STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

May 21, 2010

Mr. Tom Walker
U.S. Army Corps of Engineers
Wilmington Field Office
P.O. Box 1890
Wilmington, NC 28402-1890

Subject: **Individual Section 404 Permit and Individual Water Quality Certification** for Fayetteville Outer Loop from I-95 South of Fayetteville to NC 24-87, Cumberland, Hoke, and Robeson Counties. Federal Aid Project No. NHF-DPR-0100(001), State Project No. 8.2441301, TIP Nos X-0002 B & C, and U-2519 AA, AB, BA, BB, CA, CB, DA, & E, Debit $570 from WBS 35196.3.19

Reference: Original Permit Application requested April 25, 2008
Section 404 Individual Permit issued October 23, 2008; USACE Permit No. SAW-2008-01413
Section 401 Water Quality Certification issued October 6, 2008; NCDWQ Project No. 003278

Dear Sir:

Please see the enclosed revised permit drawings, roadway plans, and a revised Privateer Wetland and Stream Mitigation Site Debit Ledger for the above referenced project. The wetland at site 10 (Sta. 13+66-14+06 -Y-) was inadvertently left off the original permit application. Compensatory Mitigation for the additional 0.24 acre of wetland impact has been debited from the Privateer Wetland and Stream Mitigation Site. In addition, the impact to the pond at site 3 (Sta. 105+15-105+70 -L-) increased from 0.72 acre to 0.73 acre and the impact to the pond at site 9 (Sta. 14+20 -Y-Rev) will be 2.54, which was unknown at the time of the original application.

Section 404 Permit: NCDOT requests that the U.S. Army Corps of Engineers (USACE) review this application and issue a modification for the Individual 404 Permit issued October 23, 2008, as required for the above-described activities.

Section 401 Permit: NCDOT requests that the NCDWQ review this application and issue a modification for the Individual 401 Certification issued October 6, 2008, as required for the above-described activities. In accordance with 15A NCAC 2H .0501(a) we are providing five copies of this modification request to the North Carolina Department of Environmental and Natural Resources for their approval and $570 to act as payment for processing the permit modification (see subject line).

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-431-2000
FAX: 919-431-2002
WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVENUE
SUITE 116
RALEIGH NC 27604

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Tyler Stanton at tstanton@ncdot.gov or (919) 431-6748.

Sincerely,

E. L. Fluck

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch

Cc:
W/attachment
Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Jennifer Derby, USEPA

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Greg Burns, P.E, Division 6 Engineer
Mr. Jim Rerko, Division 6 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Ms. Anne Deaton, NCDMF
Mr. Ron Sechler, NMFS
Mr. Michael Penney, P.E., PDEA
Mr. Phillip Ayscue, NCDOT External Audit Branch
Mr. Drew Joyner, PE, Human Environment Unit Head
Mr. Clarence W. Coleman, P.E., FHWA
Ms. LeiLani Paugh, NEU

Compensatory Mitigation

The Privateer Farms Restoration Site (Site) is located in Bladen and Cumberland Counties, North Carolina, approximately fourteen miles southeast of Fayetteville. Prior to restoration, land use on the Site over the past 20 years had been primarily row crop agriculture. Stream and riparian functions on the Site had been severely impacted as a result of agricultural conversion. Harrison Creek had historically meandered through the Site, but was channelized in the early 1980s to reduce flooding and provide a drainage outlet for the extensive network of ditches excavated across the Site. Subsequent to channelization, Harrison Creek existed as a large canal running straight through the Site.

Restoration activities for the Site involved moving the stream channel back to its historic location and elevation, and filling drainage ditches to raise the local water table and restore wetland and stream hydrology. The plan also included scarification of the fields and breaking of the local plow pan to increase surface water storage and provide a range of hydrologic conditions suitable for a variety of native wetland plant species. The restoration plan for the Site predicted the restoration of 405 acres of riverine wetlands, 25 acres of riverine wetland enhancement, and 33,985 linear feet (LF) of stream restoration. Following construction, the as-built data indicated that the total area of restored riverine wetlands was 402.5 acres (excluding 2.5 acres for road accesses), with 25 acres of enhanced riverine wetlands, and 34,005 LF of restored stream channel.
As of fall 2009, the Site has met all prescribed hydrologic and vegetative monitoring criteria and been recommended for closeout.

To offset an additional 0.24 acres unavoidable riverine wetland impacts associated with T.I.P. R-2519, the Privateer Farms Mitigation Site will be debited 0.36 acres of riverine wetland restoration. This debit is reflected in the following ledger.

Site Name	River Basin	HUC	Mitigation Type	Transfer from EEP	Available	TIP Debit	TIP Debit
Privateer Site	Cape Fear	3030004				**U-2519**	**U-2519 MOD**
			Warm Stream Restoration	25,676	7,157	18,519	
			Riverine Wetland Restoration	145.98	0.33	145.29	0.36

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS			
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Natural Stream Design (ft)
1	83+50-85+00 -L-	72" RCP	1.11		0.03	0.10		0.04		279	
2	92+90-93+80 -L-	42" RCP	0.50		0.02	0.08					
3	105+15-105+70 -L-	2 @ 6' x 7' RCBC	0.76			0.05		0.86		775	
4	117+95-118+70 -L-	325' Bridge	0.36			0.08	0.55				
5	129+60-130+20 -L-	54" RCP	0.69			0.06		0.02		361	
6	135+55-137+00 -L-	60" RCP	1.68			0.09		0.04		479	
7	141+30-142+30 -L-	36" RCP	1.55			0.05		0.01		213	
8	144+45-144+90 -L-	48" RCP	0.09			0.04	0.21	0.06		509	
9	14+20 -Y-Rev	2 @ 6' x 7' RCBC						2.54		98	
10	13+66-14+06 -Y1-	48" RCP	0.19		0.01	0.04					
TOTALS:			6.92		0.06	0.61	0.76	3.57		2715	

SITE 10: LATERAL EFFECT ON WETLAND DUE TO EXCAVATION = 0.01 ac

FILL IN SURFACE WATERS (POND)
SITE 3: 0.73 ac
SITE 9: 2.53 ac

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY
WBS - 35196.1.2 (X-0002C)

SHEET REV. 4/30/2010

JMD Revised 2/03/05

Permit Drawing
Sheet 3 of 64

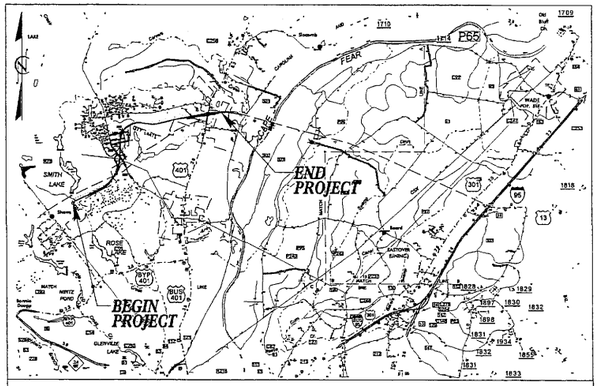
List of Property Owners:

Parcel No.	
48	Coleman, Ronald K. 1327 McArthur Road Fayetteville, NC 28311-1204
53	McKinnie, Nellie E. Evans 1324 McArthur Road Fayetteville, NC 28311-1203
89	Andrews Road Company PO Box 58329 Fayetteville, NC 28305
128	Coleman, W. C. 1041 Bragg Boulevard Fayetteville, NC 28301-4511

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY
PROJECT 35196.1.2 x-0002C

Sheet Permit Drawing Sheet 5 of 64 REV. 4/7/2010



CONTRACT: C201979 TIP PROJECT: X-0002C

9/09/99

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

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002C	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
35196.1.2	NHF-DPR-0100(002)	P.E.
35196.2.4		ROW & UTIL
35196.3.16		CONST.

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS

LOCATION: NC 24 EXTENSION (FAYETTEVILLE OUTER LOOP)
FROM 1.3 MILES EAST OF NC87–NC210 TO WEST OF US401

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

WETLAND/STREAM IMPACTS

Permit Drawing REV. 4/27/10
Sheet 6 **of** 64

VICINITY MAP

STA. 149+80.000 –L– END TIP PROJECT X-0002C
END CONSTRUCTION

THIS IS A CONTROLLED ACCESS PROJECT
WITH ACCESS LIMITED TO INTERCHANGES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008	=	34,700
ADT 2030	=	59,600
DHV	=	9 %
D	=	55 %
T	=	10 % *
V	=	110 km/h

* (TTST 4 % DUAL 6 %)
FUNC. CLASS = INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT X-0002C	=	6.166 km
LENGTH STRUCTURES TIP PROJECT X-0002C	=	0.404 km*
TOTAL LENGTH OF TIP PROJECT X-0002C	=	6.570 km

* NOTE: LENGTH BASED ON WBL BRIDGES

Prepared in the Office of:
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4669 FAX

2006 METRIC STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 31, 2006

LETTING DATE:
NOVEMBER 18, 2008

T.R. REID, P.E.
PROJECT ENGINEER

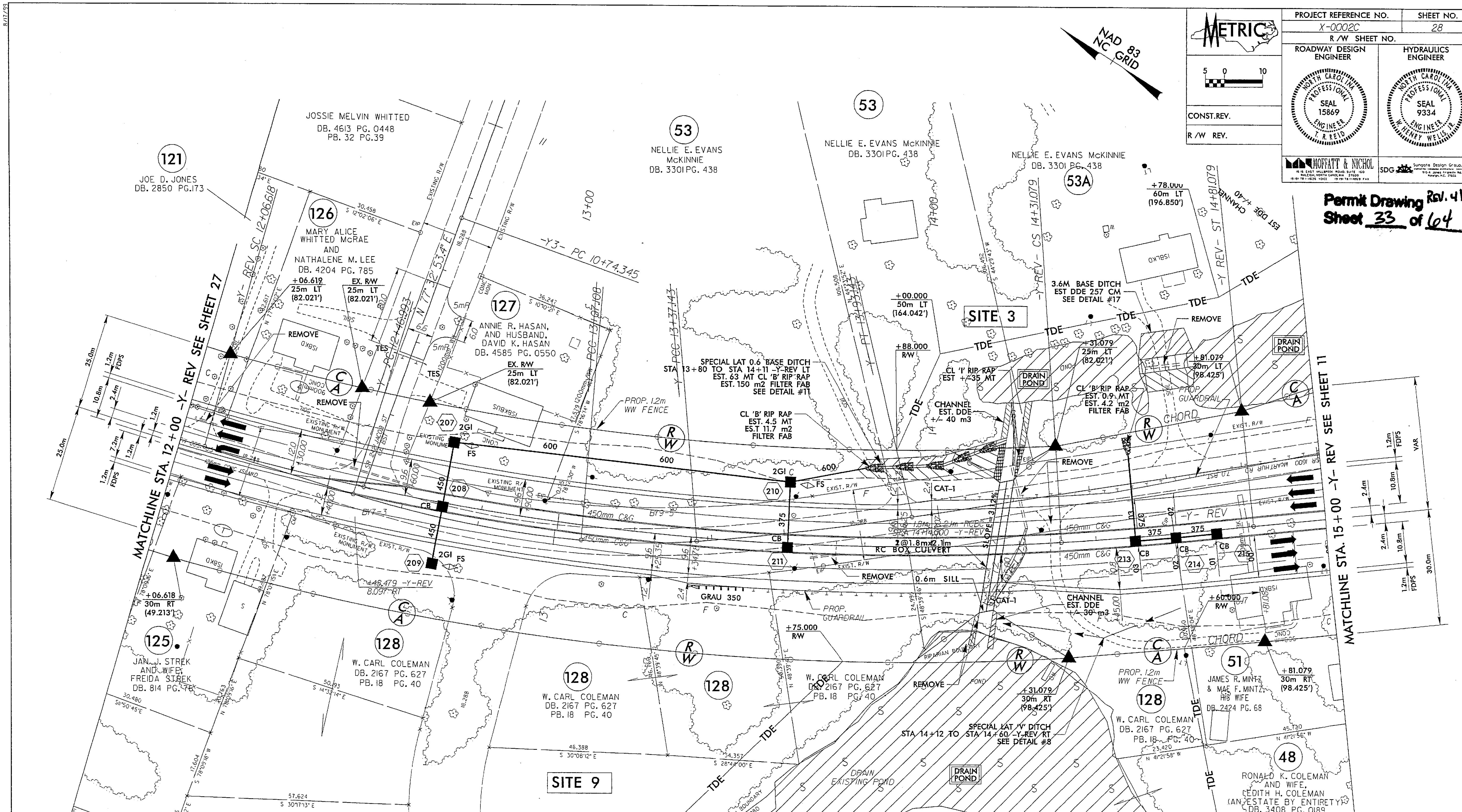
T.E. HUFFMAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SDG
Sungate Design Group, P.A.
Engineering - Landscape Architecture - Environmental
915-A Jones Franklin Rd.
Raleigh, N.C. 27606
SEAL 9334 W. HENRY WELLS, JR.
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4669 FAX
SEAL 15869 T. R. REID
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER



MATCHLINE SEE SHEET 28A

-Y-

PI Sta 12+77.166	PI Sta 13+22.160	PI Sta 13+65.157
Δ = 12° 18' 04.6" (LT)	Δ = 9° 33' 37.4" (LT)	Δ = 4° 31' 45.4" (LT)
L = 60.115	L = 30.035	L = 56.000
T = 30.174	T = 15.052	T = 28.015
R = 280.000	R = 180.000	R = 708.405

-Y3-

PI Sta 11+16.055
Δ = 0° 30' 40.3" (RT)
L = 83.419
T = 41.710
R = 9,350.000

-Y- REV

PIs Sta 11+89.954	PI Sta 13+19.943	PIs Sta 14+47.748
θs = 2° 10' 13.1"	Δ = 19° 29' 09.1" (LT)	θs = 2° 10' 13.1"
Ls = 50.000	L = 224.461	Ls = 50.000
LT = 33.336	T = 113.325	LT = 33.336
ST = 16.669	R = 660.000	ST = 16.669
	SE = 0.003	
	RO = 50.000	
	DS = 80 kph	

FOR DITCH DETAILS SEE SHEET 2-T
FOR -Y- REV PROFILE SEE SHEET 54 & 55
SEE C-I THRU C- FOR CULVERT PLANS

8/17/09

MATCHLINE SEE SHEET 28

MATCHLINE SEE SHEET 28

MATCHLINE SEE SHEET 28

MATCHLINE SEE SHEET 11

MATCHLINE SEE SHEET 26

TDE

DRAIN EXISTING POND

DRAIN EXISTING POND

14+00.000 –Y–REV
77m RT
(256.624')

13+54.000 –Y–REV
165m RT
(541.337')

13+80.000 –Y1–
128m RT
(419.947')

13+36.000 –Y1–
105m RT
(344.487')

48

128

SITE 9

S S DENOTES FILL IN SURFACE WATER

NAD 83
NC GRID

METRIC

5 0 10

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	28A
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, IV

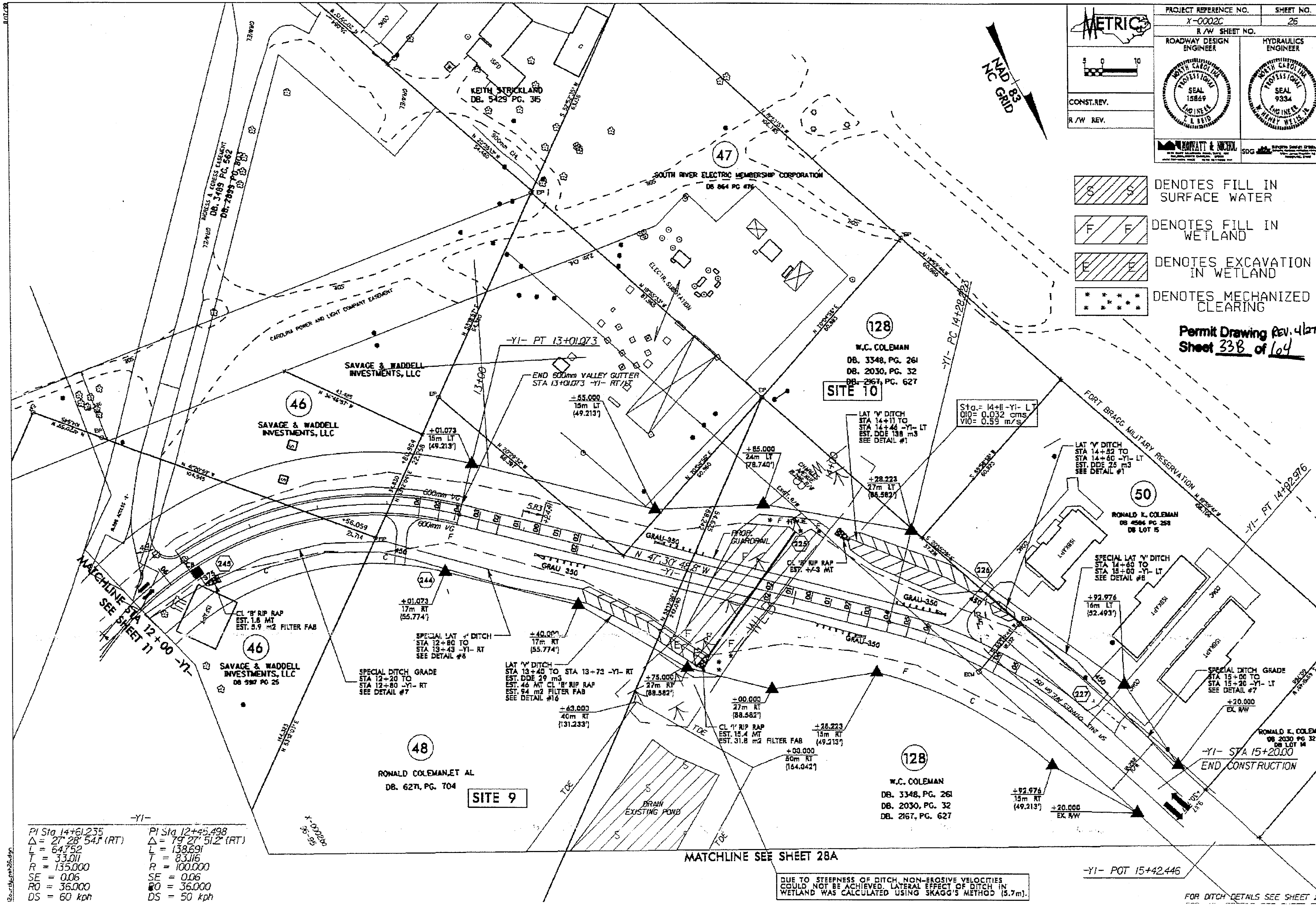
MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

REV. 4/27/10

Permit Drawing
Sheet 33A of 64

x0002c_rdy_psh28.dgn



PROJECT REFERENCE NO. X-0002C
SHEET NO. 26
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
CONST. REV.
R/W REV.
NAD 83 NC GRID
MOFFATT & NICHOL
DENOTES FILL IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
Permit Drawing Rev. 4/27/10
Sheet 33B of 64
KEITH STRICKLAND
DB. 5429 PG. 315
47
SOUTH RIVER ELECTRIC MEMBERSHIP CORPORATION
ELECTR. SUBSTATION
INGRESS & EGRESS EASEMENT DB. 3489 PG. 562
DB. 2099 PG. 803
CAROLINA POWER AND LIGHT COMPANY EASEMENT
-Y1- PT 13+01.073
END 600mm VALLEY GUTTER STA 13+01.073 -Y1- RT/LT
SAVAGE & WADDELL INVESTMENTS, LLC
46
SAVAGE & WADDELL INVESTMENTS, LLC
128
W.C. COLEMAN
DB. 3348, PG. 261
DB. 2030, PG. 32
DB. 2167, PG. 627
SITE 10
-Y1- PC 14+28.223
Sta.= 14+11 -Y1- LT
Q10= 0.032 cms
V10= 0.59 m/s
LAT 'V' DITCH STA 14+11 TO STA 14+46 -Y1- LT EST. DDE 138 m3 SEE DETAIL #1
LAT 'V' DITCH STA 14+52 TO STA 14+60 -Y1- LT EST. DDE 25 m3 SEE DETAIL #1
FORT BRAGG MILITARY RESERVATION
50
RONALD K. COLEMAN
-Y1- PT 14+92.976
SPECIAL LAT 'V' DITCH STA 14+60 TO STA 15+00 -Y1- LT SEE DETAIL #8
N 47°30' 48.8" W
-Y1-
PROP. GUARDRAIL
CL 'B' RIP RAP EST. +/-3 MT
CL 'B' RIP RAP EST. 1.8 MT EST. 5.9 m2 FILTER FAB
MATCHLINE STA 12+00 -Y1- SEE SHEET 11
SPECIAL LAT 'V' DITCH STA 12+80 TO STA 13+43 -Y1- RT SEE DETAIL #8
SPECIAL DITCH GRADE STA 12+20 TO STA 12+80 -Y1- RT SEE DETAIL #7
LAT 'V' DITCH STA 13+40 TO STA 13+73 -Y1- RT EST. DDE 29 m3 EST. 46 MT CL 'B' RIP RAP EST. 94 m2 FILTER FAB SEE DETAIL #16
CL 'I' RIP RAP EST. 15.4 MT EST. 31.8 m2 FILTER FAB
SPECIAL DITCH GRADE STA 15+00 TO STA 15+20 -Y1- LT SEE DETAIL #7
-Y1- STA 15+20.00 END CONSTRUCTION
RONALD K. COLEMAN DB 2030 PG 32 DB LOT 14
48
RONALD COLEMAN, ET AL
DB. 6271, PG. 704
SITE 9
DRAIN EXISTING POND
128
W.C. COLEMAN
DB. 3348, PG. 261
DB. 2030, PG. 32
DB. 2167, PG. 627
MATCHLINE SEE SHEET 28A
-Y1- POT 15+42.446
DUE TO STEEPNESS OF DITCH, NON-EROSIVE VELOCITIES COULD NOT BE ACHIEVED. LATERAL EFFECT OF DITCH IN WETLAND WAS CALCULATED USING SKAGG'S METHOD (5.7m).
FOR DITCH DETAILS SEE SHEET 2-T
-Y1-
PI Sta 14+61.235
Δ = 27° 28' 54.1" (RT)
L = 64.752
T = 33.011
R = 135.000
SE = 0.06
RO = 36.000
DS = 60 kph
PI Sta 12+45.498
Δ = 79° 27' 51.2" (RT)
L = 138.691
T = 83.116
R = 100.000
SE = 0.06
RO = 36.000
DS = 50 kph

PROJECT REFERENCE NO.	SHEET NO.
X-0002CA	12
R/W SHEET NO. 12 (X-0002CA)	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA — PROFESSIONAL ENGINEER — 15869 — T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA — PROFESSIONAL ENGINEER — 9334 — HENRY WELLS JR.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

MOFFATT & NICHOL

SDG Surgeto Design Group, P.A.

NAD 83 NC GRID

8/17/99

KEITH STRICKLAND
DB. 5429 PG. 315

SOUTH RIVER ELECTRIC MEMBERSHIP CORPORATION
DB 864 PG 476

47

INGRESS & EGRESS EASEMENT
DB. 3489 PG. 562
DB. 2899 PG. 803

CAROLINA POWER AND LIGHT COMPANY EASEMENT

ELECTR. SUBSTATION

THD UHF

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

128
W.C. COLEMAN
DB. 3348, PG. 261
DB. 2030, PG. 32
DB. 2167, PG. 627

-Y1- PT 13+01.073

-Y1- PC 14+28.482

FORT BRAGG MILITARY RESERVATION N 19°59'46" W 106.106

-Y1- PT 14+92.976

SAVAGE & WADDELL
INVESTMENTS, LLC

46
SAVAGE & WADDELL
INVESTMENTS, LLC

SAVAGE & WADDELL
INVESTMENTS, LLC
DB 5917 PG 25

48
RONALD COLEMAN, ET AL
DB. 6271, PG. 704

50
RONALD K. COLEMAN
DB 4566 PG 258
DB LOT 15

RONALD K. COLEMAN
DB 2030 PG 32
DB LOT 14

END 600mm VALLEY GUTTER
STA 13+01.073 -Y1- RT/LT

+55.000
15m LT
(49.213')

+01.073
15m LT
(49.213')

+85.000
24m LT
(78.740')

+28.223
27m LT
(88.582')

LAT 'V' DITCH
STA 14+11 TO
STA 14+46 -Y1- LT
EST. DDE 138 m3
SEE DETAIL #1

LAT 'V' DITCH
STA 14+52 TO
STA 14+60 -Y1- LT
EST. DDE 25 m3
SEE DETAIL #1

SPECIAL LAT 'V' DITCH
STA 14+60 TO
STA 15+00 -Y1- LT
SEE DETAIL #8

+92.976
16m LT
(52.493')

+56.059
21.714

+01.073
17m RT
(55.774')

+40.000
17m RT
(55.774')

+63.000
40m RT
(131.233')

+75.000
27m RT
(88.582')

+00.000
27m RT
(88.582')

+28.223
15m RT
(49.213')

+00.000
50m RT
(164.042')

+92.976
15m RT
(49.213')

+20.000
EX. R/W

SPECIAL DITCH GRADE
STA 12+20 TO
STA 12+80 -Y1- RT
SEE DETAIL #7

SPECIAL LAT 'V' DITCH
STA 12+80 TO
STA 13+40 -Y1- RT
SEE DETAIL #8

LAT 'V' DITCH
STA 13+40 TO STA 13+73 -Y1- RT
EST. DDE 29 m3
EST. 46 MT CL 'B' RIP RAP
EST. 94 m2 FILTER FAB
SEE DETAIL #16

SPECIAL DITCH GRADE
STA 15+00 TO
STA 15+20 -Y1- LT
SEE DETAIL #7

+20.000
EX. R/W

-Y1- STA 15+20.00
END CONSTRUCTION

CL 'B' RIP RAP
EST. 1.8 MT
EST. 5.9 m2 FILTER FAB

CL 'B' RIP RAP
EST. +/-3 MT

CL 'I' RIP RAP
EST. 15.4 MT
EST. 31.8 m2 FILTER FAB

PROP. GUARDRAIL

EXIST. R/W

DRAIN
EXISTING POND

TDE

CONC DRIVE

GRAU-350

GRAVEL DRIVE

600mm VG

5mR

ISBK.#1

ISBK.#2

ISBK.#3

MATCHLINE STA 12+04
SEE SHEET 11

MATCHLINE SEE SHEET 15

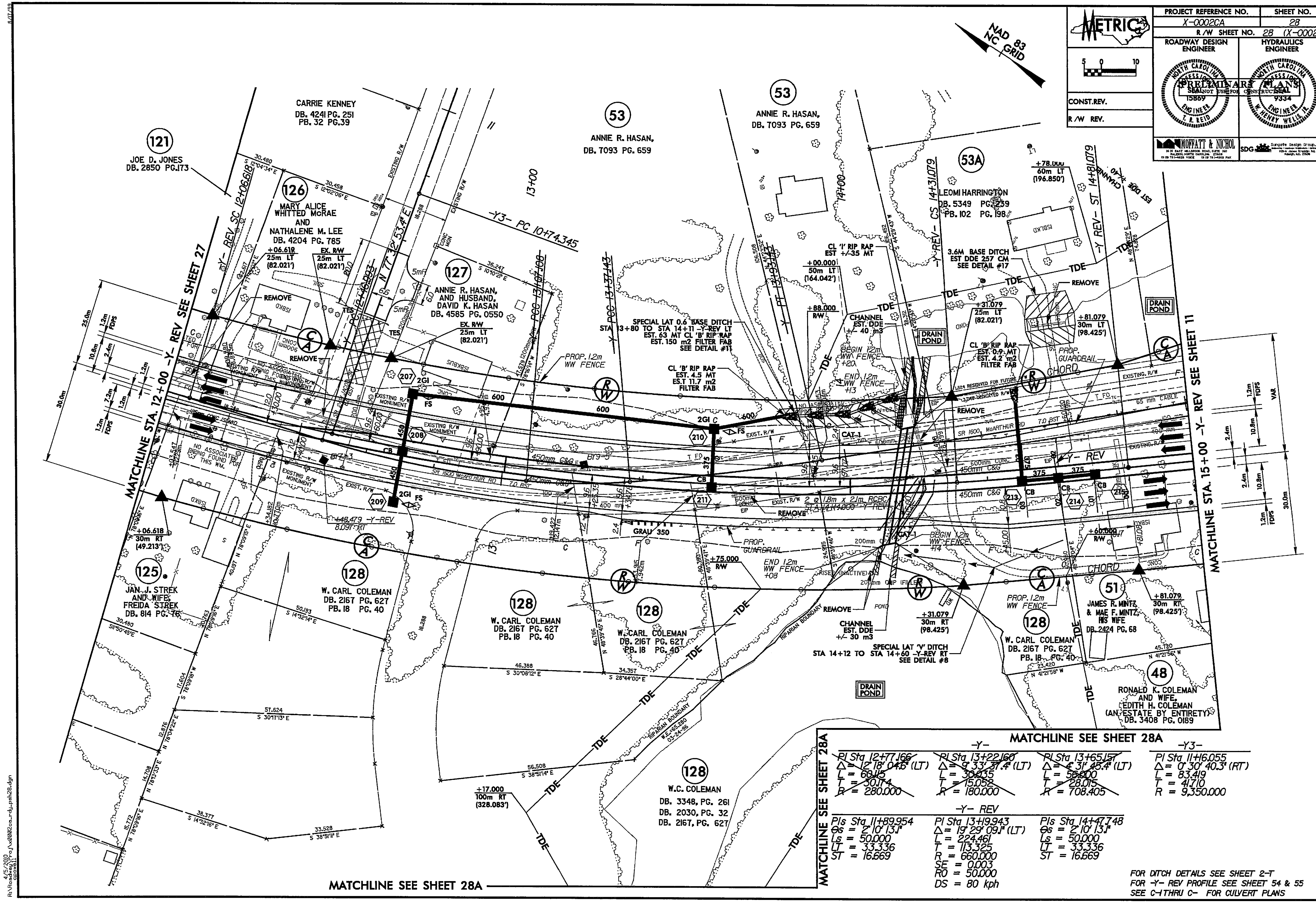
-Y1-

PI Sta 12+45.498
Δ = 79° 27' 51.2" (RT)
L = 138.691
T = 83.116
R = 100.000
SE = 0.06
RO = 36.000
DS = 50 kph

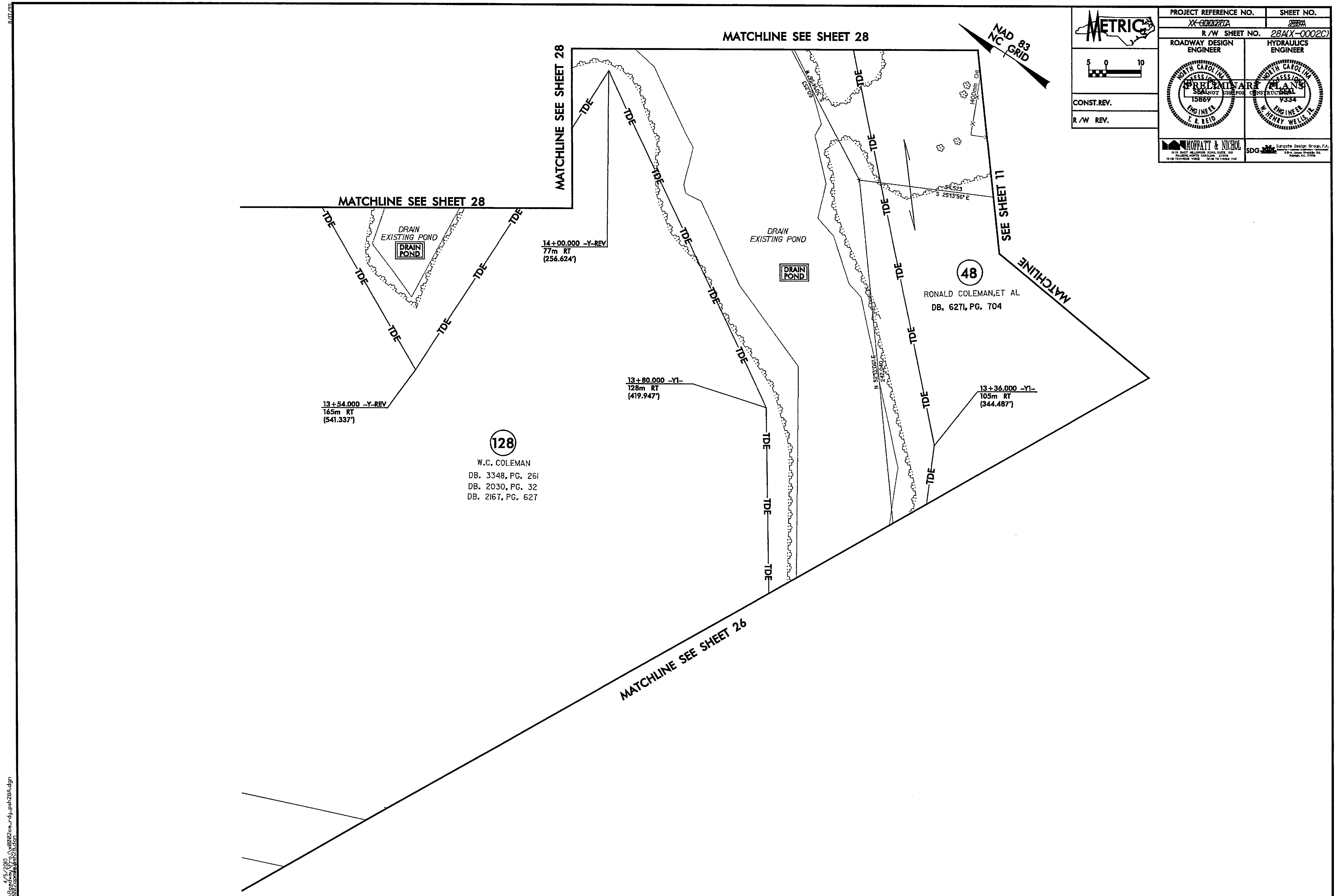
PI Sta 14+61.235
Δ = 27° 28' 54.1" (RT)
L = 64.752
T = 33.011
R = 135.000
SE = 0.06
RO = 36.000
DS = 60 kph

-Y1- POT 15+42.446

FOR DITCH DETAILS SEE SHEET 2-K
FOR -Y1- PROFILE SEE SHEET 30



METRIC
PROJECT REFERENCE NO. X-0002CA
SHEET NO. 28
R/W SHEET NO. 28 (X-0002C)
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG Sungate Design Group, P.A.
NAD 83 NC GRID
CARRIE KENNEY
DB. 4241 PG. 251
PB. 32 PG. 39
53
ANNIE R. HASAN,
DB. 7093 PG. 659
121
JOE D. JONES
DB. 2850 PG.173
126
MARY ALICE WHITTED McRAE AND NATHALENE M. LEE
DB. 4204 PG. 785
127
ANNIE R. HASAN, AND HUSBAND, DAVID K. HASAN
DB. 4585 PG. 0550
53A
LEOMI HARRINGTON
DB. 5349 PG. 239
PB. 102 PG. 198
-Y3- PC 10+74.345
MATCHLINE STA. 12+00 -Y- REV SEE SHEET 27
MATCHLINE STA. 15+00 -Y- REV SEE SHEET 11
SPECIAL LAT 0.6 BASE DITCH
STA 13+80 TO STA 14+11 -Y-REV LT
EST. 63 MT CL 'B' RIP RAP
EST. 150 m2 FILTER FAB
SEE DETAIL #11
CL 'B' RIP RAP
EST. 4.5 MT
EST 11.7 m2
FILTER FAB
CL 'I' RIP RAP
EST +/-35 MT
3.6M BASE DITCH
EST DDE 257 CM
SEE DETAIL #17
CHANNEL
EST. DDE
+/- 40 m3
PROP. 1.2m WW FENCE
PROP. GUARDRAIL
DRAIN POND
REMOVE
SR 1600 McARTHUR RD
125
JAN J. STREK AND WIFE, FREIDA STREK
DB. 814 PG. 76
128
W. CARL COLEMAN
DB. 2167 PG. 627
PB. 18 PG. 40
51
JAMES R. MINTZ & MAE F. MINTZ, HIS WIFE
DB. 2424 PG. 68
48
RONALD K. COLEMAN AND WIFE, EDITH H. COLEMAN (AN ESTATE BY ENTIRETY)
DB. 3408 PG. 0189
W.C. COLEMAN
DB. 3348, PG. 261
DB. 2030, PG. 32
DB. 2167, PG. 627
SPECIAL LAT 'V' DITCH
STA 14+12 TO STA 14+60 -Y-REV RT
SEE DETAIL #8
CHANNEL
EST. DDE
+/- 30 m3
MATCHLINE SEE SHEET 28A
-Y-
PI Sta 12+77.166
Δ= 12° 18' 04.6" (LT)
L = 60.115
T = 30.174
R = 280.000
PI Sta 13+22.160
Δ= 9° 33' 37.4" (LT)
L = 30.035
T = 15.052
R = 180.000
PI Sta 13+65.157
Δ= 4° 31' 45.4" (LT)
L = 56.000
T = 28.015
R = 708.405
-Y3-
PI Sta 11+16.055
Δ= 0° 30' 40.3" (RT)
L = 83.419
T = 41.710
R = 9,350.000
-Y- REV
PIs Sta 11+89.954
θs = 2° 10' 13.1"
Ls = 50.000
LT = 33.336
ST = 16.669
PI Sta 13+19.943
Δ= 19° 29' 09.1" (LT)
L = 224.461
T = 113.325
R = 660.000
SE = 0.003
RO = 50.000
DS = 80 kph
PIs Sta 14+47.748
θs = 2° 10' 13.1"
Ls = 50.000
LT = 33.336
ST = 16.669
FOR DITCH DETAILS SEE SHEET 2-T
FOR -Y- REV PROFILE SEE SHEET 54 & 55
SEE C-1 THRU C- FOR CULVERT PLANS


METRIC
PROJECT REFERENCE NO.
SHEET NO.
R/W SHEET NO. 28A(X-0002C)
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
SDG Sungate Design Group, P.A.
NAD 83 NC GRID
MATCHLINE SEE SHEET 28
MATCHLINE SEE SHEET 28
MATCHLINE SEE SHEET 28
SEE SHEET 11
MATCHLINE
MATCHLINE SEE SHEET 26
TDE
DRAIN EXISTING POND
DRAIN POND
14+00.000 -Y-REV
77m RT
(256.624')
13+54.000 -Y-REV
165m RT
(541.337')
13+80.000 -Y1-
128m RT
(419.947')
13+36.000 -Y1-
105m RT
(344.487')
128
W.C. COLEMAN
DB. 3348, PG. 261
DB. 2030, PG. 32
DB. 2167, PG. 627
48
RONALD COLEMAN,ET AL
DB. 6271, PG. 704