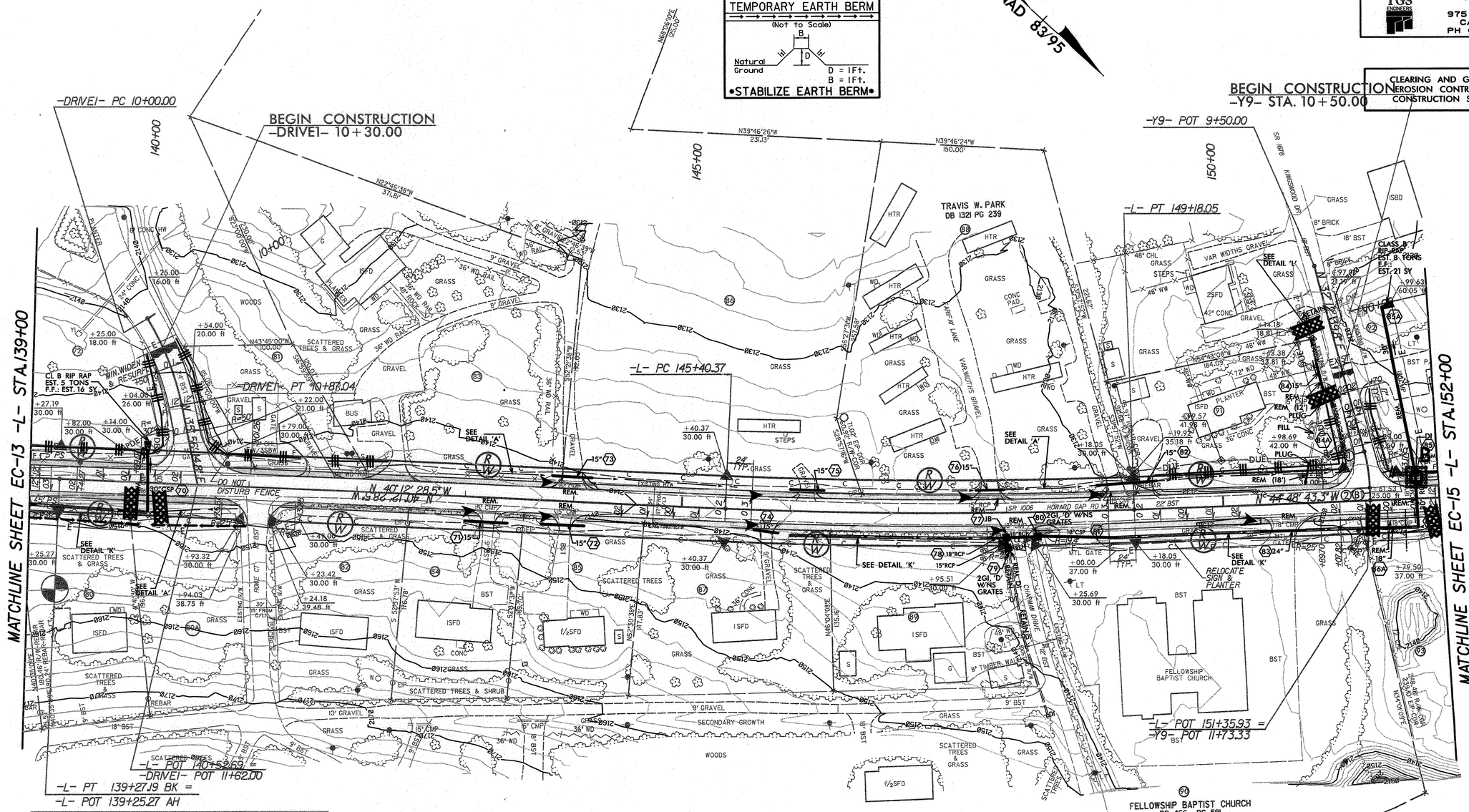
FROM -Y9- STA. 9+95 TO STA.11+40 RT
CL 'A' RIP RAP: EST. 22 TONS
FILTER FABRIC: EST. 90 SY

TEMPORARY EARTH BERM
(Not to Scale)

STABILIZE EARTH BERM

NAD 83/95

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14



72	G.RAY FUSSELL	DB 1254 PG 107
80	FRED O.BROOKS AND JEWEL C.BROOKS	DB 753 PG 25
80A	CYNTHIA JOY BROOKS	DB 1190 PG 390
81	PUBLIC SERVICE COMPANY OF NORTH CAROLINA	DB 331 PG 215
82	FRED DENNIS HOLDEN	DB 1216 PG 502
83	LARRY MONROE COX AND TARA J.COX	DB 961 PG 742
84	GENE GILLIAM	DB 1208 PG 165
85	FEDERAL NATIONAL MORTGAGE ASSOCIATION	DB 1442 PG 688
86	DAVID ROBERT COLLINS AND GLENDA JONES COLLINS	DB 948 PG 460
87	JUDY B.SINYARD	DB 615 PG 923
89	KENNETH R.WILKIE	DB 600 PG 879
91	JOSEPH MARION ALDERMAN AND PAULA L.ALDERMAN	DB 1116 PG 51
93	THE GARY KEITH KING REVOCABLE TRUST	DB 1087 PG 405

-DRIVE1-
PI Sta 10+43.96
Δ = 19° 56' 51.9" (RT)
D = 22° 55' 05.9"
L = 87.04'
T = 43.96'
R = 250.00'
SE = 0.01

-L-
PI Sta 134+66.49
Δ = 31° 19' 11.4" (RT)
D = 3° 18' 42.8"
L = 945.68'
T = 484.98'
R = 1,730.00'
SE = 0.04

PI Sta 147+29.31
Δ = 4° 36' 14.8" (LT)
D = 1° 13' 08.6"
L = 377.68'
T = 188.94'
R = 4,700.00'
SE = 0.03

PI Sta 153+38.49
Δ = 14° 24' 30.4" (LT)
D = 4° 07' 19.2"
L = 349.55'
T = 175.70'
R = 1,390.00'
SE = 0.04

-Y9-
PI Sta 11+44.85
Δ = 12° 58' 34.5" (RT)
D = 38° 11' 49.9"
L = 33.97'
T = 17.06'
R = 150.00'
SE = 0.01

81	N 45° 11' 14.3" E

1	-Y9- PC 11+27.79
2	-Y9- PT 11+61.76
3	-L- PC 151+62.79

$$SYSTIME$$
$$USERNAME$$
$$DGN$$

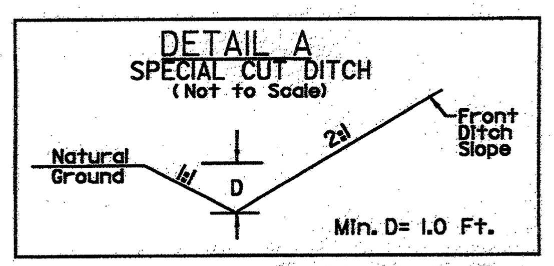
R/W SHEET NO.

ROADWAY DESIGN ENGINEER

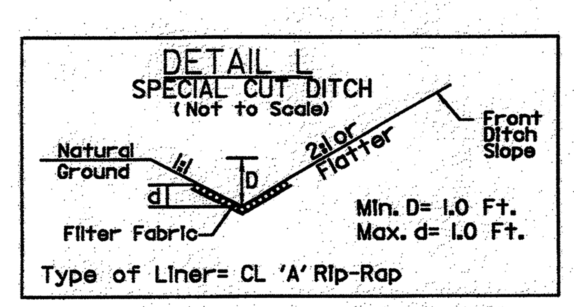
HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 15

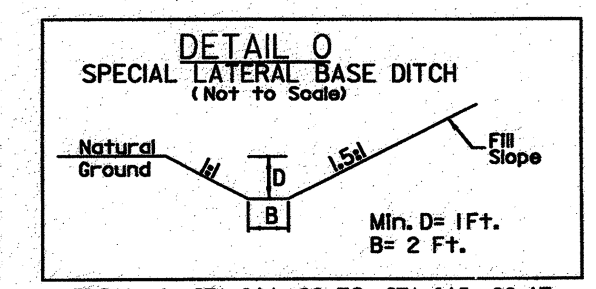


FROM -L- STA. 151+80 TO STA. 152+50 RT

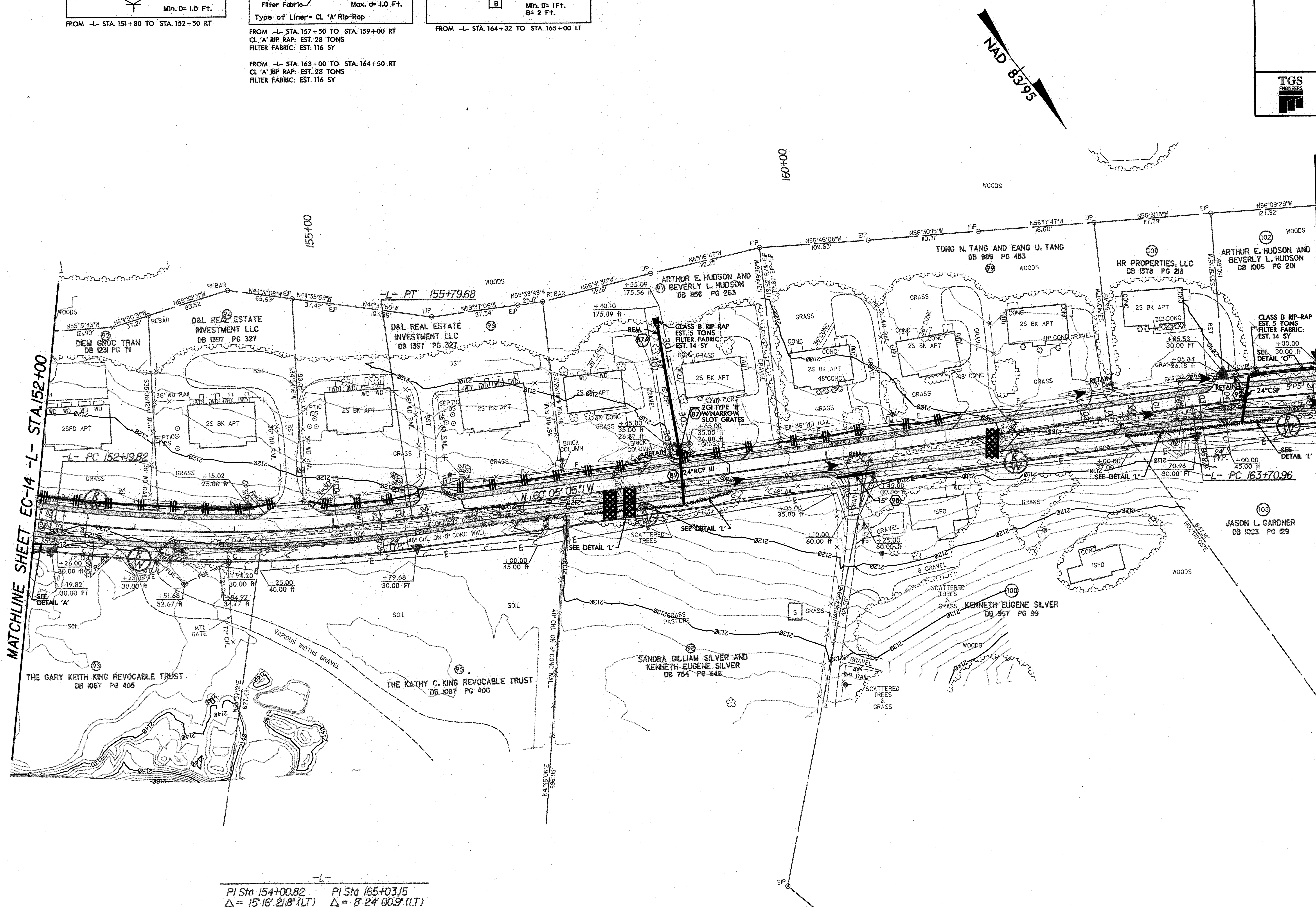


FROM -L- STA. 157+50 TO STA. 159+00 RT
CL 'A' RIP RAP: EST. 28 TONS
FILTER FABRIC: EST. 116 SY

FROM -L- STA. 163+00 TO STA. 164+50 RT
CL 'A' RIP RAP: EST. 28 TONS
FILTER FABRIC: EST. 116 SY



FROM -L- STA. 164+32 TO STA. 165+00 LT



-L-	
PI Sta 154+00.82	PI Sta 165+03.15
Δ = 15° 16' 21.8" (LT)	Δ = 8° 24' 00.9" (LT)
D = 4° 14' 38.9"	D = 3° 10' 59.2"
L = 359.85'	L = 263.90'
T = 181.00'	T = 132.19'
R = 1,350.00'	R = 1,800.00'
SE = 0.04	SE = 0.04

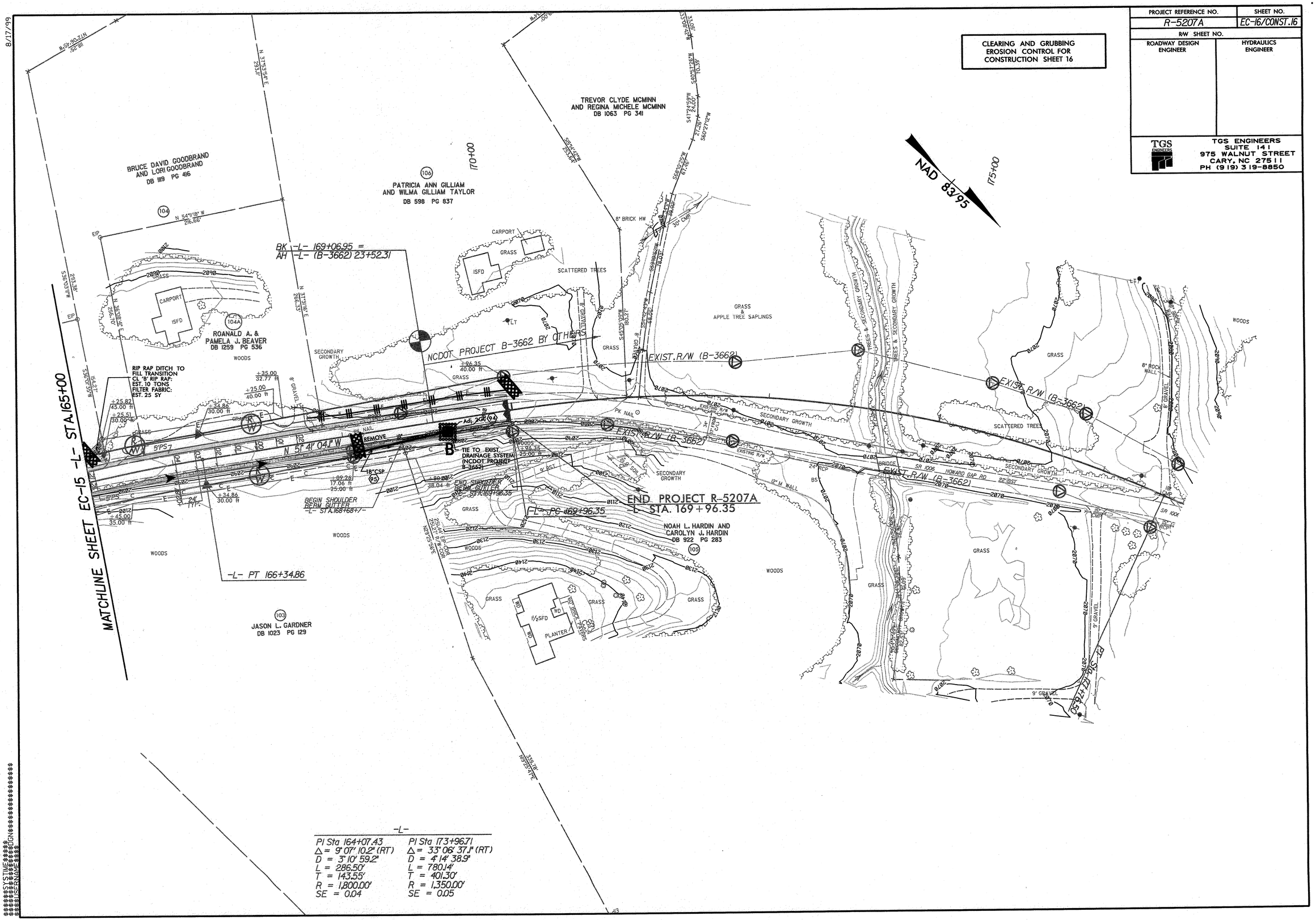
8/17/99

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$$USERNAME$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-16/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

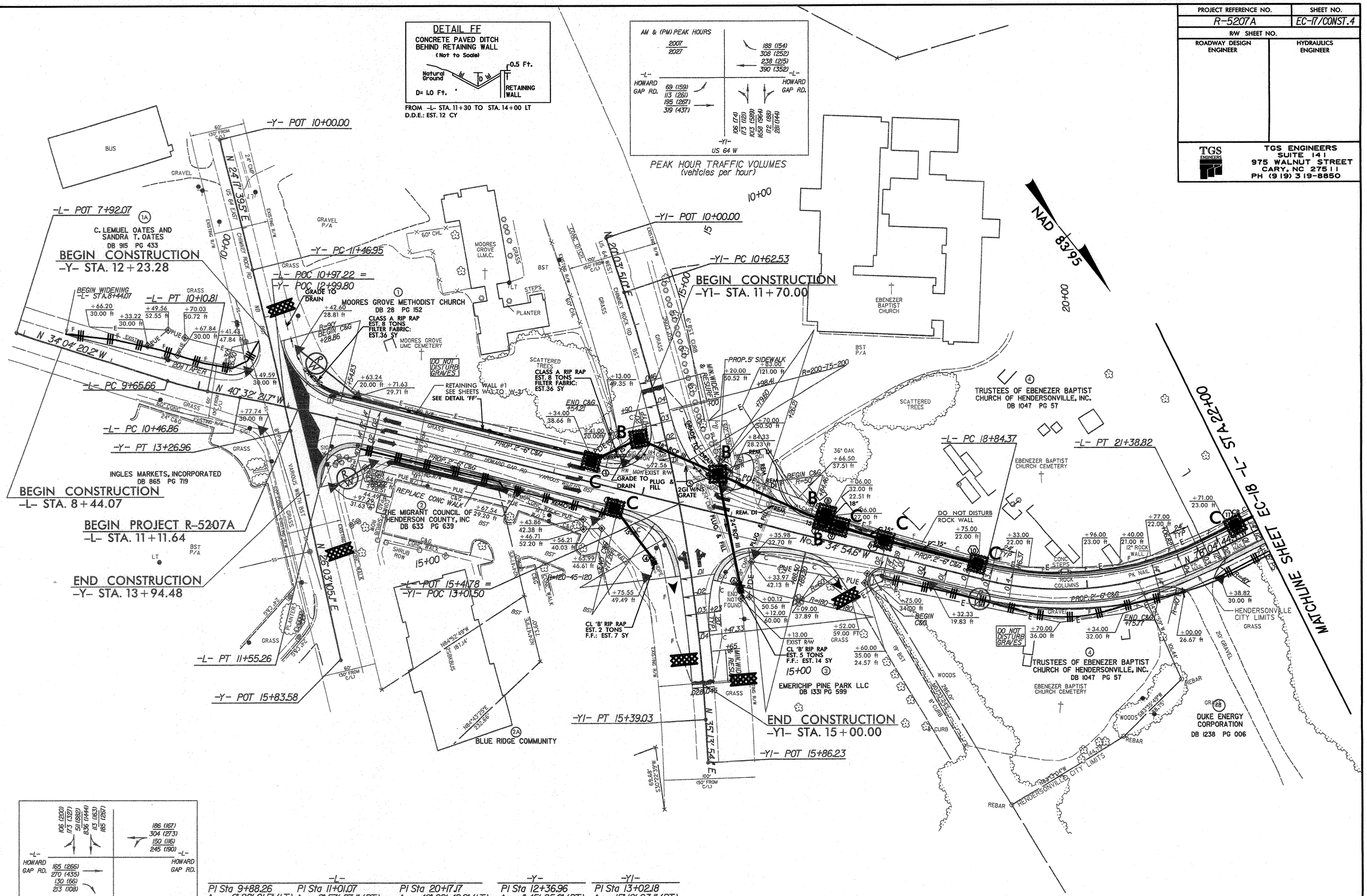


8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-17/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



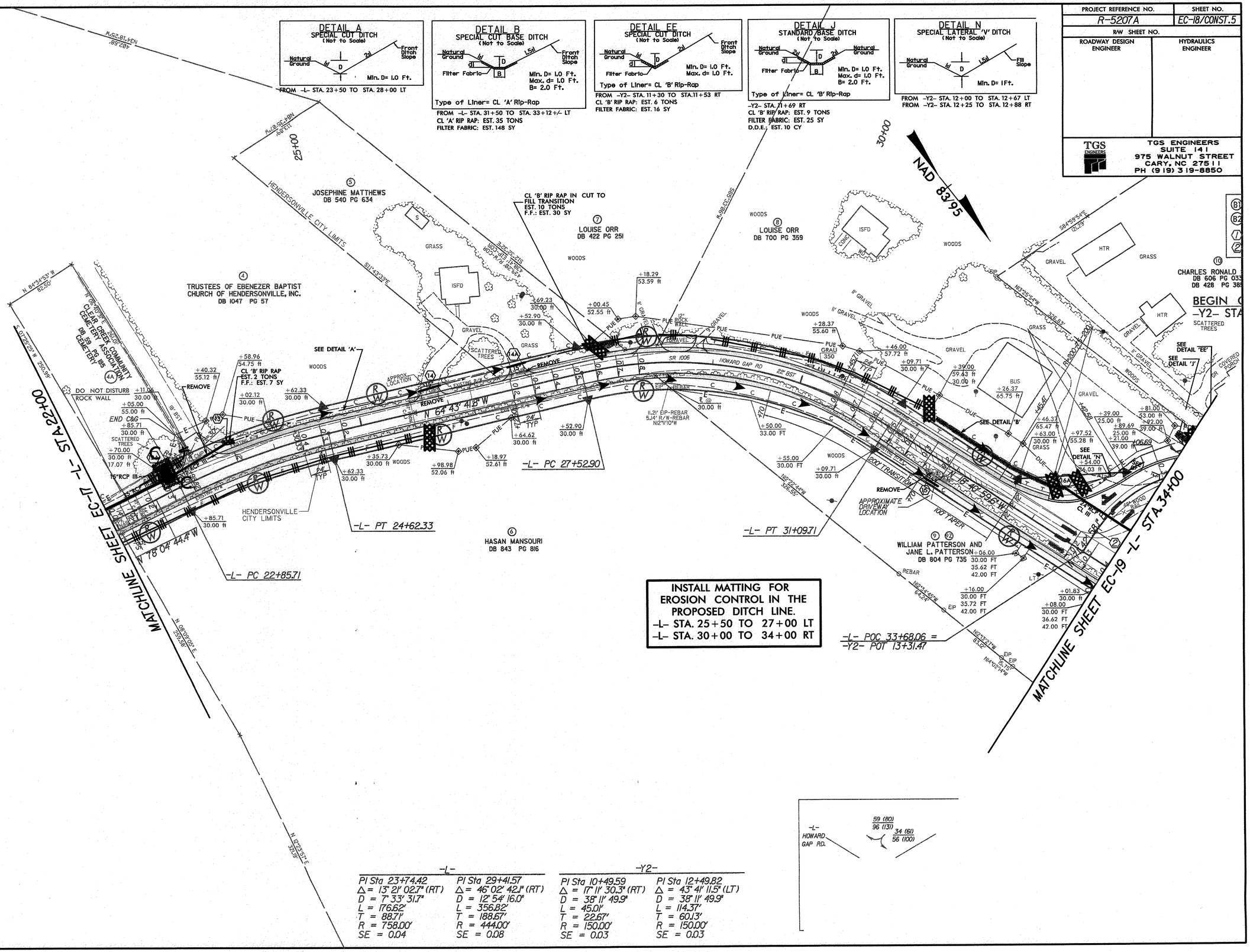
-L-		-Y-	-Y1-
PI Sta 9+88.26	PI Sta 11+01.07	PI Sta 20+17.17	PI Sta 12+36.96	PI Sta 13+02.18
Δ = 6° 28' 01.5" (LT)	Δ = 2° 57' 27.1" (RT)	Δ = 40° 29' 49.9" (LT)	Δ = 1° 45' 25.6" (RT)	Δ = 15° 10' 03.1" (RT)
D = 14° 19' 26.2"	D = 2° 43' 42.1"	D = 15° 54' 55.8"	D = 0° 58' 33.9"	D = 3° 10' 59.2"
L = 45.15'	L = 108.40'	L = 254.45'	L = 180.02'	L = 476.50'
T = 22.60'	T = 54.21'	T = 132.80'	T = 90.02'	T = 239.65'
R = 400.00'	R = 2,100.00'	*R = 360.00'	R = 5,870.00'	R = 1,800.00'
SE = EXIST.	SE = EXIST.	SE = 0.04	SE = EXIST.	SE = 0.04

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-18/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 25+50 TO 27+00 LT
-L- STA. 30+00 TO 34+00 RT

-L-	
PI Sta 23+74.42	PI Sta 29+41.57
Δ = 13° 21' 02.7" (RT)	Δ = 46° 02' 42.1" (RT)
D = 7° 33' 31.7"	D = 12° 54' 16.0"
L = 176.62'	L = 356.82'
T = 88.71'	T = 188.67'
R = 758.00'	R = 444.00'
SE = 0.04	SE = 0.08

-Y2-	
PI Sta 10+49.59	PI Sta 12+49.82
Δ = 17° 11' 30.3" (RT)	Δ = 43° 41' 11.5" (LT)
D = 38° 11' 49.9"	D = 38° 11' 49.9"
L = 45.01'	L = 114.37'
T = 22.67'	T = 60.13'
R = 150.00'	R = 150.00'
SE = 0.03	SE = 0.03

$$SYSTIME$$
$$DGN$$
$$USERNAME$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-19/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 36+50 TO STA. 38+00 LT
CL 'B' RIP RAP: EST. 55 TONS
FILTER FABRIC: EST. 170 SY

DETAIL E
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 38+00 TO STA. 46+95 LT
CL 'B' RIP RAP: EST. 450 TONS
FILTER FABRIC: EST. 1400 SY

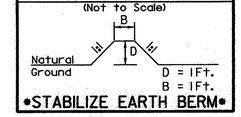
DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)

Type of Liner= CL 'A' Rip-Rap

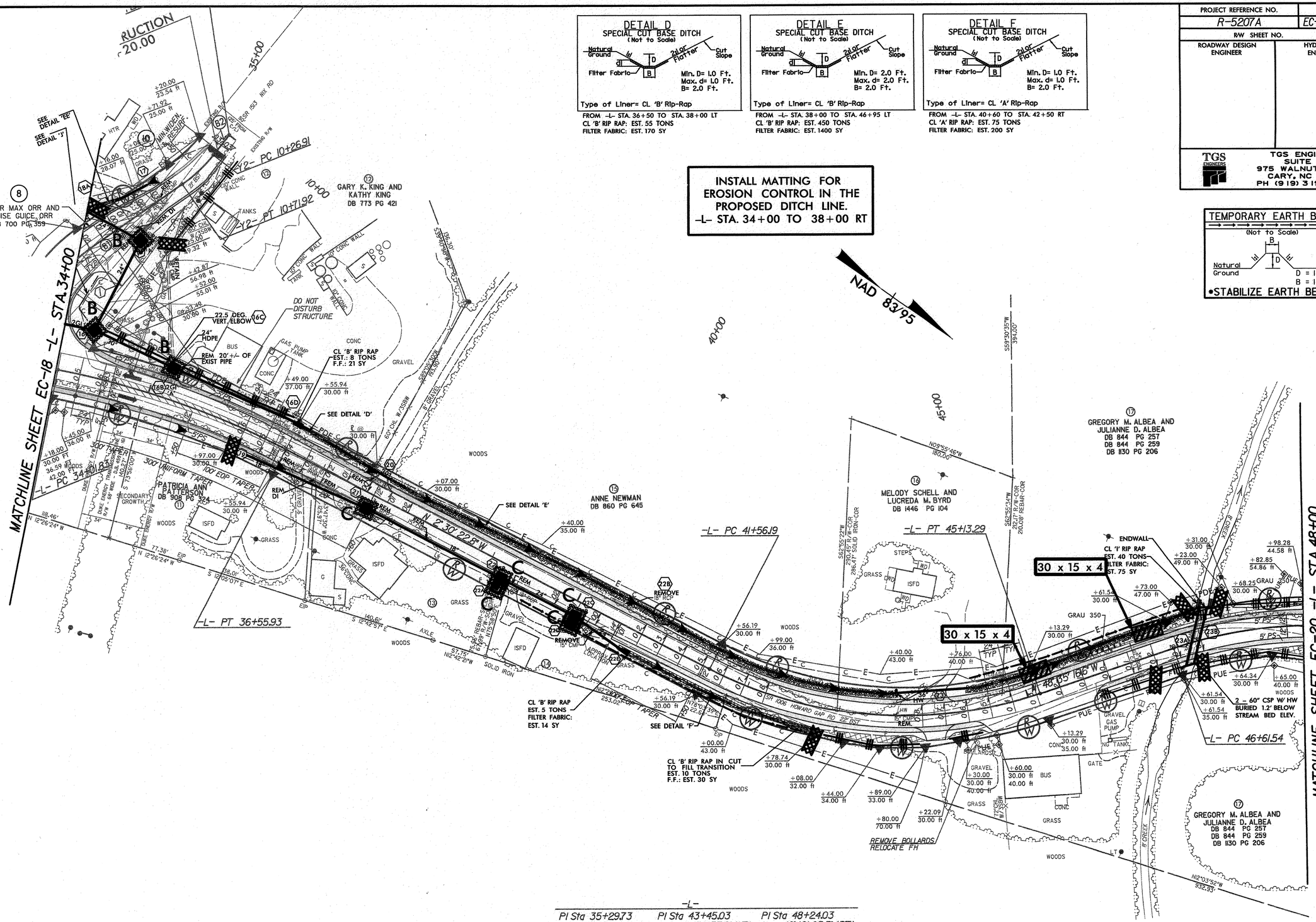
FROM -L- STA. 40+60 TO STA. 42+50 RT
CL 'A' RIP RAP: EST. 75 TONS
FILTER FABRIC: EST. 200 SY

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 34+00 TO 38+00 RT

TEMPORARY EARTH BERM
(Not to Scale)



•STABILIZE EARTH BERM•



-L-		
PI Sta 35+29.73	PI Sta 43+45.03	PI Sta 48+24.03
Δ = 16° 10' 36.8" (RT)	Δ = 46° 04' 53.8" (LT)	Δ = 40° 12' 05.5" (RT)
D = 6° 21' 58.3"	D = 12° 54' 16.0"	D = 12° 54' 16.0"
L = 254.11'	L = 357.10'	L = 311.53'
T = 127.90'	T = 188.84'	T = 162.49'
R = 900.00'	R = 444.00'	R = 444.00'
SE = 0.06	SE = 0.08	SE = 0.04

11	PATRICIA ANN PATTERSON	DB 908 PG 324
13	MILDRED BANE,WIDOW	DB 423 PG 149
14	MARGARET P.HALFORD	DB 332 PG 357

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

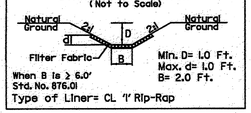
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-20/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

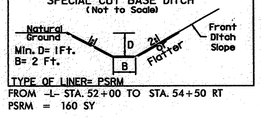
INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 52+00 TO 54+50 RT
-L- STA. 57+50 TO 61+50 RT

DETAIL GG
STANDARD BASE DITCH
(Not to Scale)



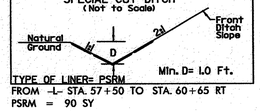
FROM -L- STA. 50+55 TO STA. 50+97 LT
(SEE -L- PROFILE FOR DITCH GRADE)
CL 'I' RIP RAP: EST. 40 TONS
FILTER FABRIC: EST. 65 SY
D.D.E.: EST. 10 CY

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)



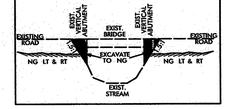
TYPE OF LINER= PSRM
FROM -L- STA. 52+00 TO STA. 54+50 RT
PSRM = 160 SY

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

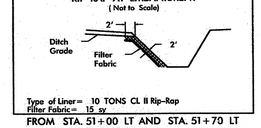


TYPE OF LINER= PSRM
FROM -L- STA. 57+50 TO STA. 60+65 RT
PSRM = 90 SY

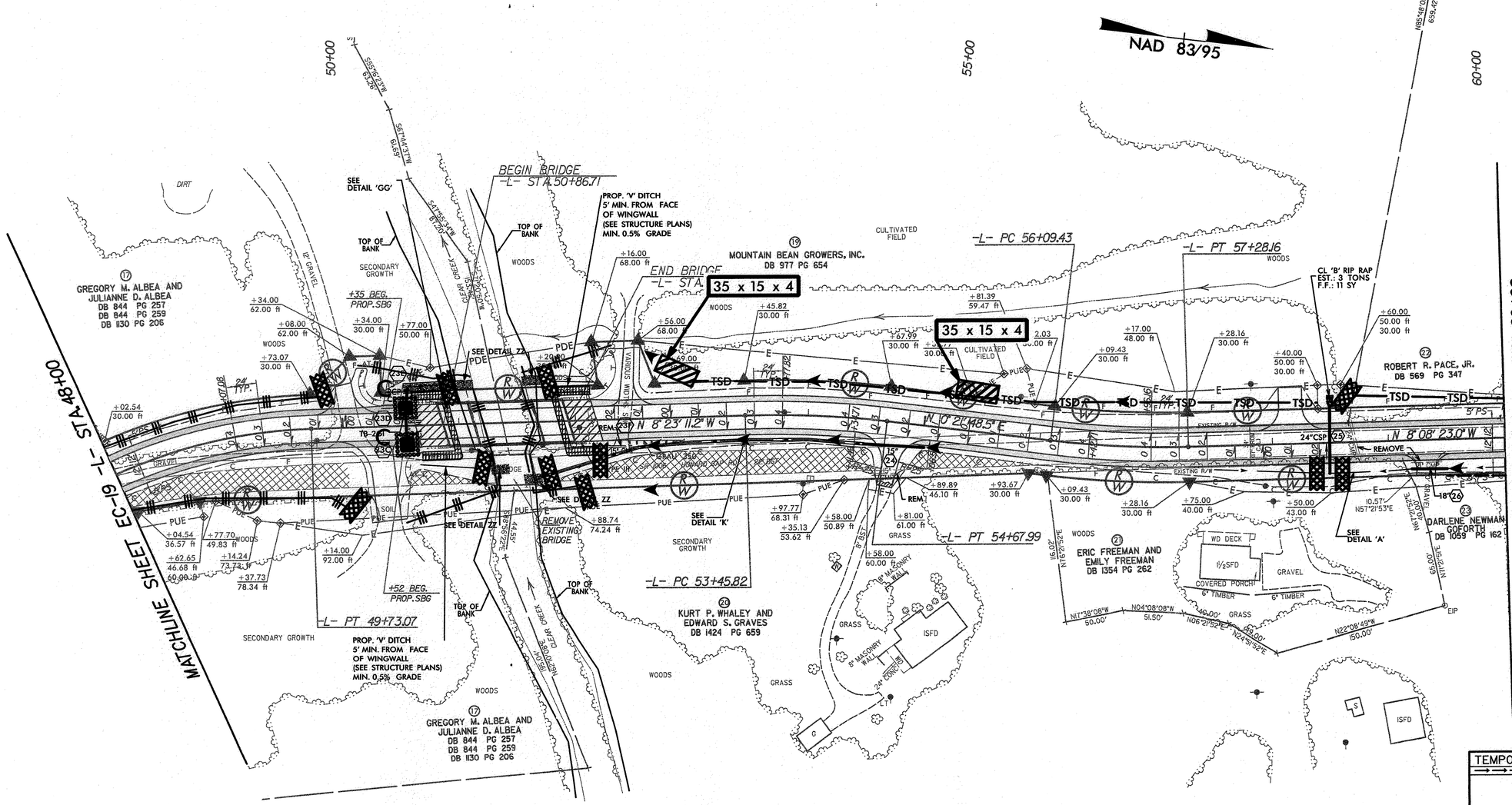
ABUTMENT REMOVAL DETAIL
(Not to Scale)



DETAIL ZZ
RIP RAP AT EMBANKMENT
(Not to Scale)

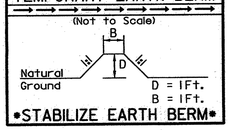


Type of Liner= .10 TONS CL II Rip-Rap
Filter Fabric= 15 SY
FROM STA. 51+00 LT AND STA. 51+70 LT
FROM STA. 51+30 RT AND STA. 51+60 RT
EST. 20 TONS CLASS II RIP RAP
EST. 30 SY FILTER FABRIC
EACH LOCATION



-L-		
PI Sta 48+24.03	PI Sta 54+07.03	PI Sta 56+68.91
Δ = 40° 12' 05.5" (RT)	Δ = 8° 44' 59.7" (RT)	Δ = 8° 30' 11.5" (LT)
D = 12° 54' 16.0"	D = 7° 09' 43.1"	D = 7° 09' 43.1"
L = 311.53'	L = 122.17'	L = 118.73'
T = 162.49'	T = 61.20'	T = 59.47'
*R = 444.00'	R = 800.00'	R = 800.00'
SE = 0.04	SE = 0.04	SE = 0.04

TEMPORARY EARTH BERM
(Not to Scale)



•STABILIZE EARTH BERM•

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A AS STILLING BASIN WHERE APPLICABLE.

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-21/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

TEMPORARY EARTH BERM

(Not to Scale)

Natural Ground; 1:1; D; B

D = 1Ft.
B = 1Ft.

STABILIZE EARTH BERM

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 1:1; D; 2:1; Front Ditch Slope

Min. D= 1.0 Ft.

FROM -L- STA. 57+50 TO STA. 60+65 RT
FROM -L- STA. 65+92 TO STA. 70+00 RT

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

Natural Ground; 1:1; D; d1; 2:1; Cut Slope; Filter Fabric

Min. D= 1.0 Ft.
Max. d= 1.0 Ft.

Type of Liner= CL 'A' Rip-Rap

FROM STA. 61+50 TO STA. 63+00 RT
CL 'A' RIP RAP: EST. 25 TONS
FILTER FABRIC: EST. 160 SY

DETAIL H
STANDARD BASE DITCH
(Not to Scale)

Natural Ground; 2:1; D; d1; 2:1; Natural Ground; Filter Fabric; B

Min. D= 2.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.

When B is ≥ 6.0'
Std. No. 876.01
Type of Liner= CL 'B' Rip-Rap

FROM -Y4- STA. 10+46 TO STA. 10+84 LT
CL 'B' RIP RAP: EST. 16 TONS
FILTER FABRIC: EST. 46 SY
D.D.E.: EST. 16 CY

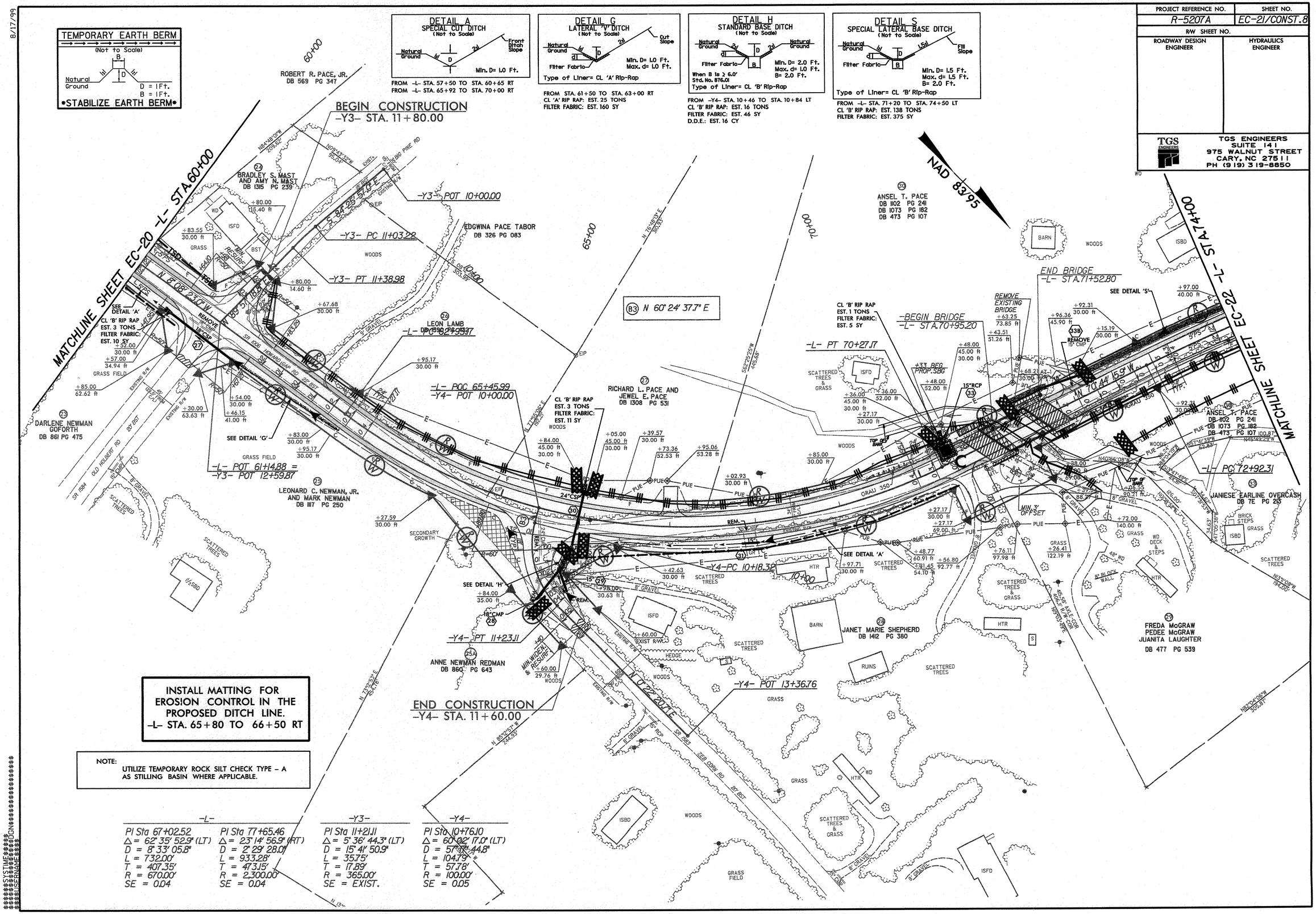
DETAIL S
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground; 1:1; D; d1; 1.5:1; Fill Slope; Filter Fabric; B

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.

Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 71+20 TO STA. 74+50 LT
CL 'B' RIP RAP: EST. 138 TONS
FILTER FABRIC: EST. 375 SY



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 65+80 TO 66+50 RT

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A AS STILLING BASIN WHERE APPLICABLE.

-L-	-Y3-	-Y4-
PI Sta 67+02.52	PI Sta 11+21.11	PI Sta 10+76.10
Δ = 62° 35' 52.9" (LT)	Δ = 5° 36' 44.3" (LT)	Δ = 60° 02' 17.0" (LT)
D = 8° 33' 05.8"	D = 15° 41' 50.9"	D = 57° 33' 44.8"
L = 732.00'	L = 35.75'	L = 104.79'
T = 407.35'	T = 17.89'	T = 57.78'
R = 670.00'	R = 365.00'	R = 100.00'
SE = 0.04	SE = EXIST.	SE = 0.05
PI Sta 77+65.46		
Δ = 23° 14' 56.9" (RT)		
D = 2° 29' 28.0"		
L = 933.28'		
T = 473.15'		
R = 2,300.00'		
SE = 0.04		

$$$$$$SYSTIME$$$$$$ $$$$$$JOIN$$$$$$
$$$$$$USERNAME$$$$$$ $$$$$$$$$$$$$$$$

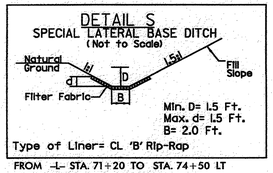
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-22/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

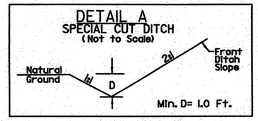
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

INSTALL PSRM IN THE PROPOSED DITCH LINE.
-L- STA. 74+50 TO 79+50 LT

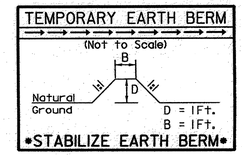
INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 81+00 TO 83+50 LT
-L- STA. 84+90 TO 87+00 LT
-L- STA. 77+50 TO 81+50 RT

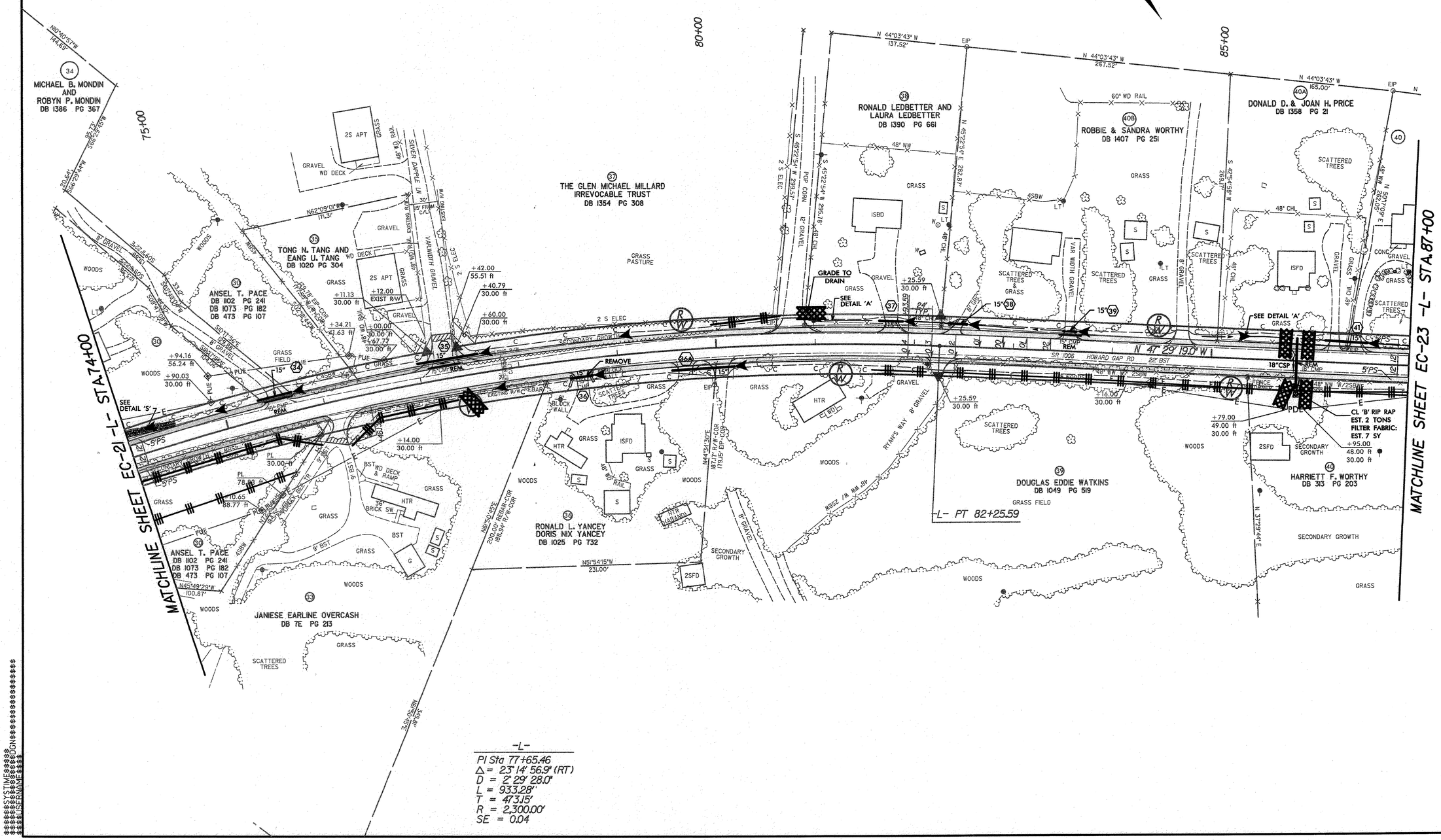


FROM -L- STA. 71+20 TO STA. 74+50 LT
CL 'B' RIP RAP: EST. 138 TONS
FILTER FABRIC: EST. 375 SY



FROM -L- STA. 81+00 TO STA. 83+50 LT
FROM -L- STA. 84+90 TO 87+00 LT



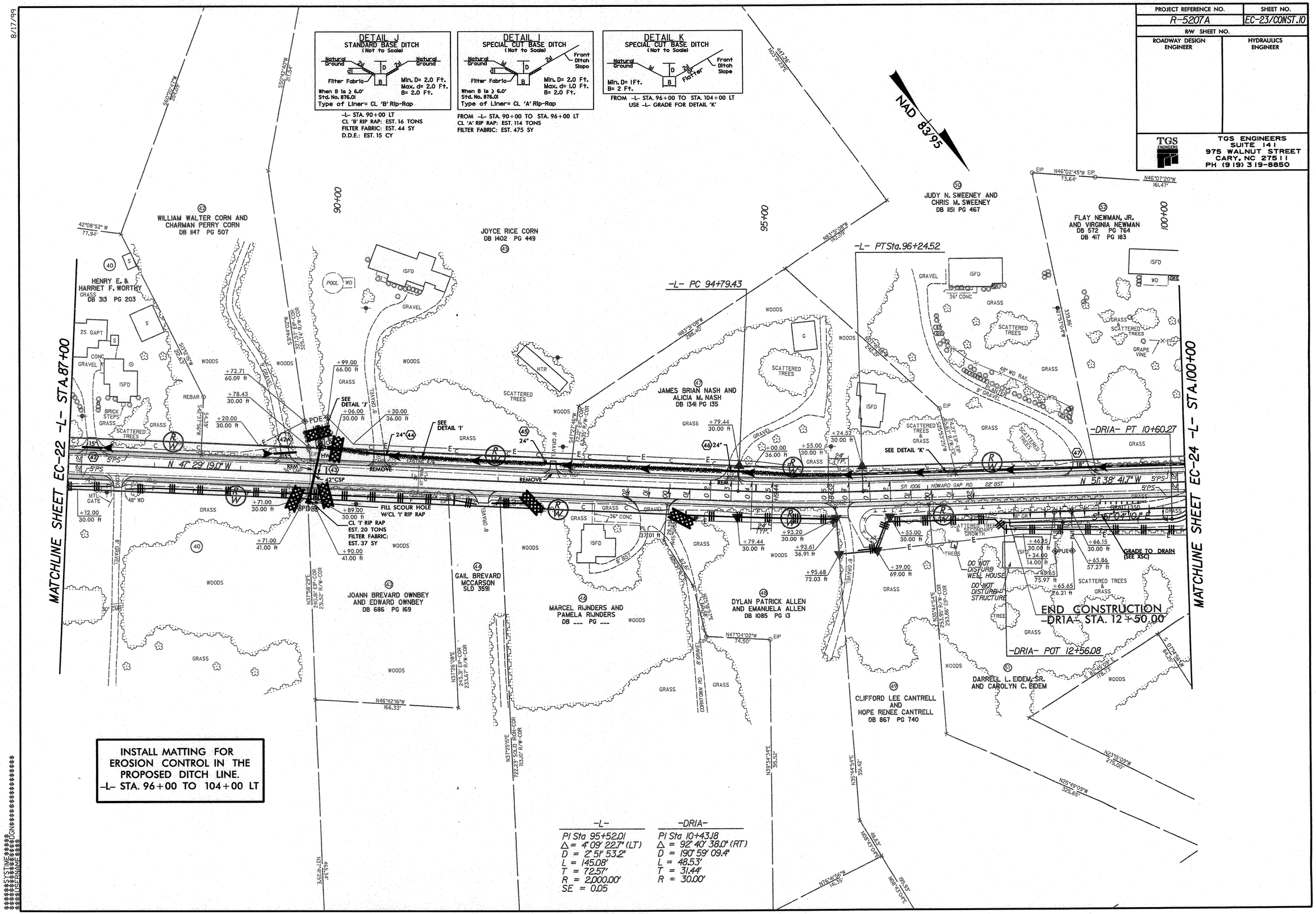


-L-
PI Sta 77+65.46
Δ = 23° 14' 56.9" (RT)
D = 2° 29' 28.0"
L = 933.28'
T = 473.15'
R = 2,300.00'
SE = 0.04

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-23/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

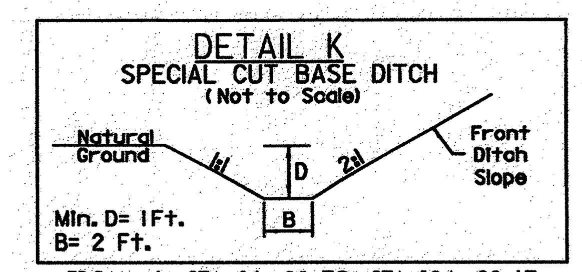


$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-24/CONST.II
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

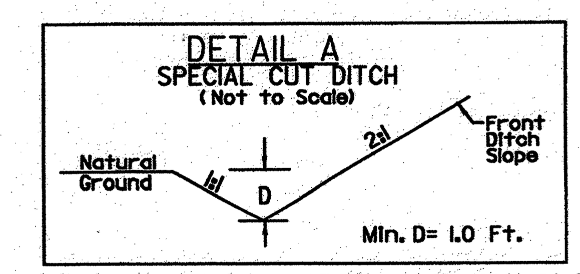
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)

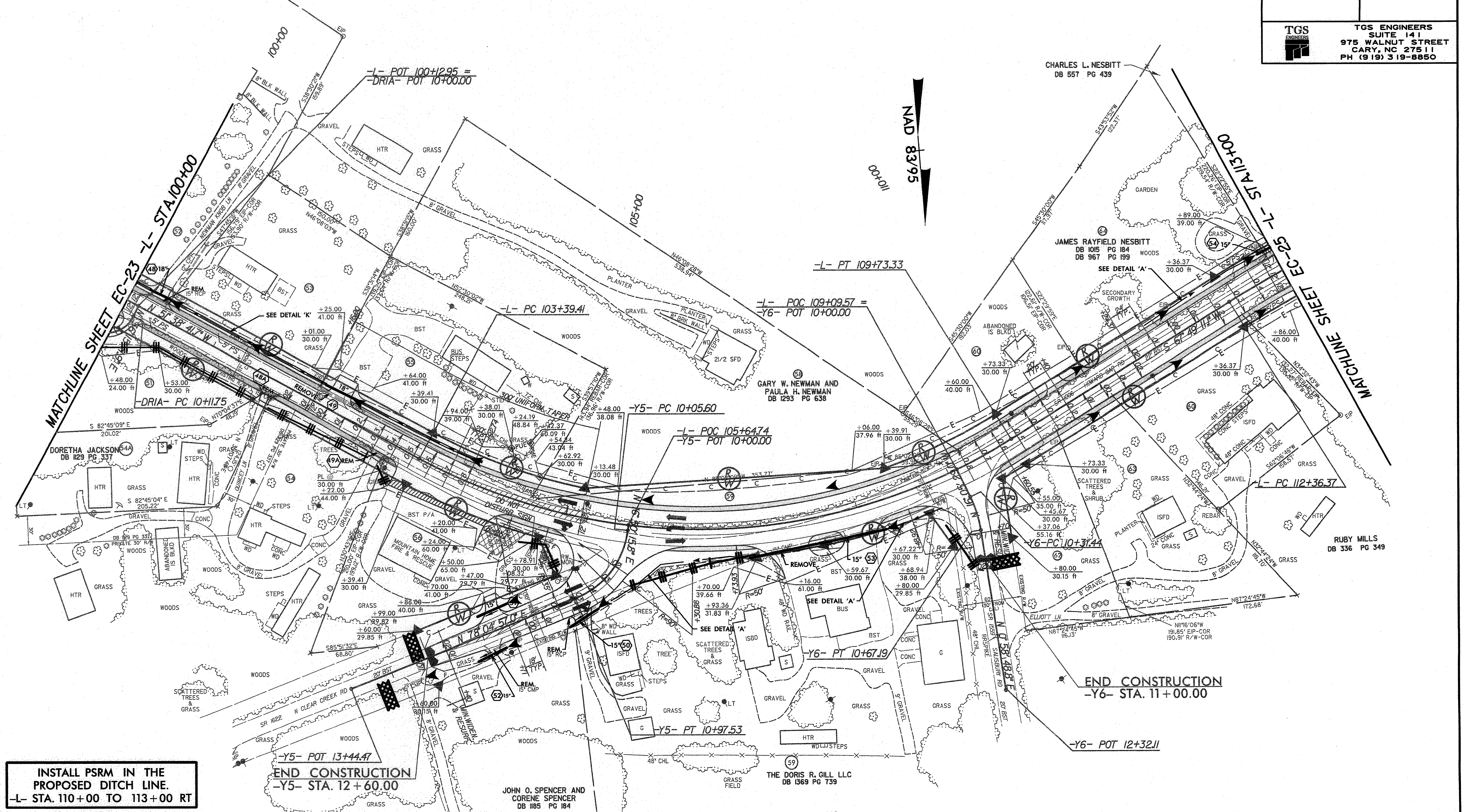


FROM -L- STA. 96+00 TO STA. 104+00 LT
USE -L- GRADE FOR DETAIL 'K'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM -Y5- STA. 10+83 LT TO -L- STA. 106+86 RT
FROM -L- STA. 108+20 TO STA. 108+80 RT
FROM -L- STA. 111+50 TO STA. 113+90 LT



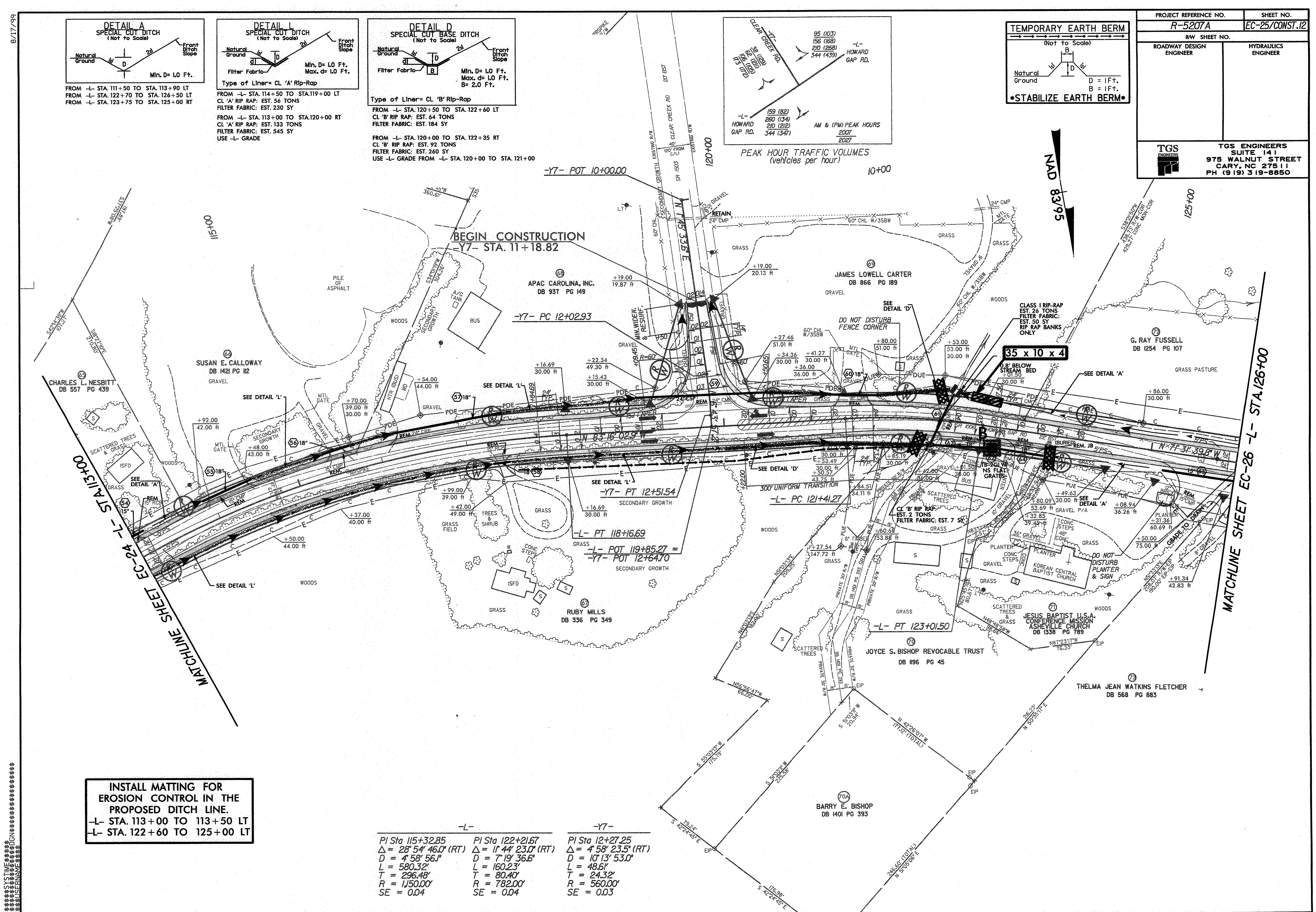
INSTALL PSRM IN THE PROPOSED DITCH LINE.
-L- STA. 110+00 TO 113+00 RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 104+00 TO 110+00 LT
-L- STA. 111+50 TO 113+00 LT

-DRIA-	-Y5-	-L-	-L-	-Y6-
PI Sta 10+43.18	PI Sta 10+56.50	PI Sta 106+89.57	PI Sta 115+32.85	PI Sta 10+49.45
Δ = 92° 40' 38.0" (RT)	Δ = 61° 14' 41.2" (RT)	Δ = 60° 32' 07.1" (LT)	Δ = 28° 54' 46.0" (RT)	Δ = 17° 04' 17.8" (RT)
D = 190° 59' 09.4"	D = 66° 37' 22.8"	D = 9° 32' 57.5"	D = 4° 58' 56.1"	D = 47° 44' 47.3"
L = 48.53'	L = 91.93'	L = 633.92'	L = 580.32'	L = 35.75'
T = 31.44'	T = 50.91'	T = 350.16'	T = 296.48'	T = 18.01'
R = 30.00'	R = 86.00'	R = 600.00'	R = 1,150.00'	R = 120.00'
	SE = 0.04	SE = 0.08	SE = 0.04	SE = 0.01

8/17/99

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$


PROJECT REFERENCE NO.
R-5207A
SHEET NO.
EC-25/CONST.12
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850
8/17/99
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D= 1.0 Ft.
FROM -L- STA. 111+50 TO STA. 113+90 LT
FROM -L- STA. 122+70 TO STA. 126+50 LT
FROM -L- STA. 123+75 TO STA. 125+00 RT
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)
Filter Fabric
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CL 'A' Rip-Rap
FROM -L- STA. 114+50 TO STA.119+00 LT
CL 'A' RIP RAP: EST. 56 TONS
FILTER FABRIC: EST. 230 SY
FROM -L- STA. 113+00 TO STA.120+00 RT
CL 'A' RIP RAP: EST. 133 TONS
FILTER FABRIC: EST. 545 SY
USE -L- GRADE
DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
Type of Liner= CL 'B' Rip-Rap
FROM -L- STA. 120+50 TO STA. 122+60 LT
CL 'B' RIP RAP: EST. 64 TONS
FILTER FABRIC: EST. 184 SY
FROM -L- STA. 120+00 TO STA. 122+35 RT
CL 'B' RIP RAP: EST. 92 TONS
FILTER FABRIC: EST. 260 SY
USE -L- GRADE FROM -L- STA. 120+00 TO STA. 121+00
PEAK HOUR TRAFFIC VOLUMES
(vehicles per hour)
AM & (PM) PEAK HOURS
2007
2027
-Y7- CLEAR CREEK RD.
-L- HOWARD GAP RD.
TEMPORARY EARTH BERM
(Not to Scale)
Natural Ground
D = 1Ft.
B = 1Ft.
•STABILIZE EARTH BERM•
NAD 83/95
BEGIN CONSTRUCTION
-Y7- STA. 11+18.82
-Y7- POT 10+00.00
-Y7- PC 12+02.93
-Y7- PT 12+51.54
-L- PC 121+41.27
-L- PT 118+16.69
-L- POT 119+85.27 = -Y7- POT 12+64.70
-L- PT 123+01.50
N 83°16'02.9" W
N 71°31'39.8" W
N 1°45'33.6" E
35 x 10 x 4
CLASS I RIP-RAP
EST. 26 TONS
FILTER FABRIC:
EST. 50 SY
RIP RAP BANKS ONLY
CL 'B' RIP RAP:
EST. 2 TONS
FILTER FABRIC: EST. 7 SY
DO NOT DISTURB FENCE CORNER
DO NOT DISTURB PLANTER & SIGN
300' UNIFORM TRANSITION
APAC CAROLINA, INC.
DB 937 PG 149
SUSAN E. CALLOWAY
DB 1421 PG 112
CHARLES L. NESBITT
DB 557 PG 439
JAMES LOWELL CARTER
DB 866 PG 189
G. RAY FUSSELL
DB 1254 PG 107
RUBY MILLS
DB 336 PG 349
JESUS BAPTIST U.S.A.
CONFERENCE MISSION
ASHEVILLE CHURCH
DB 1338 PG 789
KOREAN CENTRAL BAPTIST CHURCH
JOYCE S. BISHOP REVOCABLE TRUST
DB 1196 PG 45
THELMA JEAN WATKINS FLETCHER
DB 568 PG 883
BARRY E. BISHOP
DB 1401 PG 393
MATCHLINE SHEET EC-24 -L- STA.113+00
MATCHLINE SHEET EC-26 -L- STA.126+00
INSTALL MATTING FOR
EROSION CONTROL IN THE
PROPOSED DITCH LINE.
-L- STA. 113+00 TO 113+50 LT
-L- STA. 122+60 TO 125+00 LT
-L-
PI Sta 115+32.85
Δ = 28° 54' 46.0" (RT)
D = 4° 58' 56.1"
L = 580.32'
T = 296.48'
R = 1,150.00'
SE = 0.04
PI Sta 122+21.67
Δ = 11° 44' 23.0" (RT)
D = 7° 19' 36.6"
L = 160.23'
T = 80.40'
R = 782.00'
SE = 0.04
-Y7-
PI Sta 12+27.25
Δ = 4° 58' 23.5" (RT)
D = 10° 13' 53.0"
L = 48.61'
T = 24.32'
R = 560.00'
SE = 0.03

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-26/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

DETAIL M
SPECIAL LAT. BASE DITCH
(Not to Scale)

Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.

Type of Liner= CL 'B' Rip-Rap

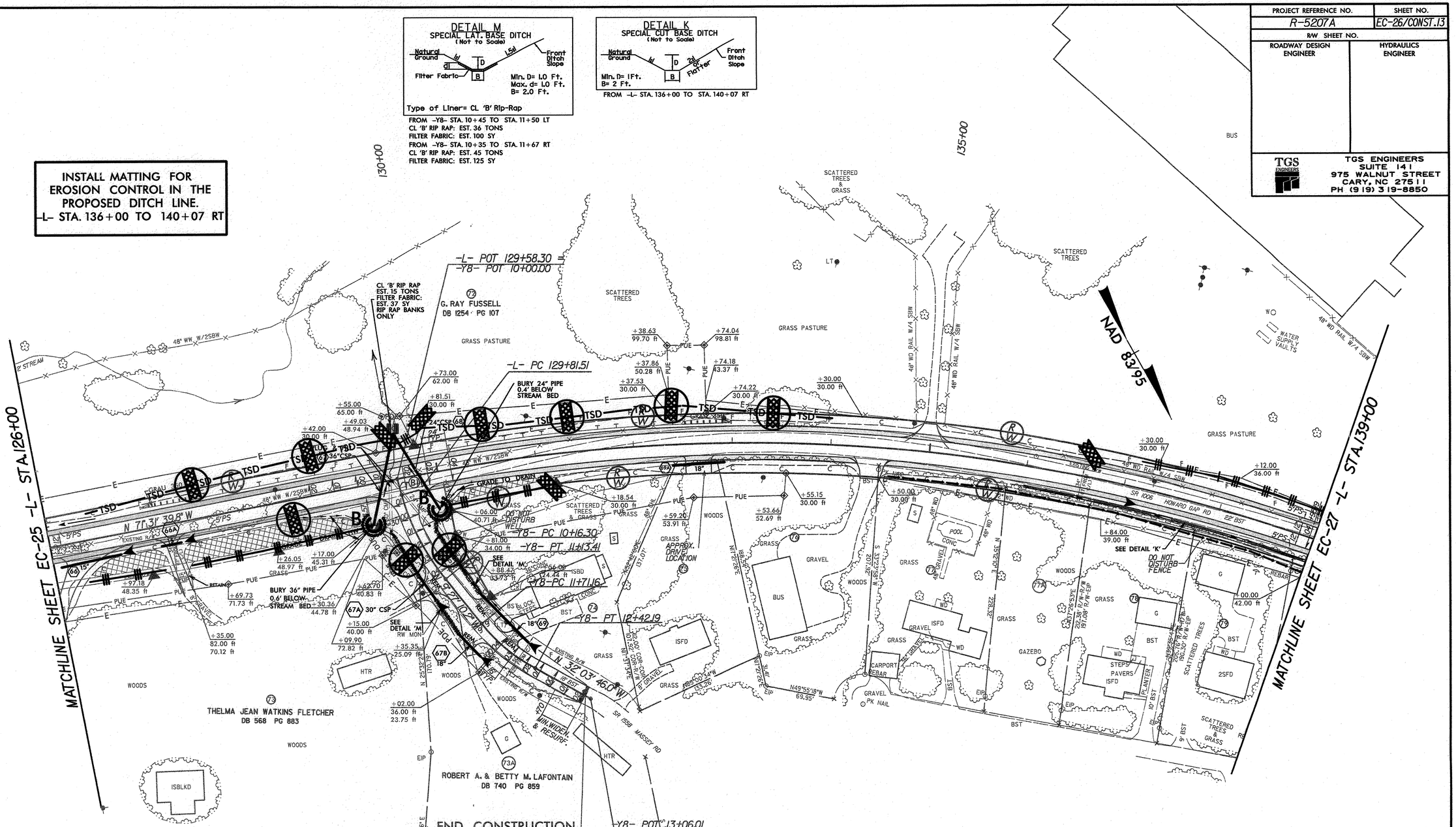
FROM -Y8- STA. 10+45 TO STA. 11+50 LT
CL 'B' RIP RAP: EST. 36 TONS
FILTER FABRIC: EST. 100 SY
FROM -Y8- STA. 10+35 TO STA. 11+67 RT
CL 'B' RIP RAP: EST. 45 TONS
FILTER FABRIC: EST. 125 SY

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)

Min. D= 1Ft.
B= 2 Ft.

FROM -L- STA. 136+00 TO STA. 140+07 RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 136+00 TO 140+07 RT



PI Sta 10+65.53	PI Sta 12+07.14	PI Sta 134+66.49
Δ = 23° 11' 00.8" (LT)	Δ = 22° 36' 35.8" (LT)	Δ = 31° 19' 11.4" (RT)
D = 23° 52' 23.7"	D = 31° 49' 51.6"	D = 3° 18' 42.8"
L = 97.11'	L = 71.03'	L = 945.68'
T = 49.23'	T = 35.98'	T = 484.98'
R = 240.00'	R = 180.00'	R = 1,730.00'
SE = 0.04	SE = 0.04	SE = 0.04

74	ELIAS LOPEZ AND MARIA DIAZ-BARCO	DB 1285 PG 251
75	ROSEMARY RICO	DB 1340 PG 198
76	SUPERIOR TESTING SERVICES, INC.	DB 1155 PG 330
77A	MARIA ELENA CASTELEIRO, ISELA MACHADO AND OLGA O. PRADO	DB 1306 PG 359
77	LOUIS JOHN NOA AND HEIDI LEOTA NOA	DB 1412 PG 190
78	JERONIMO GONZALEZ-ESTRADA AND ROSA I. GONZALEZ	DB 1294 PG 296
79	STANLEY LAWSON SCARBOROUGH	DB 710 PG 677

$$SYSTIME$$
$$USERNAME$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-27/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

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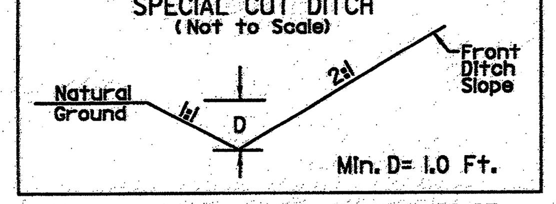
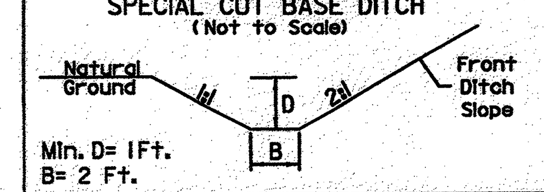
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



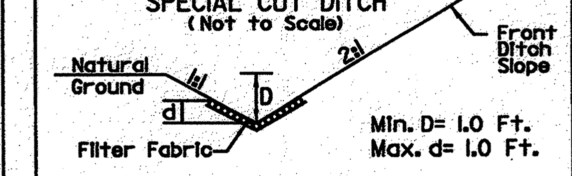
FROM -L- STA. 140+07 TO STA. 140+90 RT
FROM -L- STA. 143+00 TO STA. 145+50 LT
FROM -L- STA. 147+50 TO STA. 151+10 LT
FROM -L- STA. 151+80 TO STA. 152+50 RT

DETAIL K
SPECIAL CUT BASE DITCH
(Not to Scale)



FROM -L- STA. 136+00 TO STA. 140+07 RT
FROM -L- STA. 146+00 TO STA. 147+85 RT
FROM -L- STA. 149+00 TO STA. 151+80 RT

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)

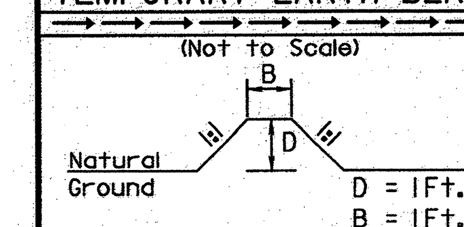


FROM -Y9- STA. 9+95 TO STA. 11+40 RT
CL 'A' RIP RAP: EST. 22 TONS
FILTER FABRIC: EST. 90 SY

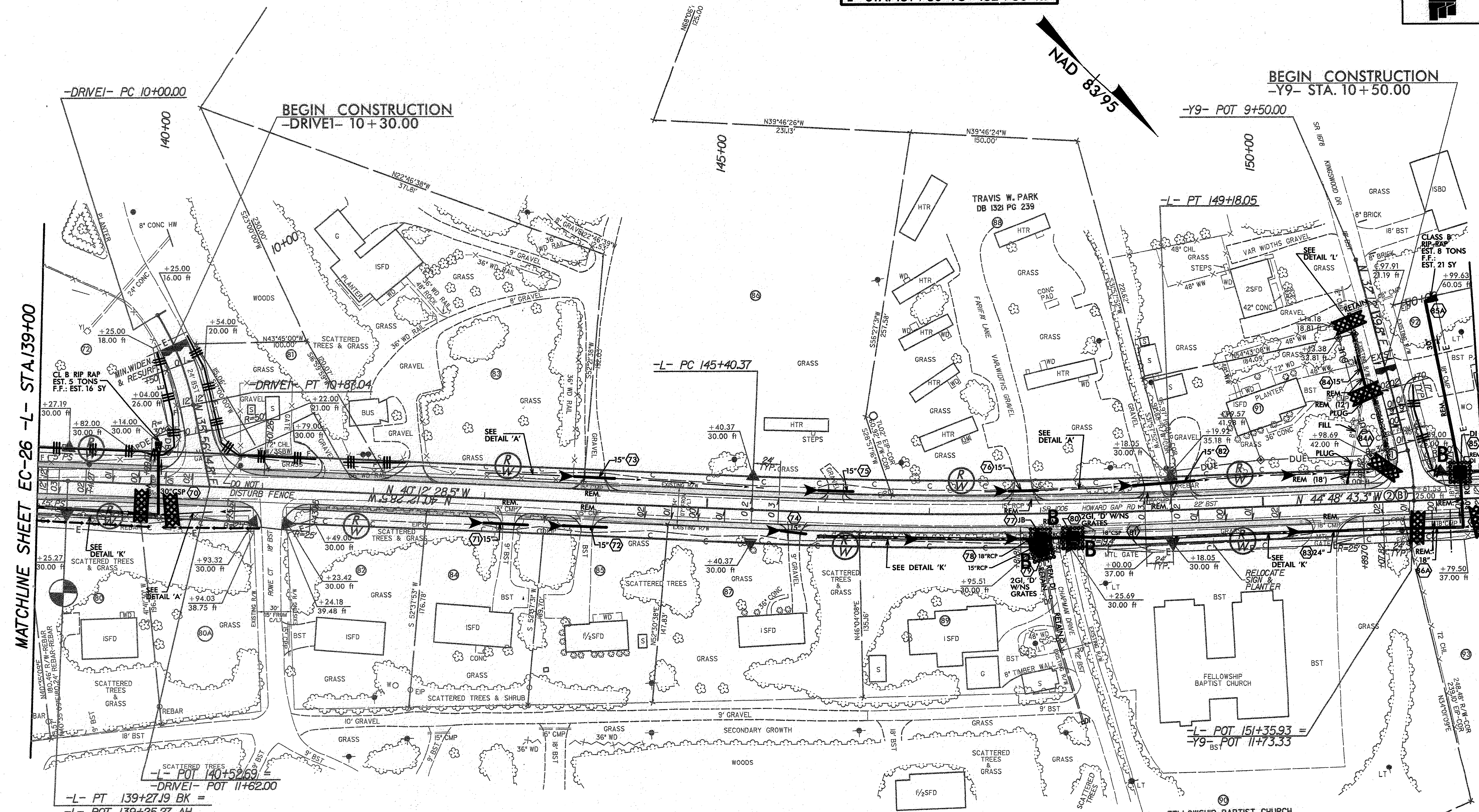
INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 141+50 TO 147+85 RT
-L- STA. 149+00 TO 151+80 RT
-L- STA. 143+00 TO 151+10 LT

INSTALL PSRM IN THE PROPOSED DITCH LINE.
-L- STA. 140+07 TO 140+90 RT
-L- STA. 151+80 TO 152+50 RT

TEMPORARY EARTH BERM
(Not to Scale)



STABILIZE EARTH BERM



72	G.RAY FUSSELL	DB 1254 PG 107
80	FRED O.BROOKS AND JEWEL C.BROOKS	DB 753 PG 25
80A	CYNTHIA JOY BROOKS	DB 1190 PG 390
81	PUBLIC SERVICE COMPANY OF NORTH CAROLINA	DB 331 PG 215
82	FRED DENNIS HOLDEN	DB 1216 PG 502
83	LARRY MONROE COX AND TARA J.COX	DB 961 PG 742
84	GENE GILLIAM	DB 1208 PG 165
85	FEDERAL NATIONAL MORTGAGE ASSOCIATION	DB 1442 PG 688
86	DAVID ROBERT COLLINS AND GLENDA JONES COLLINS	DB 948 PG 460
87	JUDY B.SINYARD	DB 615 PG 923
89	KENNETH R.WILKIE	DB 600 PG 879
91	JOSEPH MARION ALDERMAN AND PAULA L.ALDERMAN	DB 1116 PG 51
93	THE GARY KEITH KING REVOCABLE TRUST	DB 1087 PG 405

	-DRIVE1-	-L-	-L-	-L-	-Y9-
PI Sta	10+43.96	134+66.49	147+29.31	153+38.49	11+44.85
Δ =	19° 56' 51.9" (RT)	31° 19' 11.4" (RT)	4° 36' 14.8" (LT)	14° 24' 30.4" (LT)	12° 58' 34.5" (RT)
D =	22° 55' 05.9"	3° 18' 42.8"	1° 13' 08.6"	4° 07' 19.2"	38° 11' 49.9"
L =	87.04'	945.68'	377.68'	349.55'	33.97'
T =	43.96'	484.98'	188.94'	175.70'	17.06'
R =	250.00'	1,730.00'	4,700.00'	1,390.00'	150.00'
SE =	0.01	0.04	0.03	0.04	0.01

B1	N 45° 11' 14.3" E

1	-Y9- PC 11+27.79
2	-Y9- PT 11+61.76
3	-L- PC 151+62.79

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-28/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

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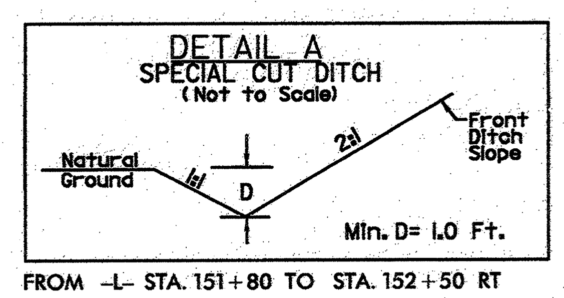
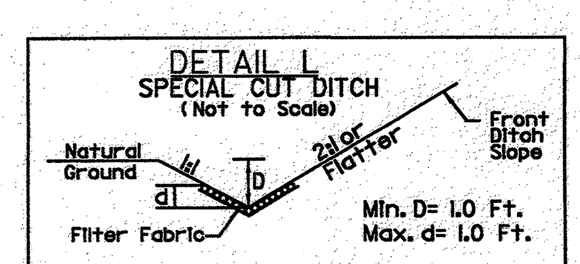


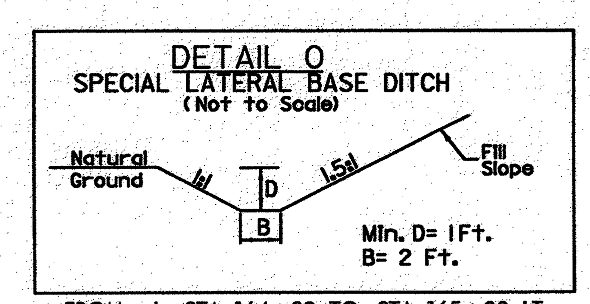
FROM -L- STA. 151+80 TO STA. 152+50 RT



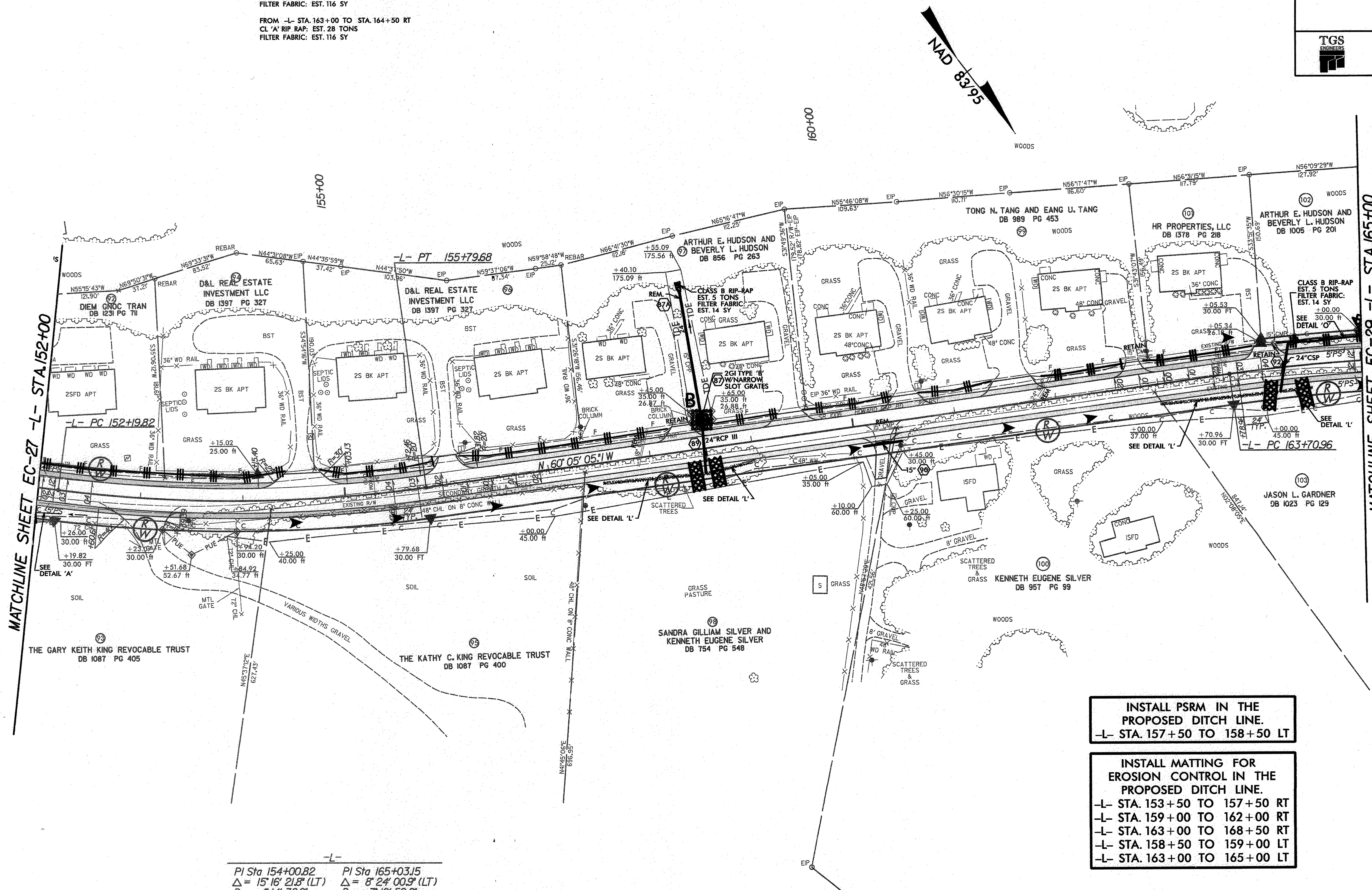
Type of Liner= CL 'A' Rip-Rap

FROM -L- STA. 157+50 TO STA. 159+00 RT
CL 'A' RIP RAP: EST. 28 TONS
FILTER FABRIC: EST. 116 SY

FROM -L- STA. 163+00 TO STA. 164+50 RT
CL 'A' RIP RAP: EST. 28 TONS
FILTER FABRIC: EST. 116 SY



FROM -L- STA. 164+32 TO STA. 165+00 LT



INSTALL PSRM IN THE PROPOSED DITCH LINE.
-L- STA. 157+50 TO 158+50 LT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
-L- STA. 153+50 TO 157+50 RT
-L- STA. 159+00 TO 162+00 RT
-L- STA. 163+00 TO 168+50 RT
-L- STA. 158+50 TO 159+00 LT
-L- STA. 163+00 TO 165+00 LT

-L-

PI Sta 154+00.82	PI Sta 165+03.15
Δ = 15°16' 21.8" (LT)	Δ = 8°24' 00.9" (LT)
D = 4°14' 38.9"	D = 3°10' 59.2"
L = 359.85'	L = 263.90'
T = 181.00'	T = 132.19'
R = 1,350.00'	R = 1,800.00'
SE = 0.04	SE = 0.04

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5207A	EC-29/CONST.16

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

-L-

PI Sta 164+07.43	PI Sta 173+96.71
Δ = 9° 07' 10.2" (RT)	Δ = 33° 06' 37.1" (RT)
D = 3° 10' 59.2"	D = 4° 14' 38.9"
L = 286.50'	L = 780.14'
T = 143.55'	T = 401.30'
R = 1,800.00'	R = 1,350.00'
SE = 0.04	SE = 0.05