STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 18, 2005

Mr. John Thomas
U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

Dear Mr. Thomas:

SUBJECT: **Application for Permit Modification to the Section 404 Individual Permit and Section 401 Water Quality Certification** for the Proposed Replacement of Bridge Nos. 74 and 76 and Interchange Improvements Over SR 1242 and Michael Branch. Davidson County; Federal Aid No. BRSTP-29(10);
State Project No. 8.1601401; TIP No. B-3157.
$475.00 Debit work order 8.1601401, WBS Element 32899.1.1
USACE 404 Individual Permit Action ID 200030843, issued September 7, 2004
NCDWQ 401 Water Quality Certification No. 3467, issues July 28, 2004

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Nos. 74 and 76 in their existing locations and improve the interchange at US 29-64-70 and I-85 Bus. in Lexington, Davidson County, North Carolina. A Section 404 Permit (Action ID 200030843) was issued on September 7, 2004 and Water Quality Certification issued (WQC #3467) on July 28, 2004. A Water Quality Certification modification was issued on April 22, 2005. The project has been let and construction has begun.

The purpose of this submittal is to request a modification to the Section 404 Individual Permit and Section 401 Water Quality Certification. The modification for the permit is for increased temporary impacts of 88 feet from the proposed channel diversion and revisions to Segment #3 of the stream relocation/restoration.

The revised design does not compromise NCDOT's compliance with the existing permit conditions. The revision has been evaluated for compliance with the avoidance/minimization criteria and are in compliance with all previous issues, including the following:

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27604

- Protected Species
- Aquatic Life passage
- FEMA compliance
- Cultural Resources

Proposed Channel Diversion/Permit Drawing 29 of 31/Plan Sheet 5

An onsite meeting was held on November 2, 2005 with personnel from Division 9, DLB, Inc., Division of Water Quality and US Army Corps of Engineers to discuss the proposed channel diversion at the inlet of the proposed box culvert of Michael's Branch.

The diversion channel would be built and put into use just prior to the construction of temporary shoring that would block the flow of Michael's Branch in the existing 72 inch pipes and remain in use until segments #1 and #2 of the Natural Channel Relocation have been stabilized. At that time, which should be spring 2006, Michael's Branch would be put into the proposed natural channel relocation.

Our proposed plan of operations for the construction of the temporary channel diversion would be as follows:

1. Excavate the temporary diversion channel from the culvert inlet to the existing concrete dam along the existing stream, while maintaining flow in Michael's Branch.
2. Line the temporary diversion channel with geotextile fabric
3. Once the temporary channel is lined, remove the existing concrete dam and turn the water into the lined diversion channel.
4. After the natural channel relocation is stabilized and the temporary channel is no longer needed it will be dressed, graded, and stabilized as part of the proposed floodplain.

The temporary diversion channel has a 12 foot base with 2:1 slopes. This temporary diversion channel will increase temporary stream impacts by 88 feet.

Segment #3 of the stream relocation/restoration/Permit Drawings 20, 23 and 24

Prior to the start of construction of the new stream channel in Michael's Branch, the Natural Environment Unit-Natural Environment Engineering Group reviewed the construction plans. At that time, it was determined that based on the valley slope, stream slope, and urban setting, the stream design needed to be a step-pool system instead of the riffle-pool sequence shown on the plans. The changes to the design consisted of reducing the sinuosity, the addition of rock cross vanes, and deletion of rock vanes. The typical sections of this project will remain the same with the only adjustments being made to the stream pattern and profile. On April 19, 2005, Army Corps of Engineers, Division of Water Quality, Wildlife Resource Commission, and NC Department of Transportation personnel met on site to review and discuss the proposed changes to the design. All parties were in agreement that these changes were justified. Per this meeting, and a letter dated April 21, 2005, enclosed are the proposed changes to Segment #3. This includes revised permit drawings for Natural Channel Design Typicals (Sheet 23 of 31), Channel Plan View Segment #3 and Curve Data Information (Sheet 24 of 31). Segment #1 and #2 changes were submitted and approved in late April 2005.

Regulatory Approvals

Application is hereby made for the modification of the Section 404 Individual Permit from the USACE and Section 401 Water Quality Certification from NCDENR-DWQ. In compliance with Section 143-215.3D(e) of the NCAA we have provided a method of debiting $475, as noted in the subject line of this application, as payment for processing the Section 401 Water Quality Certification modification application. We are providing seven copies of this application to NCDENR-DWQ, for their use.

If you have any questions or need additional information, please call Ms. Rachelle Beauregard at (919) 715-1383.

Sincerely,

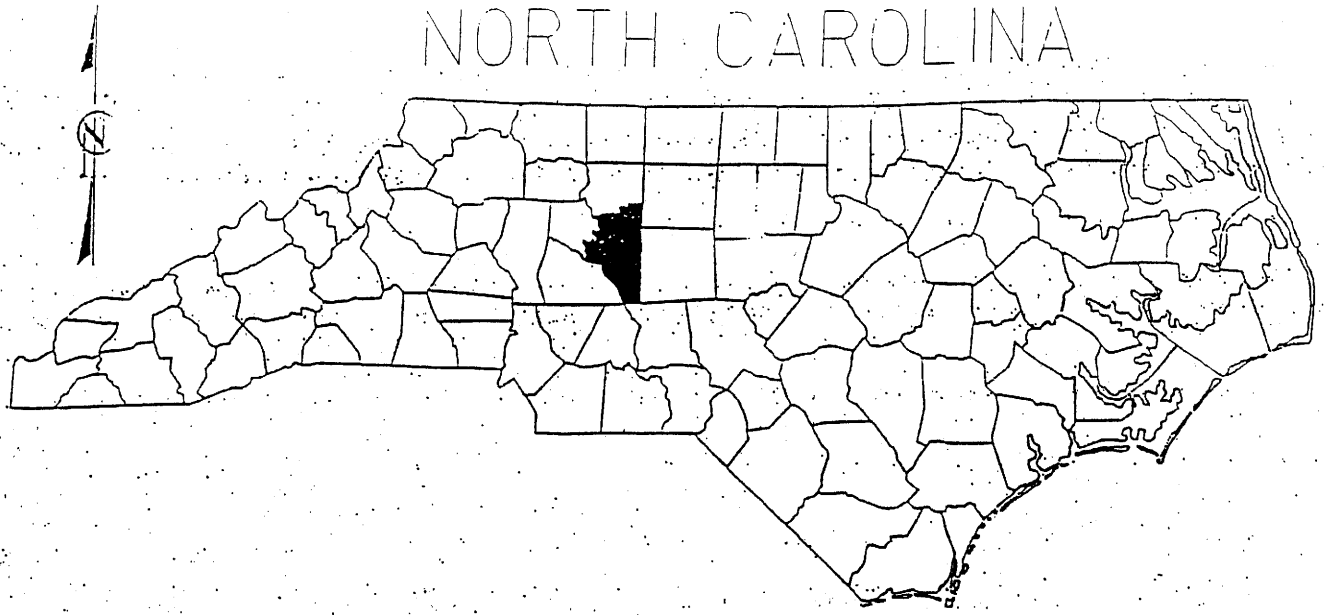
Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

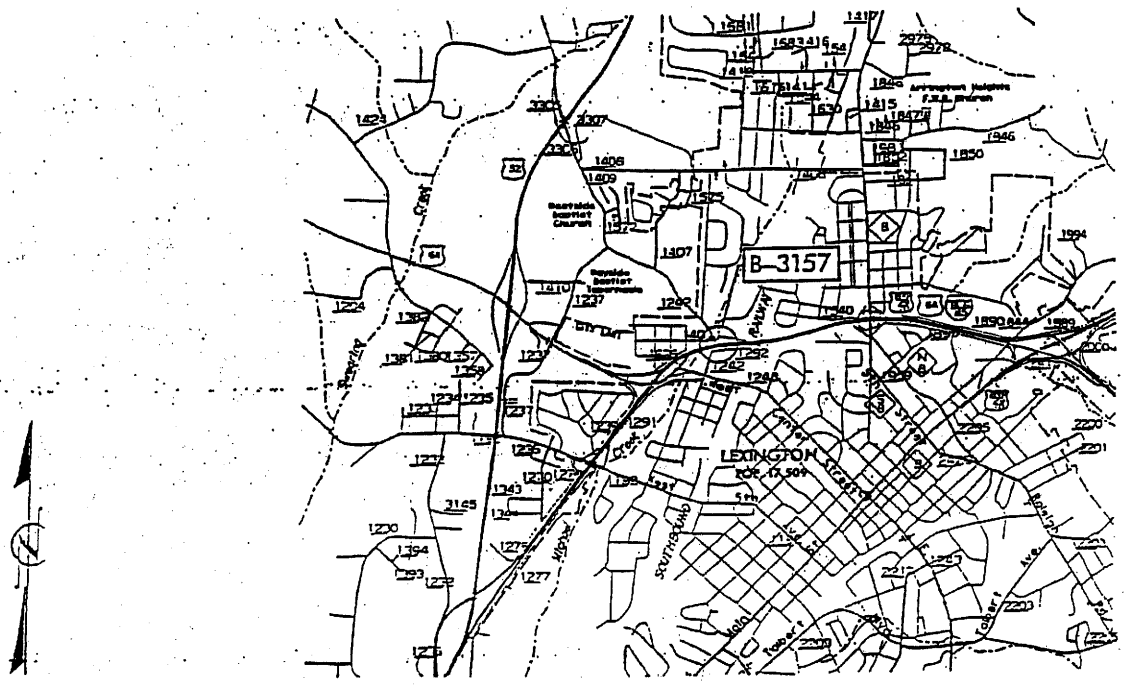
cc: w/attachment

Mr. John Hennessy, NCDWQ (7 Copies)
Ms. Sue Homewood, NCDWQ, Winston-Salem Regional Office
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick , USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. S. P. Ivey, P.E., Division Engineer
Mr. Keith Raulston, Division Construction Engineer
Mr. Darin Waller, Resident Engineer
Ms. Diane Hampton, P.E., DEO
Mr. Randy Griffin, NEU

w/o attachment

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





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

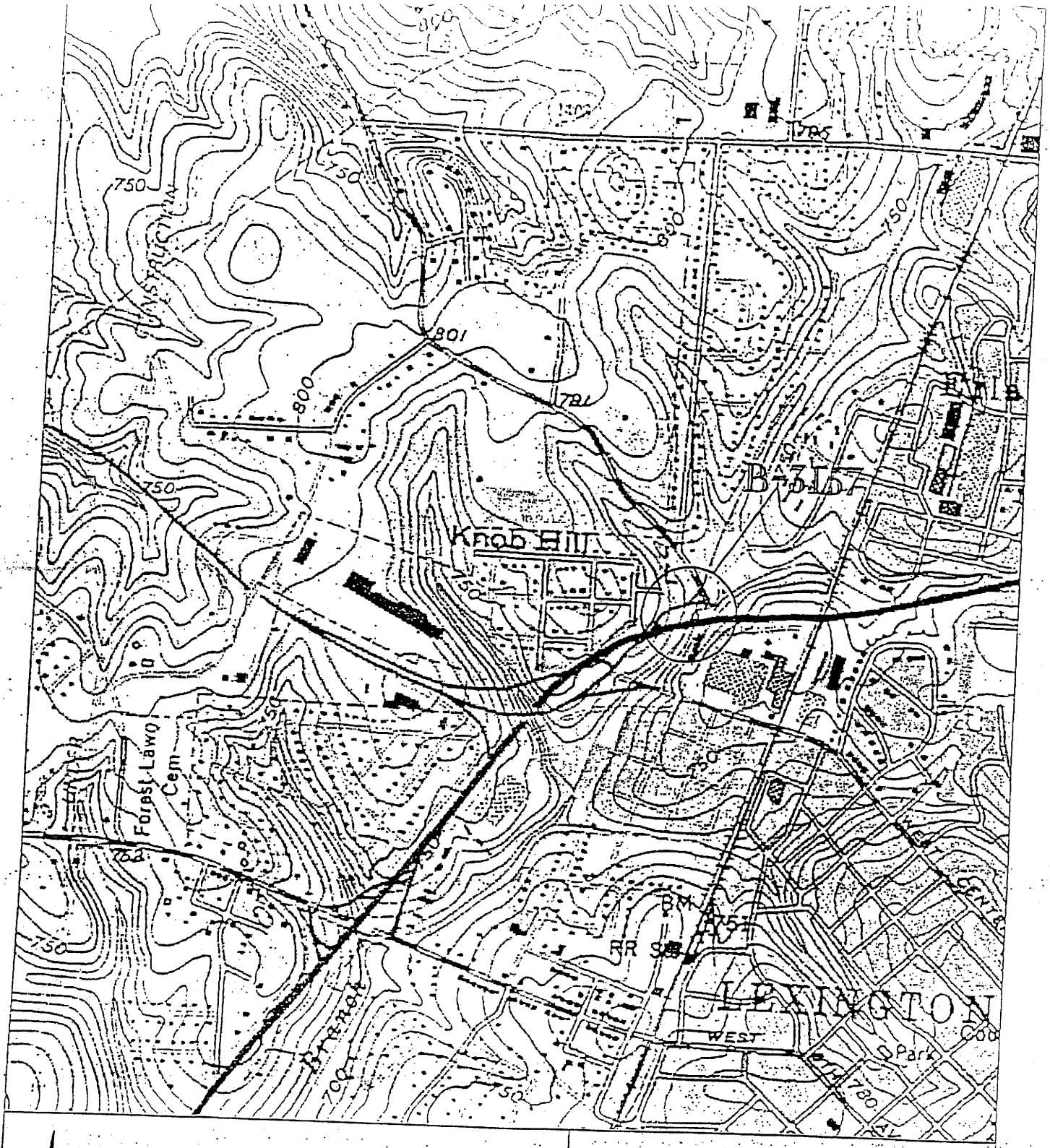
DAVIDSON COUNTY

PROJECT: 8.1651405 (B-3157)

BRIDGE NOS. 74 & 76 OVER SR1242 AND MICHAEL CREEK AND APPROACHES ON US 29/64/70 AND I-85 BUSINESS

SHEET 1 OF 31

5/27/05



N

TOPO MAP

SCALE 1" = 2000'

NCDOT

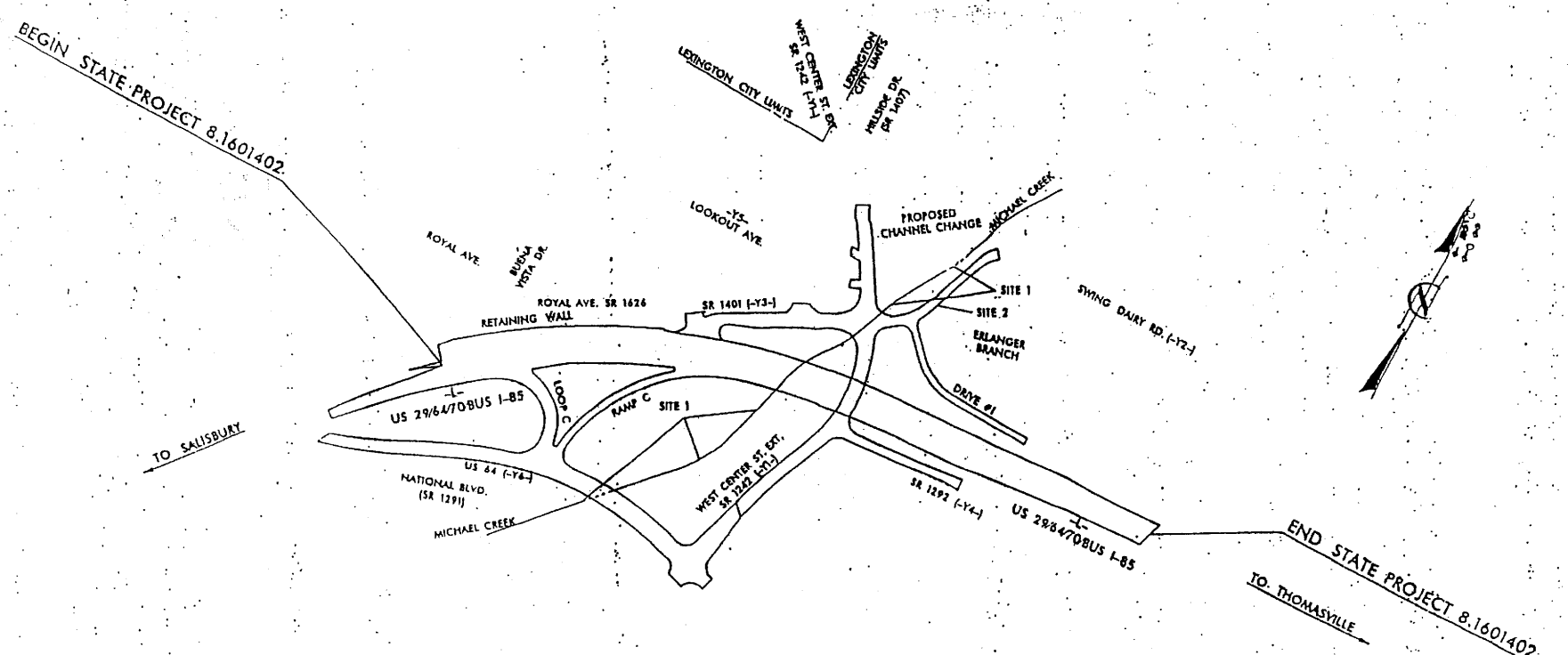
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

PROJECT: 8.1631403 (B-3157)

BRIDGE NOS. 74 & 76 OVER SR1242 AND MICHAEL CREEK AND APPROACHES ON US 29/64/70 AND I-85 BUSINESS

SHEET 2 OF 31

5/27/05



SITE MAP

NCDOT

DIVISION OF HIGHWAYS
DAVIDSON COUNTY
PROJECT: 8.1631403 (B-3157)

BRIDGE NOS. 74 & 76 OVER SR1242 AND MICHAEL CREEK AND APPROACHES ON US 29/64/70 AND I-85 BUSINESS

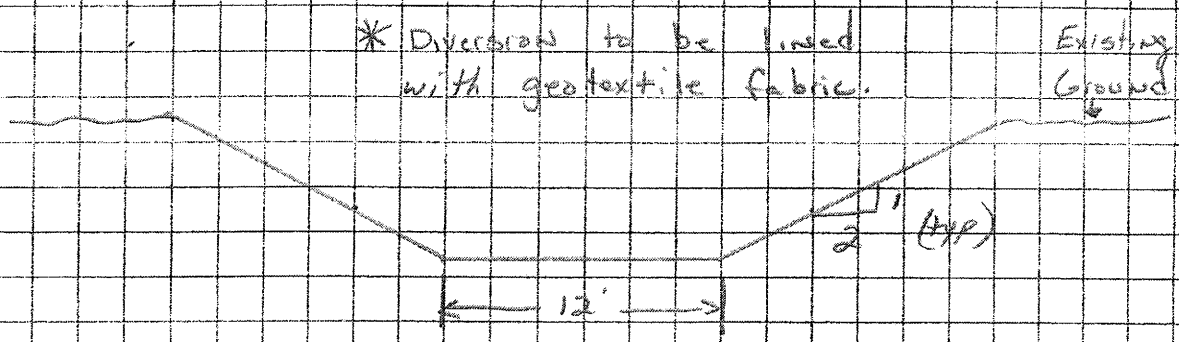
SHEET 3 OF 31 10/28/03

DLB, INC.
P.O. BOX 1239
HILLSVILLE, VA 24343
(276) 728-2137

PROJECT Davidson County C200781

PAGE 1 OF FILE

BY Rob Underwood DATE 11/3/05



Sect A-A

Typical Diversion Section

Part of Plan sheet 5

-Y3- POT 16+43.60

EST. 2 TONS CLASS 'B' RIP RAP W/ 7 yd² FILTER FABRIC

Existing Concrete Dam

Remove

Proposed Lined Channel Diversion

12 foot Base 2:1 slopes

Proposed Diversion Dike

TEMP. EXTEND (2) 72" CMP (91) & (92)

TEMP. HEADWALL

TEMP. 18" ES (93)

D LANNING 1015

CONC HW

18" MTL

18" CONC

18" PVC

24.8'

+57.60 80.15 LT

45' R

+25.67

45' R +10.71

29.22' LT

+42.03

BRIDGE # 76

BRIDGE # 74

S 4°55'30.

-Y1- DETOUR S 30°33'53.2" E

PERM. 2GI

PERM. RCP

+93.94

-Y1- PC 17+00.97

-Y1- DETOUR POT 14+75.00 BEGIN CONSTRUCTION

PERM. TRAF. BRG. CB (SEE SPECIAL DETAIL) TO BE CONST. W/O GRATE & FRAME USE TEMP. STEEL COVER (SEE SPECIAL DETAIL) 2GI

PERM. 18" RCP

PERM. 18" RCP

+00.44

60' R +16.03

+20.87

40' CONC HW

-Y1- DETOUR PT 19+47.54

-Y1- DETOUR PC 20+50.48

PROP. TEMP. 2' BASE DITCH SEE DITCH DETAIL 'I'

EST. 2 TONS CLASS 'B' RIP RAP W/ 7 yd² FILTER FABRIC

CHARLES F. & AMELIA G. BIESECKER DB 612 PG 925

DANIEL W. & NANCY M. HOWE

ENGLISH

MULKEY
ENGINEERS & CONSULTANTS
RALEIGH, NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
B-3157	5

HYDRAULICS ENGINEER | ROADWAY DESIGN ENGINEER

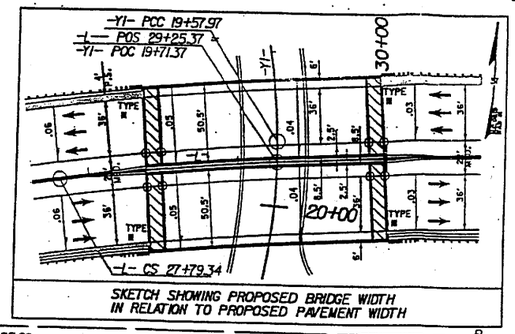
stream impact drawing
sheet 29 of 31

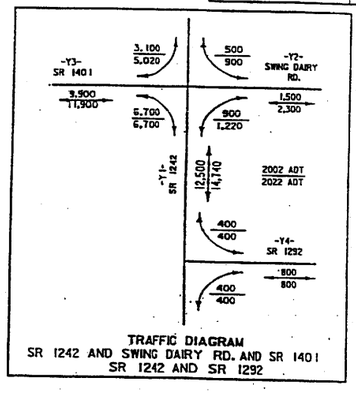
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE,SEE SHEETS 6 & 7
FOR -Y1- PROFILE,SEE SHEET 7
FOR -Y2-,-Y3-,-Y4- & DRIVE 1 PROFILES,SEE SHEET 8
FOR DITCH DETAILS,SEE SHEET 2-I
FOR -L- CROSS-OVERS,SEE SHEETS 2-O THRU 2-Q
FOR -Y1- & -Y3- DETOUR,SEE SHEET 2-R
FOR SPECIAL DETAILS OF STRUCTURE ANCHOR UNITS,SEE SHEETS 2-U THRU 2-Y
FOR SPECIAL DETAILS OF PROP.NATURAL CHANNEL,SEE SHEETS 2-J THRU 2-N
FOR SPECIAL DETAIL OF ROCK PLATING,SEE SHEET 2-T
FOR SPECIAL DETAIL OF CONCRETE COVER,SEE SHEET 2-U

OBLITERATION OF EXISTING ROAD

25' 0 50'





-L-

Pls Sta 14+68.96	Pl Sta 22+22.47	Pls Sta 29+39.58
θs = 7° 16' 32.4"	Δ = 34° 52' 55.7" (RT)	θs = 7° 16' 32.4"
Ls = 480.00'	D = 03° 01' 53.5"	Ls = 480.00'
ST = 160.25'	L = 1,150.65'	ST = 160.25'
LT = 320.27'	T = 593.78'	LT = 320.27'
	R = 1,890.00'	
	Se = 0.06	

DRIVE 1

Pl Sta 11+94.59
Δ = 44° 26' 59.4" (LT)
D = 28°38'52.4"
L = 155.16'
T = 81.72'
R = 200.00
Se = NC

-Y1-

Pl Sta 12+83.76	Pl Sta 18+31.67	Pl Sta 20+49.42	Pl Sta 23+88.95
Δ = 15° 53' 16.7" (RT)	Δ = 25° 42' 00.8" (RT)	Δ = 26° 55' 41.0" (RT)	Δ = 07° 24' 30.8" (LT)
D = 07° 15' 00.0"	D = 10° 00' 00.0"	D = 15° 00' 00.0"	D = 02°15' 00.0"
L = 219.14'	L = 257.00'	L = 179.52'	L = 329.27'
T = 110.28'	T = 130.70'	T = 91.45'	T = 164.86'
R = 790.29	R = 572.96'	R = 381.97'	R = 2,546.48'
Se = EXIST.	Se = 0.04	Se = 0.04	Se = EXIST.

-Y2-

Pl Sta 11+32.31	Pl Sta 14+70.55
Δ = 44° 20' 45.5" (LT)	Δ = 7° 36' 21.1" (RT)
D = 28°38'52.4"	D = 49°23'34.5"
L = 154.80'	L = 67.62'
T = 81.51'	T = 33.98'
R = 200.00'	R = 116.00'
Se = RC	Se = 0.06

-Y5-

Pl Sta 11+34.55
Δ = 45° 25' 50.2" (RT)
D = 7°37'11.0"
L = 67.62'
T = 35.98'
R = 80.00'
Se = N/A

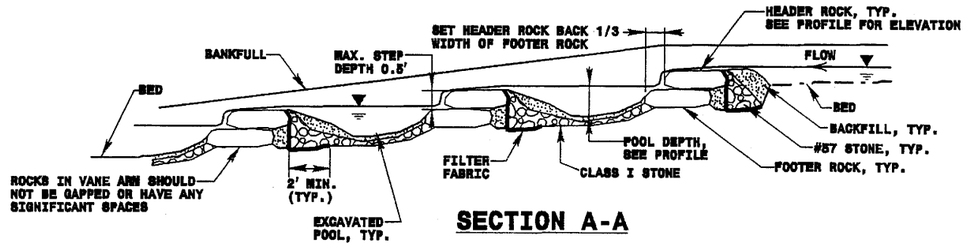
PROJECT REFERENCE NO.	SHEET NO.
B-3157	2-M
HYDRAULICS ENGINEER	ROADWAY DESIGN ENGINEER

SHEET 20 OF 31
REV. 4/21/05

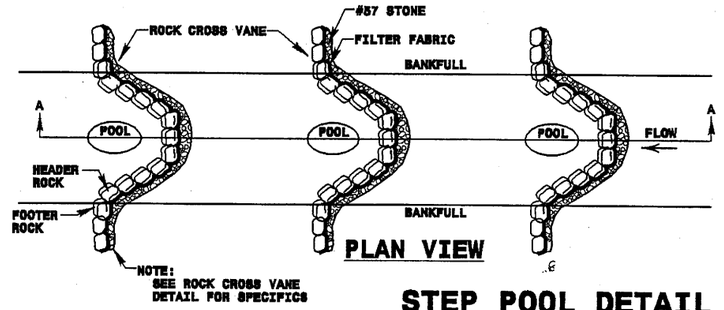
REVISIONS

NATURAL CHANNEL DESIGN TYPICALS

NOT TO SCALE



SECTION A-A

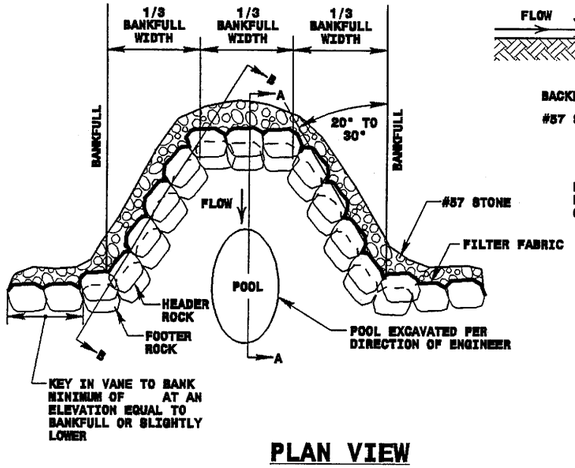


PLAN VIEW

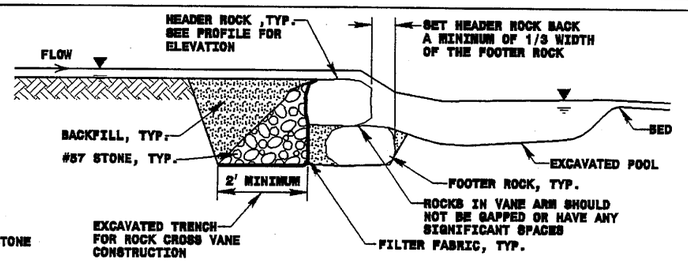
STEP POOL DETAIL

NOT TO SCALE

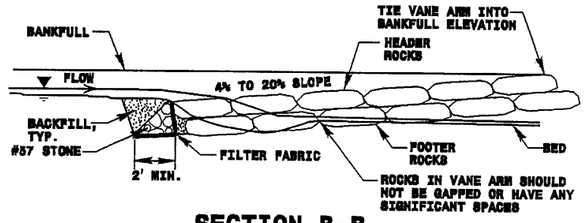
NOTES:
1. STEPS TO BE SHORT, FREQUENT, AND CLOSELY SPACED.
2. POOL SPACING SHALL BE INVERSELY PROPORTIONAL TO STREAM SLOPE, AND DIRECTLY PROPORTIONAL TO BANKFULL WIDTH.
3. POOL DEPTHS AT BANKFULL ELEVATION SHALL BE TYPICALLY 2 TO 3 TIMES DEEPER THAN STEP DEPTHS AT BANKFULL ELEVATION.
4. ADEQUATE NUMBER OF FOOTER BOULDERS TO BE USED IN ORDER TO HOLD UP THE BOULDERS AT HEAD OF STEPS DURING HIGH ENERGY/HIGH FLOW EVENTS.
5. STEP POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.



PLAN VIEW



SECTION A-A



SECTION B-B

	BOULDER DIMENSIONS (FEET)		
STATION	HEIGHT	LENGTH	WIDTH
BEGIN	2	4	3
TO END	2	4	3

ROCK CROSS VANE DETAIL FOR STEP POOLS

NOT TO SCALE

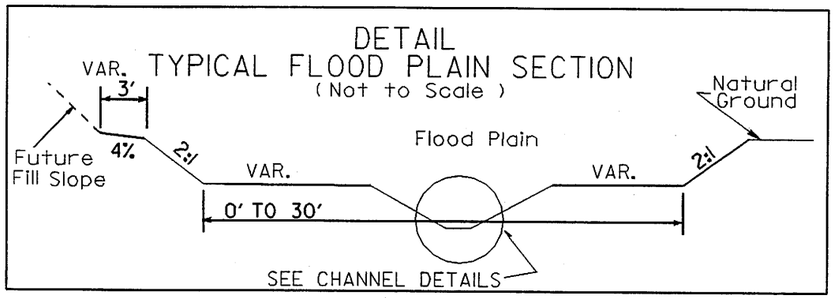
NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BANKFULL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINNEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

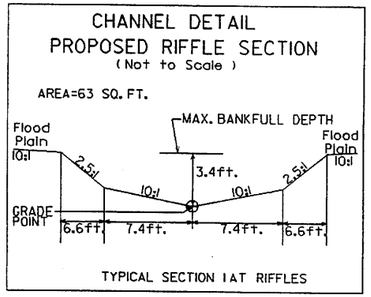
DATE: FILE: STAKE:

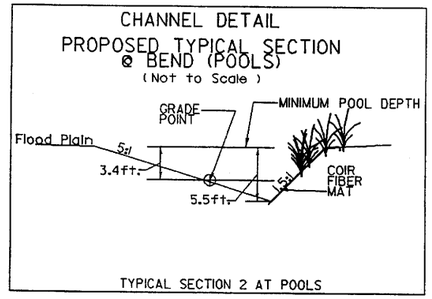
PROJECT REFERENCE NO.	SHEET NO.
B-3157	2-M
HYDRAULICS ENGINEER	ROADWAY DESIGN ENGINEER

NATURAL CHANNEL DESIGN TYPICALS

NOT TO SCALE





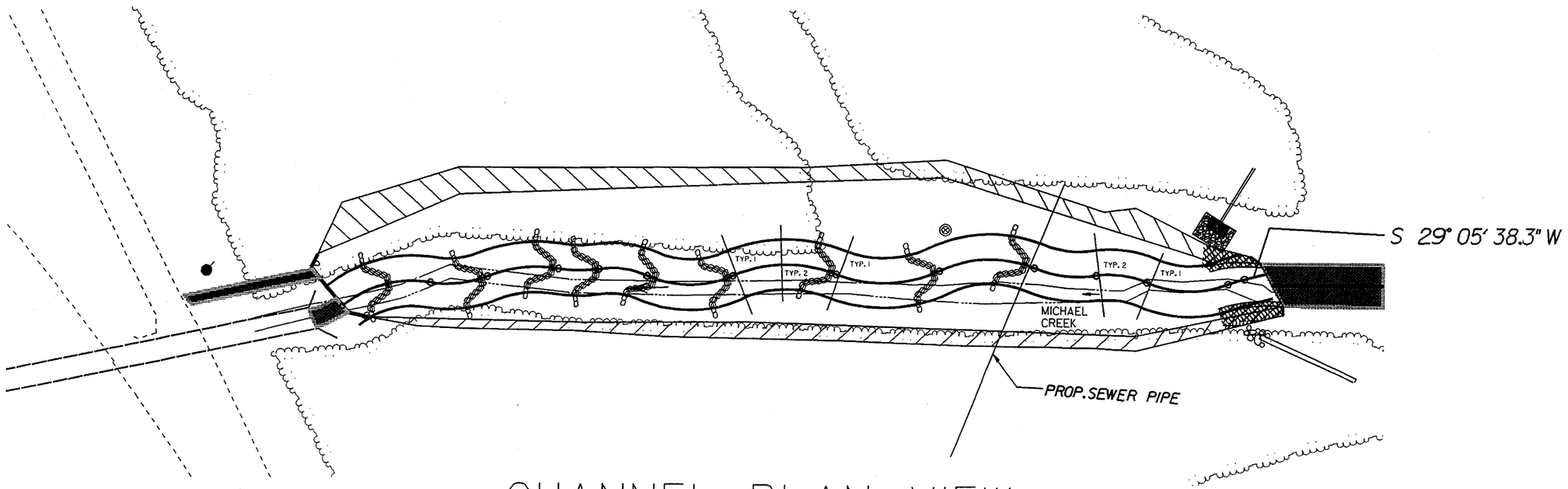


QUANTITES

DDE = 14500CY
BOULDERS = 300@4000LB.
270@2000LB.
COIR FIBER MAT = 850SY
GEOTEXTILE FABRIC = 600SY

23

SHEET OF 31
REV. 10/26/05



CHANNEL PLAN VIEW

SEGMENT #3

STA. 21+45 TO 25+93.3 -Y1- RIGHT

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3157	2-N
HYDRAULICS ENGINEER	ROADWAY DESIGN ENGINEER

24
SHEET OF 31
REV. 10/26/05

REVISIONS

SEGMENT #1

	STA. (-NCD-)	ELEV.
CV 1	10+00	715.5
CV 2	10+50	715.0
CV 3	11+00	714.5
CV 4	11+50	714.0
CV 5	12+00	713.5
CV 6	12+50	713.0

SEGMENT #2

	STA. (-NCD-)	ELEV.
CV 7	13+00	712.5
CV 8	13+50	712.0

SEGMENT #3

	STA. (-NCD-)	ELEV.
CV 1	11+35	713.00
CV 2	11+90	712.50
CV 3	12+45	712.00
CV 4	13+05	711.50
CV 5	13+50	711.00
CV 6	13+80	710.5
CV 7	14+10	710.00
CV 8	14+45	709.50
CV 9	15+00	709.15

CURVE DATA SEGMENT #1 & #2

PI Sta 10+30.98
Δ = 16° 17' 35.0" (LT)
D = 76° 23' 39.7"
L = 21.33'
T = 10.74'
R = 75.00'

PI Sta 10+63.08
Δ = 32° 00' 06.9" (RT)
D = 76° 23' 39.7"
L = 41.89'
T = 21.51'
R = 75.00'

PI Sta 11+09.28
Δ = 46° 33' 20.5" (LT)
D = 95° 29' 34.7"
L = 48.75'
T = 25.81'
R = 60.00'

PI Sta 11+46.92
Δ = 32° 46' 16.4" (RT)
D = 114° 35' 29.6"
L = 28.60'
T = 14.70'
R = 50.00'

PI Sta 11+80.93
Δ = 34° 23' 38.1" (LT)
D = 88° 08' 50.5"
L = 39.02'
T = 20.12'
R = 65.00'

PI Sta 12+14.58
Δ = 22° 14' 58.1" (RT)
D = 76° 23' 39.7"
L = 29.12'
T = 14.75'
R = 75.00'

PI Sta 12+36.46
Δ = 15° 31' 29.3" (LT)
D = 104° 10' 26.9"
L = 14.90'
T = 7.50'
R = 55.00'

PI Sta 12+70.33
Δ = 44° 18' 59.4" (RT)
D = 88° 08' 50.5"
L = 50.28'
T = 26.47'
R = 65.00'

PI Sta 13+19.91
Δ = 40° 25' 08.7" (LT)
D = 81° 51' 04.0"
L = 49.38'
T = 25.77'
R = 70.00'

CURVE DATA SEGMENT #3

PI Sta 10+18.97
Δ = 6° 17' 22.1" (LT)
D = 114° 35' 29.6"
L = 5.49'
T = 2.75'
R = 50.00'

PI Sta 10+46.38
Δ = 44° 41' 26.1" (RT)
D = 95° 29' 34.7"
L = 46.80'
T = 24.66'
R = 60.00'

PI Sta 10+83.13
Δ = 32° 35' 47.1" (LT)
D = 114° 35' 29.6"
L = 28.45'
T = 14.62'
R = 50.00'

PI Sta 11+14.97
Δ = 30° 58' 44.9" (RT)
D = 88° 08' 50.5"
L = 35.14'
T = 18.01'
R = 65.00'

PI Sta 11+60.94
Δ = 47° 50' 35.9" (LT)
D = 88° 08' 50.5"
L = 54.28'
T = 28.83'
R = 65.00'

PI Sta 12+17.08
Δ = 47° 21' 52.0" (RT)
D = 81° 51' 04.0"
L = 57.87'
T = 30.70'
R = 70.00'

PI Sta 12+75.31
Δ = 44° 59' 35.3" (LT)
D = 76° 23' 39.7"
L = 58.90'
T = 31.06'
R = 75.00'

PI Sta 13+29.25
Δ = 47° 01' 50.0" (RT)
D = 95° 29' 34.7"
L = 49.25'
T = 26.11'
R = 60.00'

PI Sta 13+66.55
Δ = 31° 36' 46.4" (LT)
D = 114° 35' 29.6"
L = 27.59'
T = 14.15'
R = 50.00'

PI Sta 13+91.42
Δ = 17° 20' 32.3" (RT)
D = 76° 23' 39.7"
L = 22.70'
T = 11.44'
R = 75.00'

PI Sta 14+23.29
Δ = 30° 43' 49.3" (LT)
D = 76° 23' 39.7"
L = 40.23'
T = 20.61'
R = 75.00'

PI Sta 14+59.47
Δ = 30° 51' 23.1" (RT)
D = 95° 29' 34.7"
L = 32.31'
T = 16.56'
R = 60.00'

PI Sta 15+02.69
Δ = 49° 11' 55.4" (LT)
D = 95° 29' 34.7"
L = 51.52'
T = 27.47'
R = 60.00'

#TIME#
#DATE#
#FILE#