



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 25, 2005

MEMORANDUM TO: Mr. Jon G. Nance, P.E.
Division 5 Engineer

FROM: Philip S. Harris, III, P.E. *PSH*
Natural Environment Unit Head
Project Development and
Environmental Analysis Branch

SUBJECT: Wake County; NC 98 (Wake Forest Bypass) from west of SR 1923
(Thompson Mill Road) to east of SR 2053 (Jones Dairy Rd); State Work
Order Number 81402501; Federal-Aid Project No. STP-98(1); TIP
Number R-2809

Attached is the modification to the U. S. Army Corps of Engineers Individual Permit and the modification to the Division of Water Quality 401 Certification for the construction of the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

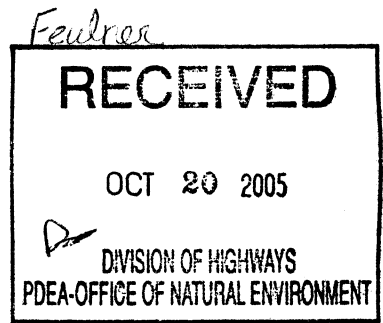
cc: Mr. Art McMillan, P.E.
Mr. Omar Sultan
Mr. Jay Bennett, P.E.
Mr. David Chang, P.E.
Mr. Randy Garris, P.E.
Mr. Greg Perfetti, P.E.
Mr. Mark Staley
Mr. John F. Sullivan, III, FHWA
Mr. Chris Murray, Division 5 DEO
Ms. Cathy Houser, PE



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

October 18, 2005



Regulatory Division

SUBJECT: Action ID 199601836; TIP No. R-2809

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Reference the Department of the Army (DA) permit issued on April 4, 2002, to authorize the discharge of dredged and fill material into the waters of United States, for construction of Sections A, B, and C of the NC 98 Wake Forest Bypass (T.I.P.No. R-2809), located generally southeast of Wake Forest, in Wake County, North Carolina. Reference also your September 7 and 22, 2005, letters requesting modification of the permit to authorize design changes for the referenced project that include additional minor jurisdictional impacts associated with expansion of construction areas to allow sufficient access for construction equipment, installation of rip-rap on stream banks to prevent erosion, and changes to a proposed natural channel design for a relocated jurisdictional stream channel. The design modifications as defined by the plans included with your request would result in an overall increase of 168 linear feet of permanent stream channel impacts and 261 linear feet of temporary stream channel impacts to jurisdictional waters. You have also requested to extend the permit expiration date to December 31, 2006, so that the permitted work in waters of the United States can be completed.

We have reviewed your proposal and have determined that the proposed construction modification that would result in additional impacts to waters of the United States are minor, and an additional public notice is not necessary. Therefore, the permit is hereby modified to authorize the construction modification as shown in the attached drawings, subject to the following additional condition:

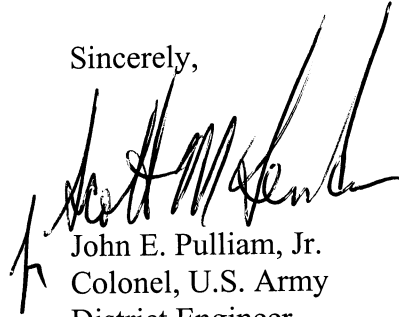
Compensatory mitigation for the additional unavoidable impacts to 168 linear feet of stream channel associated with the proposed modification to the project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated August 26, 2004, from William D. Gilmore, EEP Transition Manager. Pursuant to the EEP Memorandum of Agreement (MOA), between the State of North Carolina and the US Army Corps of Engineers signed on July 11, 2003, the EEP will provide a minimum of an additional 336 linear feet of restoration of warm water stream channel in the Neuse

River basin (Hydrologic Cataloging Unit 03020201). The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

In addition, the permit expiration date is hereby extended to December 31, 2006. It is understood that all other conditions of the permit remain applicable.

If you have questions, please contact Eric Alsmeyer of the Raleigh Regulatory Field Office, at telephone (919) 876-8441, extension 23.

Sincerely,



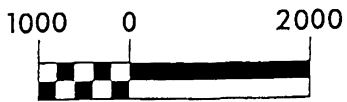
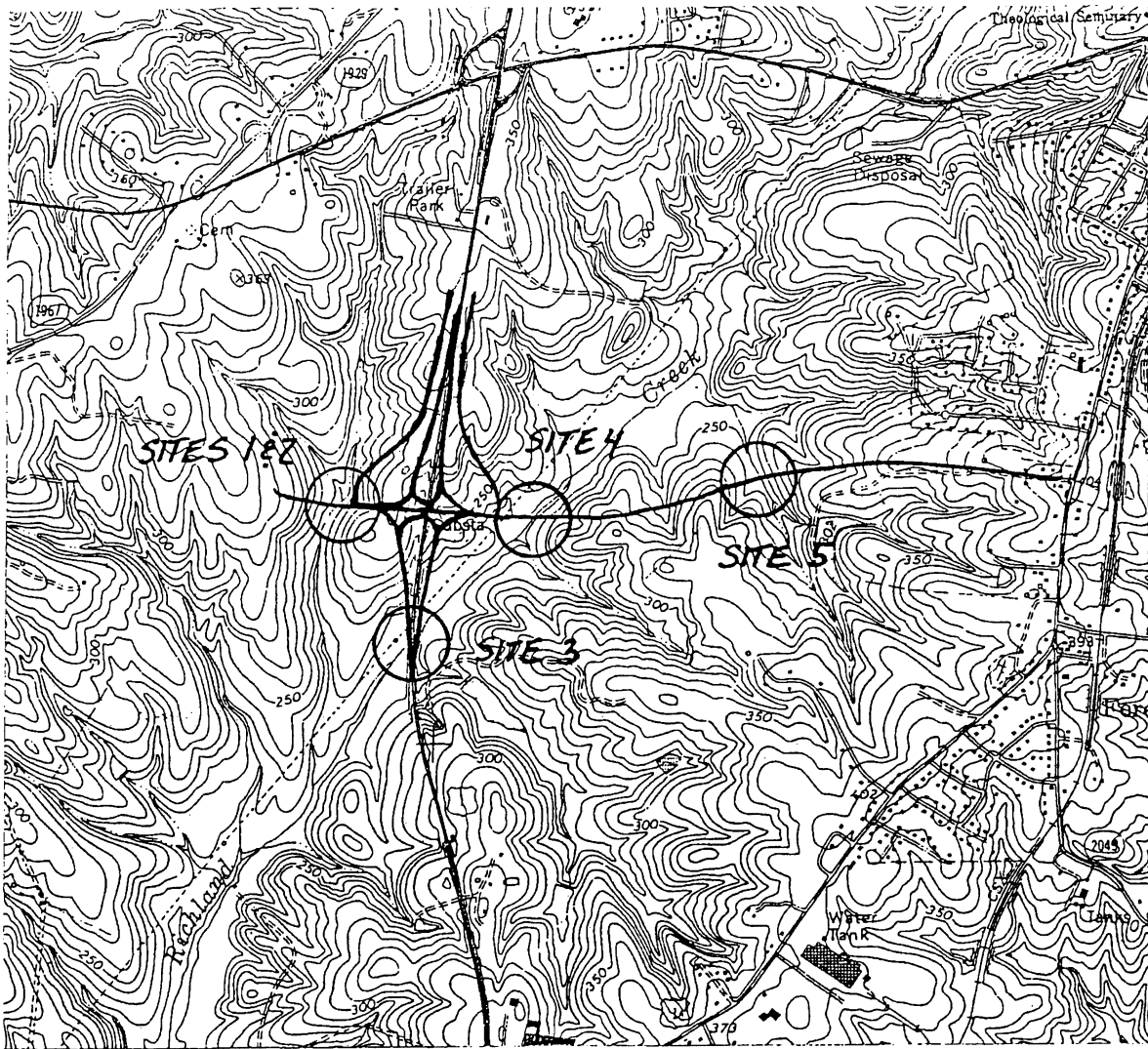
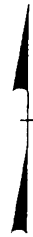
John E. Pulliam, Jr.
Colonel, U.S. Army
District Engineer

Enclosure

Copies Furnished (without enclosure):

Federal Highway Administration
310 New Bern Ave., Rm. 410
Raleigh, North Carolina 27601-1442

Mr. John Hennessy
Division of Water Quality
North Carolina Department of
Environment and
Natural Resources
1650 Mail Service Center
Raleigh, NC 27699-1650



WETLAND

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

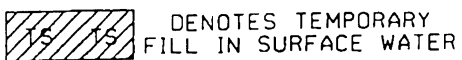
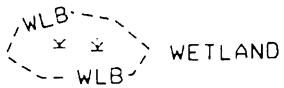
WAKE COUNTY

PROJECT: 8.1402501 (R-2809B)
NC 98 WAKE FOREST BYPASS

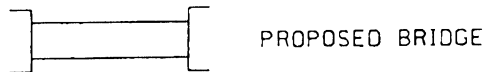
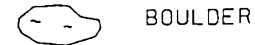
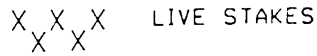
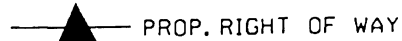
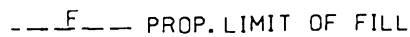
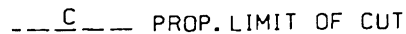
SHEET 2 OF 26

LEGEND

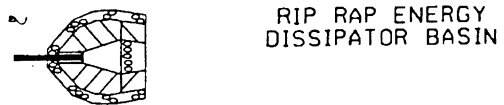
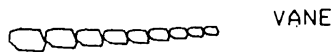
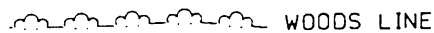
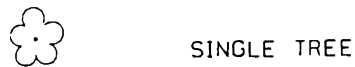
--- WLB --- WETLAND BOUNDARY



← ← FLOW DIRECTION



(DASHED LINES DENOTE EXISTING STRUCTURES)



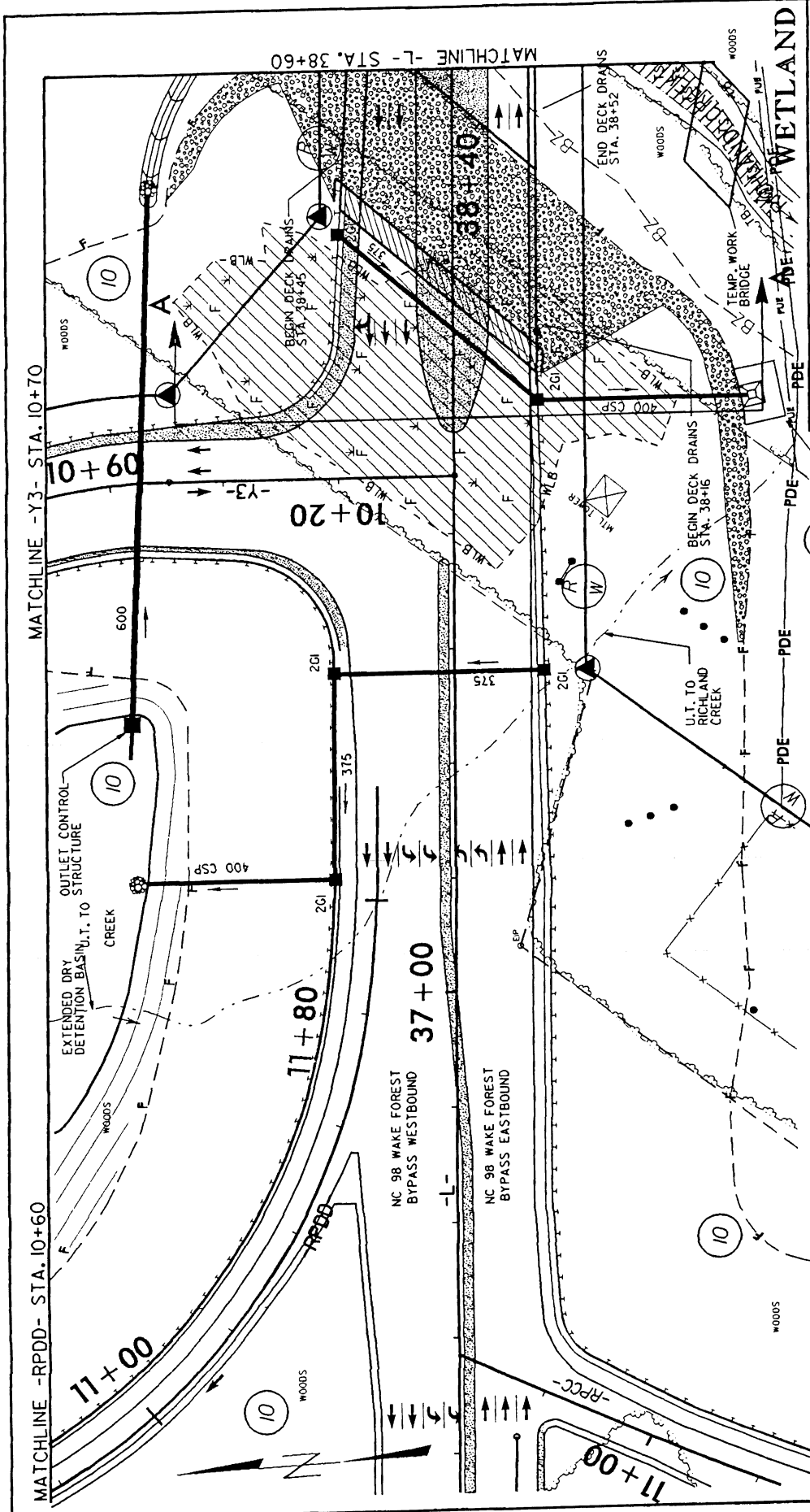
**N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS**

WAKE COUNTY

**PROJECT: 8.1402501 (R-2809B)
NC-98 WAKE FOREST BYPASS**



WETLAND

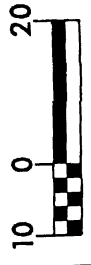
SHEET 3 OF 26

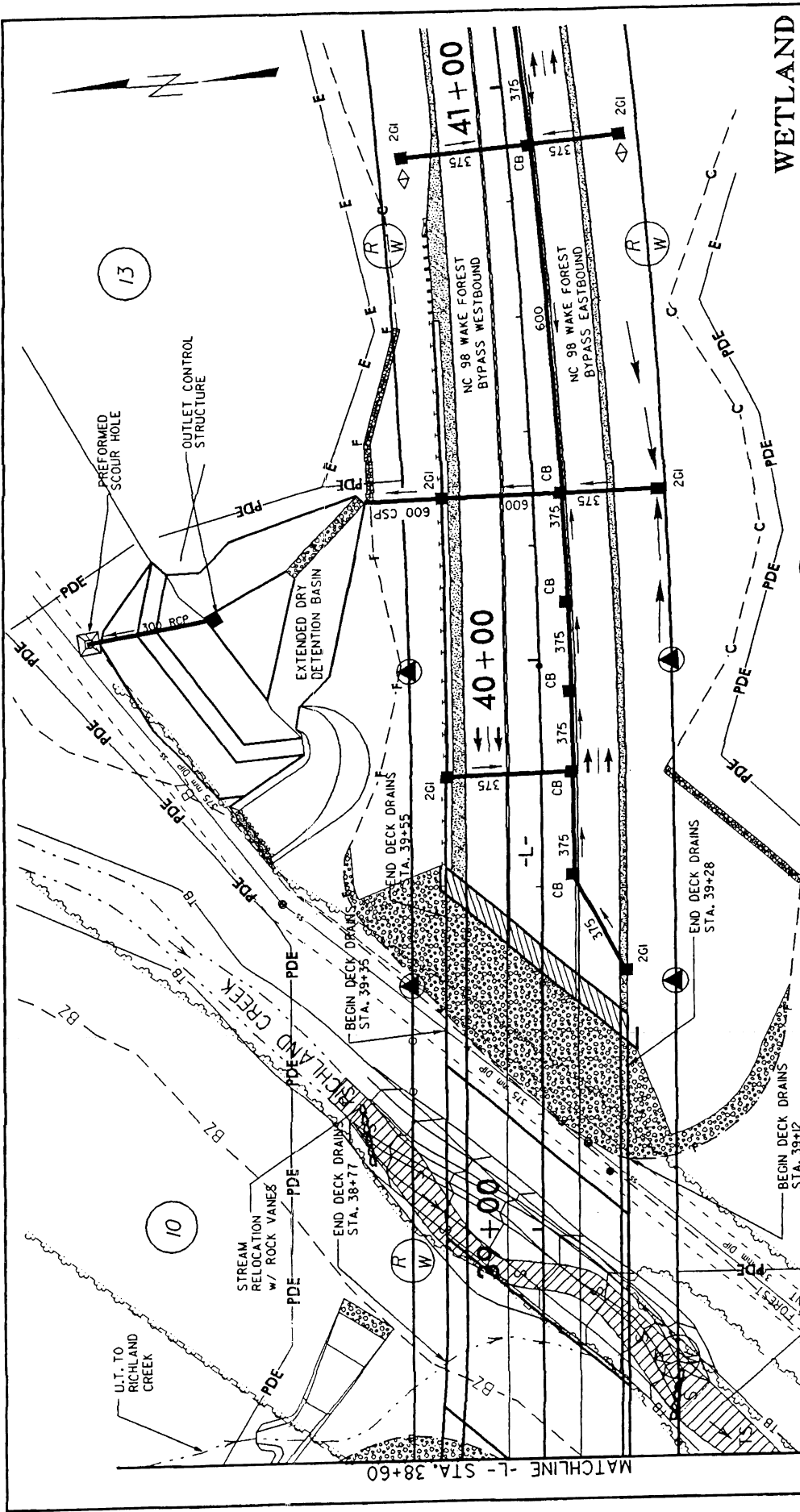


N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 34503.L1 (R-2809B)
 NC 98 WAKE FOREST BYPASS
 SHEET 17 OF 26 REV 8/05

PLAN VIEW
 SITE 4

-  DENOTES TEMPORARY IMPACT TO SURFACE WATER
-  DENOTES FILL IN WETLAND

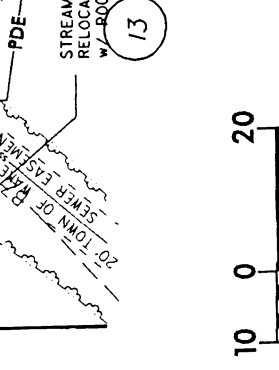




WAKE COUNTY
 N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 PROJECT: 811402501 (R-2809B)
 NC 98 WAKE FOREST BYPASS
 SHEET 18 OF AG REV 8/05

13
 DENOTES TEMPORARY IMPACT TO SURFACE WATER
 DENOTES FILL IN SURFACE WATER

PLAN VIEW
 SITE 4



MATCHLINE -L- STA. 38+60
 10 0 20

PROJECT REFERENCE NO. SHEET NO.
R-2809B 2-2

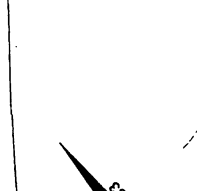
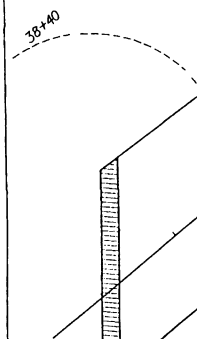
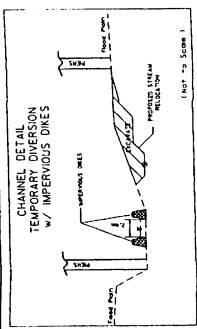
ROADWAY DESIGN ENGINEER
HYDRAULICS

CONST. REV. 6/27/05
A.W. REV.

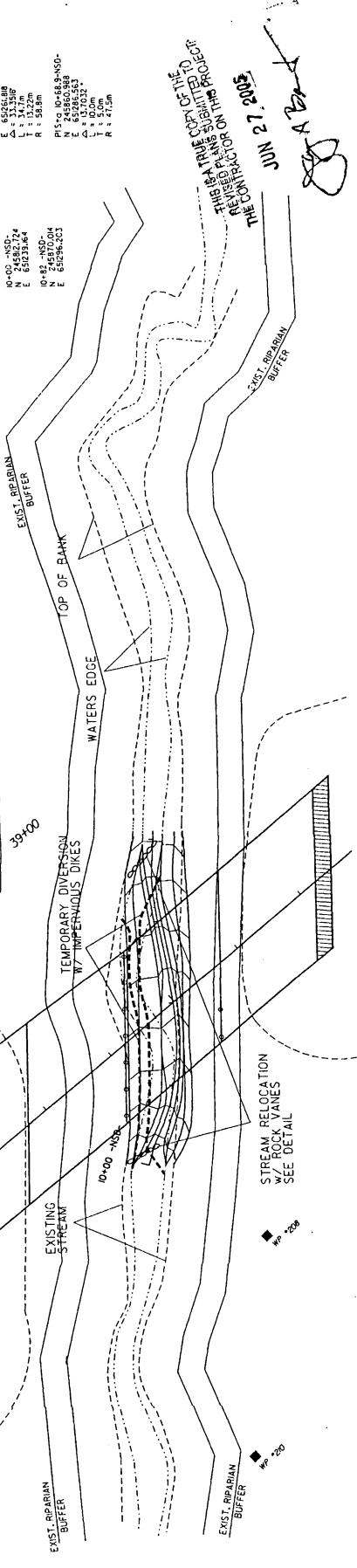
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N 2486212.48
E 633135.8
L 1 11.7m
R 1 59.8m

10-82 -NSD
N 2486038.8
E 63296.43
L 1 0.0m
R 1 21.5m

10-00 -NSD
N 2486038.8
E 63296.43
L 1 0.0m
R 1 21.5m

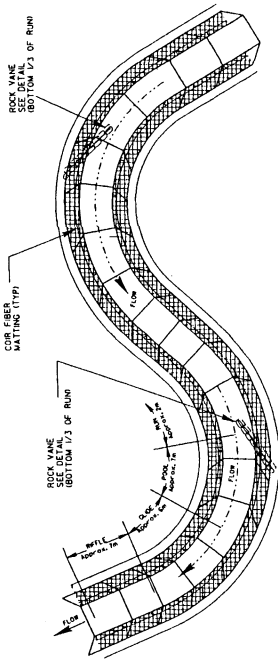


NATURAL CHANNEL DESIGN TYPICALS



STREAM DETAIL

L = LENGTH ALONG STREAM CENTERLINE

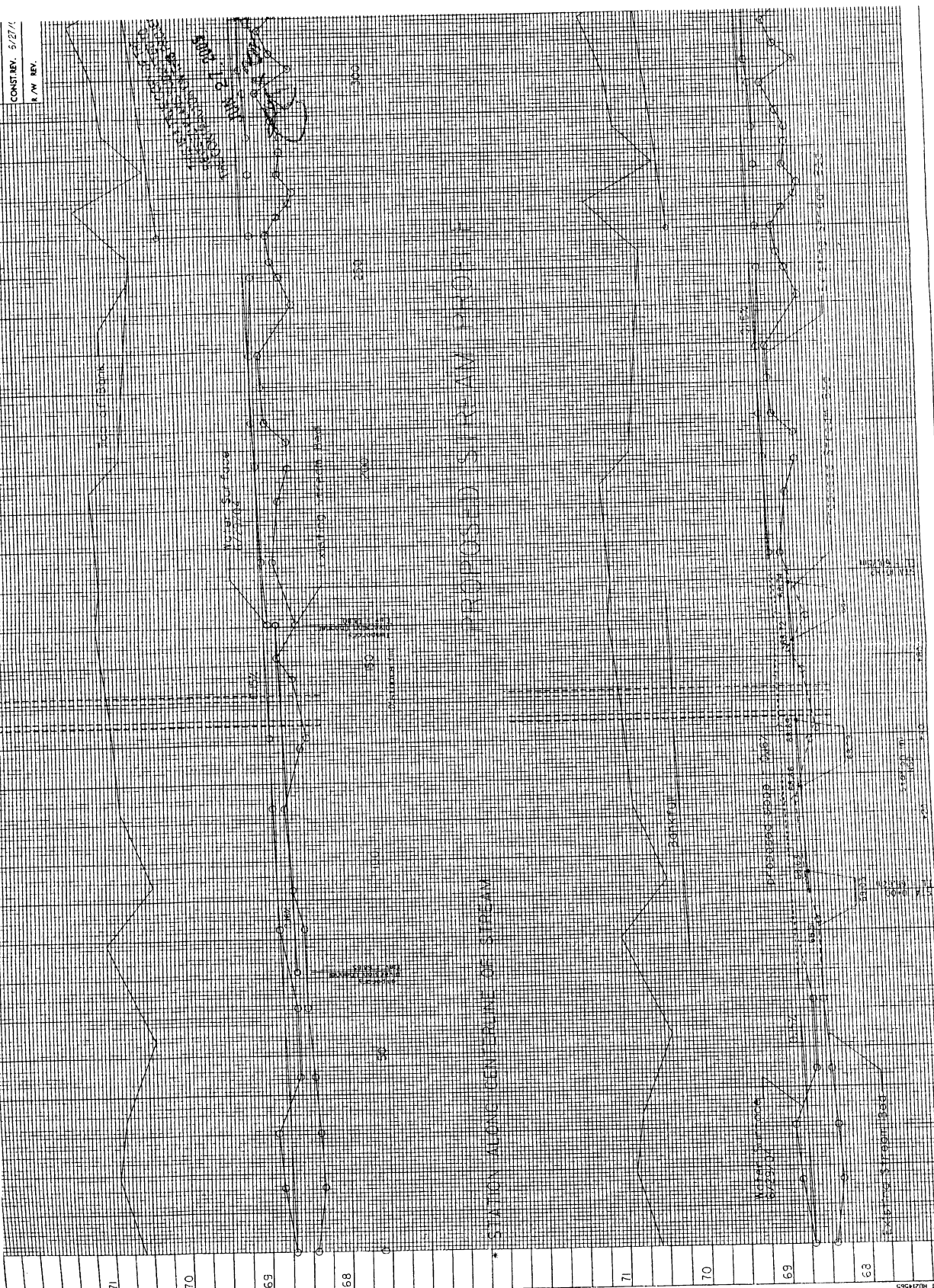


NOTES:
 1. PLANTINGS SHOULD BE PLACED ABOVE BANKFALL ZEPH.
 2. ROCK VANES TO BE PLACED IN BOTTOM ONE THIRD OF RUN.
 3. ROCK VANES SHOULD BE ALONG IN SHAPE AND HAVE MINIMUM 2% SLOPE.
 4. SEE SHEET 2-00 FOR ROCK VANE DETAIL.

QUANTITIES:
 COIR FIBER MAT = 700 sq.m.
 EXCAVATION = 500 cu.m.

NCDOT
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 81402501 (R-2809B)
 NC 98 WAKE FOREST BYPASS


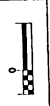
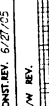
CONST. REV. 5/27/05
 R.A.M. REV.

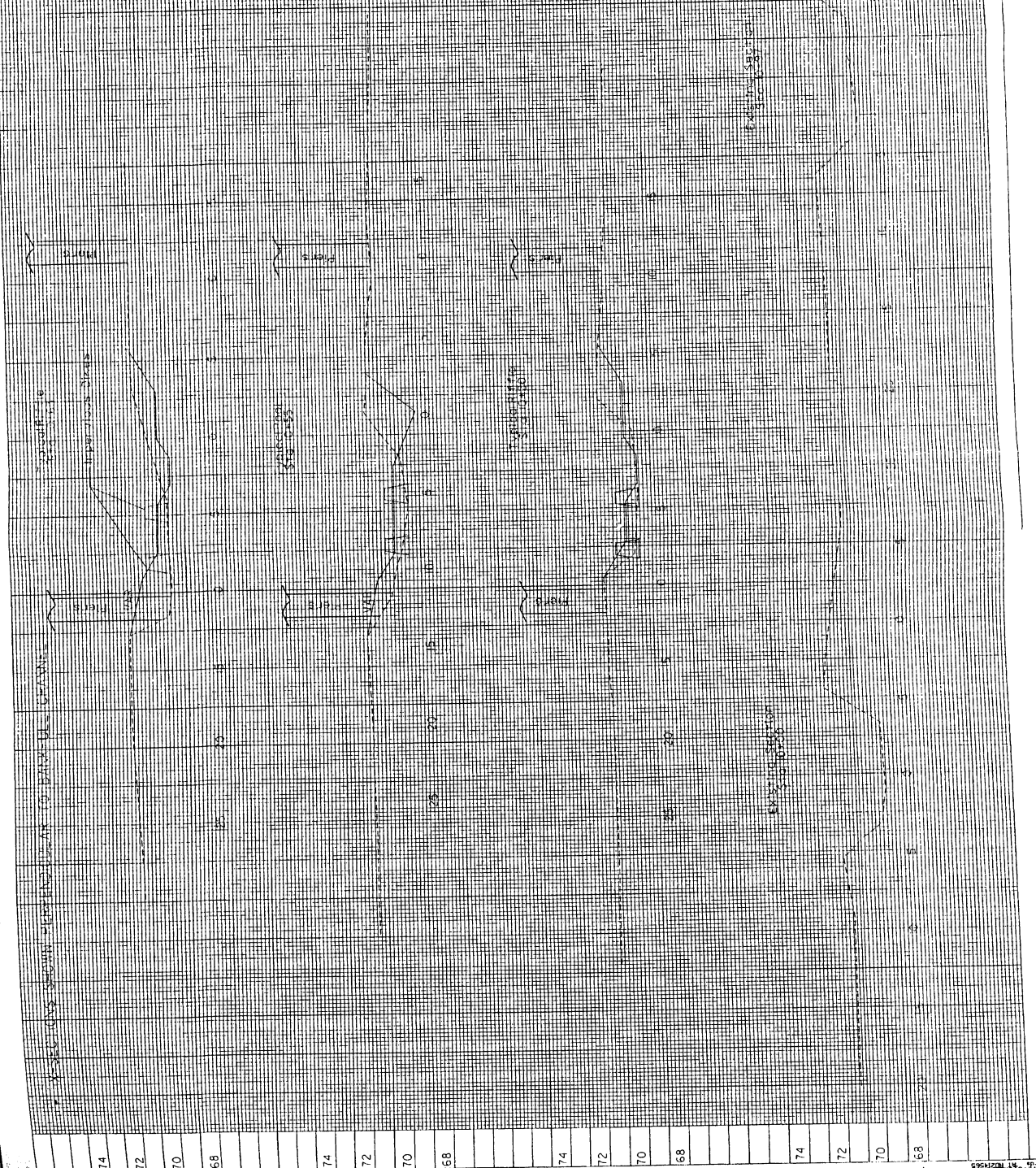


Elevation (m)
 71
 70
 69
 68

1000 1050 1100 1150 1200
 Station

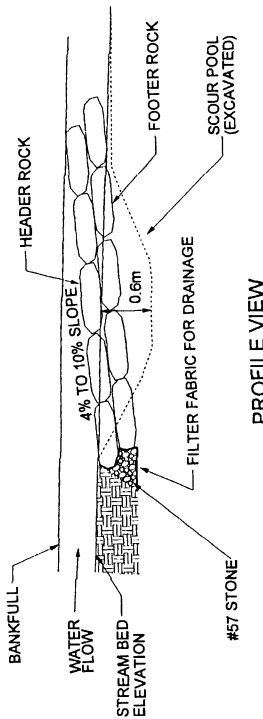
CONST. REVISION: 6/27/05 REVISED RICHLAND CREEK STREAM RELOCATION PROFILES
 21 JUN 2005 10:54 AM
 R.A.M. REV.

	PROJECT REFERENCE NO.	SHEET NO.
	N/A	22-53
	HYDRAULICS ENGINEER	
CONTRACT NO. 6/27/05		
R.M. REV.		

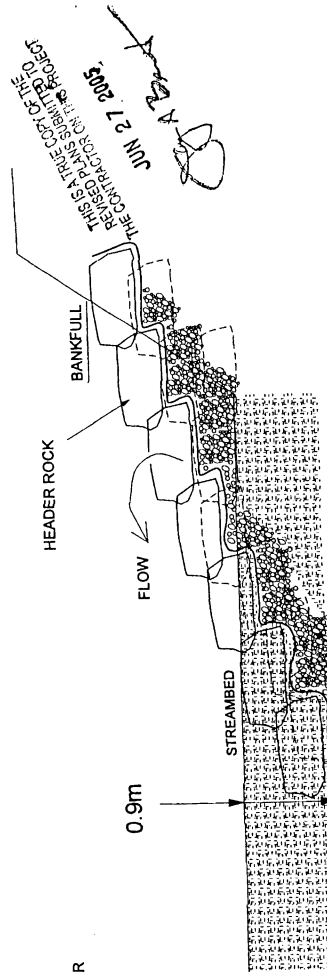


ALL DIMENSIONS TO BE VERIFIED IN THE FIELD
 DATE: 6/27/05
 R.M.

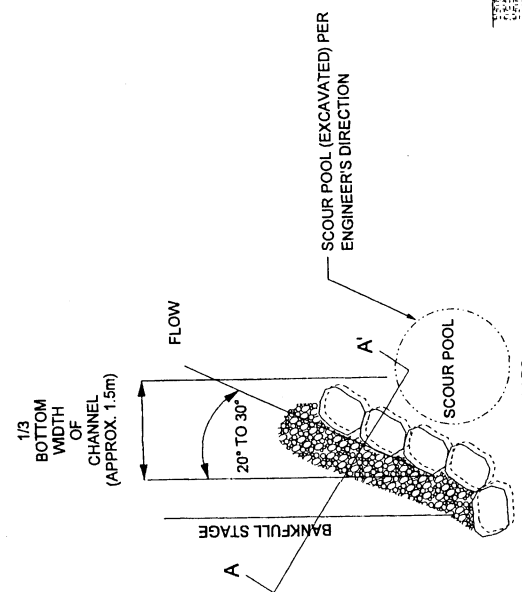
PROJECT REFERENCE NO. R-2003B	SHEET NO. 2-11
DATE 6/27/05	HYDRAULICS ENGINEER
CONTRACT NO. 6/27/05	ROADWAY DESIGN ENGINEER
SCALE N/A	SEAL 60000



PROFILE VIEW



SECTION A-A



PLAN VIEW

QUANTITIES:

- # OF ROCK VANES = 2
- # OF BOULDERS/VANE = 25
(W/ MIN. DIMENSION OF 0.9m x 0.6m x 0.6)
- BOULDERS (MTN) = 35 MTN
- FILTER FABRIC = 15 sq.m.
- GRAVEL (#57 STONE) = 20 MTN
- EXCAVATION = 20 cu.m.

Rock Vane

SCALE: NTS

HEADER AND FOOTER ROCK SHOULD BE OBLONG AND HAVE MINIMAL DIMENSIONS OF 0.9m x 0.6m x 0.6m

JUN 27 2005
THIS IS A TRUE COPY OF THE REVISED PLANS SUBMITTED TO THE CONTRACTOR ON THIS PROJECT

REVISIONS

WETLAND PERMIT IMPACT SUMMARY

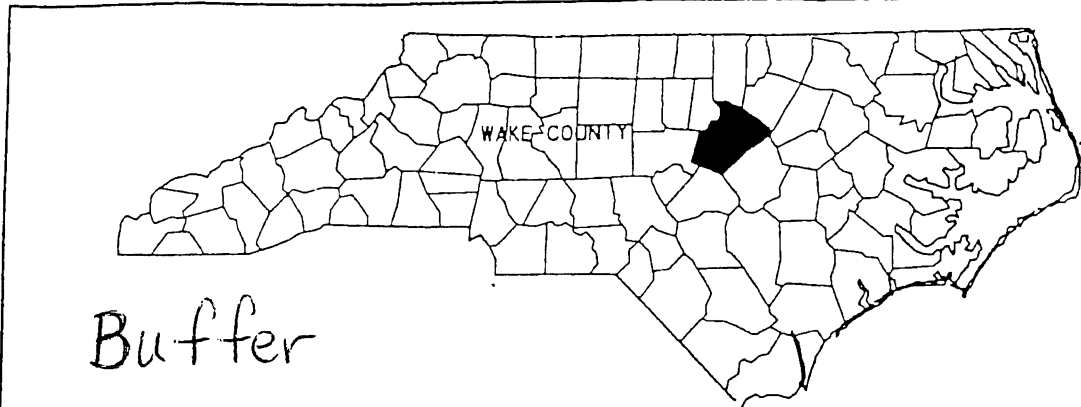
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS						
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)		
1	-L- 31+96 / -Y2- 11+38	2 @ 7' x 6' RCBC							0.190		797			384
2	-Y2- 10+42 - 10+89 LI							0.010			132			
3	Y1- 16+88 LI - RPB- 11+08 L	4 @ 11' x 11' RCBC	0.060		0.050	0.020			0.050	0.030	147	76		
4	-L- 37+34 Rt - 38+34 LI	4 @ 98' PSG Bridge	0.660						0.110	0.070	269	164		269
5	-L- 47+09 LI - 47+70 Rt	1 @ 10' x 6' RCBC							0.050	0.005	276	26		
TOTALS:			0.72	0.00	0.05	0.02	0.00	0.41	0.11	1621	266	653		

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 WBS - 34503.1.1 (R-280918)
 SHEET *26 of 26* 8/3/2005

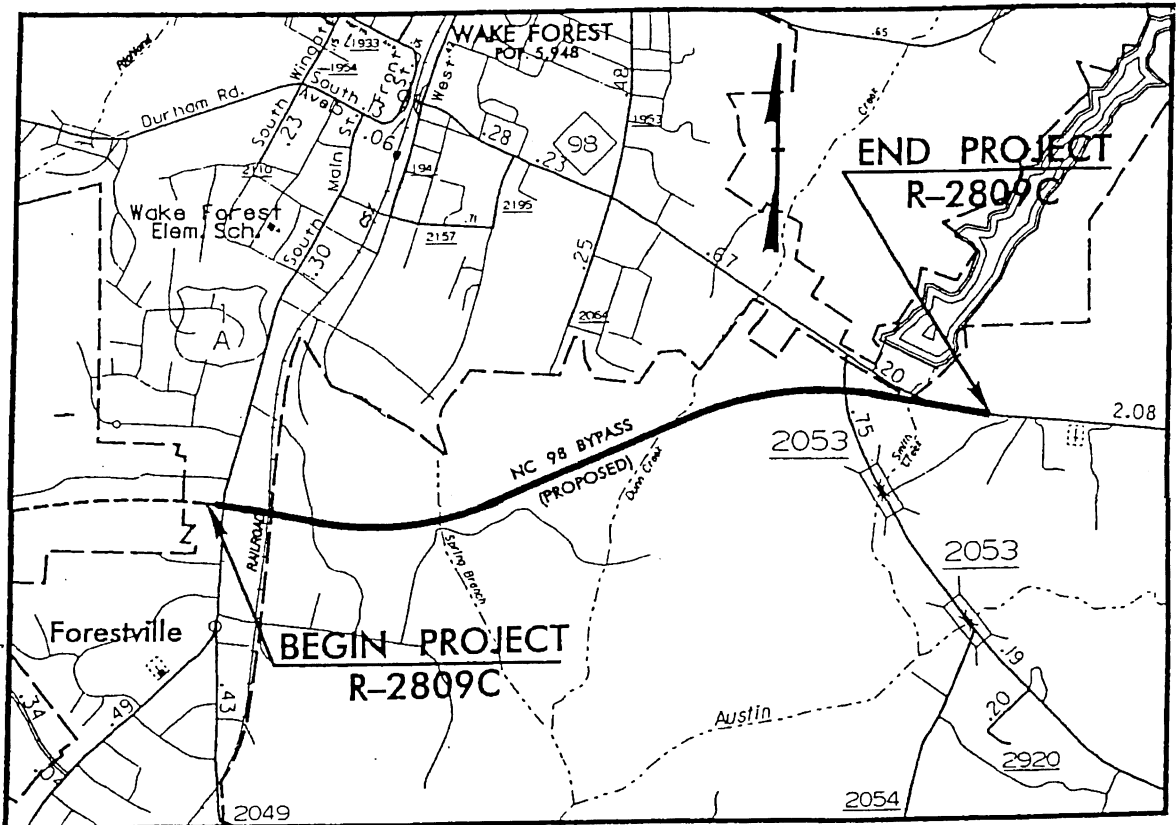
WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS					
			Permanent Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation in Wetlands (ha)	Mechanized Clearing in Wetlands (ha)	Hand Clearing in Wetlands (ha)	Permanent SW impacts (ha)	Temp. SW impacts (ha)	Existing Channel Impacts Permanent (m)	Existing Channel Impacts Temp. (m)	Natural Stream Design (m)		
1	-L- 31+96 / -Y2- 11+38	2 @ 2.1m x 1.8m RCBC							0.076			243.0		117
2	-Y2- 10+42 - 10+89 Lt							0.004				40.3		
3	Y1- 16+88 Lt - RPB- 11+08	4 @ 3.2m x 3.2m RCBC	0.024		0.021	0.008			0.019	0.013	23	44.8		
4	-L- 37+74 Rt - 38+34 Lt	4 @ 30m PSG Bridge	0.268						0.045	0.027	50	82.0		82
5	-L- 47+09 Lt - 47+70 Rt	1 @ 3.0m x 1.8m RCBC							0.018	0.002	8	84.0		
TOTALS:			0.292	0.000	0.021	0.008	0.000	0.162	0.042	494	81	199		

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 WBS - 34503.1.1 (R-2809H)
 SHEET **208 of 26** 8/3/2005



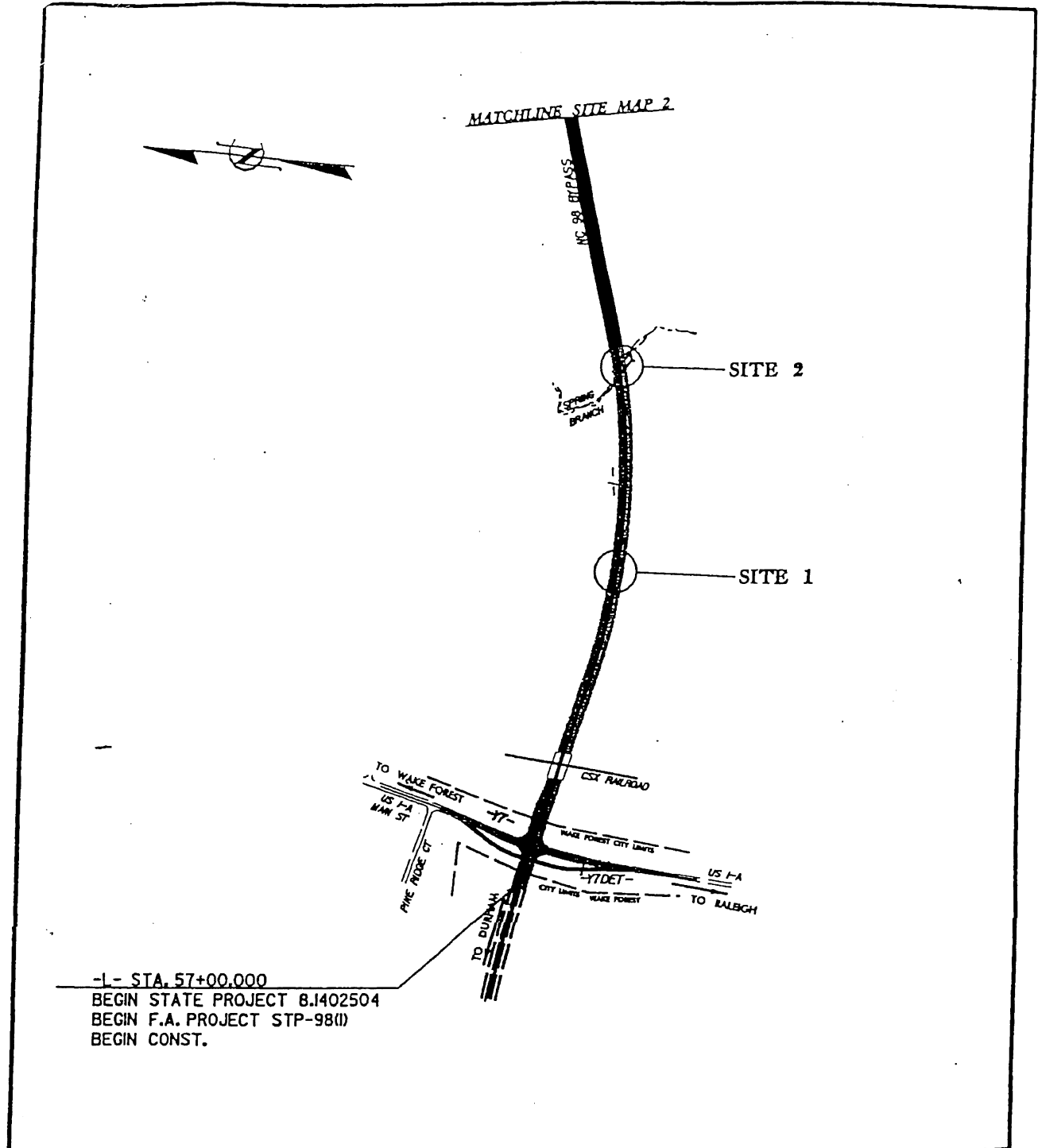
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VICINITY
MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053
SHEET 1 OF 12 REVISED 7/11/01

7/30/02
5/26/05

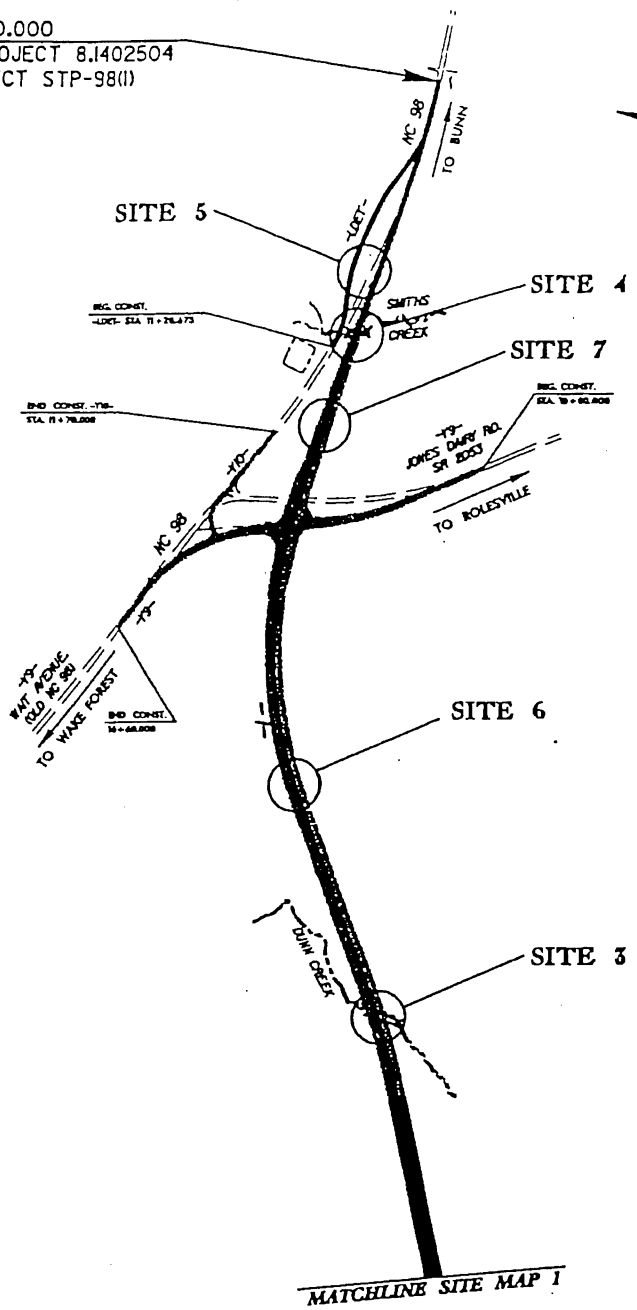


SITE MAP 1

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053
 SHEET 2 OF 12 REVISED 7/11/01

updated 10/01
 7/30/02
 5/26/05

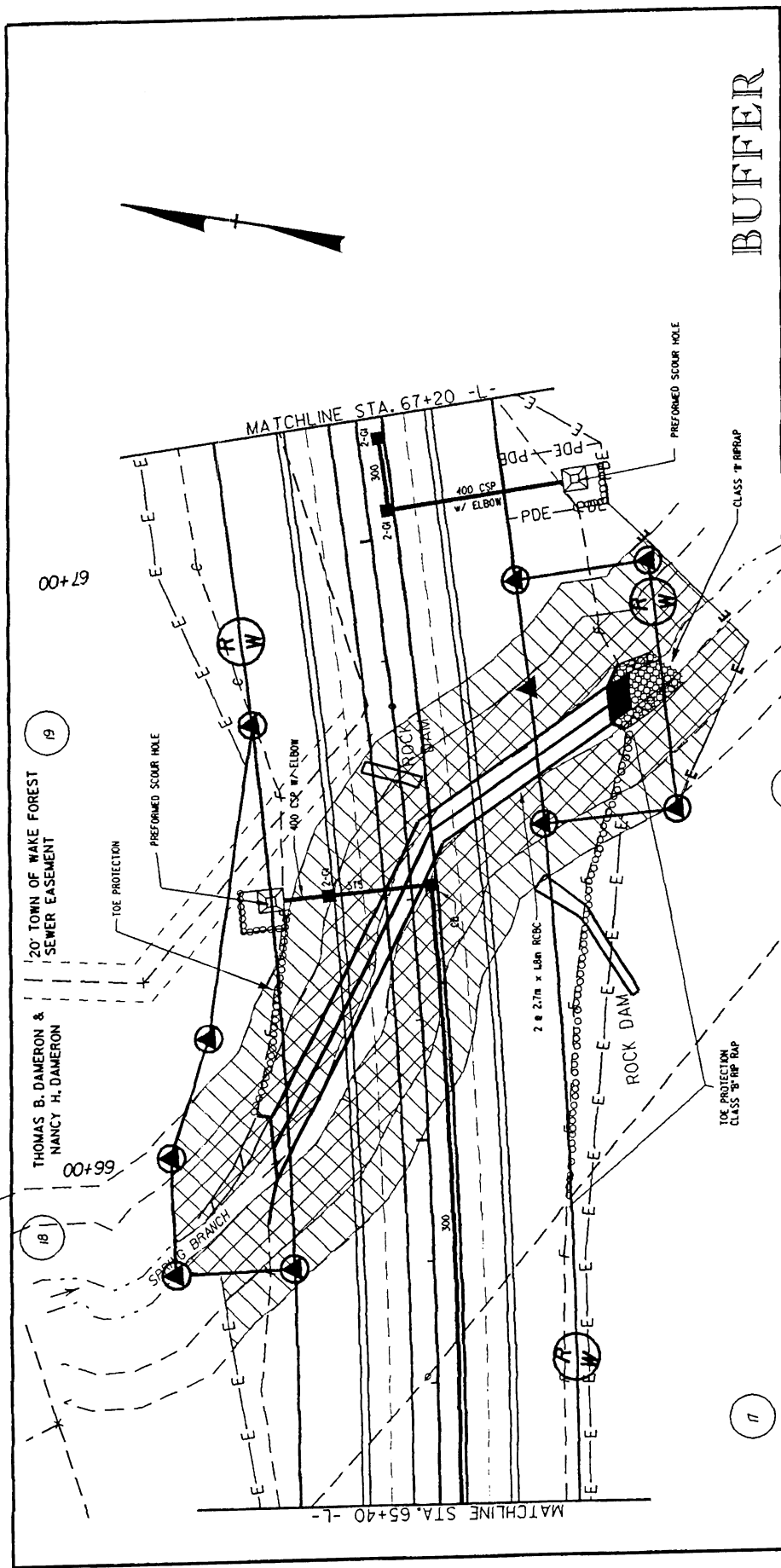
-L- STA. 88+20.00
END STATE PROJECT 8,1402504
END F.A. PROJECT STP-98(1)
END CONST.



SITE MAP 2

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8,1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053
SHEET 3 OF 2 REVISED 7/11/01

7/30/02
5/26/05



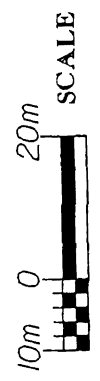
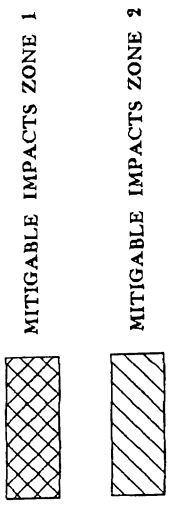
BUFFER

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053

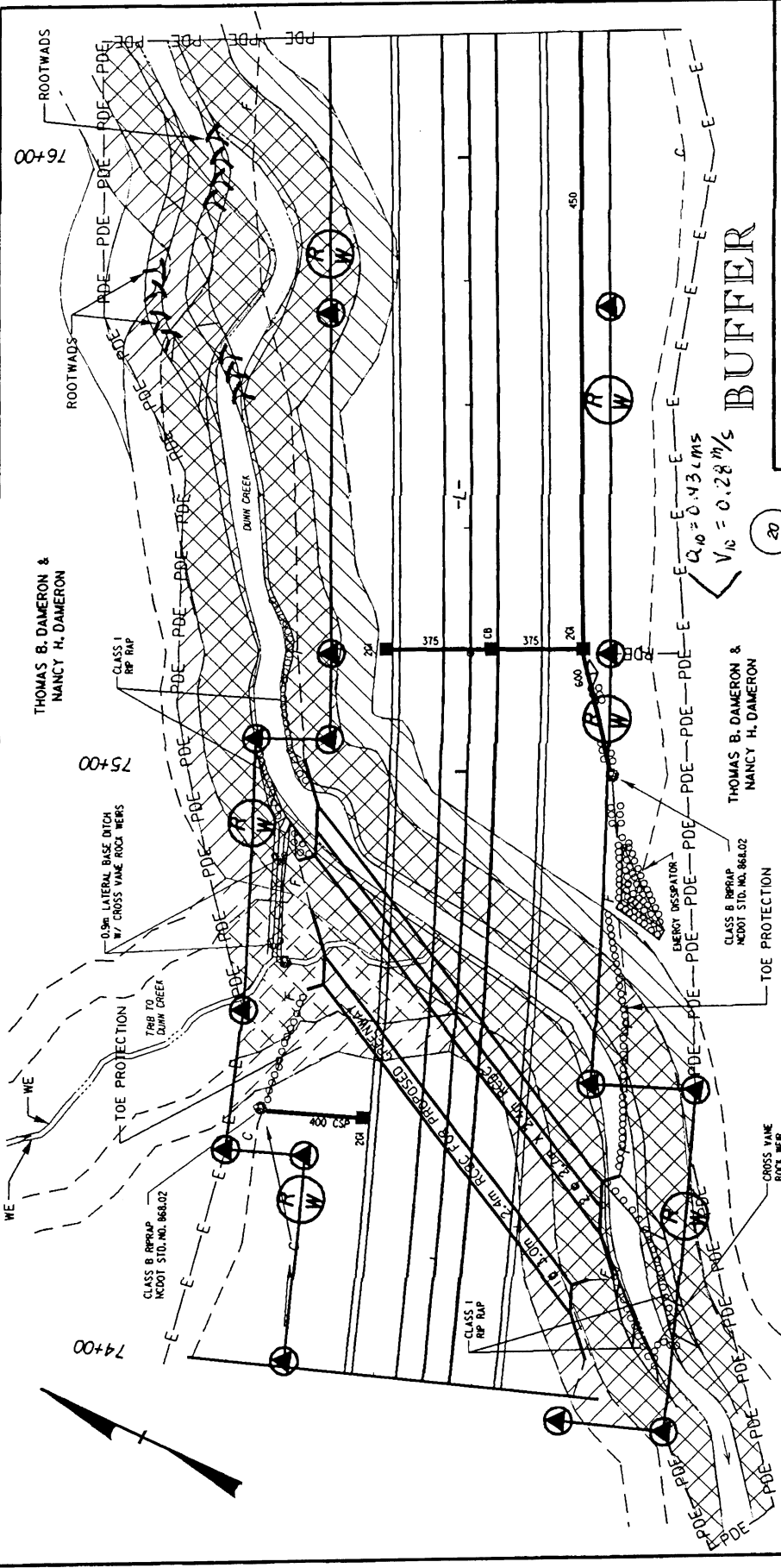
SHEET 5 OF 12 REVISED 5/05

PLAN VIEW SITE 2



THOMAS B. DAMERON & NANCY H. DAMERON

THOMAS B. DAMERON & NANCY H. DAMERON

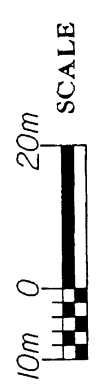


20
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 $V_{10} = 0.28 \text{ m/s}$

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053
 SHEET 6 OF 7 REVISED 5/05

- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2

PLAN VIEW
 SITE 3A & 3B

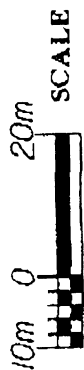
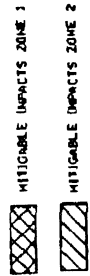
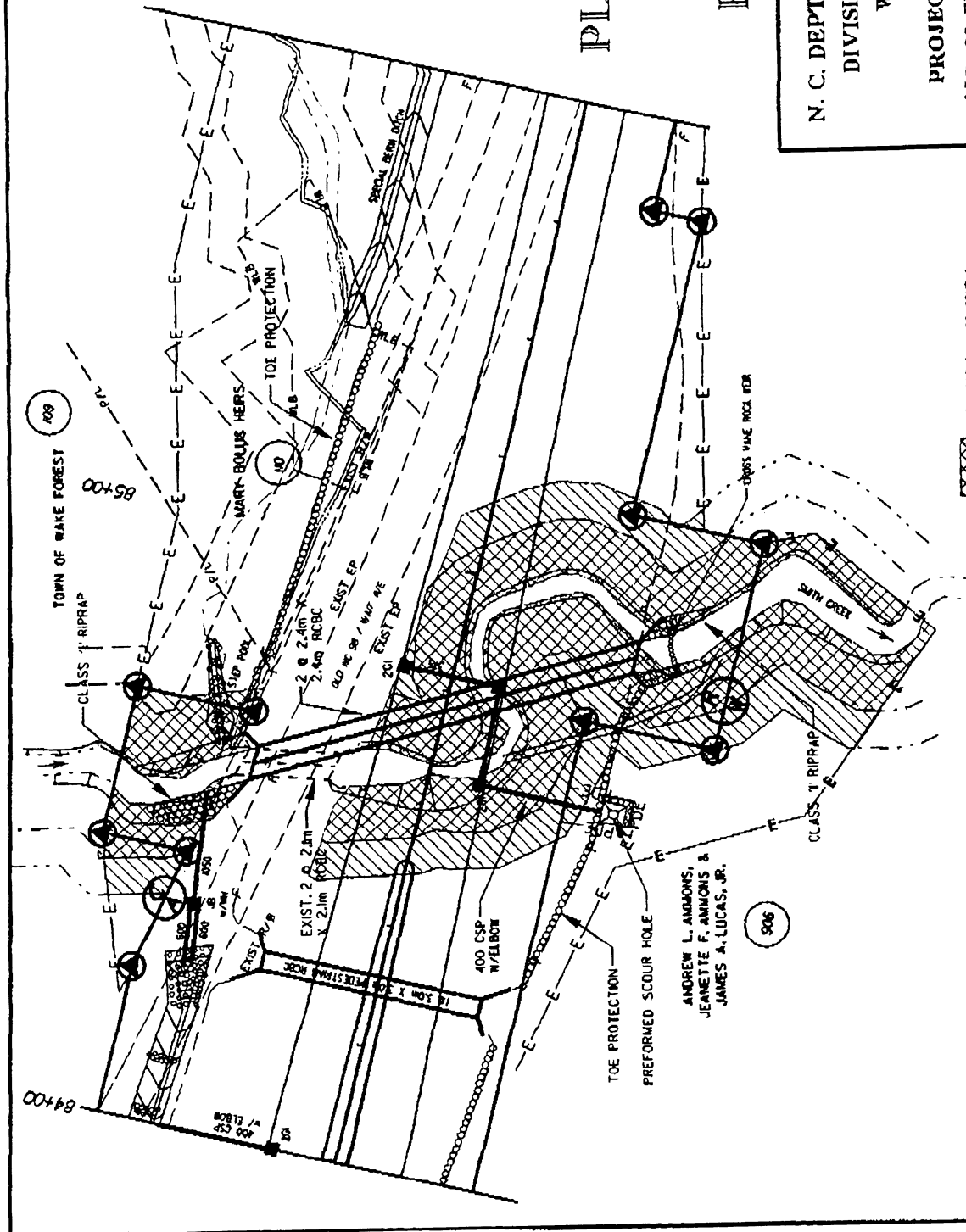


PLAN VIEW SITE 4 BUFFER

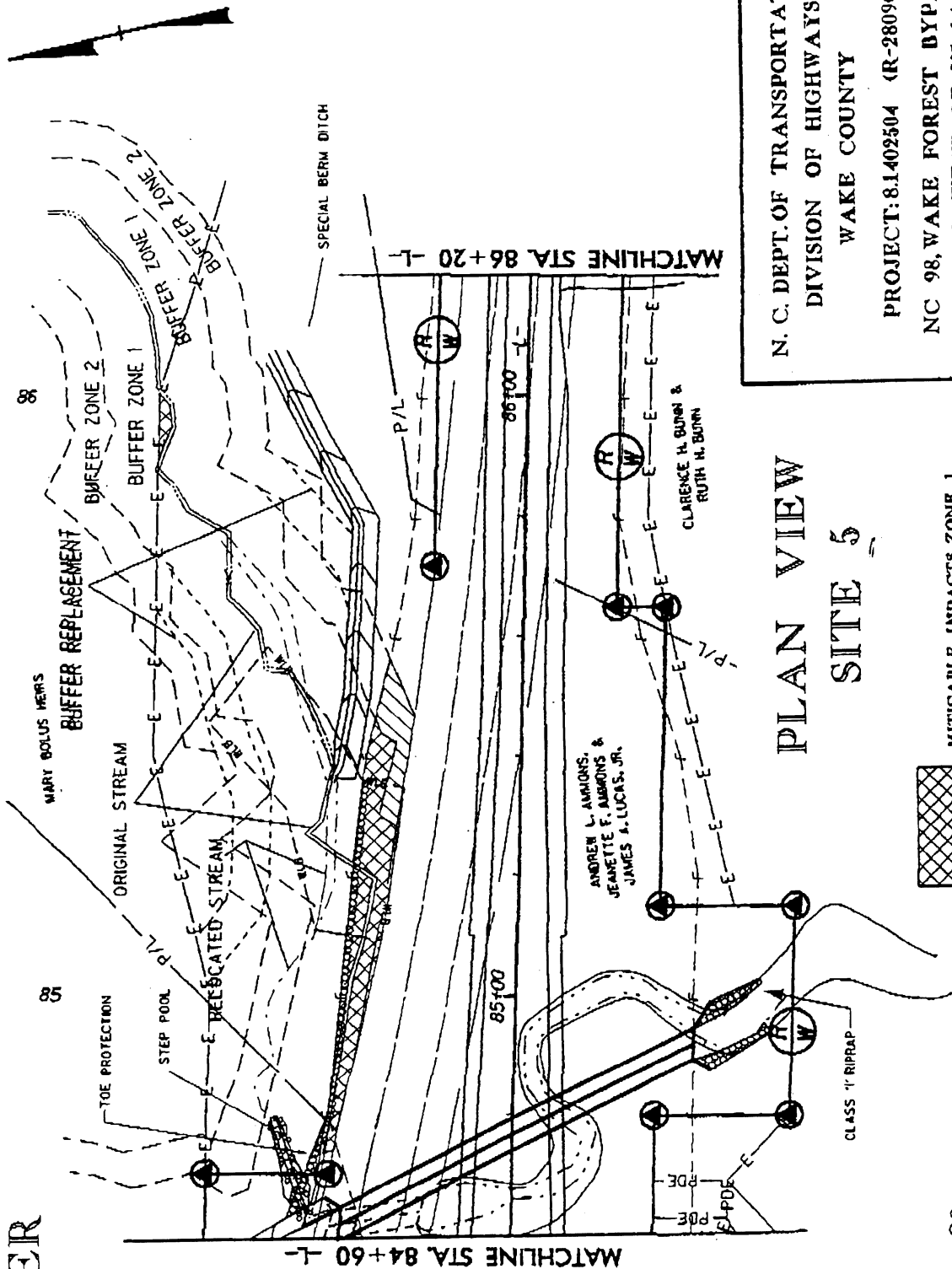
N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053

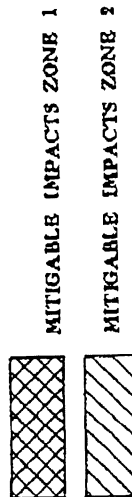
SHEET 7 OF 12 REVISED 5/05



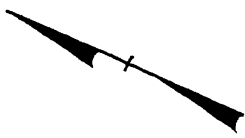
BUFFER



PLAN VIEW SITE 5



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053
 SHEET 5 OF 12 REVISED 8/05

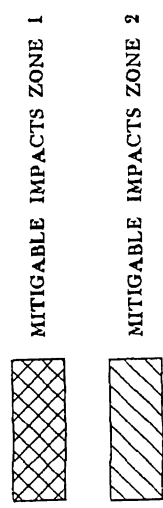
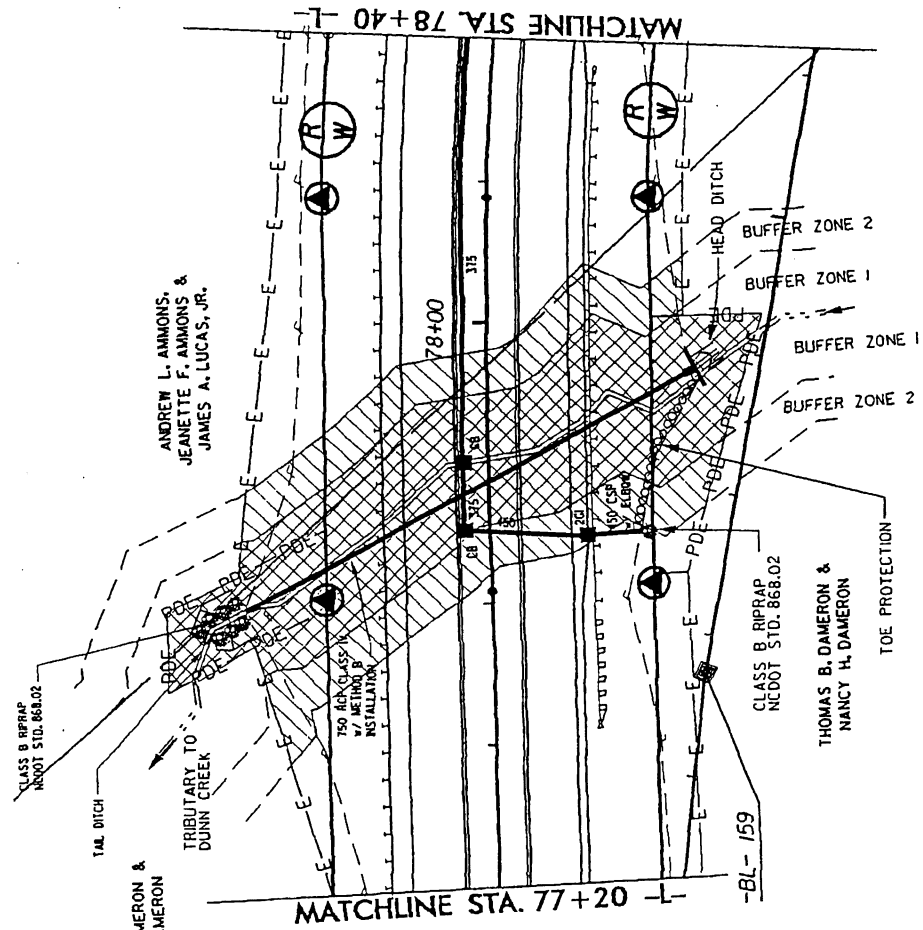


PLAN VIEW SITE 6

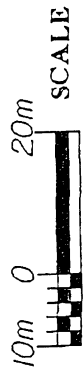
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 9 OF 12 REVISED 5/05



BUFFER



SCALE

Site No.	STRUCTURE (SIZE / TYPE)	STATION (FROM / TO)	IMPACT						MITIGABLE			BUFFER REPLACEMENT					
			TYPE		ALLOWABLE		TOTAL (m ²)	ZONE 1 (m ²)	ZONE 2 (m ²)	TOTAL (m ²)	ZONE 1 (m ²)	ZONE 2 (m ²)					
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (m ²)	ZONE 2 (m ²)											
2	2 @ 2.7m x 1.8m RCBC	66+40 -L-	X														
3A	Relocated Swale/Base Ditch	74+62 to 74+92 -L- Lt	X		731.0	297.0	1028.0										
3B	2 @ 2.7m x 2.4m RCBC	74+00 -L- Rt to 75+20 -L- Lt	X						4650.0	2703.0	7353.0		141.0		247.0		
4	2 @ 2.4m x 2.4m RCBC	84+67 -L-	X						2515.0	1118.0	3633.0						
5	Relocated Swale/Base Ditch	84+70 to 85+60 -L- Lt	X						287.0	90.0	377.0						
	TEMPORARY DETOUR	11+40 to 12+60 -LDET- Lt	X						1907.0	1240.0	3147.0		2046.0		801.0		
6	750 RCP	77+80 -L-	X						1493.0	921.0	2414.0						
TOTALS					731.0	297.0	1028.0		13308.0	7617.0	20925.0		2187.0		1048.0		

N.C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 34503.1.1 (R-2809C)
NC 98 WAKE FOREST BYPASS

BUFFER IMPACT SUMMARY

Site No	STRUCTURE (SIZE / TYPE)	STATION (FROM / TO)	IMPACT				MITIGABLE			BUFFER REPLACEMENT		
			TYPE		ALLOWABLE		TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)						
2	2 @ 9' x 6' RCBC	66+40 -L-	X				26436.0	16630.0	43066.0			
3A	Relocated Swale/Base Ditch	74+62 to 74+92 -L- LI	X		7868.0	3197.0						
3B	2 @ 9' x 8' RCBC	74+00 -L- R1 to 75+20 -L- LI	X				50051.0	29094.0	79145.0	1518.0	2669.0	
4	2 @ 8' x 8' RCBC	84+67 -L-	X				27070.0	12033.0	39103.0			
5	Relocated Swale/Base Ditch	84+70 to 85+60 -L- LI	X				3089.0	969.0	4058.0			
	Temporary Detour	11+40 to 12+60 -L-DET- LI	X				20526.0	13347.0	33873.0	22022.0	8621.0	
6	30" RCP	77+80 -L-	X				16070.0	9913.0	25983.0			
TOTALS					7868	3197	11065	143242	81986	225228	23540	11280

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS


WAKE COUNTY

PROJECT 34503.1.1 (R-2809C)
NC 98 WAKE FOREST BYPASS

SHEET 10 B OF 12 AUG-05

BUFFER LEGEND

—WLB— WETLAND BOUNDARY

 WETLAND

 ALLOWABLE IMPACTS ZONE 1

 ALLOWABLE IMPACTS ZONE 2

 MITIGABLE IMPACTS ZONE 1

 MITIGABLE IMPACTS ZONE 2

—BZ— RIPARIAN BUFFER ZONE

—BZ1— RIPARIAN BUFFER ZONE 1
30 ft (9.2m)

—BZ2— RIPARIAN BUFFER ZONE 2
20 ft (6.1m)

→ FLOW DIRECTION

—TB— TOP OF BANK

—WE— EDGE OF WATER

—C— PROP. LIMIT OF CUT

—F— PROP. LIMIT OF FILL

▲ PROP. RIGHT OF WAY

—NG— NATURAL GROUND

—PL— PROPERTY LINE

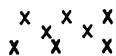
—TDE— TEMP. DRAINAGE EASEMENT


—PDE— PERMANENT DRAINAGE EASEMENT

—EAB— EXIST. ENDANGERED ANIMAL BOUNDARY

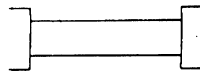
—EPB— EXIST. ENDANGERED PLANT BOUNDARY

—▽— WATER SURFACE


 LIVE STAKES

 BOULDER


— — — CORE FIBER ROLLS

 PROPOSED BRIDGE

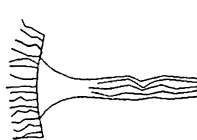
 PROPOSED BOX CULVERT

 PROPOSED PIPE CULVERT
12'-48"
PIPES
54" PIPES
& ABOVE

(DASHED LINES DENOTE EXISTING STRUCTURES)


 SINGLE TREE

 WOODS LINE

 DRAINAGE INLET

 ROOTWAD

 RIP RAP

 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

 PREFORMED SCOUR HOLE (PSH)

 LEVEL SPREADER (LS)

 GRASS SWALE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 34503.1.1 (R-2809C)

NC 98 WAKE FOREST BYPASS

SHEET 11 OF 12

PROPERTY OWNERS

NAMES AND ADDRESSES

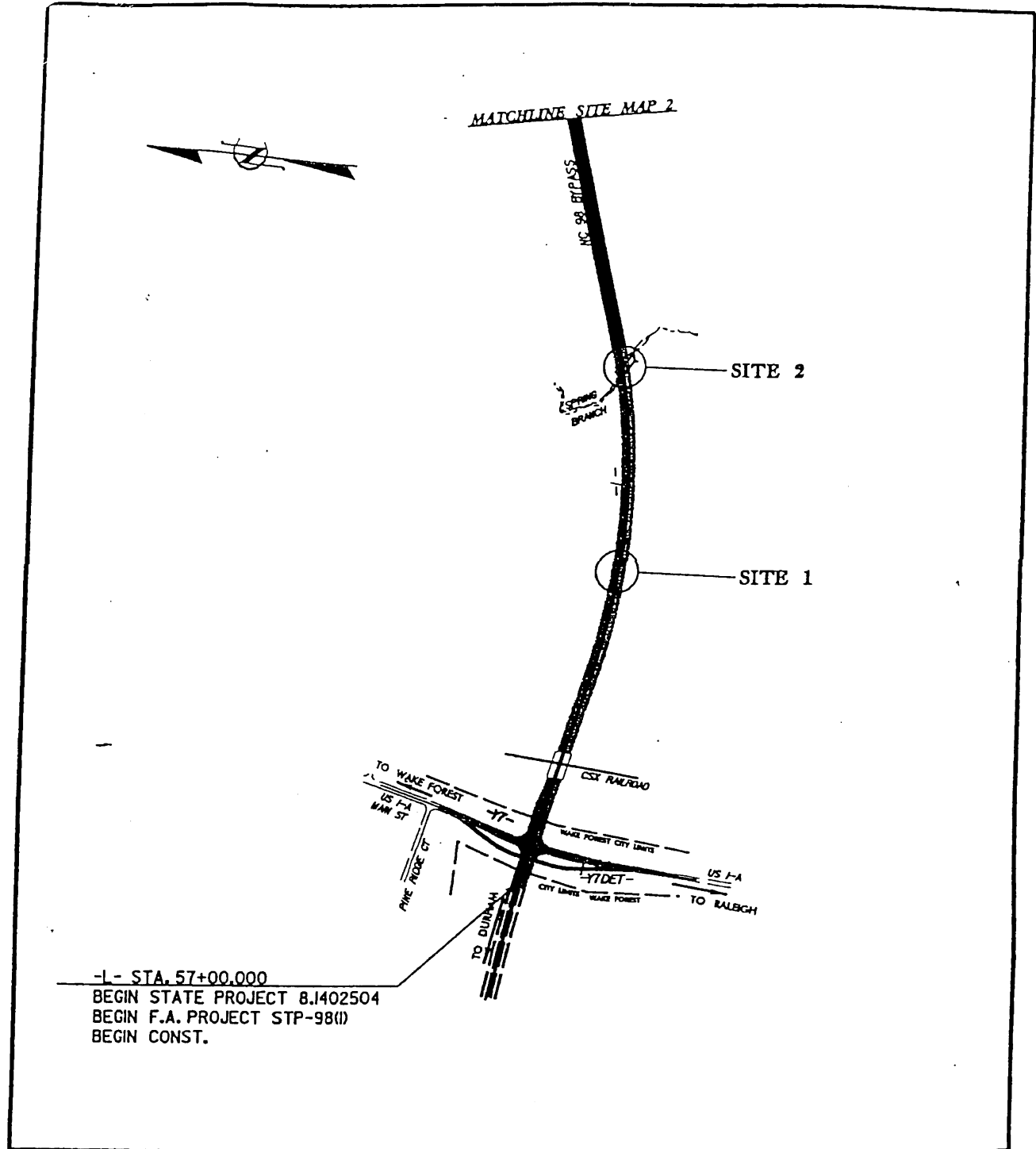
PARCEL NO.	NAMES	ADDRESSES
	CADY CONSTRUCTION CO	7020 SIX FORKS RD RALEIGH NC 27615
	ELIZABETH H. HOLDING	12630 WAKE UNION CHURCH RD WAKE FOREST NC 27588
	THOMAS DAMERON NANCY DAMERON	414 SCOTLAND ST RALEIGH, NC 27609
	TOWN OF WAKE FOREST	401E. ELM ST WAKE FOREST NC 27587
	MARY BOLUS HEIRS	C/O ELIZABETH B. NASSIF 115 E. ELM ST WAKE FOREST NC 27587
	ANDREW L. AMMONS JEANETTE AMMONS JAMES LUCAS, JR.	7412 CHAPEL HILL RD RALEIGH NC 27607

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402501 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 12 OF 12 REVISED 7/11/01

5/26/05

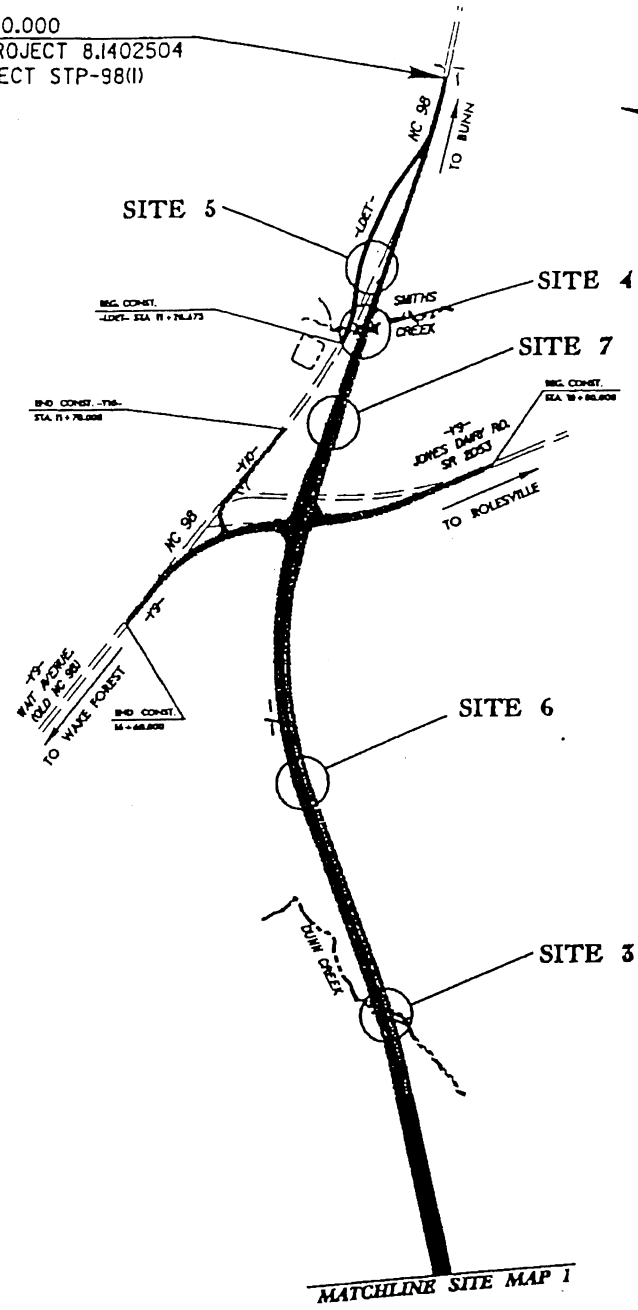


SITE MAP 1

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US I-4
 TO EAST OF SR 2053
 SHEET 2 OF 92 REVISED 7/11/01

updated 10/01
 7/30/02
 5/20/05

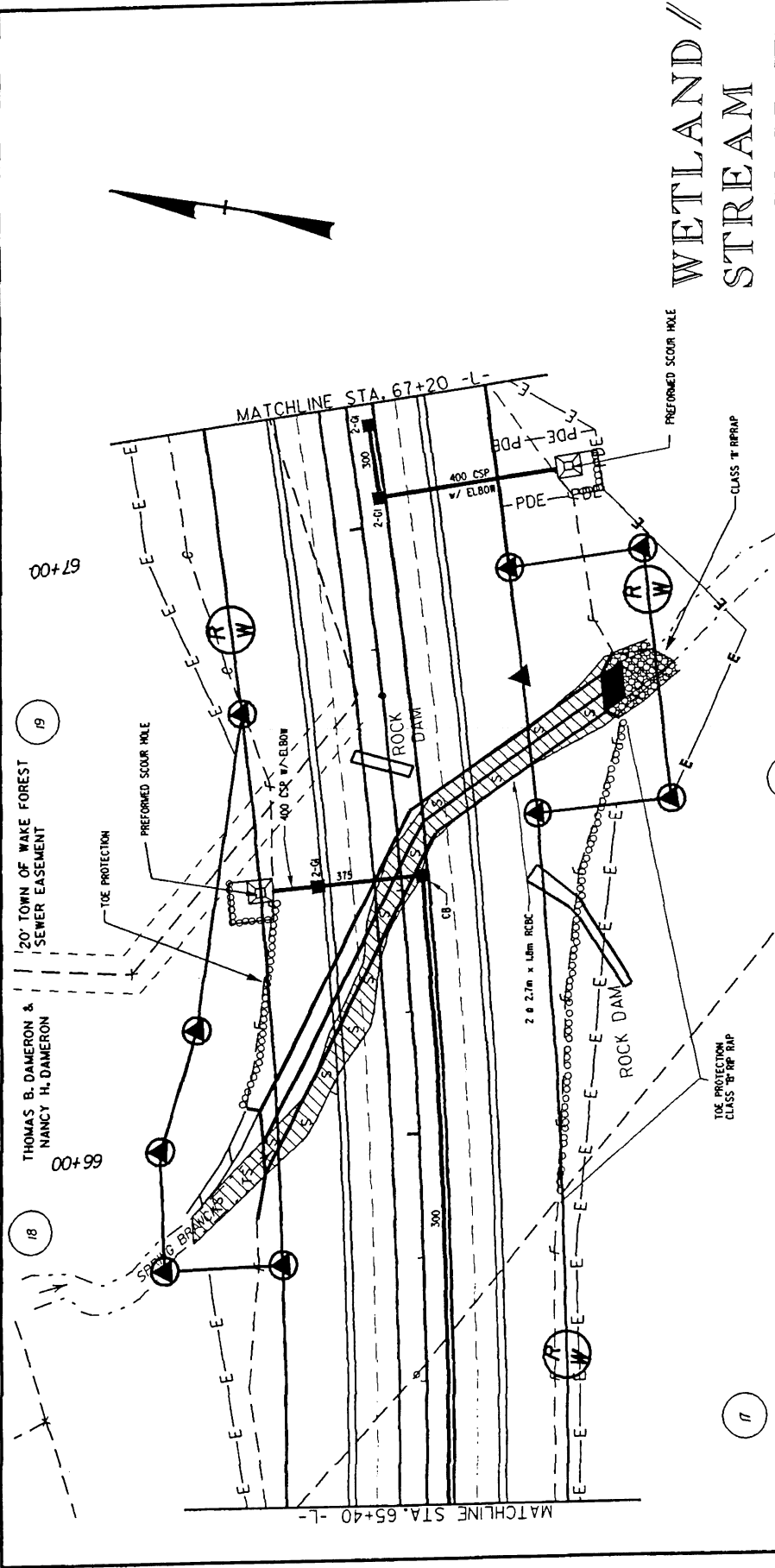
-L- STA. 88+20.000
END STATE PROJECT 8.1402504
END F.A. PROJECT STP-98(I)
END CONST.



SITE MAP 2

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053
SHEET 3 OF 12 REVISED 7/11/01

7/30/02
5/26/03



WETLAND /
STREAM

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 5 OF 12 REVISED 5 / 05

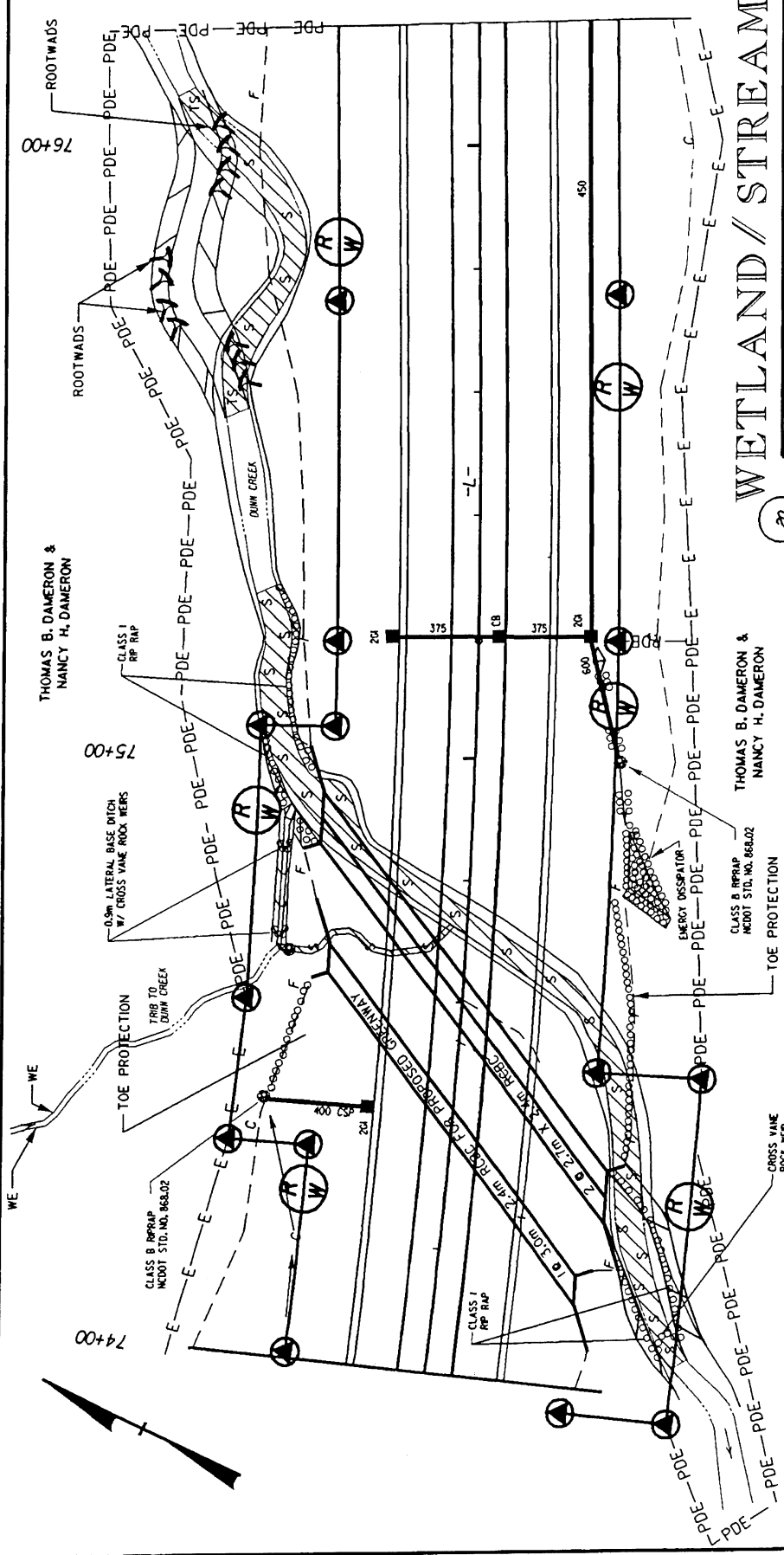
THOMAS B. DAMERON &
NANCY H. DAMERON

PERMANENT SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

10m 0 20m SCALE

PLAN VIEW
SITE 2



WETLAND / STREAM

20

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY

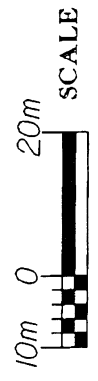
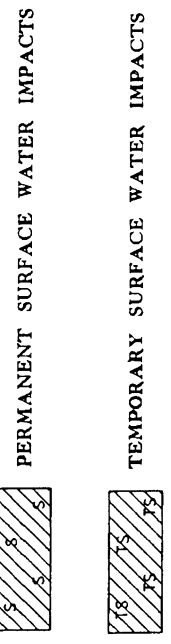
PROJECT: 8.1402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053

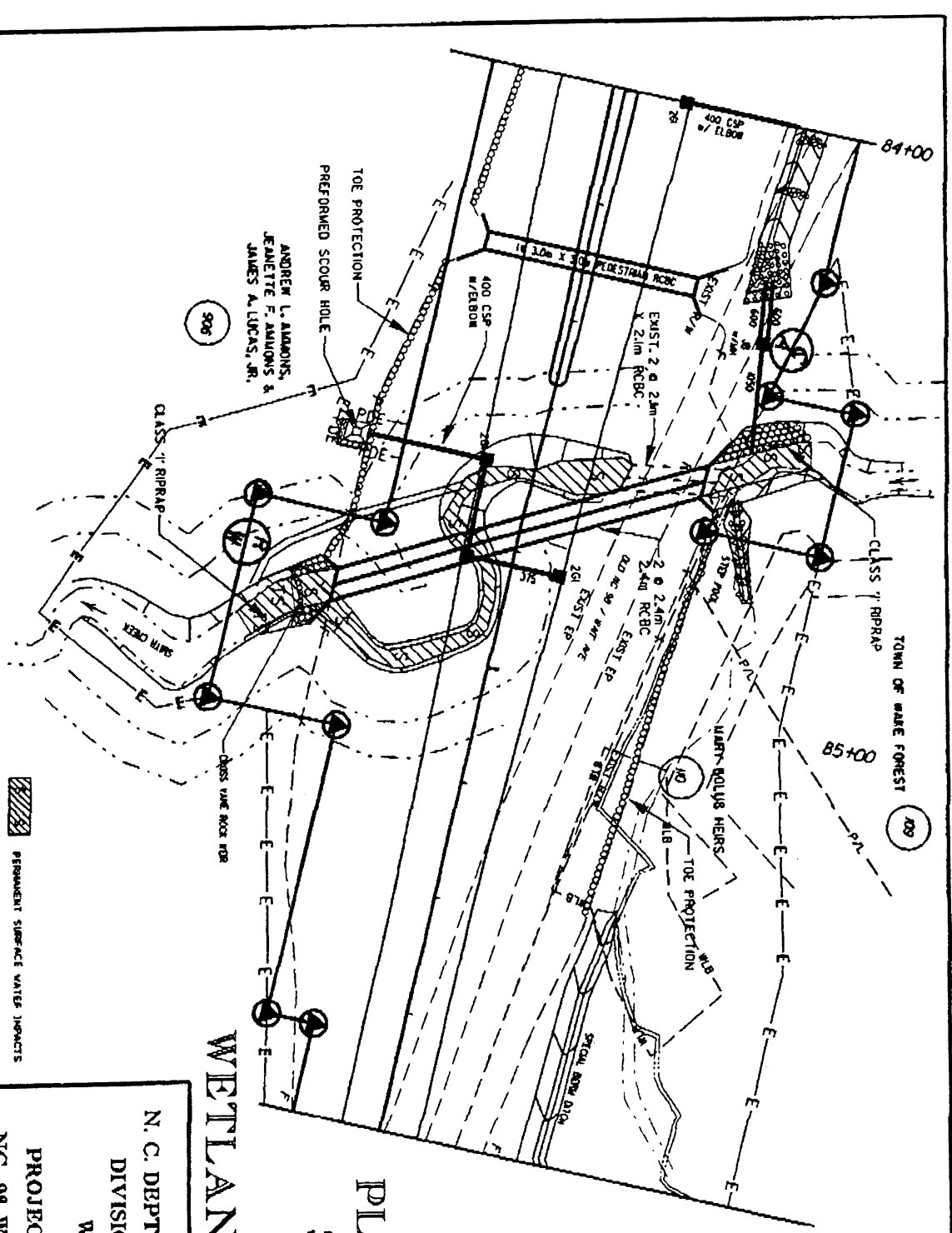
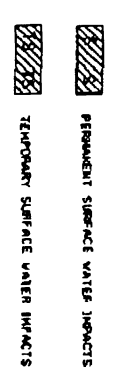
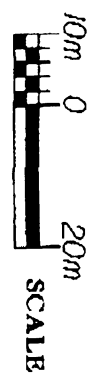
SHEET 6 OF 12 REVISED 5/05

THOMAS B. DAMERON &
 NANCY H. DAMERON

THOMAS B. DAMERON &
 NANCY H. DAMERON

PLAN VIEW
 SITE 3A & 3B

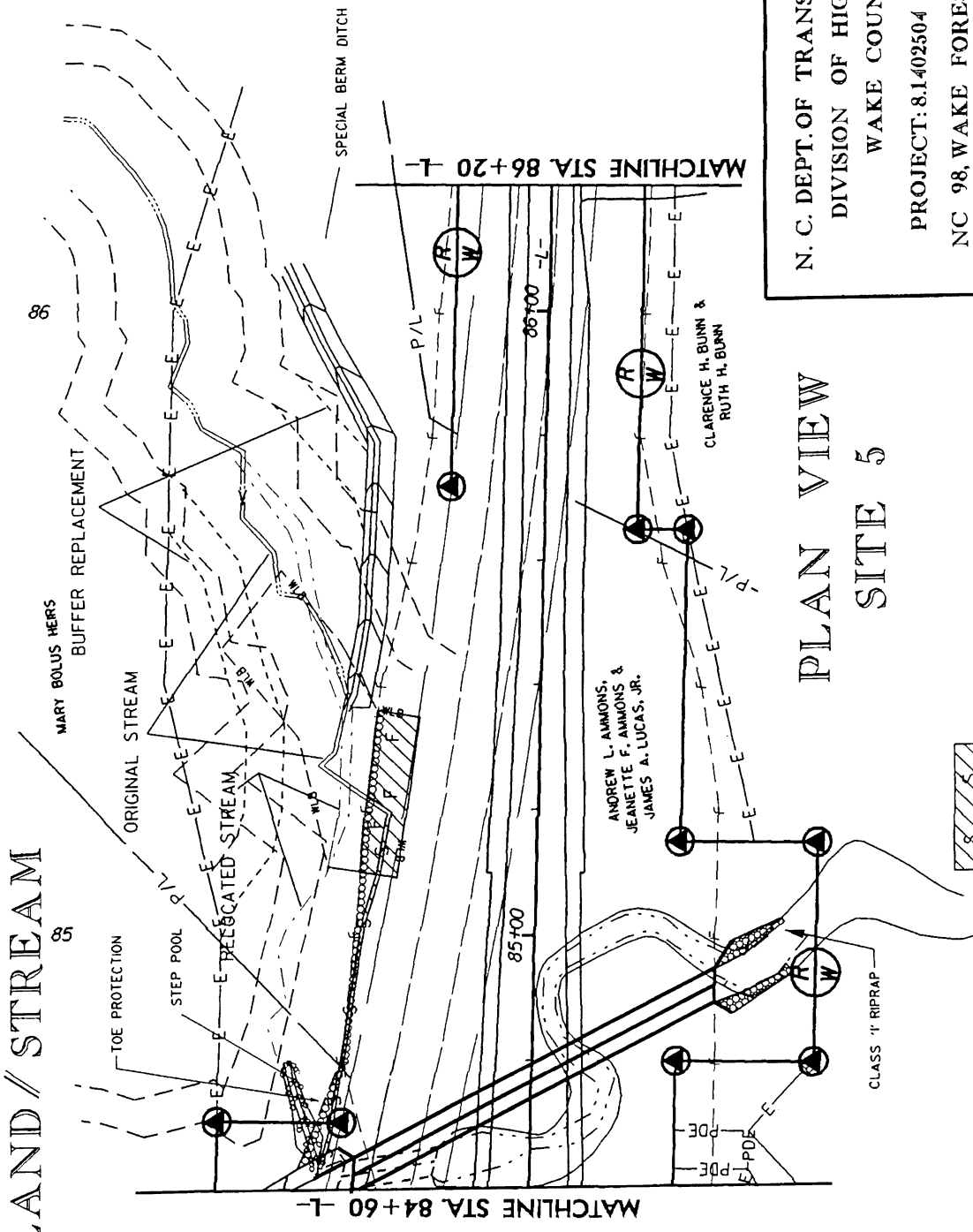




WETLAND // STREAM
PLAN VIEW
SITE 4

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053
SHEET 1 OF 2 REVISED 5/05

WETLAND / STREAM



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)

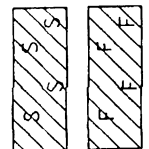
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 3 OF 12 REVISED 8/05

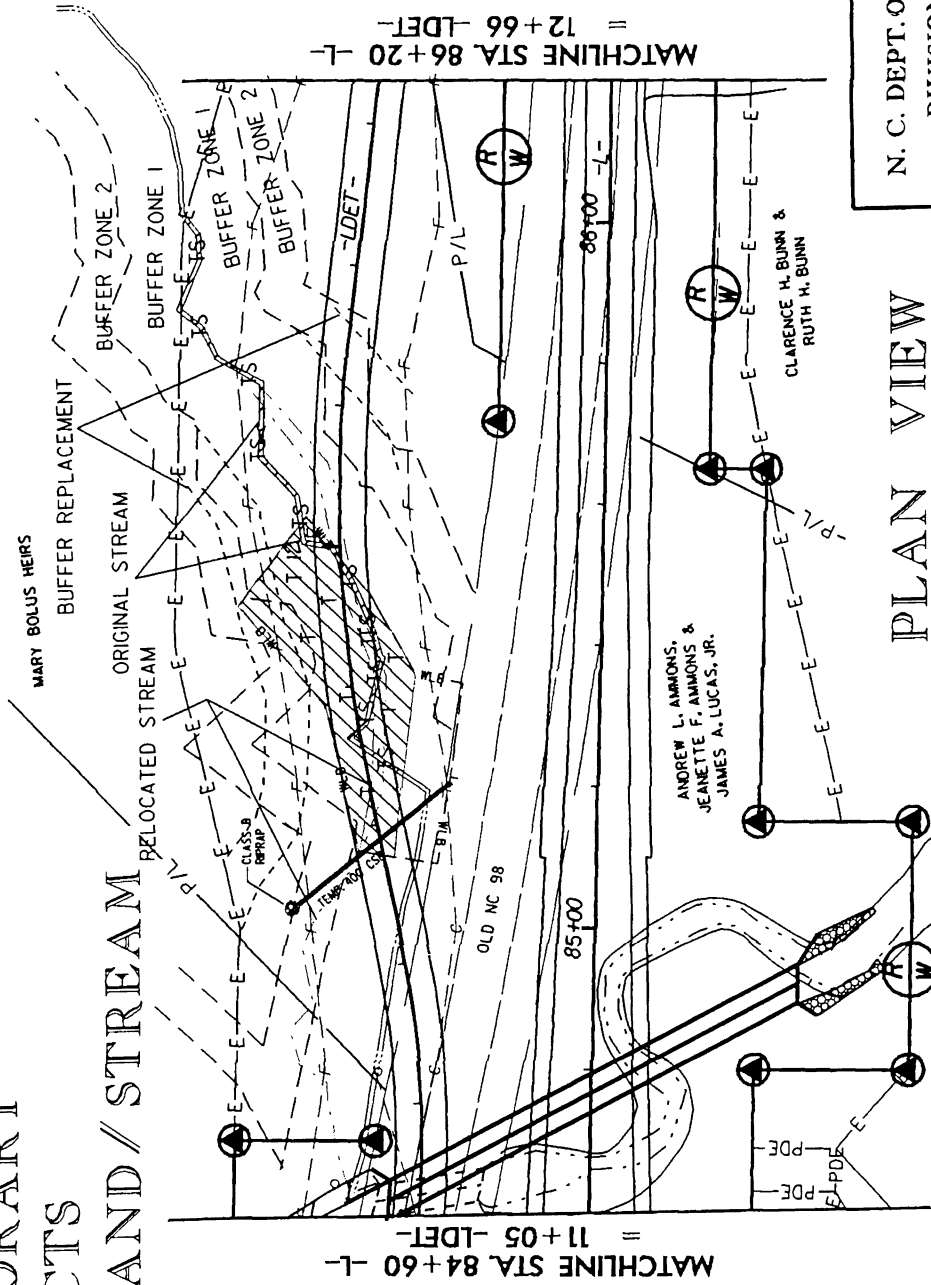
PLAN VIEW SITE 5



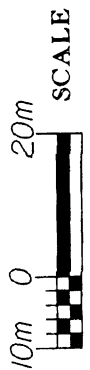
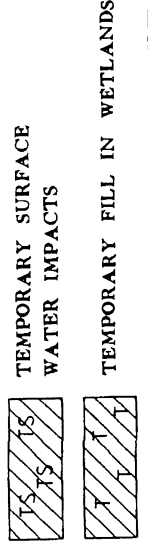
SCALE



TEMPORARY IMPACTS WETLAND / STREAM



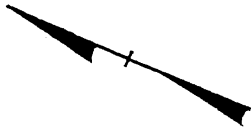
PLAN VIEW SITE 5



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

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REVISED 8/05

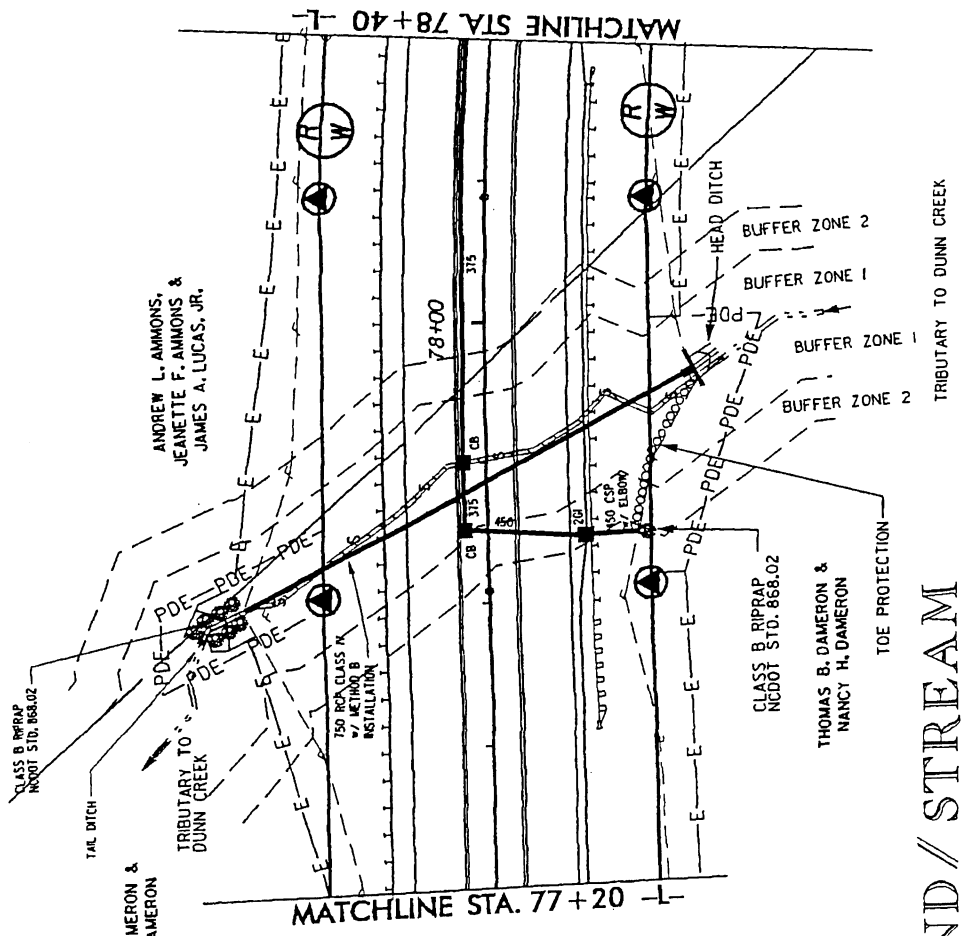


PLAN VIEW SITE 6

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402504 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 9 OF 12 REVISED 5/05



WETLAND // STREAM



PERMANENT SURFACE WATER IMPACTS

THOMAS B. DAMERON &
NANCY H. DAMERON

ANDREW L. AMMONS,
JEANNETTE F. AMMONS &
JAMES A. LUCAS, JR.

THOMAS B. DAMERON &
NANCY H. DAMERON

CLASS B RIPRAP
NCCDOT STD. 866.02

CLASS B RIPRAP
NCCDOT STD. 868.02

150 PER CLASS H
1/2\"/>

HEAD DITCH

BUFFER ZONE 2

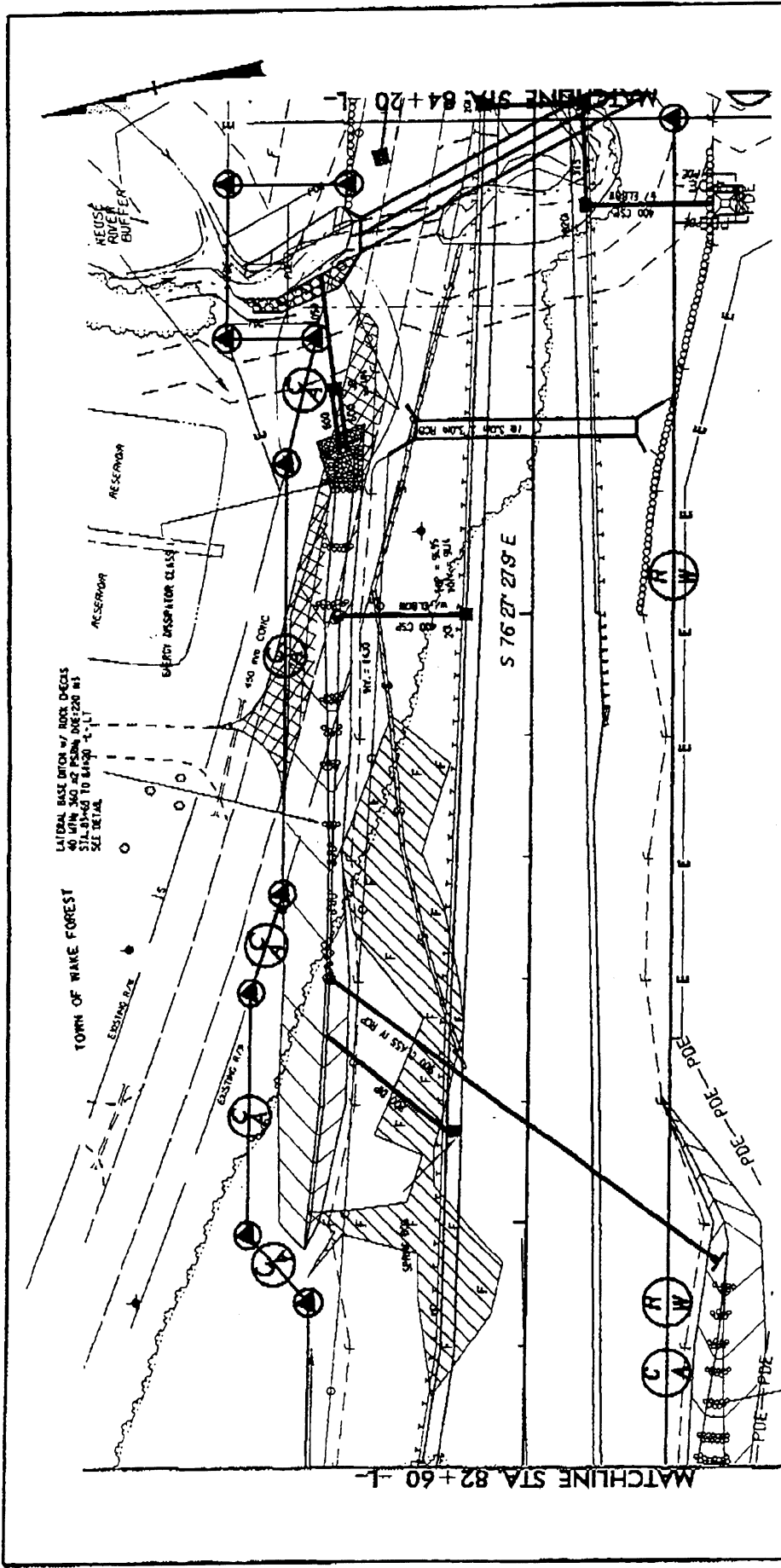
BUFFER ZONE 1

BUFFER ZONE 1

BUFFER ZONE 2

TRIBUTARY TO DUNN CREEK

TOE PROTECTION



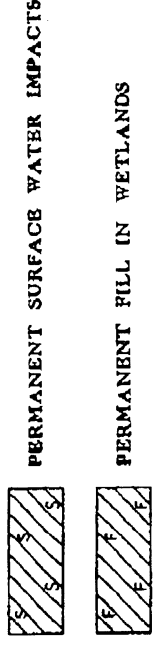
N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY

PROJECT: 8.1.402504 (R-2809C)
 NC 98, WAKE FOREST BYPASS
 FROM WEST OF US 1A
 TO EAST OF SR 2053

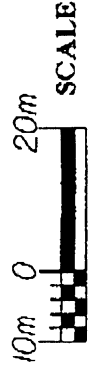
SHEET 14 OF 12 REVISED 5/05

PLAN VIEW SITE 7

ANDREW L. ALMONS,
 JEANETTE F. AMMONS &
 JAMES A. LUCAS, JR.



LATERAL BASE PITCH w/ ROCK DECKS
 S76 27' 27.8" E
 SEE DETAIL



WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS									
			Permanent Fill in Wetlands (ha)	Temp. Fill in Wetlands (ha)	Excavation in Wetlands (ha)	Mechanized Clearing in Wetlands (ha)	Hand Clearing in Wetlands (ha)	Permanent SW impacts (ha)	Temp. SW impacts (ha)	Existing Channel Impacts Permanent (m)	Existing Channel Impacts Temp. (m)	Natural Stream Design (m)				
1	62+95 -L-	N/A	0.004													
2	66+40 -L-	2@2.7mX1.8m RCBC								0.053	0.006	110	16			
3A	74+62 - 74+92 -L- Lt	Relocated Swale								0.003		30				23
3B	74+00 Rt - 75+20 Lt -L-	2@2.7mX2.4m RCBC								0.079	0.006	204	16			48
4	84+60 -L-	2 @ 2.4m X 2.4m RCBC								0.035	0.005	109	9			
5	85+20 -L- Lt & -L-DET-	Perm. & Temp. Fill	0.016	0.051						0.004	0.006	62	98			60
6	77+80 -L-	750 RCP								0.005		87				
7	82+70 - 83+80 -L- Lt	900 RCP	0.113							0.008		138				
TOTALS:			0.133	0.051	0.000	0.000	0.000	0.000	0.000	0.187	0.023	740	139			131

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
WBS - 34503.1.1 (R-2809C)

SHEET

10 of 12

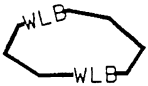
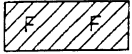

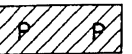

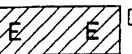




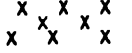

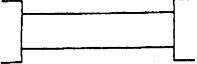
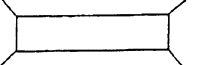




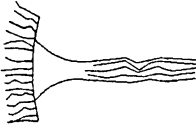



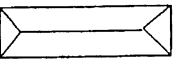
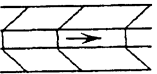
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WETLAND PERMIT IMPACT SUMMARY

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)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)				
1	62+95 -L-	N/A	0.010													
2	66+40 -L-	2@ 9' X 6' RCBC								0.130	0.015	361	53			
3A	74+62 - 74+92 -L- Lt	Relocated Swale								0.007		98			75	
3B	74+00 Rt - 75+20 Lt -L-	2@ 9' X 8' RCBC								0.195	0.015	669	53		157	
4	84+60 -L-	2@ 8' X 8' RCBC								0.086	0.012	358	30			
5	85+20 -L- Lt & -LDET-	Perm. & Temp. Fill	0.040	0.126						0.010	0.015	203	322		196	
6	77+80 -L-	750 RCP								0.012		285				
7	82+70 - 83+80 -L- Lt	900 RCP	0.279							0.020		453				
TOTALS:			0.33	0.13	0.00	0.00	0.00	0.00	0.46	0.06	2427	458	428			

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 WBS - 34503.1.1 (R-2809C)
10B of 12
6/05
 #####
 SHEET

WETLAND LEGEND

- | | |
|--|---|
| <p>— WLB — WETLAND BOUNDARY</p> <p> WETLAND</p> <p> DENOTES FILL IN WETLAND</p> <p> DENOTES FILL IN SURFACE WATER</p> <p> DENOTES FILL IN SURFACE WATER (POND)</p> <p> DENOTES TEMPORARY FILL IN WETLAND</p> <p> DENOTES EXCAVATION IN WETLAND</p> <p> DENOTES TEMPORARY FILL IN SURFACE WATER</p> <p> DENOTES MECHANIZED CLEARING</p> <p>— — FLOW DIRECTION</p> <p> TOP OF BANK</p> <p>— WE — EDGE OF WATER</p> <p>— C — PROP. LIMIT OF CUT</p> <p>— F — PROP. LIMIT OF FILL</p> <p> PROP. RIGHT OF WAY</p> <p>— NG — NATURAL GROUND</p> <p>— PL — PROPERTY LINE</p> <p>— TDE — TEMP. DRAINAGE EASEMENT</p> <p>— PDE — PERMANENT DRAINAGE EASEMENT</p> <p>— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY</p> <p>— EPB — EXIST. ENDANGERED PLANT BOUNDARY</p> <p>— ∇ — WATER SURFACE</p> <p> LIVE STAKES</p> <p> BOULDER</p> <p>— — CORE FIBER ROLLS</p> | <p> PROPOSED BRIDGE</p> <p> PROPOSED BOX CULVERT</p> <p> PROPOSED PIPE CULVERT
 <small>12"-48" PIPES
54" PIPES & ABOVE</small></p> <p>(DASHED LINES DENOTE EXISTING STRUCTURES)</p> <p> SINGLE TREE</p> <p> WOODS LINE</p> <p> DRAINAGE INLET</p> <p> ROOTWAD</p> <p> RIP RAP</p> <p> ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE</p> <p> PREFORMED SCOUR HOLE (PSH)</p> <p> LEVEL SPREADER (LS)</p> <p> GRASS SWALE</p> |
|--|---|

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 34503.1.1 (R-2809C)

NC 98 WAKE FOREST BYPASS

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
	CADY CONSTRUCTION CO	7020 SIX FORKS RD RALEIGH NC 27615
	ELIZABETH H. HOLDING	12630 WAKE UNION CHURCH RD WAKE FOREST NC 27588
	THOMAS DAMERON NANCY DAMERON	414 SCOTLAND ST RALEIGH, NC 27609
	TOWN OF WAKE FOREST	401E. ELM ST WAKE FOREST NC 27587
	MARY BOLUS HEIRS	C/O ELIZABETH B. NASSIF 115 E. ELM ST WAKE FOREST NC 27587
	ANDREW L. AMMONS JEANETTE AMMONS JAMES LUCAS, JR.	7412 CHAPEL HILL RD RALEIGH NC 27607

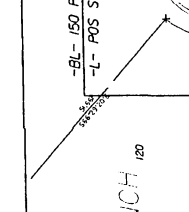
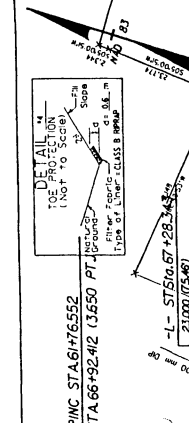
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402501 (R-2809C)
NC 98, WAKE FOREST BYPASS
FROM WEST OF US 1A
TO EAST OF SR 2053

SHEET 12 OF 12 REVISED 7/11/01

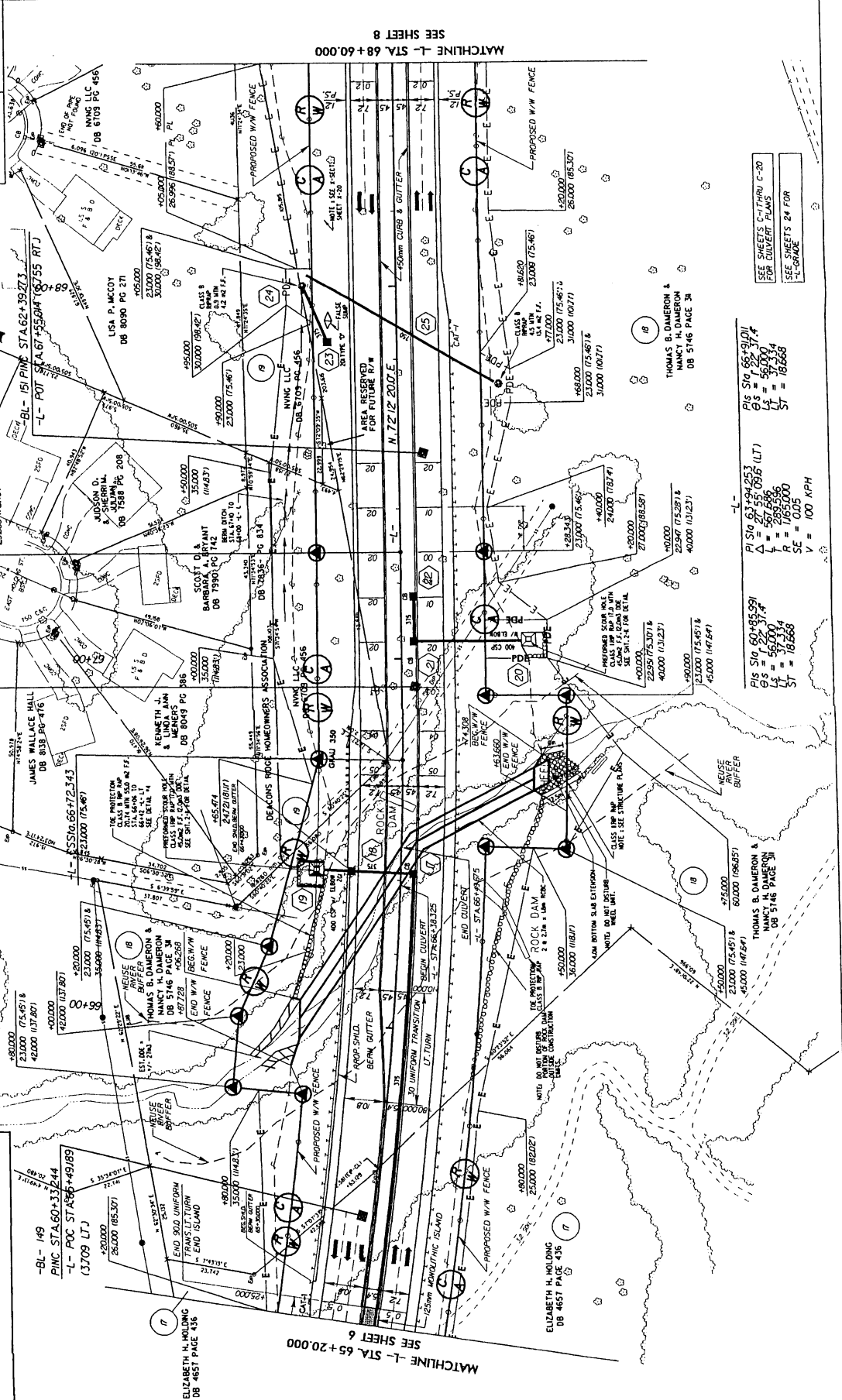
5/20/05

PROJECT REFERENCE NO. SHEET NO.
 R-25024 7
 ROADWAY DESIGN ENGINEER
 METRICS
 THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY RONALD D. ALLEN, PE. F. HENRY WELLS, PE. WALSINGHAM DESIGN GROUP ON DECEMBER 18, 2001.
 THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY AND SEALED BY WALSINGHAM DESIGN GROUP ON DECEMBER 18, 2001.
 CONSTRUCTION PERMIT NO. 08 6103 P.C. 456
 N.W. REV. 12/11/01



REVISIONS

-BL- 149
 P.I.C. STA. 60+33.244
 -L- P.O.C. STA. 65+49.189
 (3709 LTJ)
 ELIZABETH H. HOLDING
 DB 4851 PAGE 35



SEE SHEET 6
 MATCHLINE L- STA. 65 + 20.00

SEE SHEET 8
 MATCHLINE L- STA. 68 + 60.00

P.I. STA. 60+33.244
 Δ = 22.947
 L = 567.236
 R = 2895.566
 SE = 0.05
 V = 18.668

P.I. STA. 65+49.189
 Δ = 22.947
 L = 567.236
 R = 2895.566
 SE = 0.05
 V = 18.668

SEE SHEETS C-1 THRU C-20
 FOR CONCRETE DETAILS
 SEE SHEETS 24 FOR
 T-GRADE

PROJECT REFERENCE NO. **P-2905C**
 ROADWAY DESIGN ENGINEER

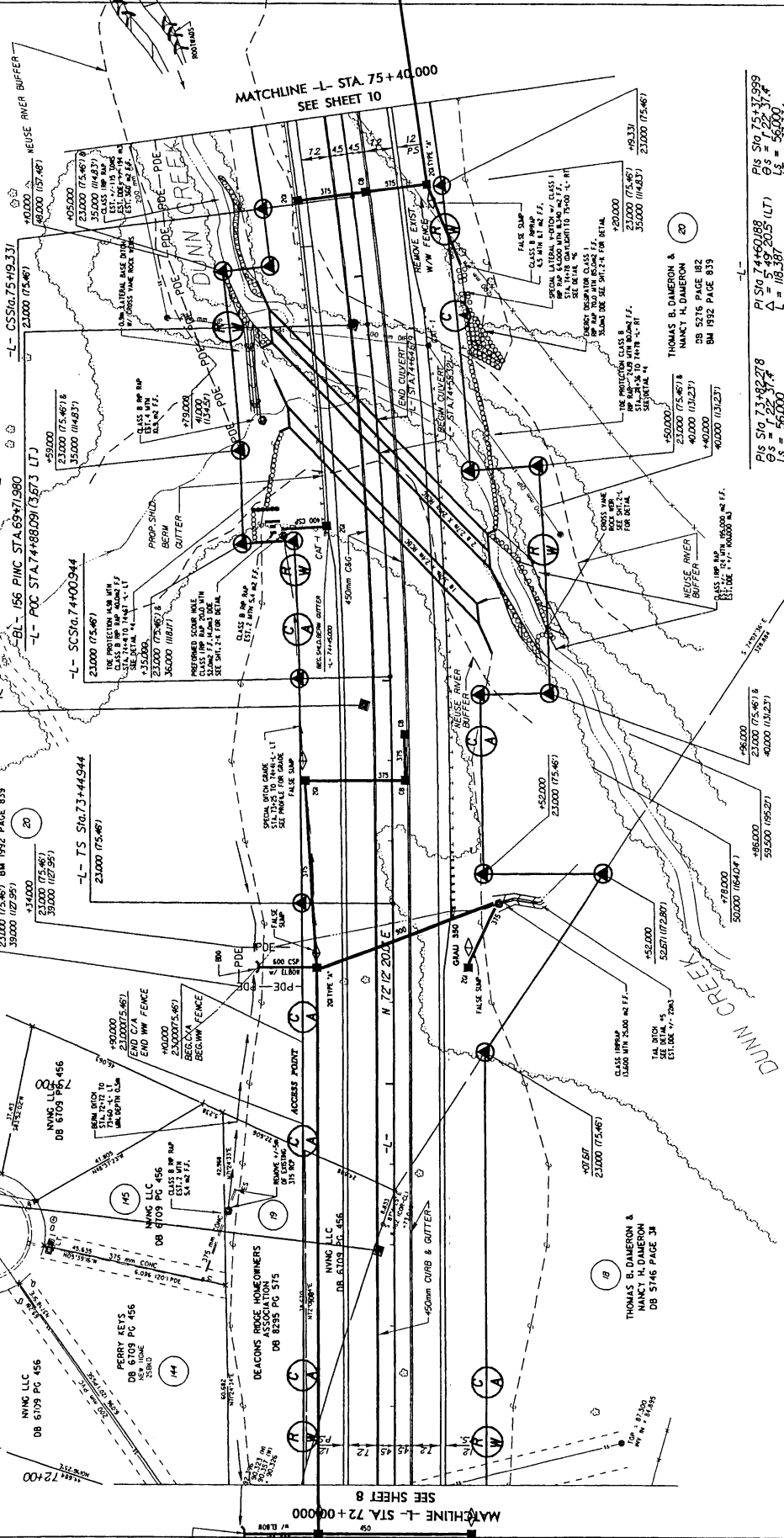
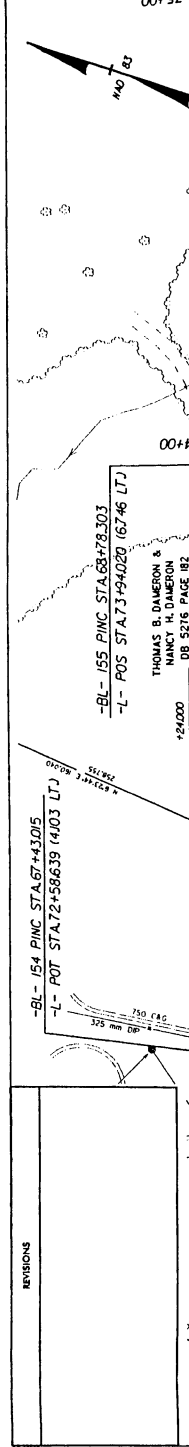
METRICS

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY THE PROFESSIONAL ENGINEER, RONALD D. ALLEN, PE, LICENSE NO. 14394, DESIGNATION: P.E., ON DECEMBER 14, 1994.

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY THE PROFESSIONAL ENGINEER, THOMAS B. DAMERON, PE, LICENSE NO. 18223, DESIGNATION: P.E., ON DECEMBER 18, 1994.

COUNTY: **DAKOTA**
 DATE REV. 12/11/08

SHEET NO. **9**



REVISIONS

1. 12/11/08

2. 12/11/08

3. 12/11/08

4. 12/11/08

5. 12/11/08

6. 12/11/08

7. 12/11/08

8. 12/11/08

9. 12/11/08

10. 12/11/08

DETAIL 1
 (NOT TO SCALE)
 10' FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 2
 (NOT TO SCALE)
 12" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 3
 (NOT TO SCALE)
 18" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 4
 (NOT TO SCALE)
 24" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 5
 (NOT TO SCALE)
 30" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 6
 (NOT TO SCALE)
 36" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 7
 (NOT TO SCALE)
 42" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 8
 (NOT TO SCALE)
 48" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 9
 (NOT TO SCALE)
 54" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 10
 (NOT TO SCALE)
 60" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 11
 (NOT TO SCALE)
 66" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 12
 (NOT TO SCALE)
 72" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 13
 (NOT TO SCALE)
 78" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 14
 (NOT TO SCALE)
 84" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 15
 (NOT TO SCALE)
 90" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

DETAIL 16
 (NOT TO SCALE)
 96" FILTER FABRIC 2' CLASS 3 IMP. ASPHALT

PI STA 74+40.088
 $\Delta = 5.49' 20.5" (LT)$
 $\theta = 1.2231^\circ$
 $L = 169.97'$
 $R = 7653.00'$
 $ST = 182668$
 $SE = 0.05$
 $V = 100 \text{ KPH}$

PI STA 73+82.278
 $\Delta = 1.22' 37.4" (LT)$
 $\theta = 5.49' 20.5" (LT)$
 $L = 169.97'$
 $R = 7653.00'$
 $ST = 182668$
 $SE = 0.05$
 $V = 100 \text{ KPH}$

PI STA 74+40.088
 $\Delta = 5.49' 20.5" (LT)$
 $\theta = 1.2231^\circ$
 $L = 169.97'$
 $R = 7653.00'$
 $ST = 182668$
 $SE = 0.05$
 $V = 100 \text{ KPH}$

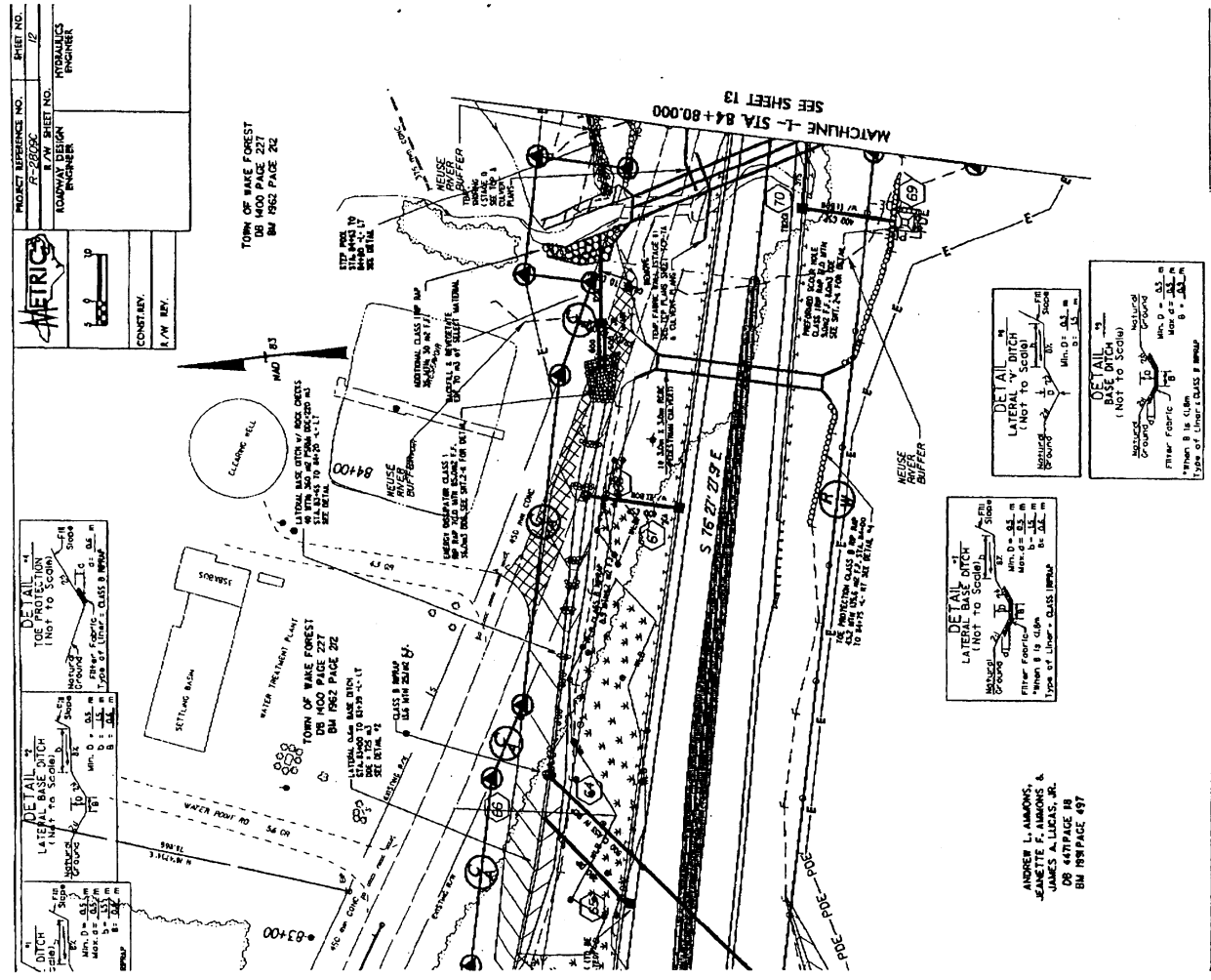
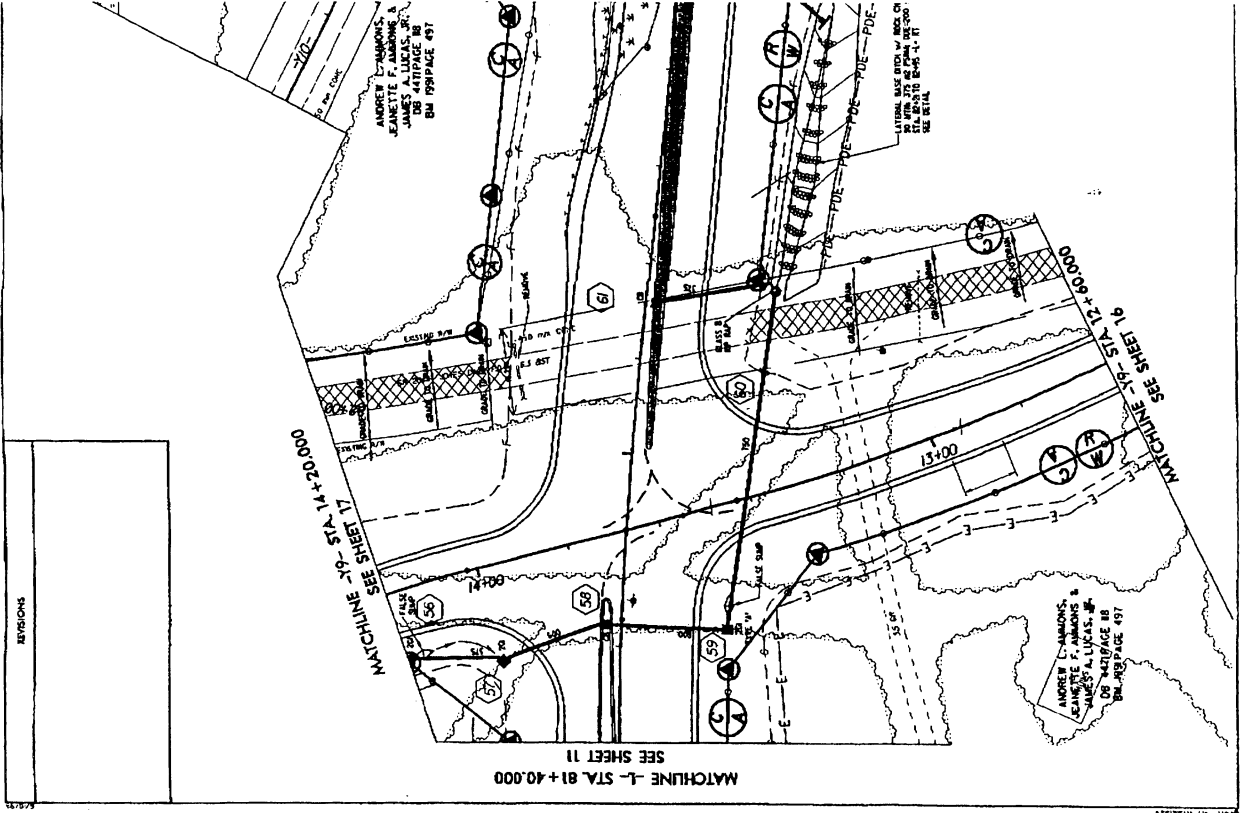
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 $\theta = 1.2231^\circ$
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 $R = 7653.00'$
 $ST = 182668$
 $SE = 0.05$
 $V = 100 \text{ KPH}$

THOMAS B. DAMERON & NANCY H. DAMERON
 DB 5216 PAGE 182
 BM 1932 PAGE 835

THOMAS B. DAMERON & NANCY H. DAMERON
 DB 5146 PAGE 38

SEE SHEET 25 FOR "L" GRADE
 SEE SHEET 27 FOR MANUAL CHANNEL CHANGE TYPICALS

SEE SHEET C-THRU C-20 FOR CULVERT PLANS



METRIC

CONSTRY.
I/M BY.

PROJECT REFERENCE NO. R-2202C
SHEET NO. 12

ROADWAY DESIGN ENGINEER

PROJECT REFERENCE NO. R-2803C
SHEET NO. 13
ROADWAY DESIGN ENGINEER METRICS
PROFESSIONAL ENGINEER

DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP

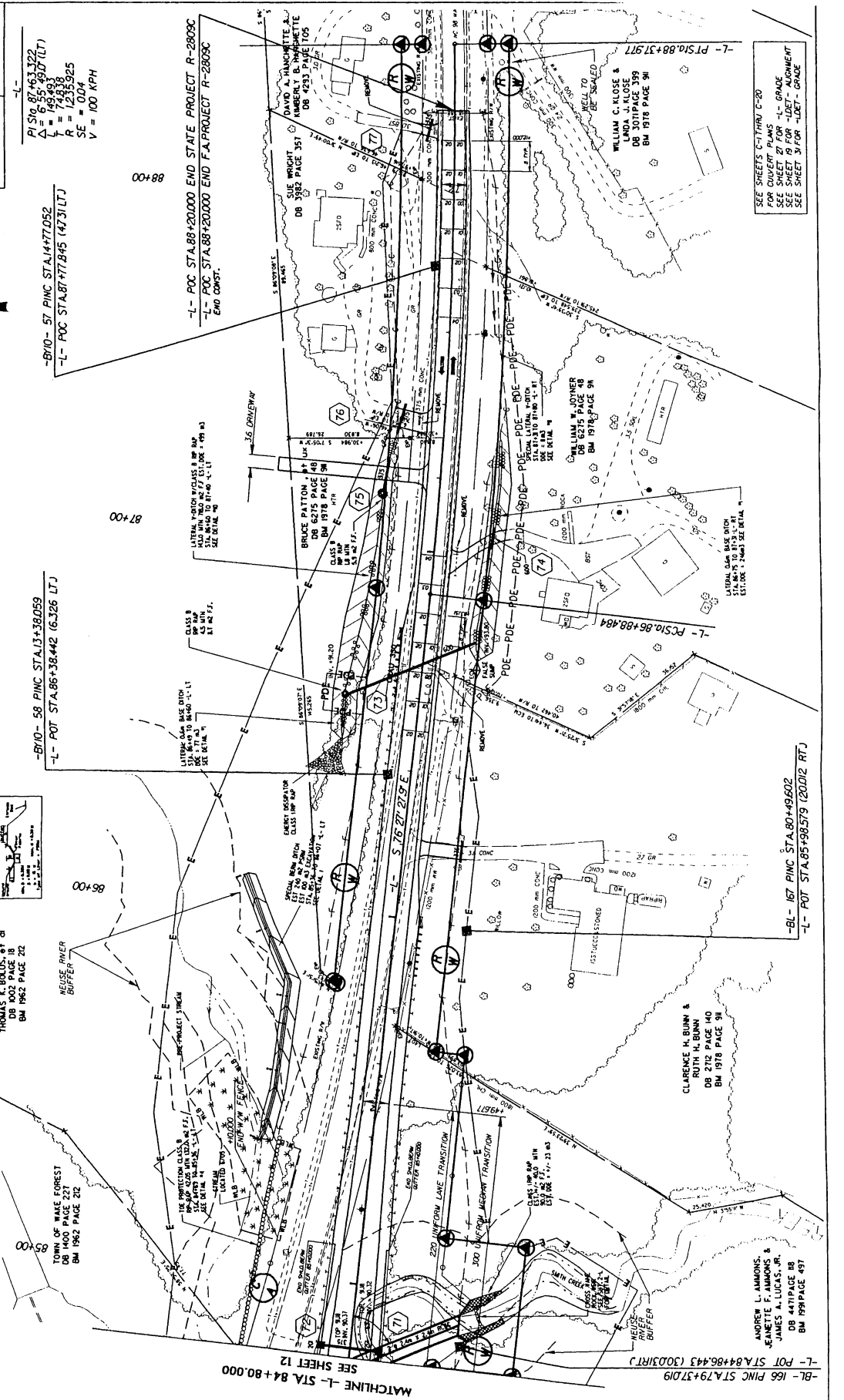
DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP

DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP

DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP

DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP

DETAIL 100
LATERAL V' DITCH
 (NOT TO SCALE)
 MIN. 3' AT TOP
 MIN. 1' AT BOTTOM
 FILTER FABRIC
 TYPE OF LINER CLASS B IMPAP



REVISIONS

NO.	DESCRIPTION

PI STA. 87+63.322
Δ = 6.30940 (LT)
L = 74.838
R = 1235.925
SE = 0.04
V = 100 KPH

-L- POC STA. 88+20.000 END STATE PROJECT R-2803C
-L- POC STA. 88+20.000 END F.A. PROJECT R-2803C
END CONST.

-L- POT STA. 86+38.442 (6.326 LT)

-L- POT STA. 85+98.573 (20.012 RT)

-L- POT STA. 84+80.000

-L- POT STA. 84+86.443 (30.031 RT)

-L- POT STA. 84+93.602

-L- POT STA. 85+98.573 (20.012 RT)

-L- POT STA. 86+88.484

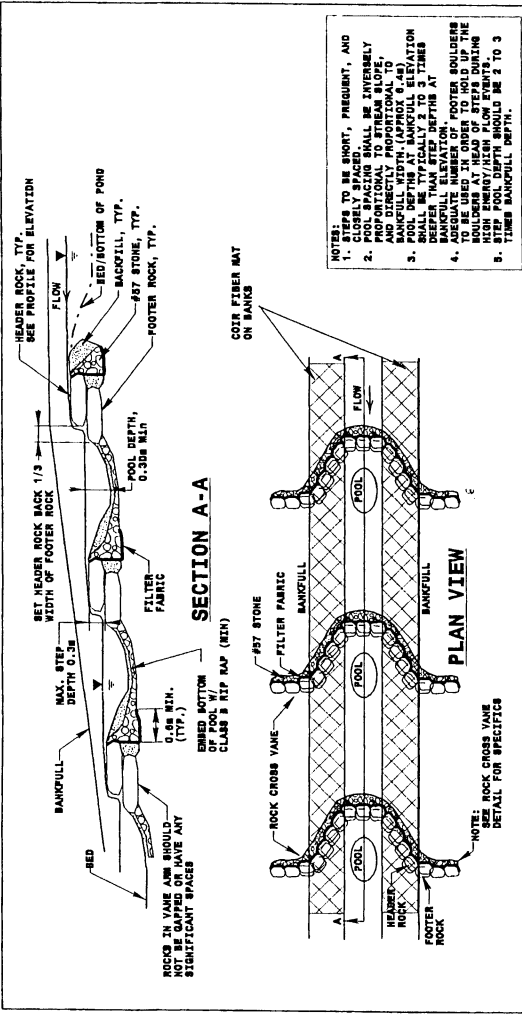
-L- POT STA. 88+37.917

SEE SHEETS C-1 THRU C-20
FOR OVERLAY PLANS
SEE SHEET 12 FOR -L- GRADE
SEE SHEET 19 FOR -DET- ALIGNMENT
SEE SHEET 31 FOR -DET- GRADE

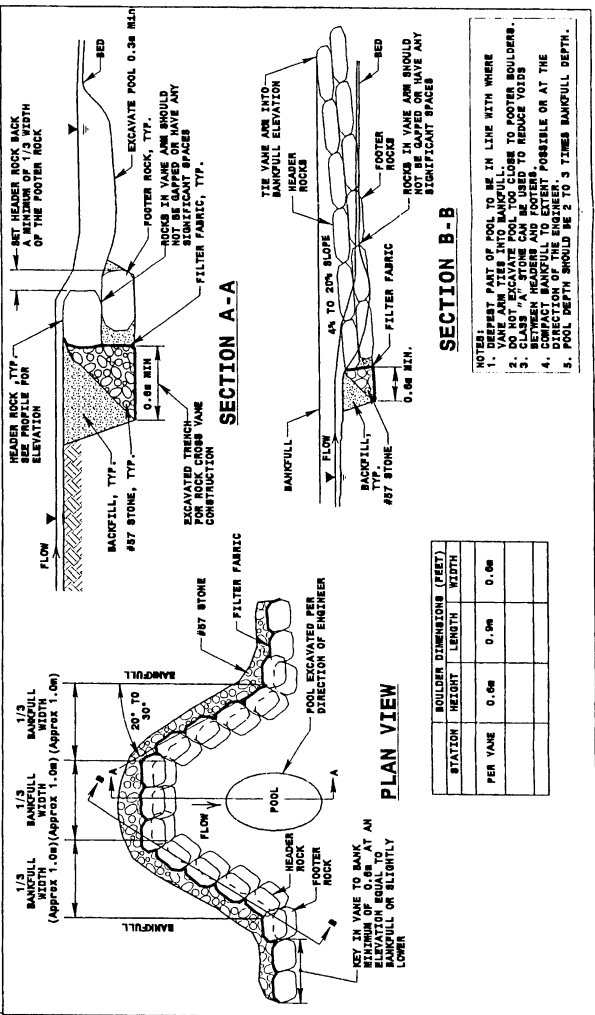
REVISIONS

PROJECT NUMBER NO.	R-2809C	SHEET NO.	
DESIGNER	PROJALICE ENGINEER		
CHECKER	PROJALICE ENGINEER		

Sta 84+63 to 84+80 -L- L-T



STEP POOL DETAIL
NOT TO SCALE



ROCK CROSS VANE DETAIL FOR STEP POOL
NOT TO SCALE

STATION	BOULDER DIMENSIONS (FEET)	
	HEIGHT	WIDTH
PER VANE	0.6m	0.9m

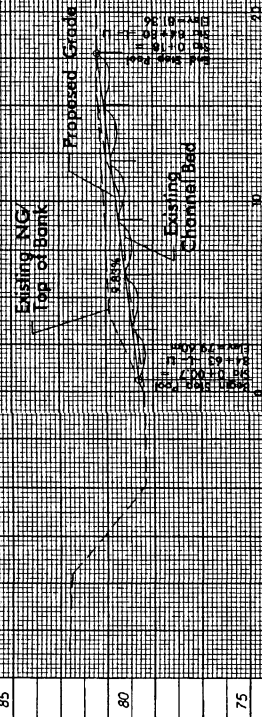
PROJECT REFERENCE NO. R-2809C
 ROADWAY DESIGN ENGINEER

SHEET NO. HYDRAULICS ENGINEER

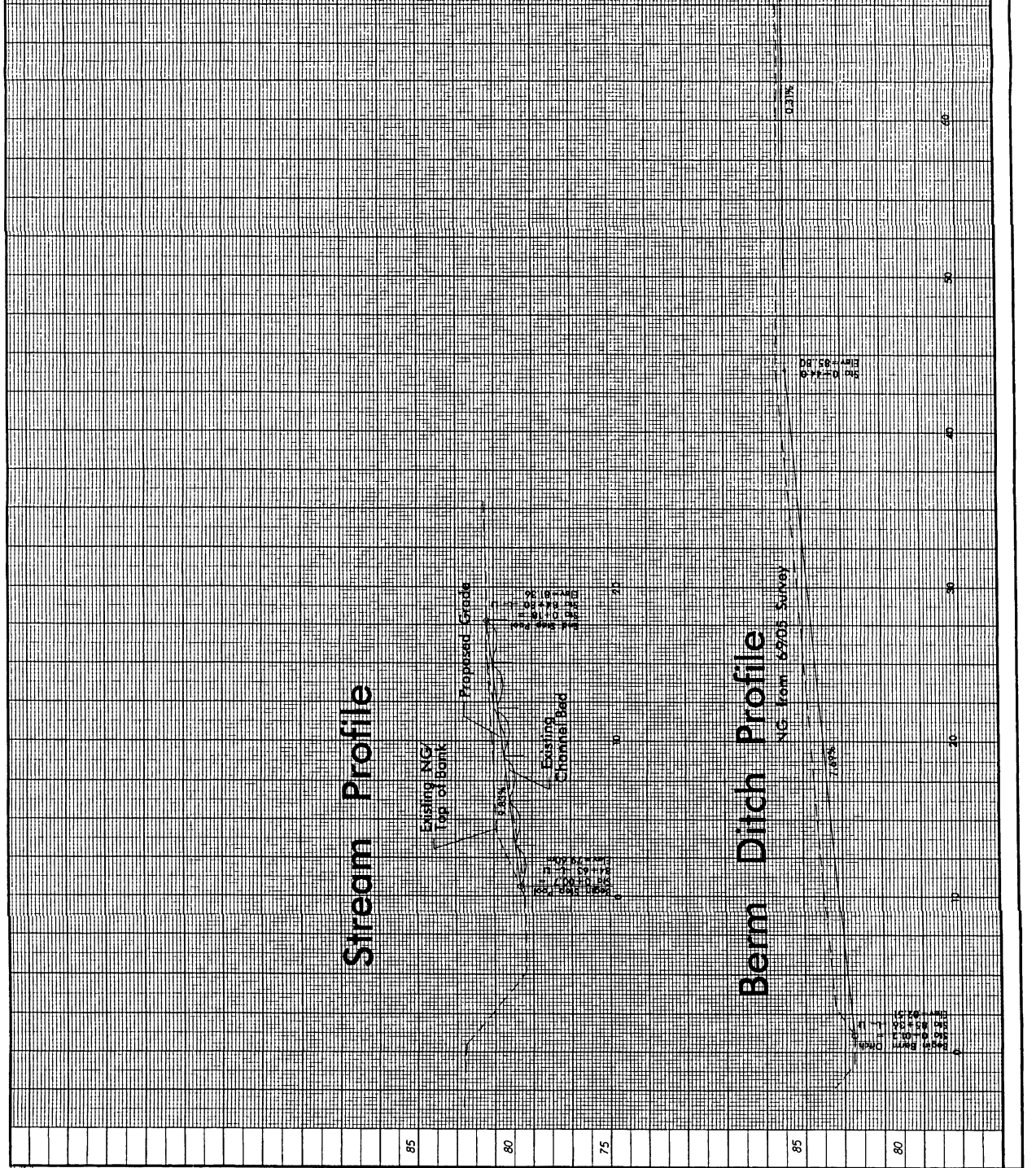
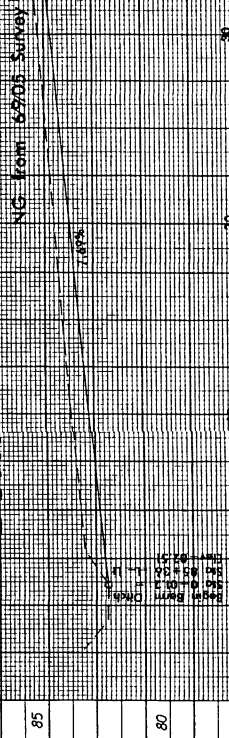
METRIX

CONTRACT NO. 1747 REV.

Stream Profile



Berm Ditch Profile



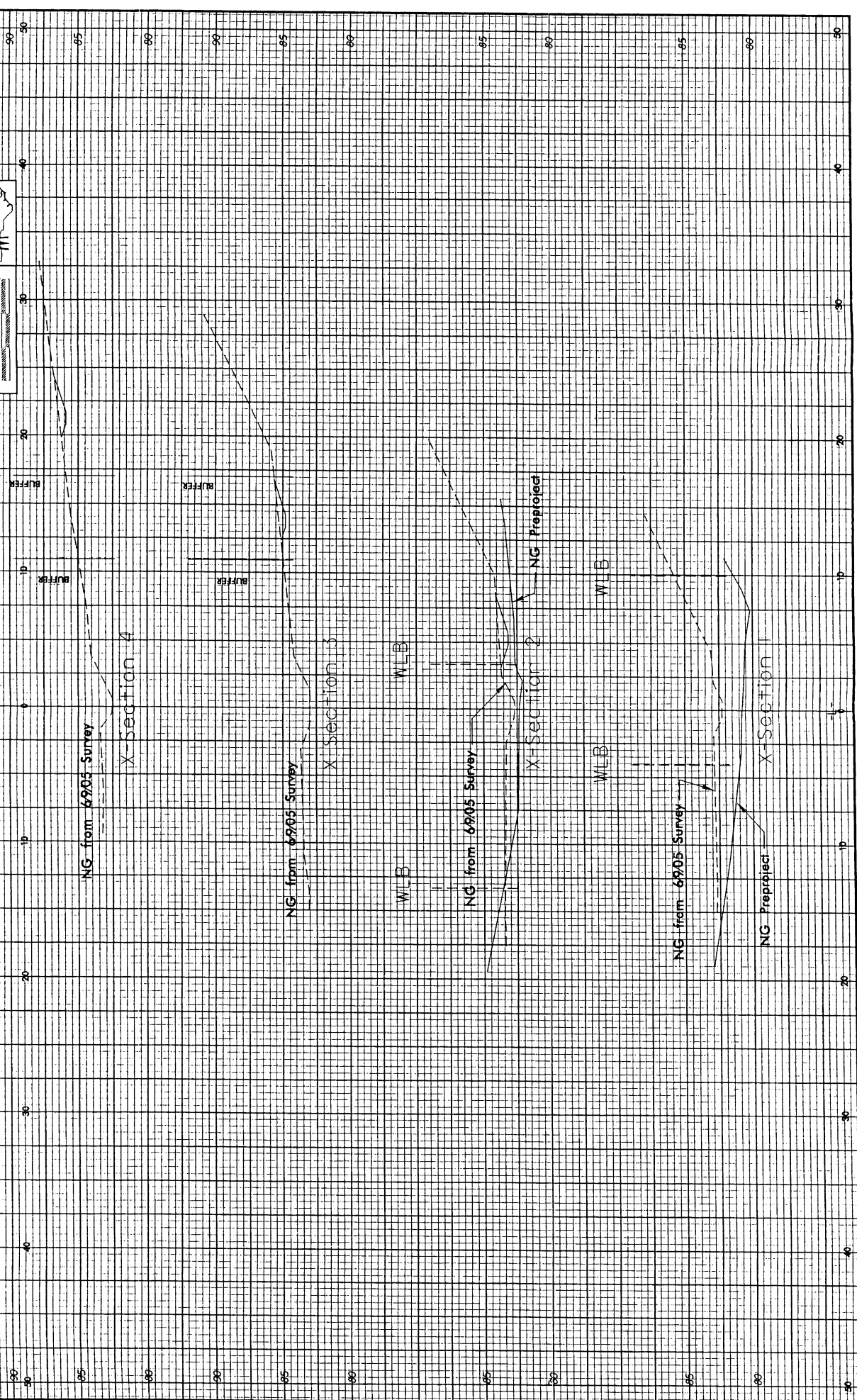
85 80 75 85 80



PROJECT REFERENCE NO.
R-2807C

SHEET NO.

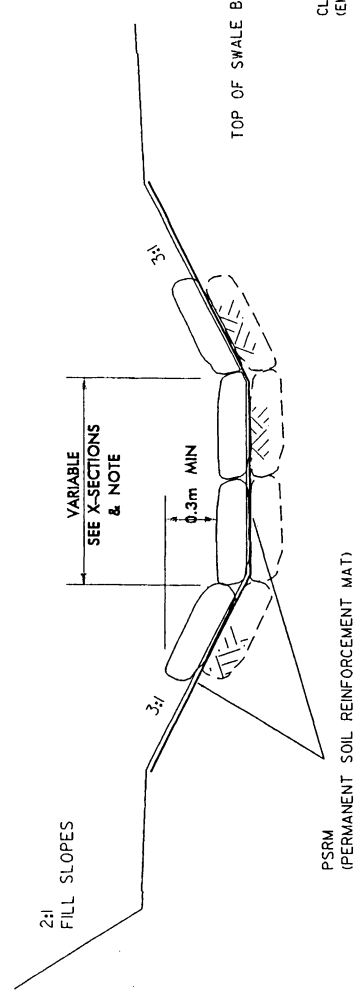
2.5 0 2.5 5



LATERAL SWALE/DITCH W/ROCK CHECKS

STA 82+21 TO 82+95 -L- RT

& STA 83+65 TO STA 84+20 -L- LT



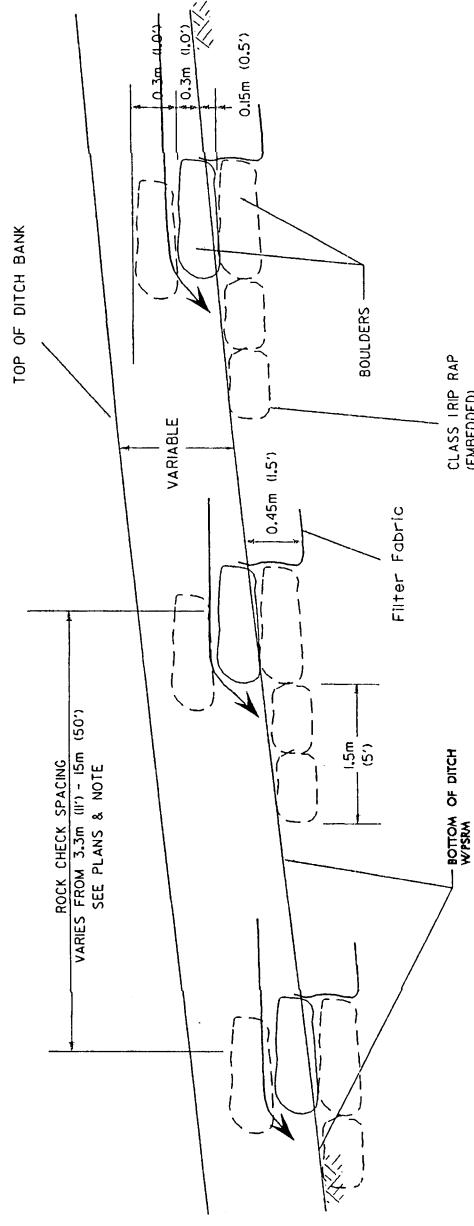
NOTE:

BOULDERS SHOULD BE ANGULAR AND OBLONG WITH APPROXIMATE DIMENSIONS OF 0.6m x 0.45m x 0.45m (2' x 1.5' x 1.5'). ROCK SHOULD FIT TIGHTLY TOGETHER WITH MINIMAL VOIDS. STAGGER BOULDER JOINTS.

ROCK CHECK SPACING IS DEPENDENT ON DITCH GRADES AT 1' DROP INTERVALS OR SLOPE CONTROL. DITCH WIDTHS VARY. WIDEN TO EXTENT PRACTICAL WITHIN R/W LIMITS. SEE X-SECTIONS.

TYPICAL CROSS SECTION

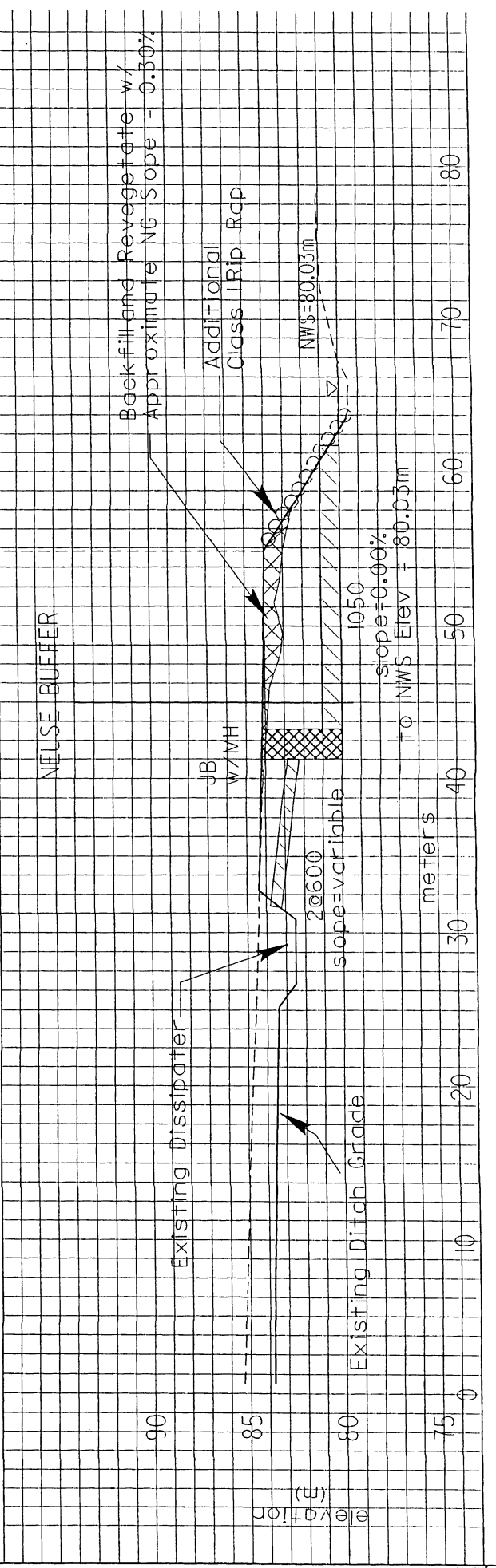
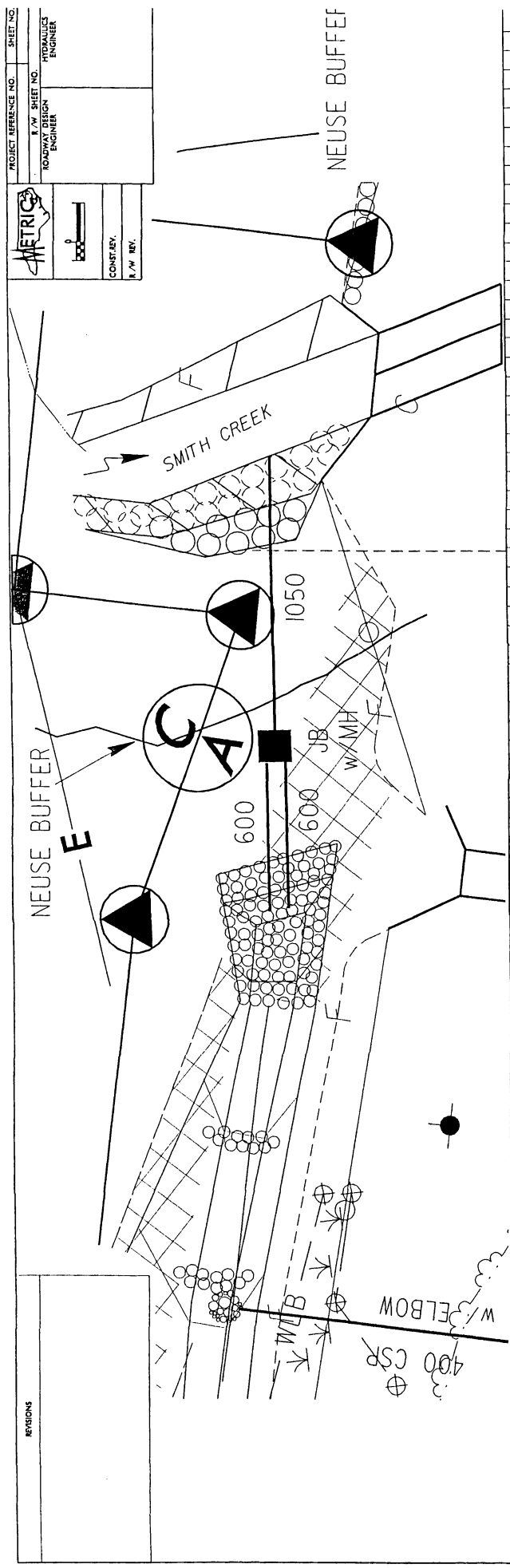
NOT TO SCALE



PROFILE

NOT TO SCALE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





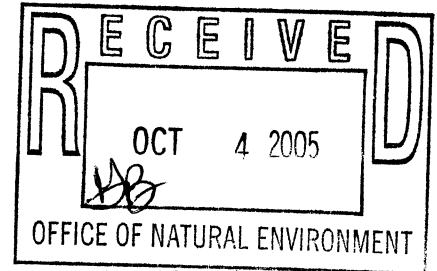
Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

Faulner

September 30, 2005
Wake County
DWQ No. 010550
TIP No. R-2809B and R-2809C

Dr. Gregory J. Thorpe, PhD., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548



Dear Dr. Thorpe:

Re: Modification to 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act,
Proposed to Individual Permit in Wake County (TIP R-2809B and R-2809C).
WQC Project No. 10550

Attached hereto is a copy of modification to Certification No. 3443 issued to The North Carolina Department of Transportation dated February 4, 2002, modified October 22, 2003, modified January 5, 2004, modified October 13, 2004. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated February 4, 2002 and all other corresponding modifications still apply except where superseded by this certification.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Alan W. Klimek, P.E.
Director

Attachments

Modification to WQC No. 010550

cc: Wilmington District US Army Corps of Engineers
Mr. Eric Alsmeyer, US Army Corps of Engineers Raleigh Field Office
NCDWQ Raleigh Regional Office
Mr. Jim Trogdon, PE, Division 4 Engineer, PO Box 3165, Wilson, NC 27895
Mr. Jamie Shern, Division 4 Environmental Officer, PO Box 3165, Wilson, NC 27895
Central Files
File Copy

**APPROVAL OF 401 Water Quality Certification and ADDITIONAL CONDITIONS
and Neuse River Buffer Rules**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500, and 15 NCAC 2B .0233. The attached modification authorizes the following:

Section B Surface Water Impacts for the Neuse River Basins

Site	Previously Requested Stream Impacts (Linear Feet)	Revised Stream Impacts (Linear Feet)	Decrease in Stream Impact (Linear Feet)	Stream Impacts Requiring Mitigation (Linear feet)	On-Site Natural Channel Design (Linear feet)
Site 4	351	269	82	269	269
Total	351	269	82	269	269

Section C Surface Water Impacts for the Neuse River Basins

Site	Previously Requested Stream Impacts (Linear Feet)	Revised Stream Impacts (Linear Feet)	Increase in Stream Impact (Linear Feet)	Stream Impacts Requiring Mitigation (Linear feet)	On-Site Natural Channel Design (Linear feet)
Site 2	0	53 (temporary)	53 (temporary)	0	0
Site 3B	564	722 (105 perm, 53 temp)	158(105 perm, 53 temp)	105	-14
Site 4	295	388 (63 perm, 30 temp)	93(63 perm, 30 temp)	63	-46
Site 5	0	125 (temporary)	125 (temporary)	0	0
Total	859	1,110(168 perm, 261 temp)	168 perm, 261 temp	168	-60

Section C Neuse River Riparian Buffer Impacts & Mitigation

Site	Zone 1 Original (Square feet)	Zone 2 Original (Square feet)	Revised Zone 1 (Square feet)	Revised Zone 2 (Square feet)	Increase/Decrease (Square feet)
Site 3B	46,609	25,701	50,051	29,094	3,442 Zone 1 and 3,393 Zone 2
Site 2	22,216	13,068	27,070	12,033	4,854 Zone 1 and -1,035 Zone 2
Total Impacts			77,121	41,127	8,296 Zone 1 and 2,358 Zone 2

The application provides adequate assurance that the impacts the waters and protected Riparian Buffers of the Neuse and Cape Fear River Basins in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application modification. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the

conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit, whichever is sooner.

Condition(s) of Certification:

1. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate water quality standards.
 - a.) The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - b.) For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
2. All sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources has released the project;
3. If an environmental document is required, this Certification is not valid until a FONSI or ROD is issued by the State Clearinghouse. All water quality-related conditions of the FONSI or ROD shall become conditions of this Certification:
4. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit. Should waste or borrow sites be located in wetlands or stream, compensatory mitigation will be required since it is a direct impact from road construction activities.
5. No live or fresh concrete shall come into contact with waters of the state until the concrete has hardened;
6. All channel relocations will be constructed in a dry work area, and stabilized before stream flows are diverted. Channel relocations will be completed and stabilized prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and an adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating coir fiber and seedling establishment is allowable. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested.

7. Upon completion of the project, the NCDOT shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed. The responsible party shall complete the attached form and return it to the 401/Wetlands Unit of the Division of Water Quality upon completion of the project.
8. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ.
9. Compensatory mitigation for impacts to streams shall be done for 269 linear feet of streams in the Neuse River Basin at a replacement ratio of 1:1. Compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream relocations of 269 linear feet of streams as described (i.e. a stable stream pattern, dimension, and profile) in the September 7, 2005 (dated received September 16 and 23, 2005) permit modification request. All stream relocations shall have 50-foot wooded buffers planted on both sides of the stream unless otherwise approved by the NC Division of Water Quality. As-Builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit within 30 days of the completion of the construction of the relocations. If the parameters of this condition are not met, then the NCDOT shall supply additional stream mitigation for the 351 linear feet of impacts. In addition to the 351 linear feet of on-site mitigation, compensatory mitigation for an additional 168 linear feet of streams is required in the Neuse River Basin (Cataloguing Unit 03020201). We understand that you have chosen to perform compensatory mitigation for impacts to streams through use of the NC Ecosystem Enhancement Program (NCEEP), and that the EEP has agreed to implement the mitigation for the project in accordance with the letter dated August 29, 2005 (dated received September 12, 2005).
10. Mitigation for impacts to 8,296 square feet of protected riparian buffers in Zone 1 and 2,358 square feet of protected riparian buffers in Zone 2 will be mitigated for as described below:

Zone of Impact	Impacts (Square Feet)	Replacement Ratio	Total Square Feet of Mitigation Required
Zone 1	8,296	3:1	24,888
Zone 2	2,358	1.5:1	3,537
Total	10,654		28,425

We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC 2B .0242 at a cost of \$0.96 per square foot for 28,425 square feet of buffer impact. Therefore, a total payment of \$27,288.00 shall be submitted to the EEP to offset the project impacts. The payment to EEP, and the required riparian buffer mitigation shall be implemented in accordance with all the Memorandum's of Agreement signed between the North Carolina Department of Environment and Natural Resources and the NC Department of Transportation that govern the practice and function of the EEP.

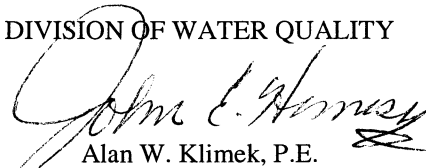
12. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
13. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1.
14. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.
15. Any riprap used must not interfere with thalweg performance and aquatic life passage during low flow conditions.
16. Heavy equipment must be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
17. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
18. The presence of equipment in the channels must be minimized. Under no circumstances must rock, sand or other materials be dredged from the wetted stream channel under authorization of this permit, except in the immediate vicinity of the culverts.
19. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, N.C. 27611-7447. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 30th day of September 2005

DIVISION OF WATER QUALITY


Alan W. Klimek, P.E.
Director



DWQ Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1621 Mail Service Center, Raleigh, NC, 27699-1621. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____