TIP PROJECT: HL-0008I

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0008I	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

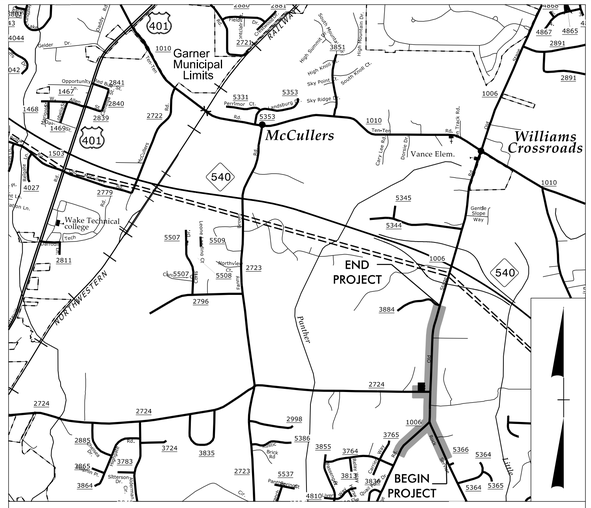
PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

WAKE COUNTY

LOCATION: WIDENING SR 1006 (OLD STAGE ROAD) FROM SR 2736 (ROCK SERVICE STATION ROAD) TO SR 3884 (ROLLING MEADOWS DRIVE)

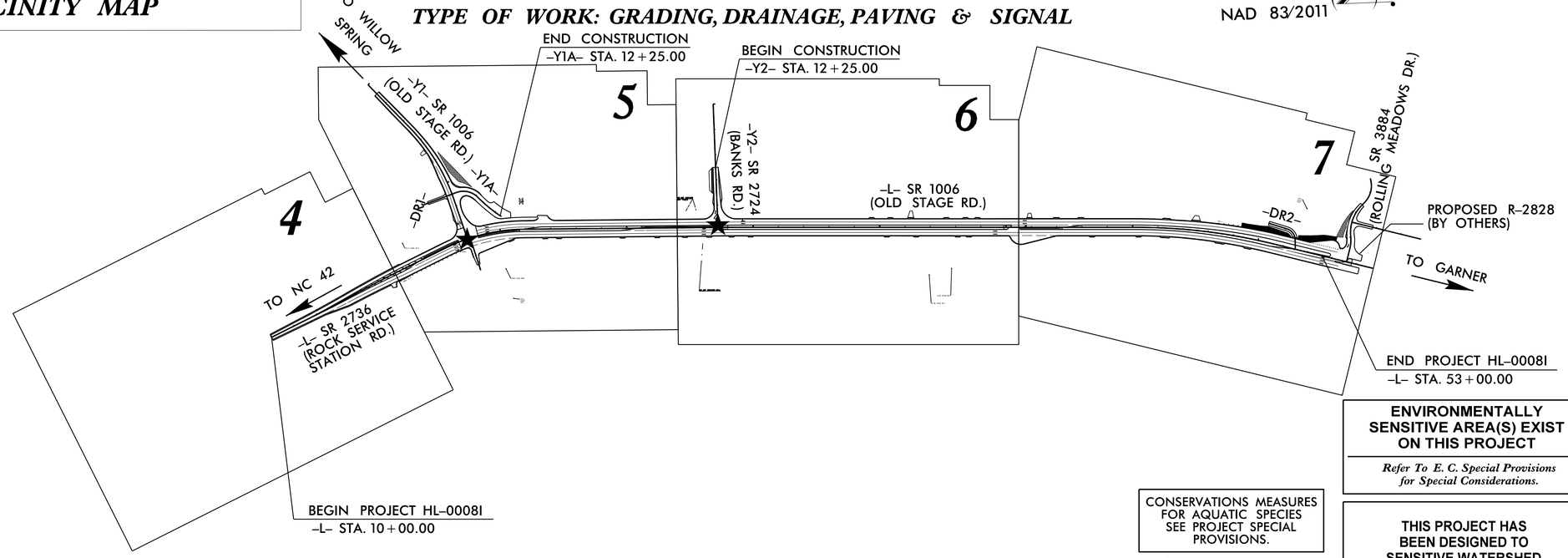
TYPE OF WORK: GRADING, DRAINAGE, PAVING & SIGNAL

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



VICINITY MAP

NAD 83/2011



ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

CONSERVATIONS MEASURES FOR AQUATIC SPECIES SEE PROJECT SPECIAL PROVISIONS.

★ PROPOSED SIGNAL

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.

SUMMIT
DESIGN AND ENGINEERING SERVICES
FIRM NO. C-5176

Prepared In the Office of:
320 Executive Ct.
Hillsborough, NC 27278-8551
Voice: (919)732-3883
Fax: (919)732-6776
www.summitde.com

Designed by:

Devon Hoyle — *4545*
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

12-AUG-2025 13:09
HL-0008I_EC_tsh.dgn
psrick_hor_road

PROJECT REFERENCE NO.	SHEET NO.
HL-0008I	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

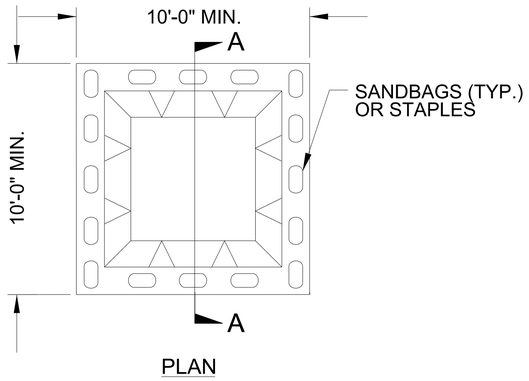
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

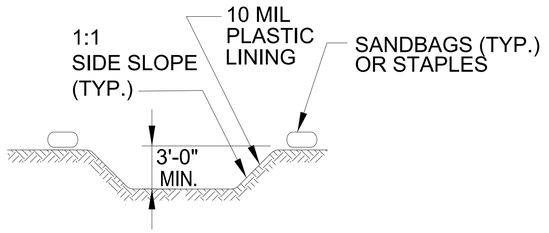
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

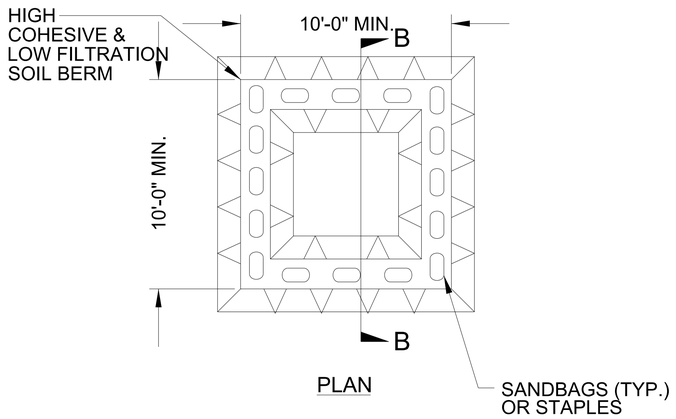
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

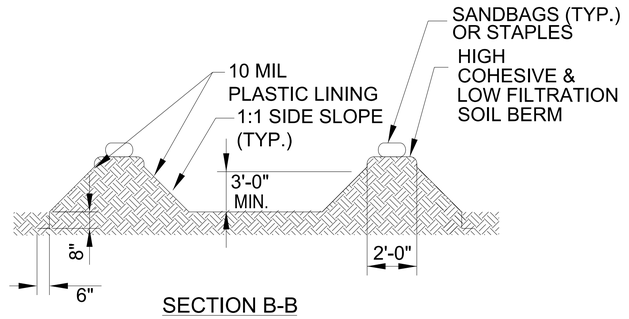
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

DITCH MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
UTILIZE STRAW MATERIAL FOR DITCH MATTING					
4/5	-L-	10+50	18+00	LT	490
5	-Y1-	10+50	13+50	LT	140
5	-Y1-	10+50	15+44	RT	235
5	-Y1-	15+50	16+90	RT	75
6	-L-	30+50	34+50	LT	215
6	-Y2-	12+50	14+31	LT	125
				SUBTOTAL	1280
UTILIZE EXCELSIOR MATERIAL FOR DITCH MATTING					
6	-L-	29+34	30+50	LT	65
				SUBTOTAL	65

SLOPE MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
7	-L-	49+50	53+00	LT	648
				SUBTOTAL	650
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					11270
				TOTAL	13300
				SAY	13300

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(919) 732-6676 (FAX)

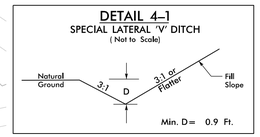
NAD 83/2011

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

REVISIONS
8/17/99

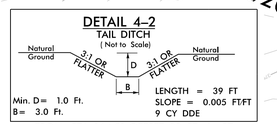
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

DETAIL 4-1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 10+50 TO STA. 15+50 -L- LT

DETAIL 4-2
TAIL DITCH
(Not to Scale)



FROM STA. 14+81 OFFSET 80 FT -L- RT

LINDA LOU COLLINS LAWRENCE
DB 1496 PG 396

STEVEN W. McADAMS AND WIFE, SHERRY McADAMS
DB 18286 PG 760

LEWIS C. WILKERSON ESTATE 15-E- PG 372
BM 1993 PG 1672

DEREK A. BEESE AND WIFE, MAUREEN M. BEESE
DB 16294 PG 899
BM 1993 PG 953

ROGER & SHARRON BALL
DB 6152 PG 251
BM 1994 PG 559

MICHAEL BALL
DB 13823 PG 312
BM 2002 PG 1879
1

CATHERINE RACKLEY
DB 13823 PG 303
BM 2018 PG 888
2

ANGUS H. NGUYEN AND TRUEPHUONG T. NGUYEN
DB 16866 PG 1966
BM 1998 PG 1211

KHALIL KHATIB AND BASMA NABABTEH
DB 19017 PG 1712
BM 1998 PG 1211

LEMASTER LIVING TRUST
DB 18369 PG 382
BM 1998 PG 1211

JOSHUA M. WETHERINGTON
DB 17149 PG 1069
BM 1998 PG 1211

DAVID BALL
DB 15768 PG 37
BM 2002 PG 1876
21

MARION WEST, SR. & MARY WEST
DB 1590 PG 651
22

BM#1
N: 685228
E: 2098243
-BY1- STA 14+74.08
O/S 170' RIGHT
ELEV.= 365.86'
BENCH TIE IN BASE
OF 22" MAPLE

-BY1-104
-BY1-102

440' WIDENING (LT/RT)
140' TAPER TO EX.(LT/RT)
100' TAPER
500' LANE

SPECIAL LATERAL V DITCH
SEE DETAIL 4-1

5 TONS CL B RIPRAP
14 SY GEOTEXTILE
TAIL DITCH
SEE DETAIL 4-2

PIPE CLEAN-OUT

DO NOT DISTURB IRRIGATION OUTLET

REMOVE

RETAIN

BEGIN 2'6" C&G -L- 7+32.72

MATCHLINE -L- STA. 15+50.00
(SEE SHEET 5)

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

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patrick.barnett

PROJECT REFERENCE NO.	SHEET NO.
HL-0008I	EC-5/CONST.5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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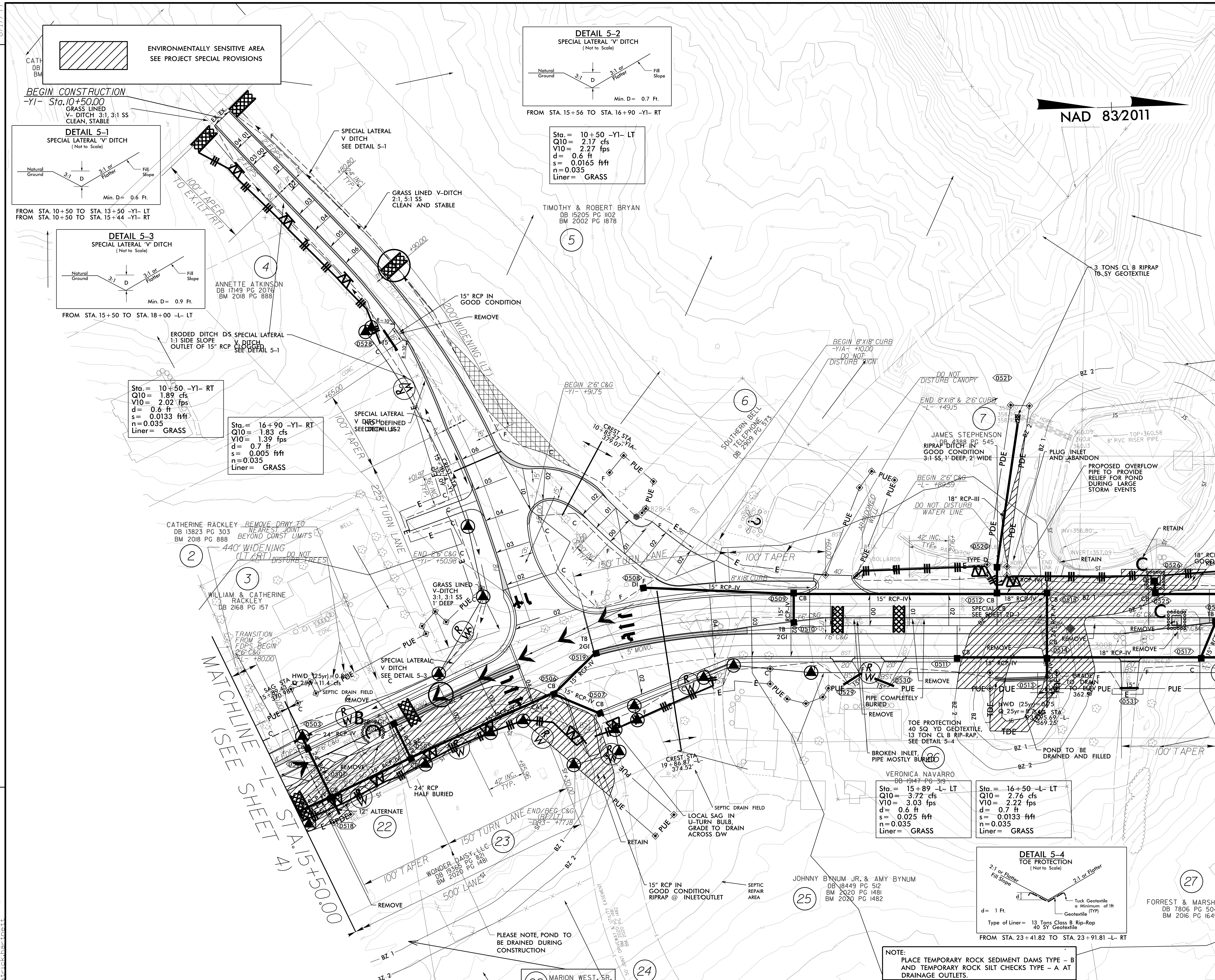
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5



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

12-AUG-2025 13:11 HL-0008I_EC_psh_5.dgn patrick.hartnett

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-6/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Hillsborough, NC 27278
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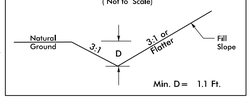
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

REVISIONS 8/17/99

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NAD 83/2011

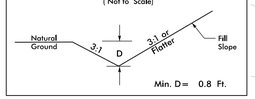
DETAIL 6-1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.1 Ft.

FROM STA. 12+50 TO STA. 14+31 -Y2- LT

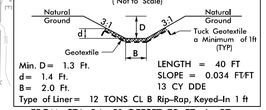
DETAIL 6-2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 0.8 Ft.

FROM STA. 29+34 TO STA. 34+50 -L- LT

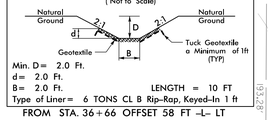
DETAIL 6-3
TAIL DITCH
(Not to Scale)



Min. D= 1.3 Ft.
d= 1.4 Ft.
B= 2.0 Ft.
Type of Liner= 12 TONS CL B Rip-Rap, Keyed-In 1 ft
LENGTH = 40 FT
SLOPE = 0.034 FT/FT
13 CY DDE

FROM STA. 34+91 OFFSET 72 FT -L- RT

DETAIL 6-4
COUNTERSUNK RIPRAP PAD
(Not to Scale)



Min. D= 2.0 Ft.
d= 2.0 Ft.
B= 2.0 Ft.
Type of Liner= 6 TONS CL B Rip-Rap, Keyed-In 1 ft
LENGTH = 10 FT

FROM STA. 36+66 OFFSET 58 FT -L- LT

COUNTERSUNK RIPRAP PAD
SEE DETAIL 6-4
6 TONS CL B RIPRAP
12 SY GEOTEXTILE

SPECIAL LATERAL V DITCH
SEE DETAIL 6-1

SPECIAL LATERAL V DITCH
SEE DETAIL 6-2

RIPRAP LINED TAIL DITCH
SEE DETAIL 6-3
12 TONS CL B RIPRAP
25 SY GEOTEXTILE
13 CY OF EXCAVATION

2 TONS CL B RIPRAP
7 SY GEOTEXTILE

MATCHLINE -L- STA. 27+00.00
(SEE SHEET 5)

MATCHLINE -L- STA. 40+50.00
(SEE SHEET 7)

8 JAMES STEPHENSON
WB 00-E PG 275
BM 1993 PG 1100

9 DURWOOD BALL
DB 13823 PG 321
BM 2002 PG 1877
BM 2013 PG 150
BM 2013 PG 499

10 DURWOOD BALL
DB 13823 PG 321
BM 2013 PG 499

11 PEGGY ARNOLD
WB 10-E PG 3304
DB 2455 PG 248

12 PEGGY ARNOLD
WB 10-E PG 3304
DB 2665 PG 341

13 MARR LIMITED PARTNERSHIP OF NC
DB 13296 PG 266

14 JAMES GODWIN
DB 6727 PG 807
BM 1982 PG 305

15 JAMES & PHYLLIS GODWIN
DB 8266 PG 592
BM 1982 PG 305

28 FORREST & MARSHA BALL
DB 7866 PG 6564
BM 2016 PG 1645

29 MARION WEST, JR. & DONNA WEST
DB 5963 PG 805

30 MARY T BALL PROPERTIES LLC
DB 15114 PG 2782
TRACT EIGHT

31 MARY BALL
WB 08-E PG 500
BM 2009 PG 1005

32 LEE & CAROLINE WILLIS
DB 13707 PG 1112
BM 2009 PG 1005

33 JAMES, JR. & DAVILENE KING
DB 6202 PG 128

34 MARY T BALL PROPERTIES LLC
DB 15114 PG 2782
TRACT SIX

BM#2
N: 687,139
E: 2,097,890
-BL- STA 23+79.00
O/S 197 RIGHT
ELEV.= 380.00'
BENCH TIE IN BASE
OF 8" MAPLE

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.	SHEET NO.
HL-0008I	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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320 Executive Ct
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

DETAIL 7-1
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)

Natural Ground; Natural Bed Elevation; Natural Ground; Class 'I' Rip Rap w/Geotextile (Typ.) on Bank; Tuck Geotextile a Minimum of 1ft (TYP); *Place Geotextile Under Riprap in Locations Directed by Engineer; d; Channel Bed (Variable); Class 'B' Rip Rap (Countersunk) w/Geotextile (Typ.)

B=3.0 Ft.
d=1.5 Ft.
Length= 12 Ft.
Type of Liner= 10 Tons CL 1 Rip-Rap – Keyed-In
Type of Liner= 3 Tons CL B Rip-Rap – Keyed-In
Type of Liner= 31 SY Geotextile

FROM STA. 52+68 TO STA. 52+75 -L- LT

DETAIL 7-2
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground; 3:1; d; D; B; 3:1 or Flatter; Fill Slope; Geotextile; Tuck Geotextile a Minimum of 1ft (TYP)

Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.

Type of Liner= 17 Tons Class B Rip-Rap
60 SY Geotextile

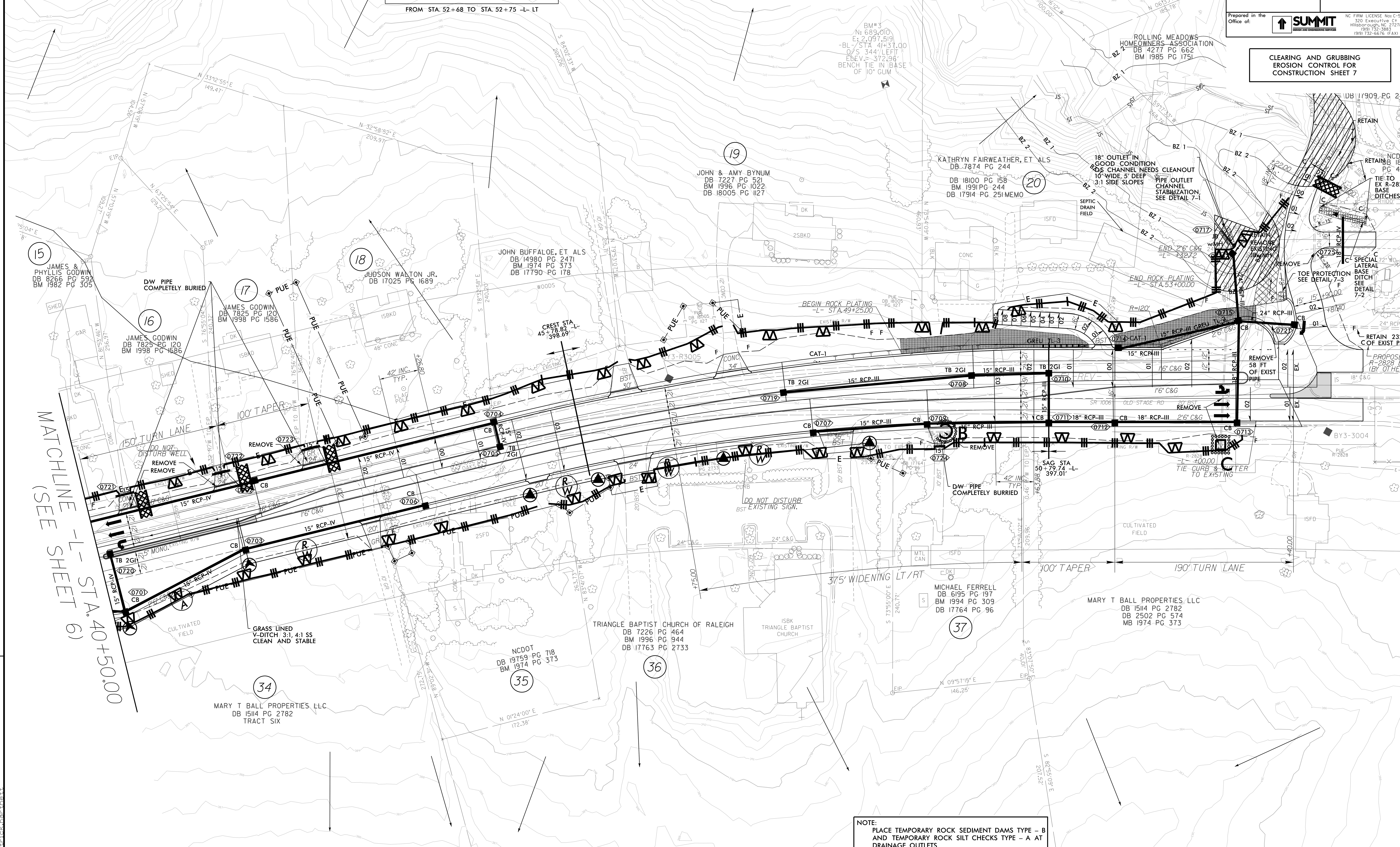
FROM STA. 10+25 TO STA. 10+75 -Y3A- LT

DETAIL 7-3
TOE PROTECTION
(Not to Scale)

Natural Ground; b; 2:1 or Flatter Fill Slope; d; Geotextile; Tuck Geotextile a Minimum of 1ft (TYP)

d= 2.5 Ft.
b= 1.0 Ft.
Type of Liner= 6 Tons CL B Rip-Rap
15 SY Geotextile

FROM STA. 11+00 TO STA. 11+10 -Y3- LT



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

REVISIONS

8/17/99

12-AUG-2025 13:11
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patrick.hartnett

PROJECT REFERENCE NO.	SHEET NO.
HL-0008I	EC-8/CONST.7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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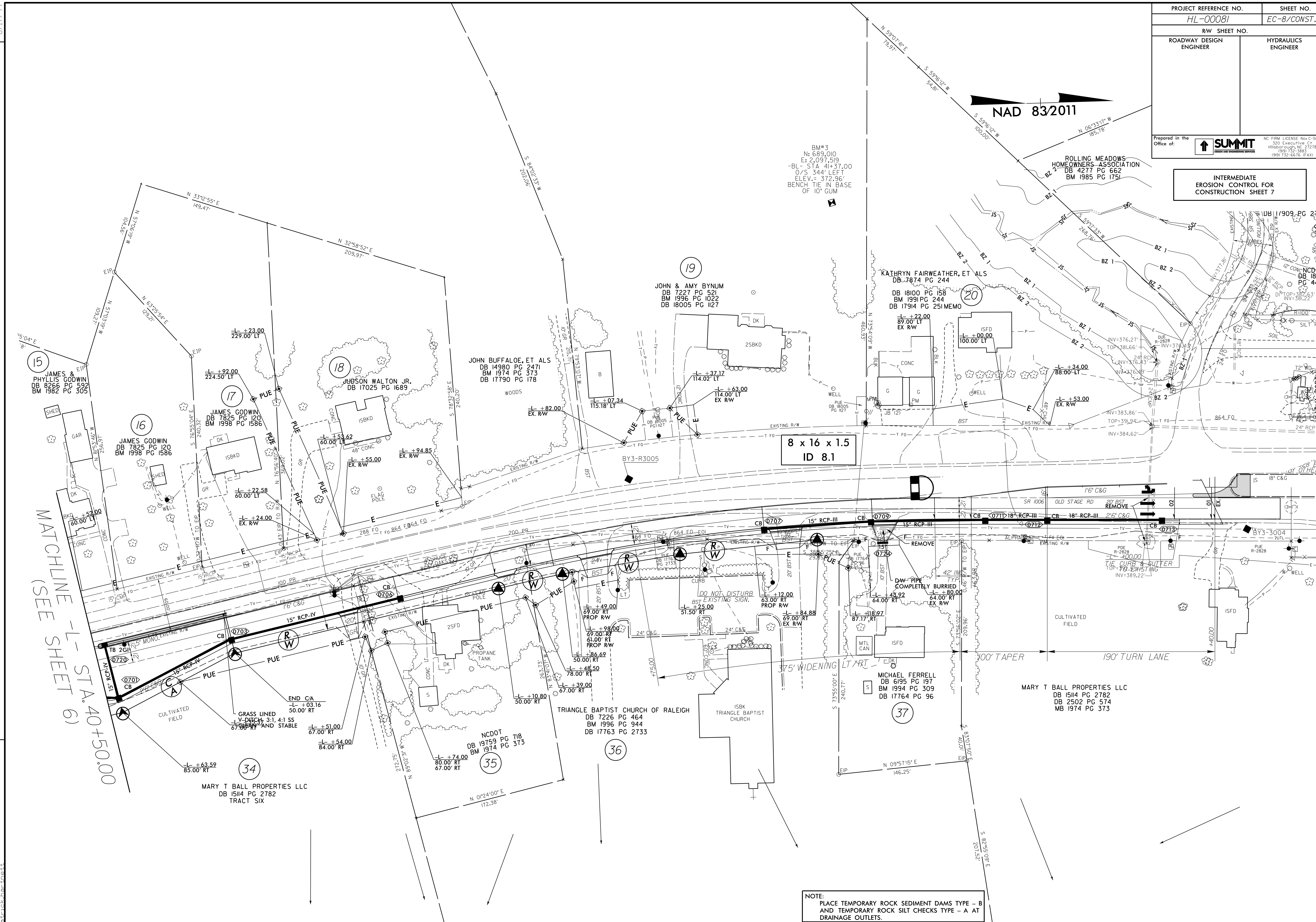
(919) 732-3883
(919) 732-6676 (FAX)

INTERMEDIATE EROSION CONTROL FOR CONSTRUCTION SHEET 7



NAD 83/2011
MATCHLINE -L- STA. 40+50.00 (SEE SHEET 6)
BM#3 N: 689,010 E: 2,097,519 -BL- STA 41+37.00 O/S 344' LEFT ELEV.= 372.96' BENCH TIE IN BASE OF 10" GUM
ROLLING MEADOWS HOMEOWNERS ASSOCIATION DB 4277 PG 662 BM 1985 PG 1751
KATHRYN FAIRWEATHER, ET ALS DB 7874 PG 244
DB 18100 PG 158 BM 1991 PG 244 DB 17914 PG 251 MEMO
JOHN & AMY BYNUM DB 7227 PG 521 BM 1996 PG 1022 DB 18005 PG 1127
JOHN BUFFALOE, ET ALS DB 14980 PG 2471 BM 1974 PG 373 DB 17790 PG 178
JUDSON WALTON JR. DB 17025 PG 1689
JAMES GODWIN DB 7825 PG 120 BM 1998 PG 1586
JAMES GODWIN DB 7825 PG 120 BM 1998 PG 1586
JAMES & PHYLLIS GODWIN DB 8266 PG 592 BM 1982 PG 305
8 x 16 x 1.5 ID 8.1
BY3-R3005
SR 1006 OLD STAGE RD 20' BST
375' WIDENING LT/RT
300' TAPER
190' TURN LANE
DO NOT DISTURB EXISTING SIGN.
DW PIPE COMPLETELY BURIED
END C/A
GRASS LINED V-DITCH, 3:1, 4:1 SS CLEAN AND STABLE
MARY T BALL PROPERTIES LLC DB 15114 PG 2782 TRACT SIX
NCDOT DB 19759 PG 718 BM 1974 PG 373
TRIANGLE BAPTIST CHURCH OF RALEIGH DB 7226 PG 464 BM 1996 PG 944 DB 17763 PG 2733
MICHAEL FERRELL DB 6195 PG 197 BM 1994 PG 309 DB 17764 PG 96
MARY T BALL PROPERTIES LLC DB 15114 PG 2782 DB 2502 PG 574 MB 1974 PG 373
CULTIVATED FIELD
BY3-3004
TIE CURB & GUTTER TO EXISTING

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

8/17/99

REVISIONS

12-AUG-2025 13:11
HL-0008I_EC_psh_8.dgn
patrick.bartlett

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-9/CONST.4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

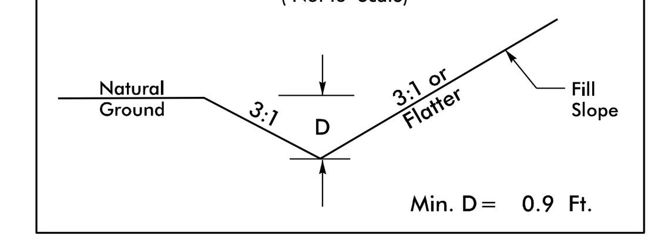
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: C-5176
320 Executive Ct
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

REVISIONS

-L-

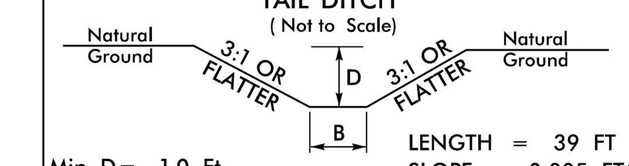
PI Sta 12+46.24	PI Sta 14+49.03
△ = 2° 12′ 19.7″ (LT)	△ = 2° 26′ 31.1″ (RT)
D = 1° 08′ 45.3″	D = 1° 08′ 45.3″
L = 192.46′	L = 213.10′
T = 96.24′	T = 106.57′
R = 5,000.00′	R = 5,000.00′
SE = RC	SE = RC
RO = SEE PLANS	RO = 84′

DETAIL 4-1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



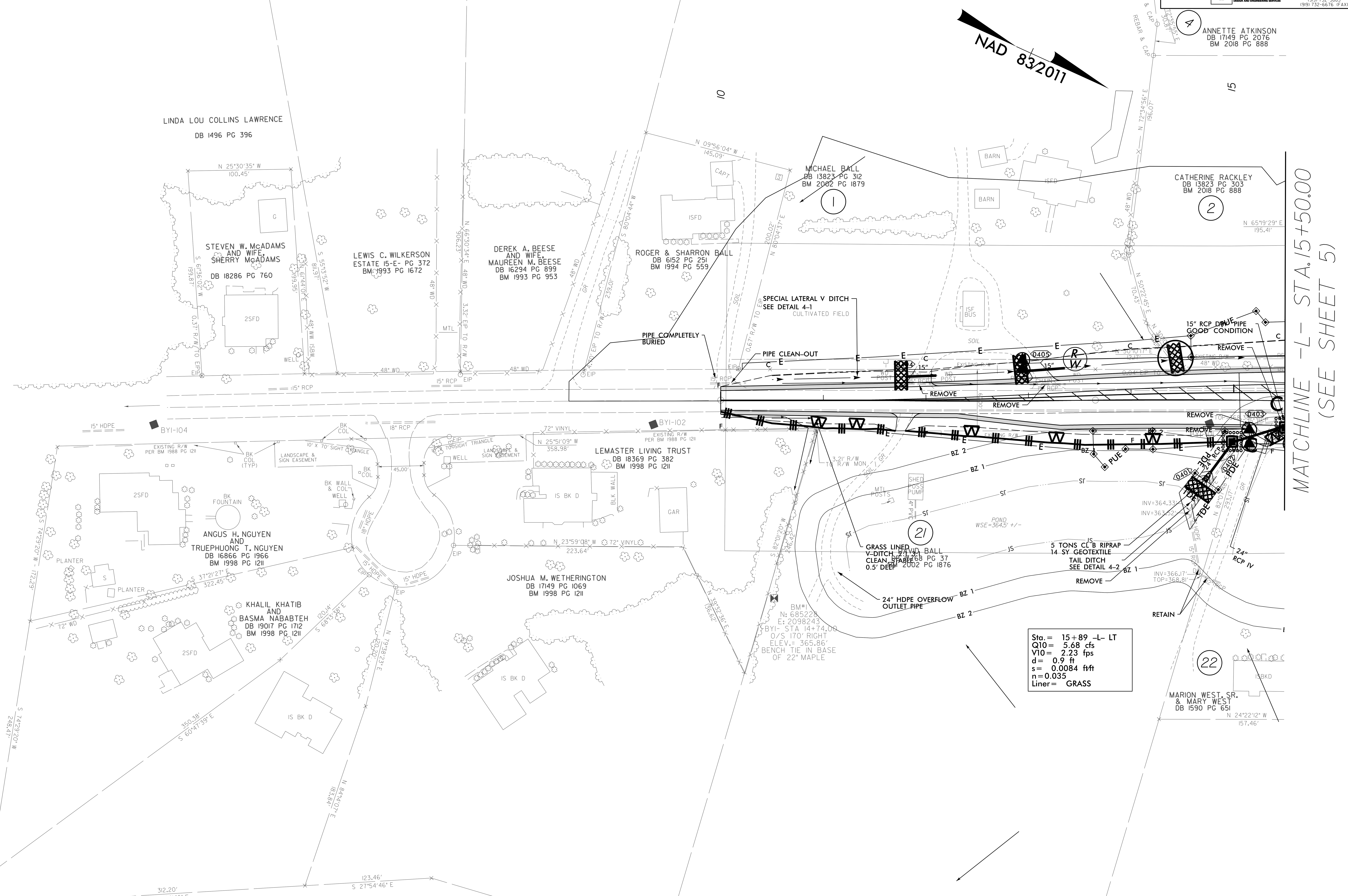
FROM STA. 10+50 TO STA. 15+50 -L- LT

DETAIL 4-2
TAIL DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.
LENGTH = 39 FT
SLOPE = 0.005 FT/FT
9 CY DDE

FROM STA. 14+81 OFFSET 80 FT -L- RT



NAD 83/2011
ANNETTE ATKINSON
DB 17149 PG 2076
BM 2018 PG 888
REBAR & CAP
LINDA LOU COLLINS LAWRENCE
DB 1496 PG 396
STEVEN W. McADAMS AND WIFE, SHERRY McADAMS
DB 18286 PG 760
LEWIS C. WILKERSON ESTATE 15-E- PG 372
BM 1993 PG 1672
DEREK A. BEESE AND WIFE, MAUREEN M. BEESE
DB 16294 PG 899
BM 1993 PG 953
ROGER & SHARRON BALL
DB 6152 PG 251
BM 1994 PG 559
MICHAEL BALL
DB 13823 PG 312
BM 2002 PG 1879
CATHERINE RACKLEY
DB 13823 PG 303
BM 2018 PG 888
SPECIAL LATERAL V DITCH
SEE DETAIL 4-1
CULTIVATED FIELD
PIPE COMPLETELY BURIED
PIPE CLEAN-OUT
15" RCP DRIVE PIPE GOOD CONDITION
REMOVE
MATCHLINE -L- STA.15+50.00
(SEE SHEET 5)
BY1-104
BY1-102
ANGUS H. NGUYEN AND TRUEPHUONG T. NGUYEN
DB 16866 PG 1966
BM 1998 PG 1211
LEMASTER LIVING TRUST
DB 18369 PG 382
BM 1998 PG 1211
JOSHUA M. WETHERINGTON
DB 17149 PG 1069
BM 1998 PG 1211
KHALIL KHATIB AND BASMA NABABTEH
DB 19017 PG 1712
BM 1998 PG 1211
GRASS LINED V-DITCH 2:1 CLEAN STABLE 0.5' DEEP
DAVID BALL
BM 2002 PG 1876
5 TONS CL B RIPRAP
14 SY GEOTEXTILE
TAIL DITCH
SEE DETAIL 4-2
24" HDPE OVERFLOW OUTLET PIPE
RETAIN
BM#1
N: 685228
E: 2098243
BY1- STA 14+74.00
O/S 170' RIGHT
ELEV.= 365.86'
BENCH TIE IN BASE OF 22" MAPLE
POND
MARION WEST, SR. & MARY WEST
DB 1590 PG 651

Sta. =	15+89 -L- LT
Q10 =	5.68 cfs
V10 =	2.23 fps
d =	0.9 ft
s =	0.0084 ft/ft
n =	0.035
Liner =	GRASS

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-10/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC FIRM LICENSE No: C-5176
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8/17/99

REVISIONS

NAD 83/2011

PC -Y1- Sta. 10+00.00

PT -Y1- Sta. 11+33.42

PC -Y1- Sta. 12+36.80

PT -Y1- Sta. 15+73.97

BEGIN CONSTRUCTION
-DR1- Sta.10+23.00
PT -DR1- Sta. 10+00.00

END CONSTRUCTION
-DR3- Sta.11+10.00

PT -L- Sta. 15+55.57

PC -L- Sta. 17+71.96

POT -Y1- Sta. 17+37.23
POT -L- Sta. 18+66.47

PT -L- Sta. 20+95.12

POT -Y1A- Sta. 10+00.00
POT -Y1- Sta. 15+50.00
POT -DR1- Sta. 11+25.00

PC -Y1A- Sta. 10+17.81

PRC -Y1A- Sta. 11+10.01
-DR3- POT Sta. 10+00.00=
-L- POC Sta.18+78.04

PCC -Y1A- Sta. 12+12.79

PT -Y1A-
Sta. 12+30.66

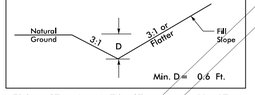
END CONSTRUCTION
-Y1A- Sta.12+25.00

END RESURFACING
-L- Sta.20+46.00

MATCHLINE -L- STA. 15+50.00 (SEE SHEET 4)

MATCHLINE -L- STA. 27+00.00 (SEE SHEET 6)

DETAIL 5–1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 0.6 Ft.

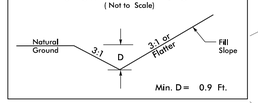
FROM STA. 10+50 TO STA. 13+50 –Y1– LT
FROM STA. 10+50 TO STA. 15+44 –Y1– RT

DETAIL 5–2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D= 0.7 Ft.

FROM STA. 15+56 TO STA. 16+90 –Y1– RT

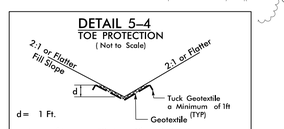
DETAIL 5–3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 0.9 Ft.

FROM STA. 15+50 TO STA. 18+00 –L– LT

DETAIL 5–4
TOE PROTECTION
(Not to Scale)



d= 1 Ft.

Type of Liner= 13 Tons Class B Rip–Rap
40 SY Geotextile

FROM STA. 23+41.82 TO STA. 23+91.81 –L– RT

Sta.= 10+50 –Y1– LT
Q10= 2.17 cfs
V10= 2.27 fps
d= 0.6 ft
s= 0.0165 ft/ft
n=0.035
Liner= GRASS

Sta.= 10+50 –Y1– RT
Q10= 1.89 cfs
V10= 2.02 fps
d= 0.6 ft
s= 0.0133 ft/ft
n=0.035
Liner= GRASS

Sta.= 16+90 –Y1– RT
Q10= 1.83 cfs
V10= 1.39 fps
d= 0.7 ft
s= 0.005 ft/ft
n=0.035
Liner= GRASS

Sta.= 15+89 –L– LT
Q10= 3.72 cfs
V10= 3.03 fps
d= 0.6 ft
s= 0.025 ft/ft
n=0.035
Liner= GRASS

Sta.= 16+50 –L– LT
Q10= 2.76 cfs
V10= 2.22 fps
d= 0.7 ft
s= 0.0133 ft/ft
n=0.035
Liner= GRASS

CATHERINE RACKLEY
DB 13823 PG 303
BM 2018 PG 888

ANNETTE ATKINSON
DB 17149 PG 2076
BM 2018 PG 888

TIMOTHY & ROBERT BRYAN
DB 15205 PG 1102
BM 2002 PG 1878

SOUTHERN BELL TELEPHONE
DB 2809 PG 153

JAMES STEPHENSON
DB 4288 PG 545
RIPRAP DITCH IN GOOD CONDITION
3:1 SS, 1' DEEP, 2' WIDE

JAMES STEPHENSON
WB 00-E PG 275
BM 1993 PG 1100

WILLIAM & CATHERINE RACKLEY
DB 2168 PG 157

WONDER DAISY, LLC
DB 13565 PG 821
BM 2020 PG 1481

VERONICA NAVARRO
DB 1947 PG 319

JOHNNY BYNUM JR. & AMY BYNUM
DB 18449 PG 512
BM 2020 PG 1481
BM 2020 PG 1482

FORREST & MARSHA BALL
DB 7806 PG 504
BM 2016 PG 1645

FORREST & MARSHA BALL
DB 7806 PG 504
BM 2016 PG 1645

MARION WEST, SR. & MARY WEST

GRASS LINED V– DITCH 3:1, 3:1 SS CLEAN, STABLE

SPECIAL LATERAL V DITCH SEE DETAIL 5–1

GRASS LINED V–DITCH 2:1, 5:1 SS CLEAN AND STABLE

15" RCP IN GOOD CONDITION

REMOVE

ERODED DITCH D/S SPECIAL LATERAL 1:1 SIDE SLOPE OUTLET OF 15" RCP CLEANED

SPECIAL LATERAL V DITCH SEE DETAIL 5–2

SPECIAL LATERAL V DITCH SEE DETAIL 5–3

GRASS LINED V–DITCH 3:1, 3:1 SS 1' DEEP

12" ALTERNATE

24" RCP HALF BURIED

LOCAL SAG IN U–TURN BULB, GRADE TO DRAIN ACROSS D/W

15" RCP IN GOOD CONDITION RIPRAP @ INLET/OUTLET

SEPTIC REPAIR AREA

PLEASE NOTE, POND TO BE DRAINED DURING CONSTRUCTION

3 TONS CL B RIPRAP
TO SY GEOTEXTILE

PLUG INLET AND ABANDON

PROPOSED OVERFLOW PIPE TO PROVIDE RELIEF FOR POND DURING LARGE STORM EVENTS

TWO DEFINED DITCH
18" RCP IN RCP–IV
GOOD CONDITION

PIPE COMPLETELY BURIED

TOE PROTECTION
40 SQ YD GEOTEXTILE,
13 TON CL B RIP–RAP,
SEE DETAIL 5–4

BROKEN INLET, PIPE MOSTLY BURIED

POND TO BE DRAINED AND FILLED

HWD (25yr)= 0.75
Q 25yr= 8.7

HWD (25yr)= 0.80
Q 25yr= 11.4 cfs

SEPTIC DRAIN FIELD

GRADE TO DRAIN ELEV 362.85

TB 2GI

CB

RETAIN

REMOVE

PUE

TDE

BZ 1

BZ 2

12-AUG-2025 13:11
U:\projects\HL-00081\Design\Roadway\sheets\HL-00081_EC_10.dgn
patrick.hartley

PROJECT REFERENCE NO.	SHEET NO.
HL-00081	EC-11/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: C-5176
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Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

REVISIONS 8/17/99

NAD 83/2011

MATCHLINE -L- STA. 27+00.00 (SEE SHEET 5)

MATCHLINE -L- STA. 40+50.00 (SEE SHEET 7)

POT -Y2- Sta. 10+00.00

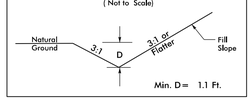
BEGIN CONSTRUCTION -Y2- Sta.12+50.00

PC -L- Sta. 28+79.02

POT -Y2- Sta. 14+87.70 = -L- Sta.28+60.88

PT -L- Sta. 29+80.99

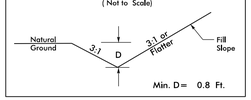
DETAIL 6-1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.1 Ft.

FROM STA. 12+50 TO STA. 14+31 -Y2- LT

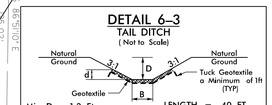
DETAIL 6-2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 0.8 Ft.

FROM STA. 29+34 TO STA. 34+50 -L- LT

DETAIL 6-3
TAIL DITCH
(Not to Scale)

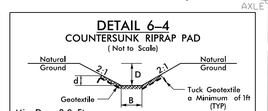


Min. D= 1.3 Ft.
d= 1.4 Ft.
B= 2.0 Ft.
Type of Liner= 12 TONS CL B Rip-Rap, Keyed-In 1 ft

LENGTH = 40 FT
SLOPE = 0.034 FT/FT
13 CY DDE

FROM STA. 34+91 OFFSET 72 FT -L- RT

DETAIL 6-4
COUNTERSUNK RIPRAP PAD
(Not to Scale)



Min. D= 2.0 Ft.
d= 2.0 Ft.
B= 2.0 Ft.
Type of Liner= 6 TONS CL B Rip-Rap, Keyed-In 1 ft

LENGTH = 10 FT

FROM STA. 36+66 OFFSET 58 FT -L- LT

8 JAMES STEPHENSON WB 00-E PG 275 BM 1993 PG 1100

DALVIS CONERLY DB 17816 PG 2410 BM 1993 PG 1100

9 DURWOOD BALL DB 13823 PG 321 BM 2002 PG 1877 BM 2013 PG 150 BM 2013 PG 499

10 DURWOOD BALL DB 13823 PG 321 BM 2002 PG 1877 BM 2013 PG 150 BM 2013 PG 499

11 PEGGY ARNOLD WB 10-E PG 3304 DB 2455 PG 248

12 PEGGY ARNOLD WB 10-E PG 3304 DB 2665 PG 341

13 MARR LIMITED PARTNERSHIP OF NC DB 13296 PG 2616

14 JAMES GODWIN DB 6727 PG 807 BM 1982 PG 305

15 JAMES & PHYLLIS GODWIN DB 8266 PG 592 BM 1982 PG 305

28 FORREST & MARSHA BALL DB 7806 PG 504 BM 2016 PG 1445

29 MARION WEST, JR. & DONNA WEST DB 5963 PG 805

30 MARY T BALL PROPERTIES LLC DB 15114 PG 2782 TRACT EIGHT

31 MARY BALL WB 08-E PG 500 BM 2009 PG 1005

32 LEE & CAROLINE WILLIS DB 13707 PG 1112 BM 2009 PG 1005

33 JAMES, JR. & DAVILENE KING DB 6202 PG 128

34 MARY T BALL PROPERTIES LLC DB 15114 PG 2782 TRACT SIX

BM#2 N: 687,139 E: 2,097,890 -BL- STA. 23+79.00 O/S 197 RIGHT ELEV.= 380.00' BENCH TIE IN BASE OF 8" MAPLE

GRASS LINED V-DITCH 3:1, 4:1 SS, 1' DEEP CLEAN AND STABLE

GRASS LINED V-DITCH 3:1, 4:1 SS, 1' DEEP. CLEAN AND STABLE

15" HDPE WITH FLARED END SECTION SPECIAL LATERAL V DITCH SEE DETAIL 6-1

18" RCP SLIGHTLY BROKEN, INLET ERODED DITCHES AT INLET

24" RCP-IV

GRASS LINED V-DITCH 4:1, 4:1 SS, 0.5' DEEP CLEAN AND STABLE

SPECIAL LATERAL V DITCH SEE DETAIL 6-2

D/W PIPE COMPLETELY BURIED

15" RCP WITH FLARED END SECTIONS U/S AND D/S

NO DEFINED DITCH

RIPRAP LINED TAIL DITCH SEE DETAIL 6-3 12 TONS CL B RIPRAP 25 SY GEOTEXTILE 13 CY OF EXCAVATION

GRASS LINED 2 FT BASE DITCH, 4:1 SIDE SLOPES, CLEAN, STABLE 2 TONS CL B RIPRAP 7 SY GEOTEXTILE

COUNTERSUNK RIPRAP PAD SEE DETAIL 6-4 6 TONS CL B RIPRAP 12 SY GEOTEXTILE

D/W PIPES COMPLETELY BURIED

U/S CHANNEL 2:1 SS, 2' DEEP HEAVILY VEGETATED

STANDING WATER AT INLET

15" RCP OUTLET BURIED

GRASS SWALE

RIPRAP LINED V-DITCH BETWEEN D/W-PIPE AND X-PIPE 2:1, 2:1 SS

15" RCP GOOD CONDITION

GRASS LINED V-DITCH 3:1, 4:1 SS 0.5' DEEP CLEAN AND STABLE

REMOVE

PUE

N 1° 39' 54.6" E

N 2° 11' 46.7" E

S 86° 58' 02.3" E

N 01°48'49" E 199.36'

S 20°25'44" W 165.09'

S 09°26'37" W 143.35'

S 08°47'24" W 349.35'

S 35°39'A 130.0'

N 35°-- 160.0'

04°56'33" E 129.06'

PROJECT REFERENCE NO.	SHEET NO.
HL-0008I	EC-I2/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(919) 732-6676 (FAX)

8/17/99

REVISIONS

-L-

PI Sta 47+88.68
△ = 13° 46′ 40.1″ (RT)
D = 2° 29′ 28.0″
L = 553.08′
T = 277.88′
R = 2,300.00′
SE = 03
RO = 126′

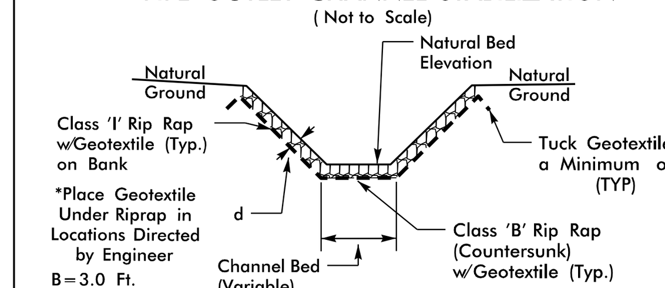
-DR2-

PI Sta 10+71.08
△ = 71° 42′ 11.4″ (LT)
D = 127° 19′ 26.2″
L = 56.32′
T = 32.52′
R = 45.00′

-Y3-

PI Sta 10+77.50	PI Sta 11+74.38	PI Sta 13+10.38
△ = 20° 04′ 19.6″ (LT)	△ = 50° 35′ 12.0″ (RT)	△ = 63° 12′ 10.0″ (LT)
D = 38° 11′ 49.9″	D = 38° 11′ 49.9″	D = 61° 23′ 53.1″
L = 52.55′	L = 132.44′	L = 102.94′
T = 26.55′	T = 70.88′	T = 57.41′
R = 150.00′	R = 150.00′	R = 93.32′
SE = 02	SE = 02	
RO = SEE PLANS	RO = 36′	

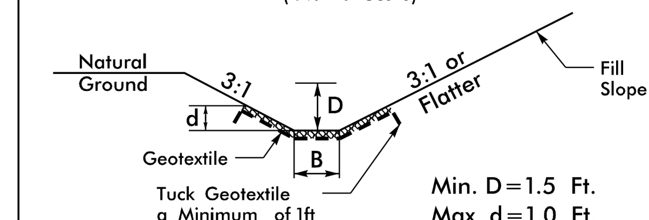
DETAIL 7-1
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



B=3.0 Ft.
d=1.5 Ft.
Length= 12 Ft.
Type of Liner= 10 Tons CL 1 Rip-Rap - Keyed-In
Type of Liner= 3 Tons CL B Rip-Rap - Keyed-In
Type of Liner= 31 SY Geotextile

FROM STA. 52+68 TO STA. 52+75 -L- LT

DETAIL 7-2
SPECIAL LATERAL BASE DITCH
(Not to Scale)

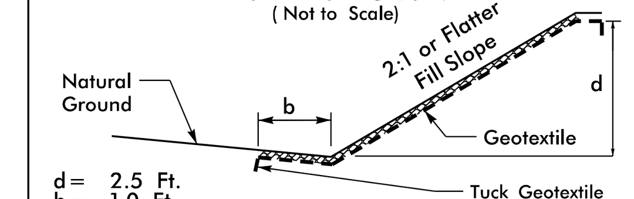


Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.

Type of Liner= 17 Tons Class B Rip-Rap
60 SY Geotextile

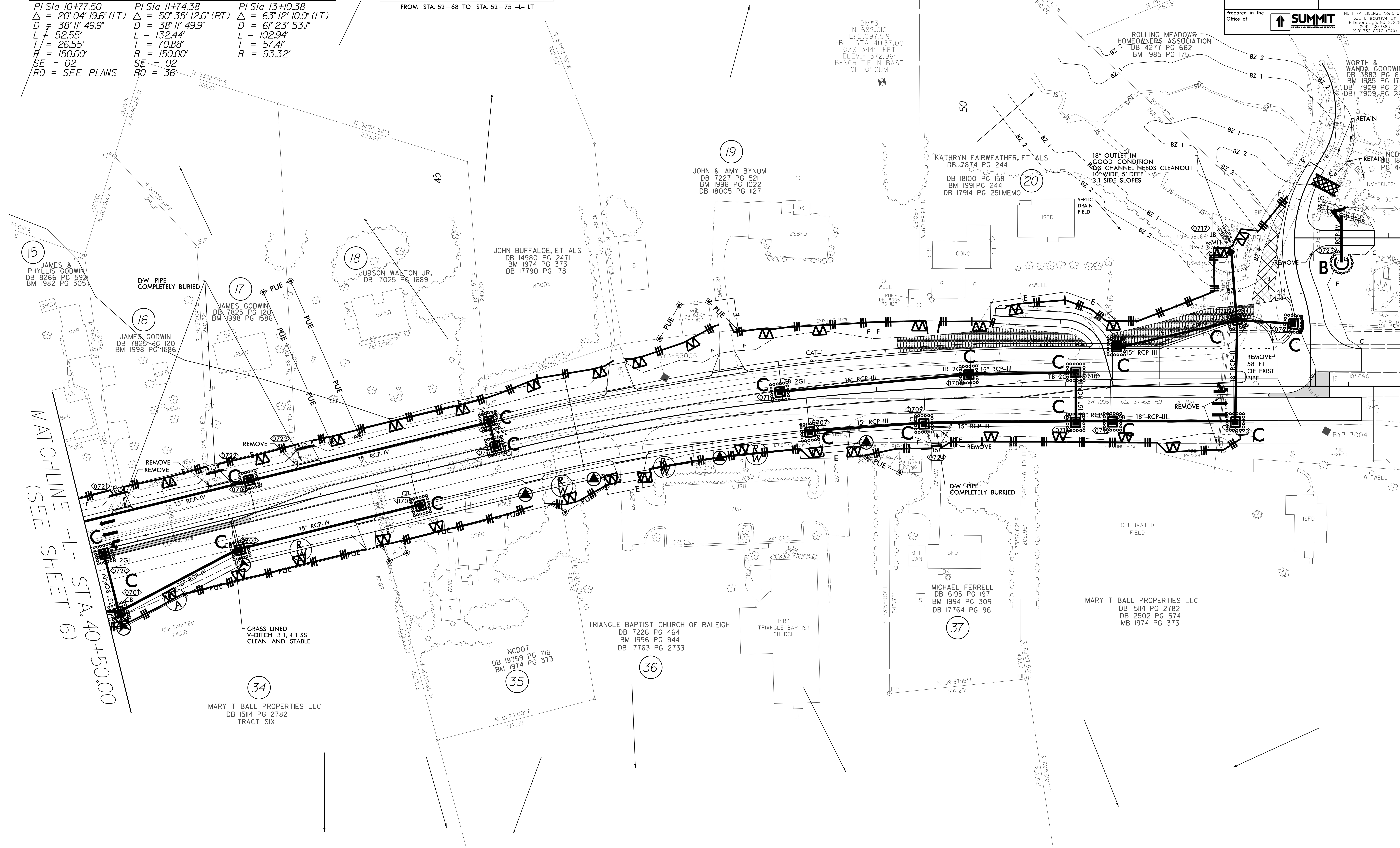
FROM STA. 10+25 TO STA. 10+75 -Y3A- LT

DETAIL 7-3
TOE PROTECTION
(Not to Scale)



d= 2.5 Ft.
b= 1.0 Ft.
Type of Liner= 6 Tons CL B Rip-Rap
15 SY Geotextile

FROM STA. 11+00 TO STA. 11+10 -Y3- LT



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