



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 13, 2008

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Richard Spencer
NCDOT Coordinator

Dear Sir:

Subject: **Request for Modification to Section 404 Nationwide Permit 23 and Section 401 Water Quality Certification** for the replacement of Bridge No. 25 over the Waccamaw River Overflow on NC 130, Columbus County; State Project No. 8.1431901; TIP No. B-4077. Debit \$240 from WBS 33439.1.1.

Reference: Original Permit application dated March 7, 2008.
U.S. Army Corps of Engineers, Section 404 Nationwide Permit 23 issued April 3, 2008; Action ID 200801063.
N.C. Division of Water Quality Section 401 Water Quality Certification issued April 14, 2008; Project No. 080503.
Notification of Design Changes dated May 12, 2008.

Please find enclosed modified permit drawings and roadway plans for the above referenced project proposed by the North Carolina Department of Transportation (NCDOT). Due to a change in the station numbers for the project, please replace all drawings already received with the enclosed drawings.

NCDOT has determined that the changes detailed in the May 12, 2008 letter have necessitated an increase in the amount of rip rap required under the proposed bridge. The additional rip rap has increased the permanent impacts to jurisdictional resources from 0.47 ac to 0.48 ac. Mitigation for this project is being debited from the Juniper Bay Mitigation site located in HU 03040203. The debit ledger for this mitigation site has been updated to reflect the increase in mitigation needed and is shown in Table 1 below.

Table 1. Debit Ledger for Juniper Bay Mitigation Site

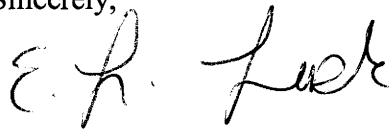
Site Name	River Basin	HUC	Mitigation Type	Transfer from EEP	Available	TIP Debit	TIP Debit
Juniper Bay	Lumber	3040203				B-4077	W-4704
			Non Riverine Wetland Restoration	2	1.14	0.48	0.38

Proposed temporary impacts remain at 1.29 ac. Efforts to Avoid and Minimize impacts and impacts to Federally Protected Species have not changed.

In accordance with 15A NCAC 2H, Section .0500(a), we are providing five copies of this application to the NCDWQ for their review and approval. Authorization to debit the \$240 Permit Application Fee from WBS Element 33439.1.1 is hereby given.

If there are any questions, please contact Ms. Veronica Barnes of my staff at vabarnes@ncdot.gov or (919) 715-7232.

Sincerely,




for

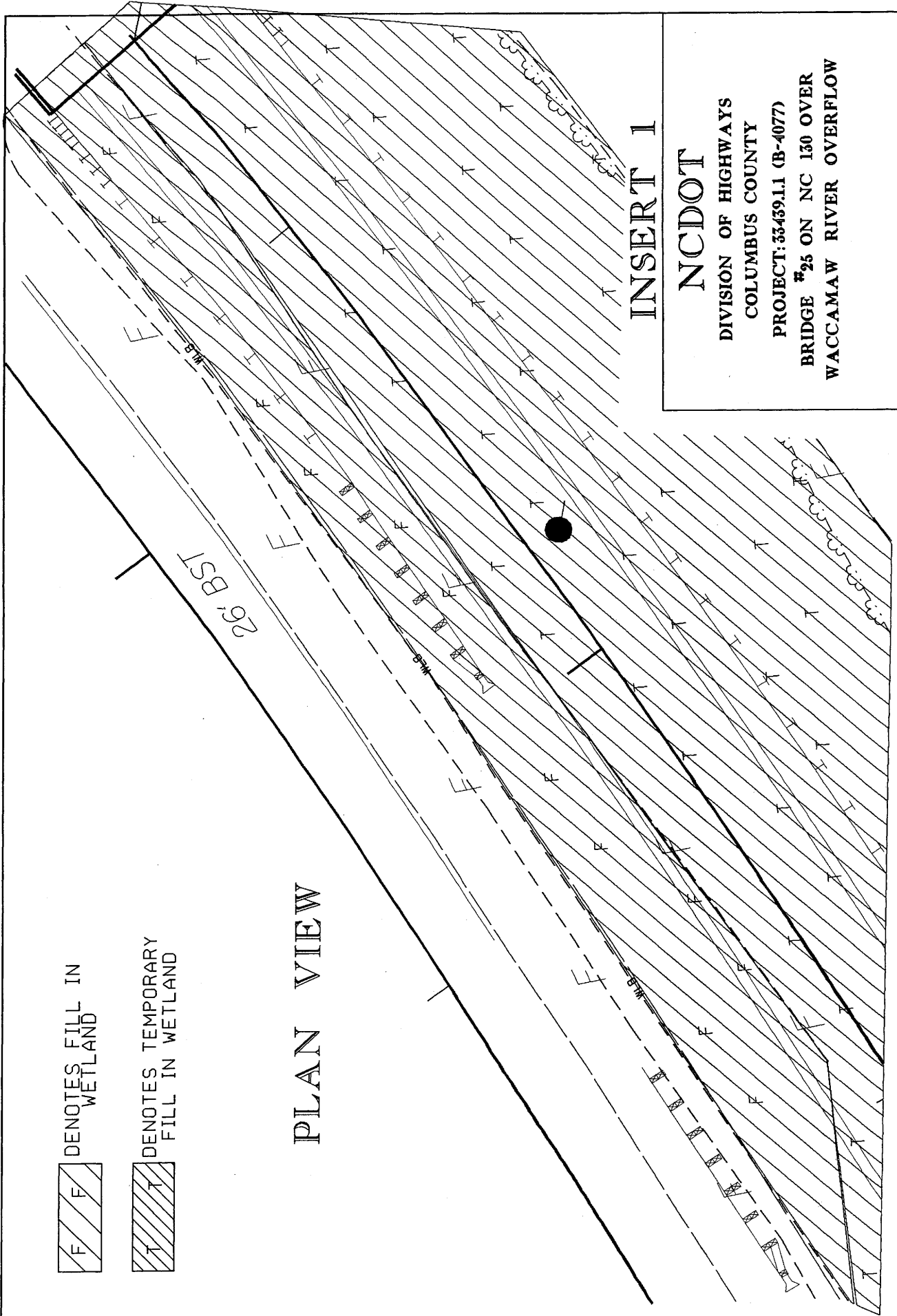
Gregory J. Thorpe, Ph.D.,
 Environmental Management Director
 Project Development and Environmental Analysis Branch

Cc w/attachment:

Mr. Brian Wrenn, NCDWQ (5 Copies)

 DENOTES FILL IN WETLAND
 DENOTES TEMPORARY FILL IN WETLAND

PLAN VIEW



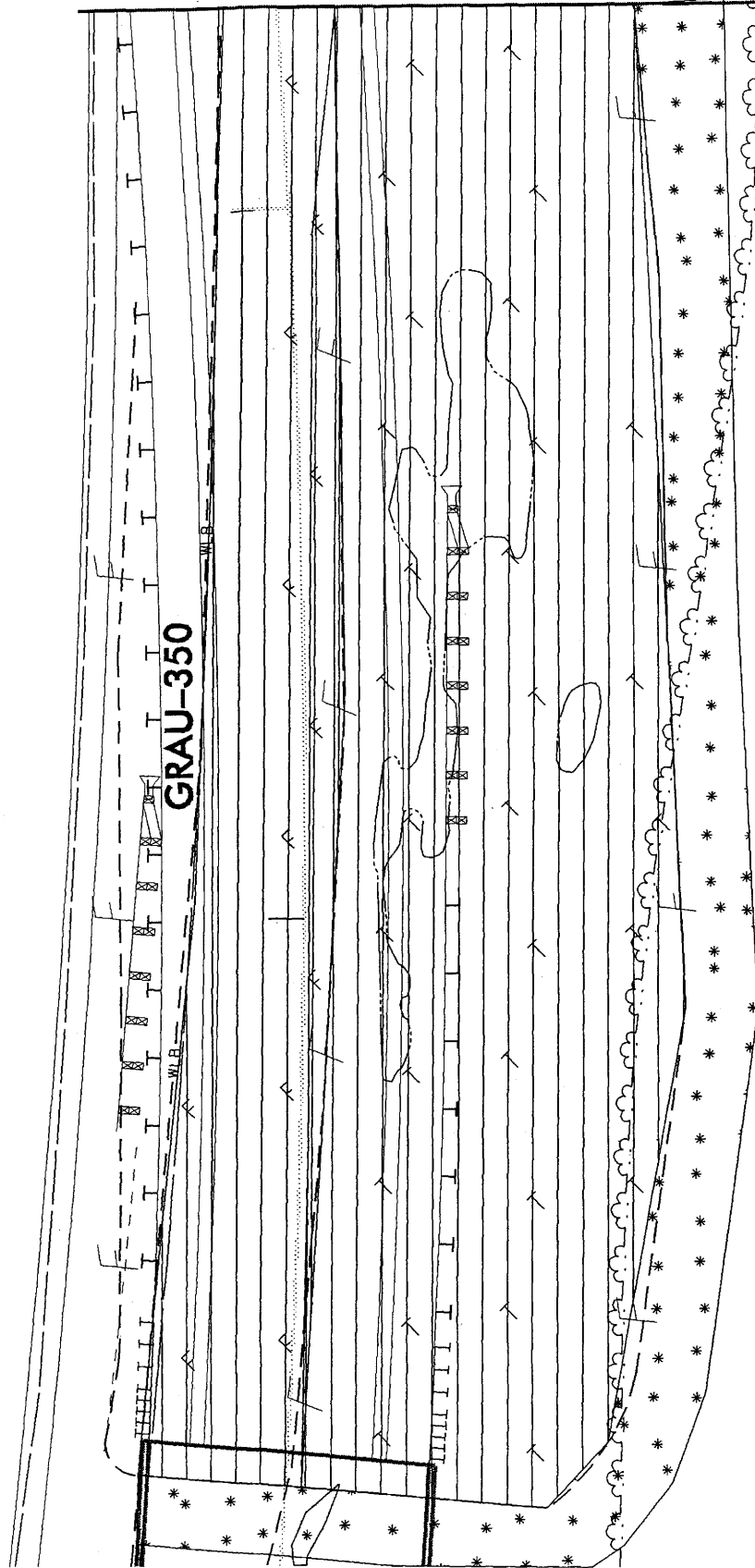
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NCDOT

DIVISION OF HIGHWAYS
 COLUMBUS COUNTY

PROJECT: 33439.11 (B-4077)

BRIDGE #25 ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW



GRAU-350

- 
 DENOTES FILL IN WETLAND
- 
 DENOTES MECHANIZED CLEARING
- 
 DENOTES TEMPORARY FILL IN WETLAND

INSERT 2

NCDOT

DIVISION OF HIGHWAYS
COLUMBUS COUNTY

PROJECT: 33439.1.1 (B-4077)

BRIDGE # 25 ON NC 130 OVER
WACCAMAW RIVER OVERFLOW

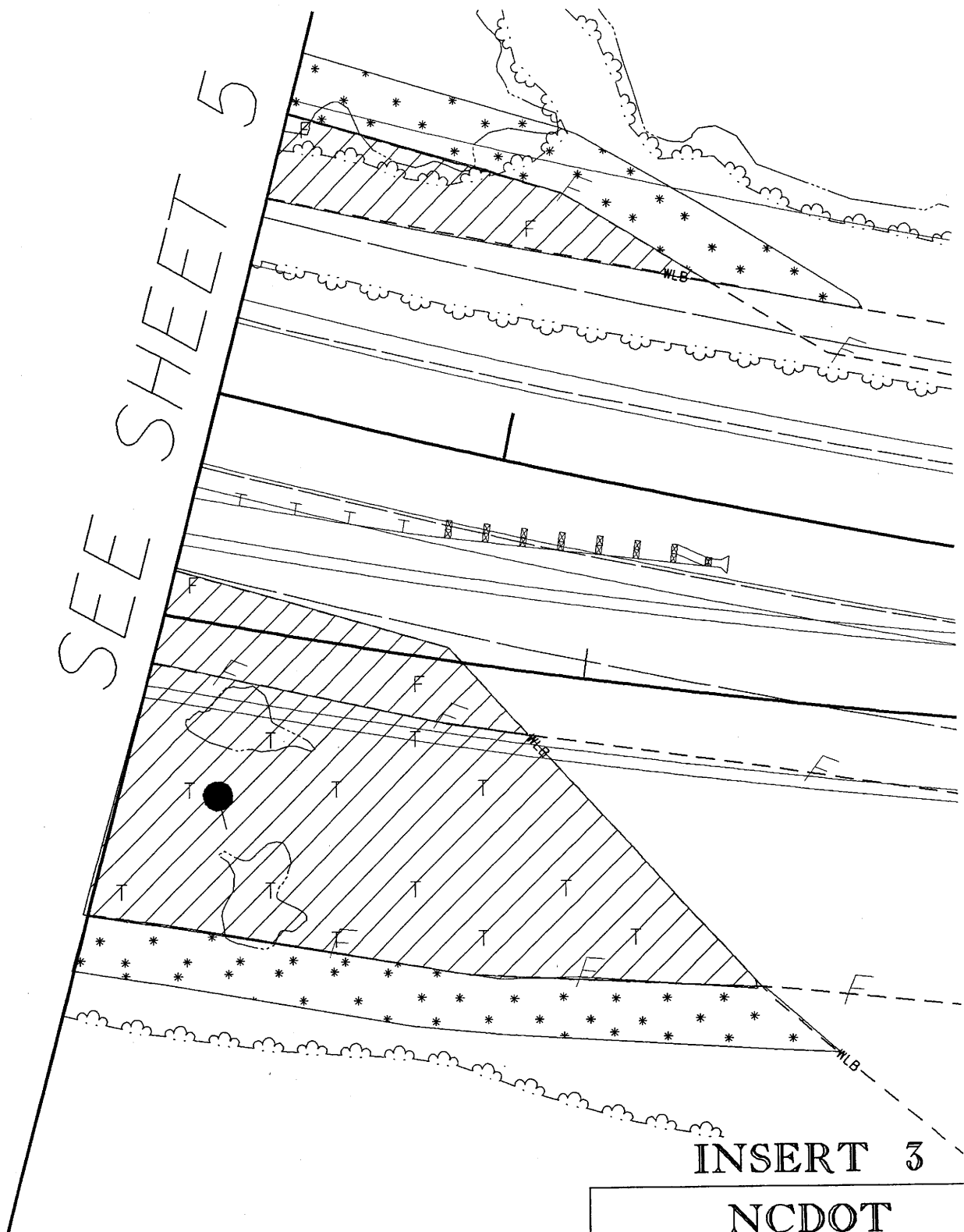
PLAN VIEW

SHEET

OF

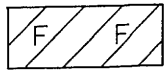
10 / 16 / 07

SEE SHEET 5

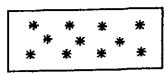


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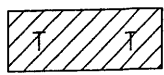
PLAN VIEW



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING



DENOTES TEMPORARY FILL IN WETLAND

NCDOT
 DIVISION OF HIGHWAYS
 COLUMBUS COUNTY
 PROJECT: 33439.11 (B-4077)
 BRIDGE #25 ON NC 130 OVER
 WACCAMAW RIVER OVERFLOW

Permit Drawing
 Sheet 5 of 22

SHEET OF 10/16/07

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	Plum Creek Timberlands, LP Attn: Craig Albright	987 Griswoldville Rd Macon, GA 31217

NCDOT
DIVISION OF HIGHWAYS
COLUMBUS COUNTY
PROJECT: 33439.1.1 (B-4077)
BRIDGE NO. 25 ON NC 130 OVER
WACCAMAW RIVER OVERFLOW

9/14/05

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	Plum Creek Timberlands, LP Attn: Craig Albright	987 Griswoldville Rd Macon, GA 31217

NCDOT
DIVISION OF HIGHWAYS
COLUMBUS COUNTY
PROJECT: 33439.1.1 (B-4077)
BRIDGE NO. 25 ON NC 130 OVER
WACCAMAW RIVER OVERFLOW

9/14/05

09/06/99

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

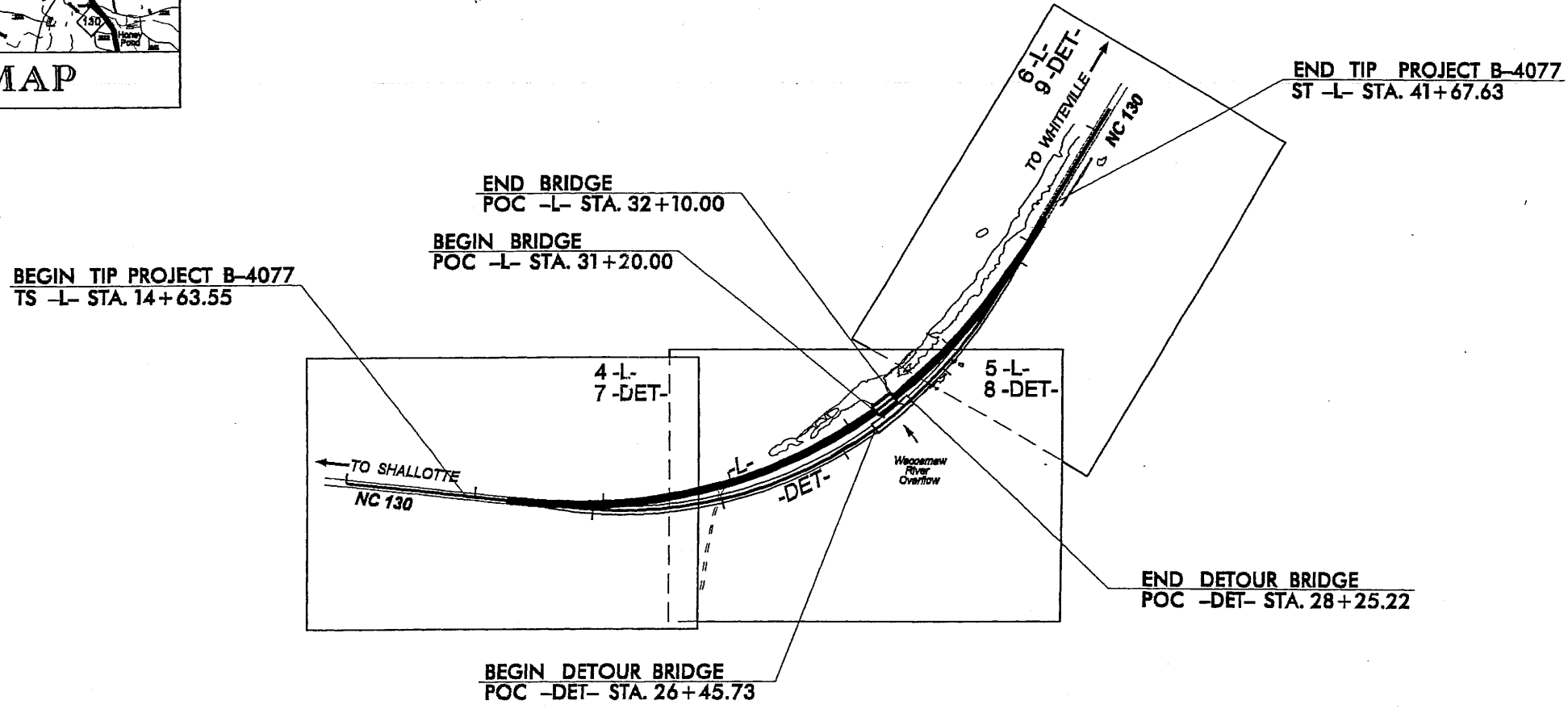
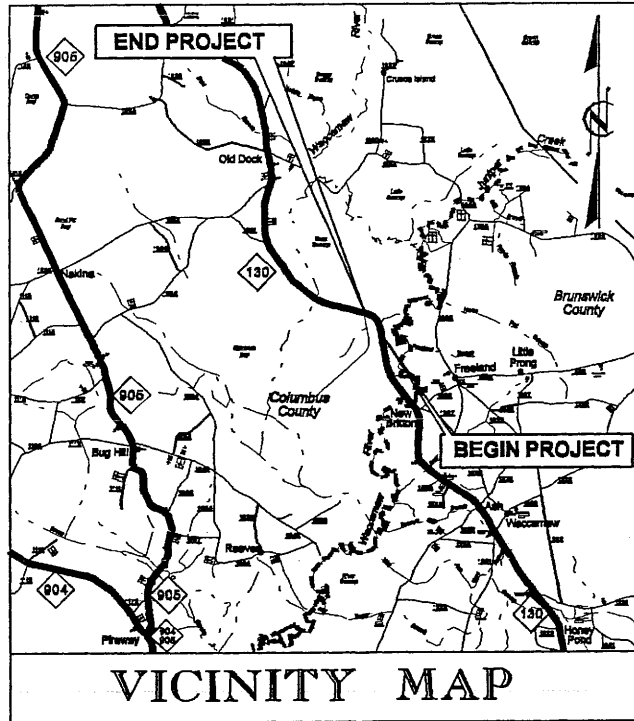
COLUMBUS COUNTY

LOCATION: BRIDGE NO. 25 ON NC 130 OVER
WACCAMAW RIVER OVERFLOW

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL,
THERMOPLASTIC PAVEMENT MARKINGS,
SNOW PLOWABLE PAVEMENT MARKERS &
STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4077	I	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33439.1.1	BRSTP-130(2)	PE	
33439.2.1	BRSTP-130(2)	R/W CONST	

TIP PROJECT: B-4077

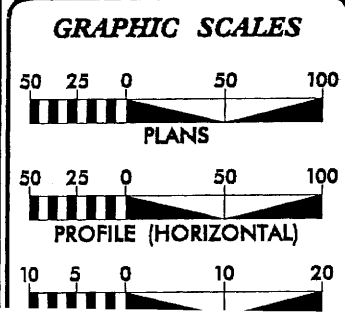


** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL STOPPING SIGHT DISTANCE.

NCDOT CONTACT:
CATHY S. HOUSER, PE
ROADWAY DESIGN

AY-2008 10:58
c:\pvc\p\o\ec.folder\b4077_rdy.ec.tsh.dgn
USERNAME: \$\$\$

CONTRACT:



DESIGN DATA

ADT 2008 =	5000
ADT 2028 =	9000
DHV =	13 %
D =	60 %
T =	7 % *
** V =	60 MPH
FUNC CLASS:	RURAL MINOR ARTERIAL
* TTST 4%	DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4077	=	0.495 mi.
LENGTH REPLACEMENT STRUCTURE TIP PROJECT B-4077	=	0.017 mi.
TOTAL LENGTH OF TIP PROJECT B-4077	=	0.512 mi.

Prepared In the Office of:
OKA, INC.
300 EAST MAIN STREET
SUITE 302-H
JOHNSON CITY, TN 37601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 16, 2006

LETTING DATE: SEPTEMBER 16, 2008

ALBERT H. ZIMMERMAN, PE
PROJECT ENGINEER

BRIAN P. JOHNSON, PE
PROJECT DESIGN ENGINEER



HYDRAULICS ENGINEER

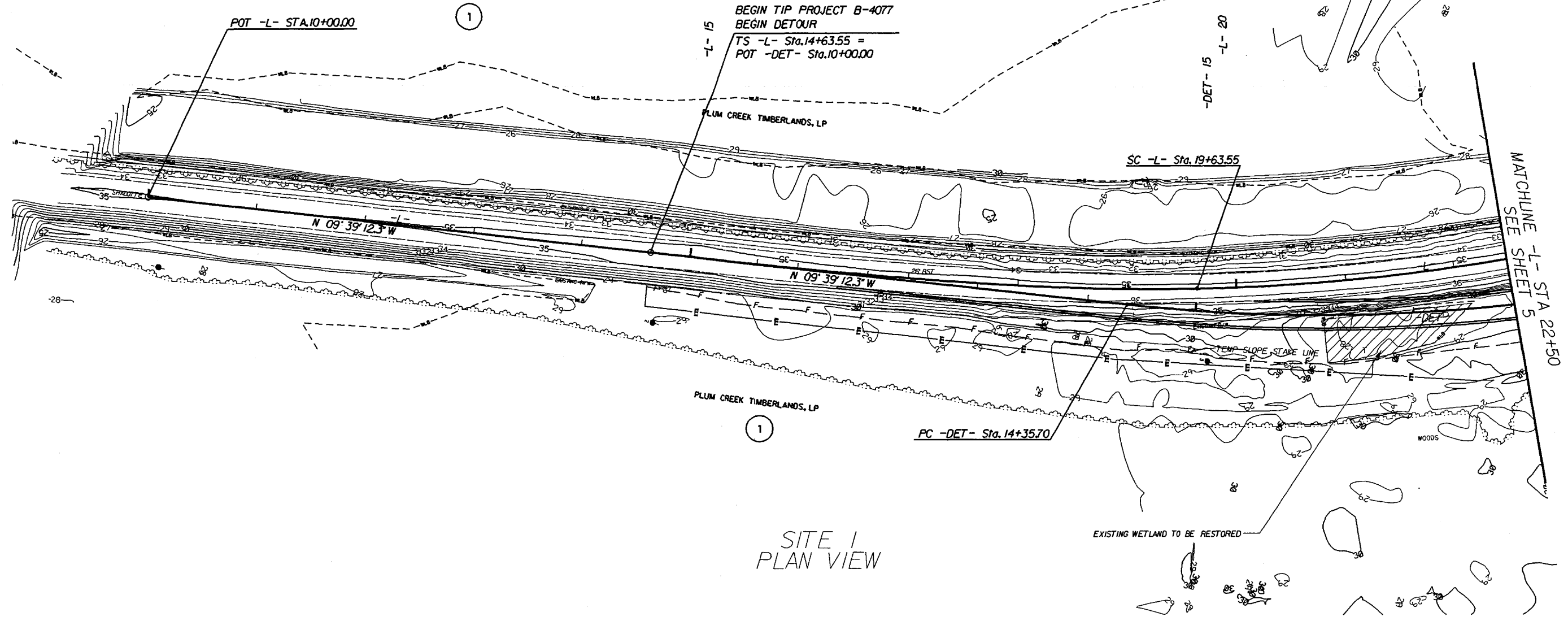
SIGNATURE: _____

ROADWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Permit Drawing
Sheet 1 of 2

PROJECT REFERENCE NO. B-4077		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			



SITE 1
PLAN VIEW

NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

 DENOTES TEMPORARY FILL IN WETLAND

SEE SHEET 10 FOR -L- PROFILE

Permit Drawing

8/17/99

REVISIONS

09-OCT-2007 10:36
r:\hydr\autics\per\03\B-4077_rdy_psh4.dgn

8/17/99



VE DATA
 PI Sta 28+76.31
 $\Delta = 50^\circ 51' 09.1''$ (LT)
 $D = 2' 59' 03.0''$
 $L = 1,704.08'$
 $T = 912.76'$
 $R = 1,920.00'$
 $SE = 0.06$ ft/ft
 -L- Sta. 28+78.47 TO 36+33.81
 $SE = EX$
 -L- Sta. 19+63.55 TO 28+78.47
 -L- Sta. 36+33.81 TO 36+67.63

POC -L- Sta. 34+50.00
 END FULL DEPTH
 BEGIN WIDENING &
 RESURFACING

POC -L- Sta. 32+34.7
 END APPROACH SLAB

POC -L- Sta. 32+10.00
 END BRIDGE

POC -L- Sta. 31+20.00
 BEGIN BRIDGE

POC -L- Sta. 30+95.83
 BEGIN APPROACH SLAB

POC -L- STA. 28+78.47
 END RESURFACING
 BEGIN WIDENING &
 RESURFACING

POC -DET- Sta. 28+25.22
 END DETOUR BRIDGE

POC -L- STA. 30+70.00
 END WIDENING &
 RESURFACING
 BEGIN FULL DEPTH

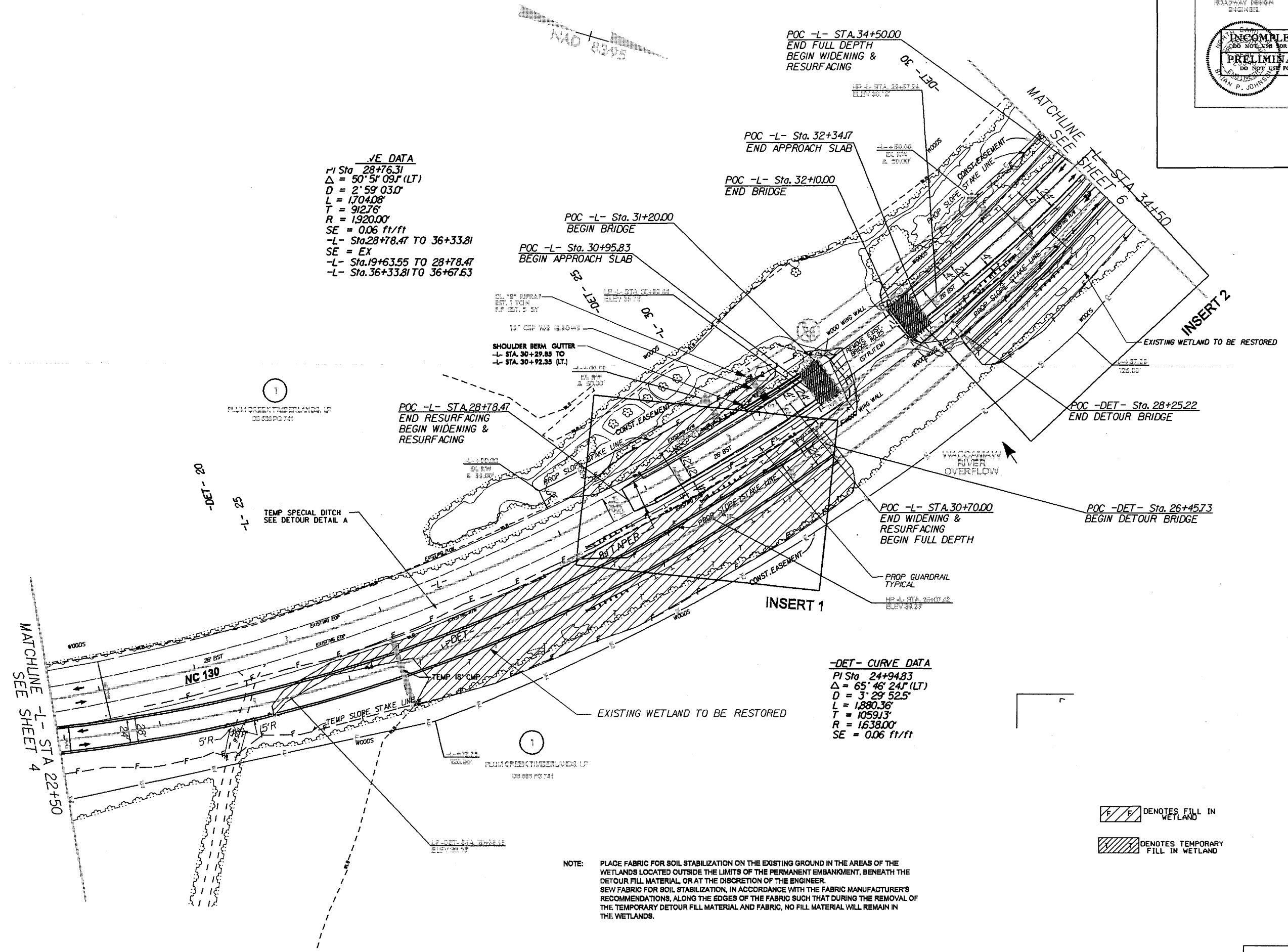
POC -DET- Sta. 26+45.73
 BEGIN DETOUR BRIDGE

-DET- CURVE DATA
 PI Sta 24+94.83
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 $D = 3' 29' 52.5''$
 $L = 1,880.36'$
 $T = 1,059.13'$
 $R = 1,638.00'$
 $SE = 0.06$ ft/ft

DENOTES FILL IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.



MATCHLINE -L- STA 22+50
 SEE SHEET 4

MATCHLINE TO SHEET 6
 STA 34+50

INSERT 2

INSERT 1

-DET- 20
 -L- 25



PLUM CREEK TIMBERLANDS, LP
 DB 688 PG 741

PLUM CREEK TIMBERLANDS, LP
 DB 688 PG 741

19-MAY-2008 10:56
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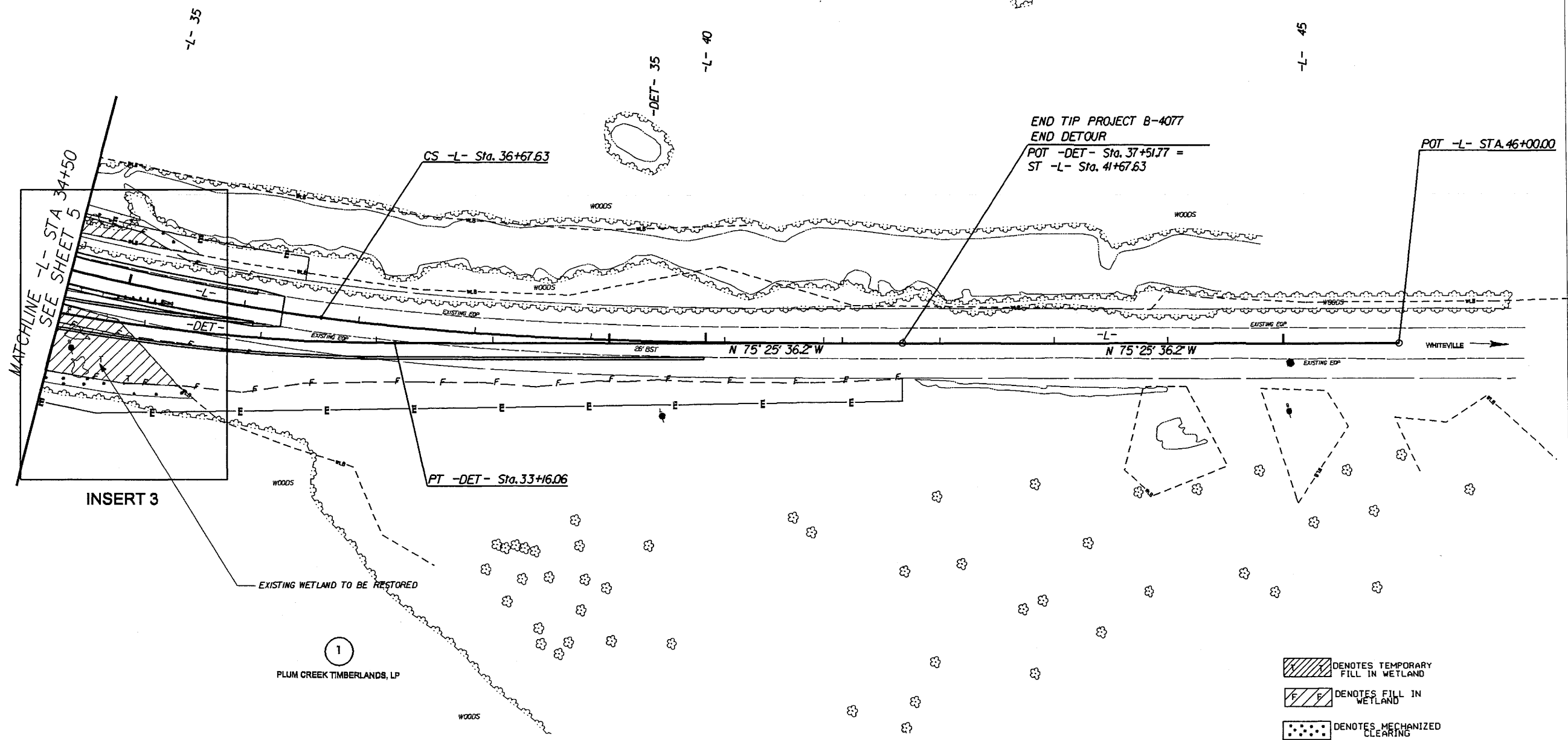
SEE SHEET 70 FOR -L- PROFILE

Permit Drawing
 Sheet 5 of 5

PROJECT REFERENCE NO. B-4077	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

NAD 8395

1
PLUM CREEK TIMBERLANDS, LP



END TIP PROJECT B-4077
END DETOUR
POT -DET- Sta. 37+51.77 =
ST -L- Sta. 41+67.63




POT -L- STA. 46+00.00

MATCHLINE -L- STA 34+50
SEE SHEET 5

INSERT 3

EXISTING WETLAND TO BE RESTORED

1
PLUM CREEK TIMBERLANDS, LP

-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING

NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 10,11 FOR -L- PROFILE

Permit Drawing
Sheet 12 of 22

REVISIONS

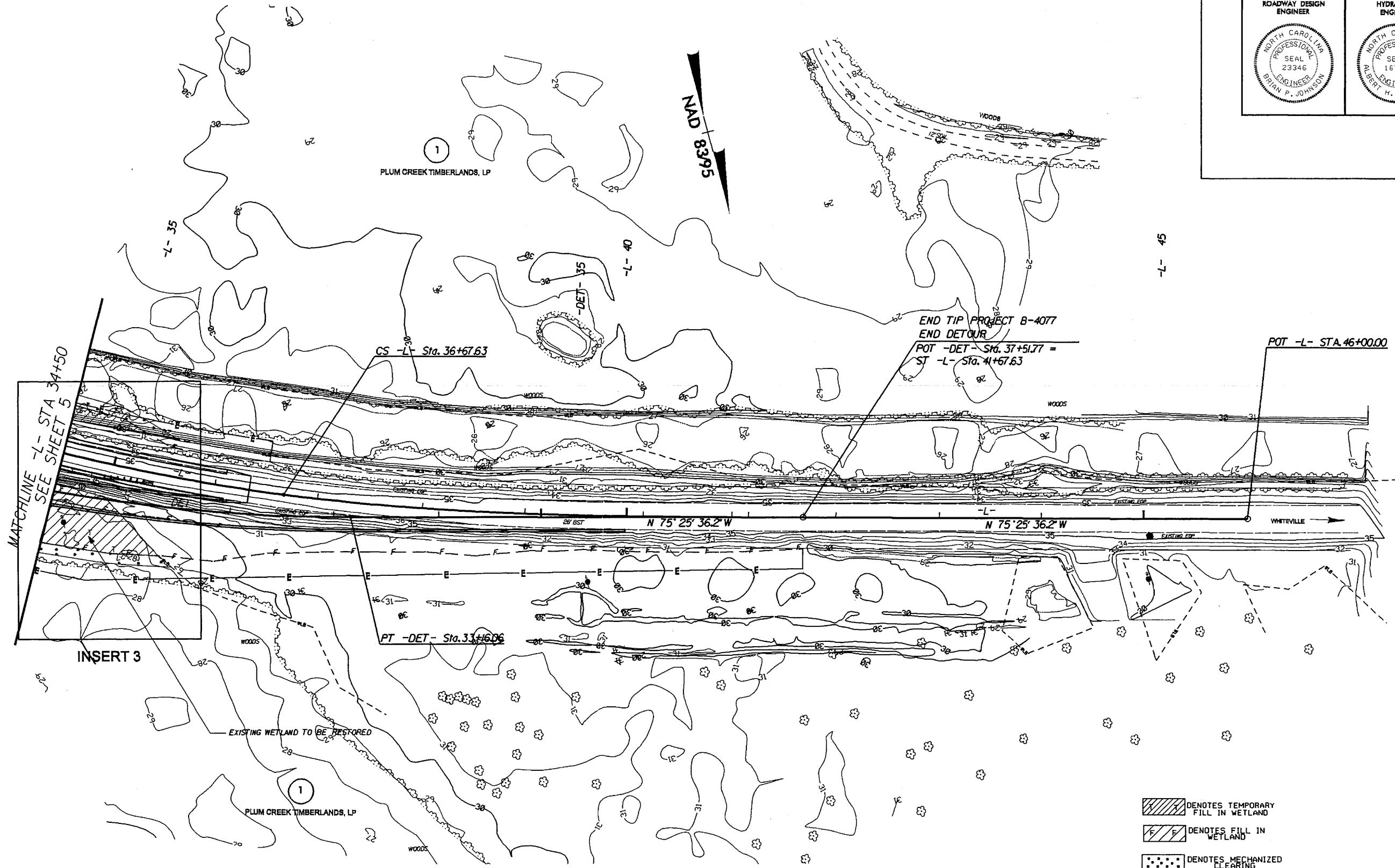
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

8/17/99

REVISIONS



MATCHLINE -L- STA 34+50
SEE SHEET 5

INSERT 3

-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING

NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 10,11 FOR -L- PROFILE

Permit Drawing

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Author: AT 11/22/18

5/28/04

BM #80
-BL STA. 15+04.148 RT
-L STA. 20+16.87 131.61' RT
ELEV 30.81

B-4077 10

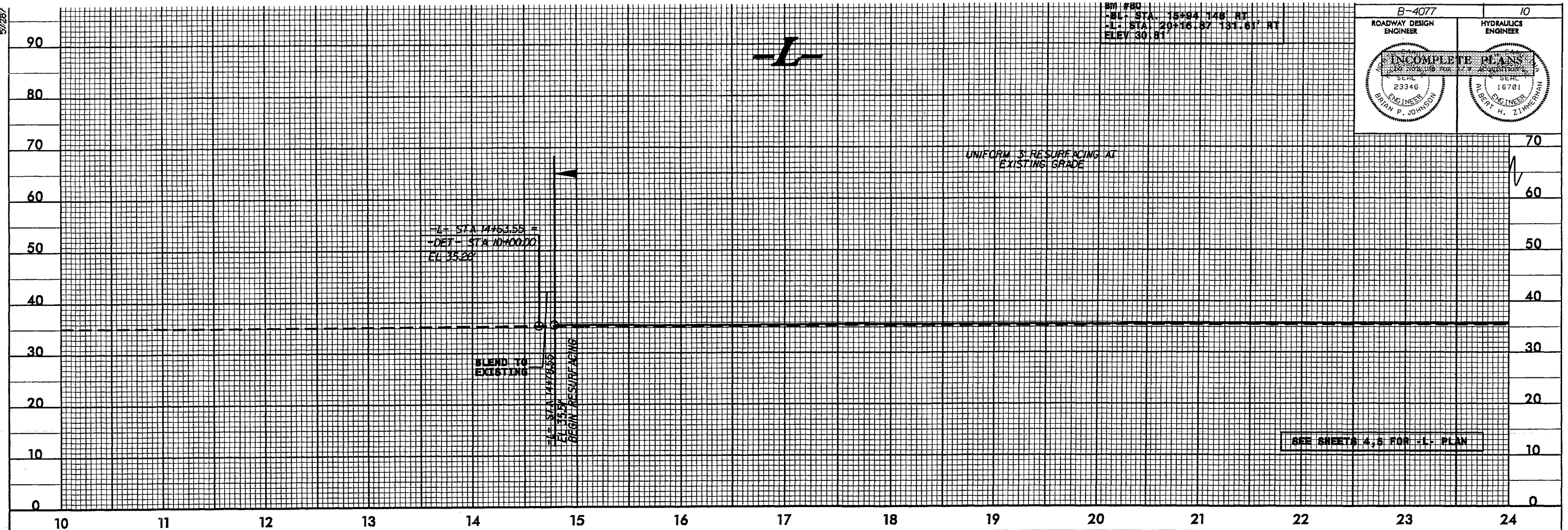
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

23346 16701

BRIAN P. JOHNSON ALBERT H. ZIMMERMAN



BM #81
-BL STA. 32+27.121 RT
-L STA. 36+05.05 108.22' RT
ELEV 30.18

BRIDGE HYDRAULIC DATA

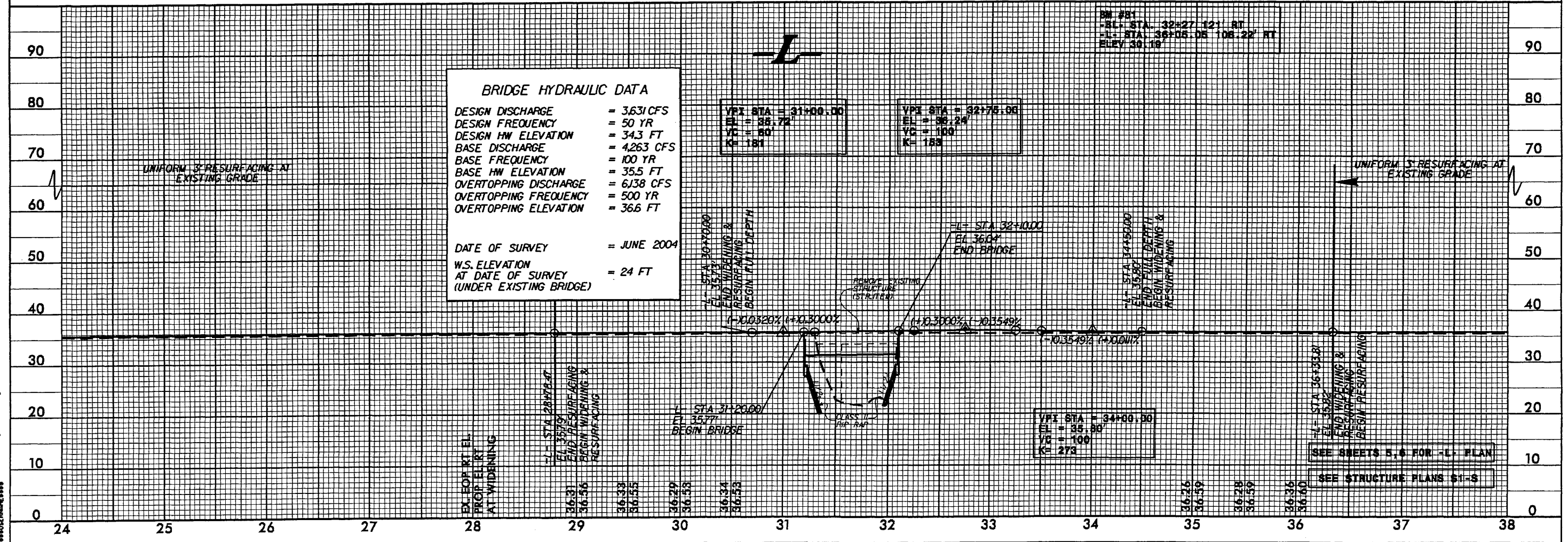
DESIGN DISCHARGE	= 3.631 CFS
DESIGN FREQUENCY	= 50 YR
DESIGN HW ELEVATION	= 34.3 FT
BASE DISCHARGE	= 4.263 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 35.5 FT
OVERTOPPING DISCHARGE	= 6.138 CFS
OVERTOPPING FREQUENCY	= 500 YR
OVERTOPPING ELEVATION	= 36.6 FT

DATE OF SURVEY = JUNE 2004

W.S. ELEVATION AT DATE OF SURVEY (UNDER EXISTING BRIDGE) = 24 FT

VPI STA = 31+00.00
EL = 38.72
VC = 80
K = 181

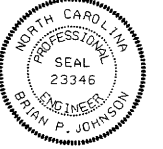

VPI STA = 32+75.06
EL = 36.24
VC = 100
K = 188



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B-4077-04-0118.dwg
BRIAN P. JOHNSON

5/28/04

DITCH LEGEND	
LEFT DITCH	---
RIGHT DITCH	---

PROJECT REFERENCE NO. B-4077	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 1,765 CFS
DESIGN FREQUENCY = 5 YR
DESIGN HW ELEVATION = 31.2 FT
BASE DISCHARGE = 4263 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = 32.6 FT
OVERTOPPING DISCHARGE = 6138+ CFS
OVERTOPPING FREQUENCY = 500+ YR
OVERTOPPING ELEVATION = > 33.6 FT

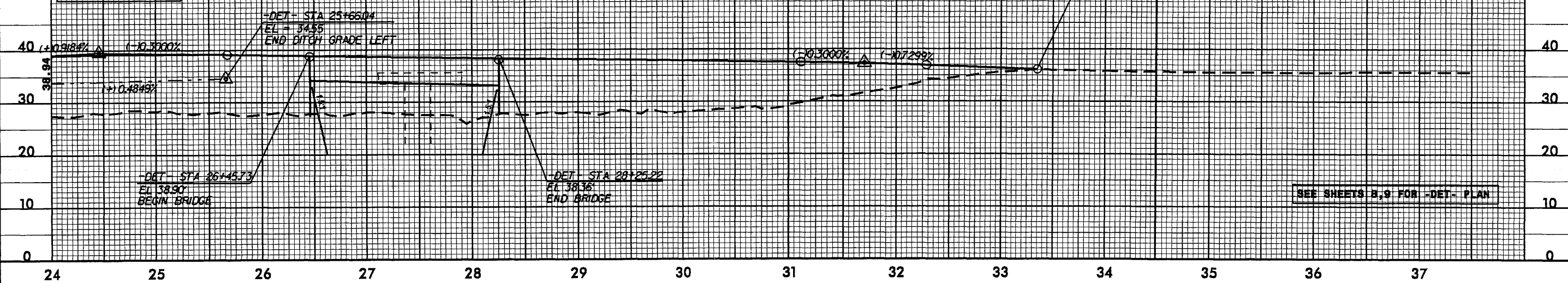
DATE OF SURVEY = JUNE 2004
W.S. ELEVATION AT DATE OF SURVEY (UNDER EXISTING BRIDGE) = 24 FT

-DET-

VPI STA = 24+48.58
EL = 39.80
VC = 243.88
K = 200

VPI STA = 31+78.00
EL = 37.33
VC = 117
K = 272

DET STA 33+35.00
L STA 37+62.00 (123' FT.)
(EXIST. EGP)
EL 36.12
END GRADE



SEE SHEETS 8,9 FOR -DET- PLAN

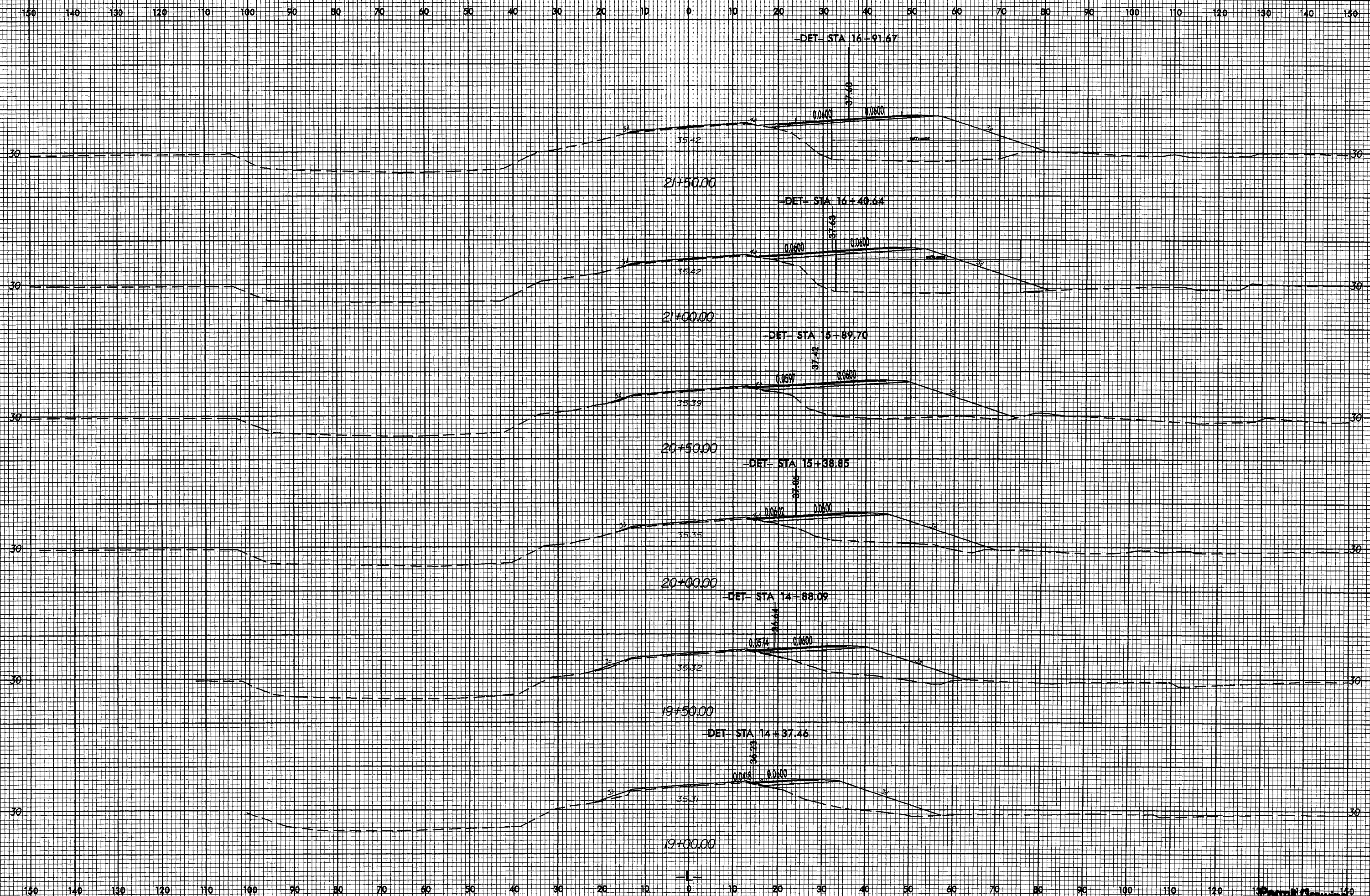
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5/28/04
B-4077-04-pl12.dwg

8/23/99



PROJ. REFERENCE NO.
B-4077

SHEET NO.
X-3



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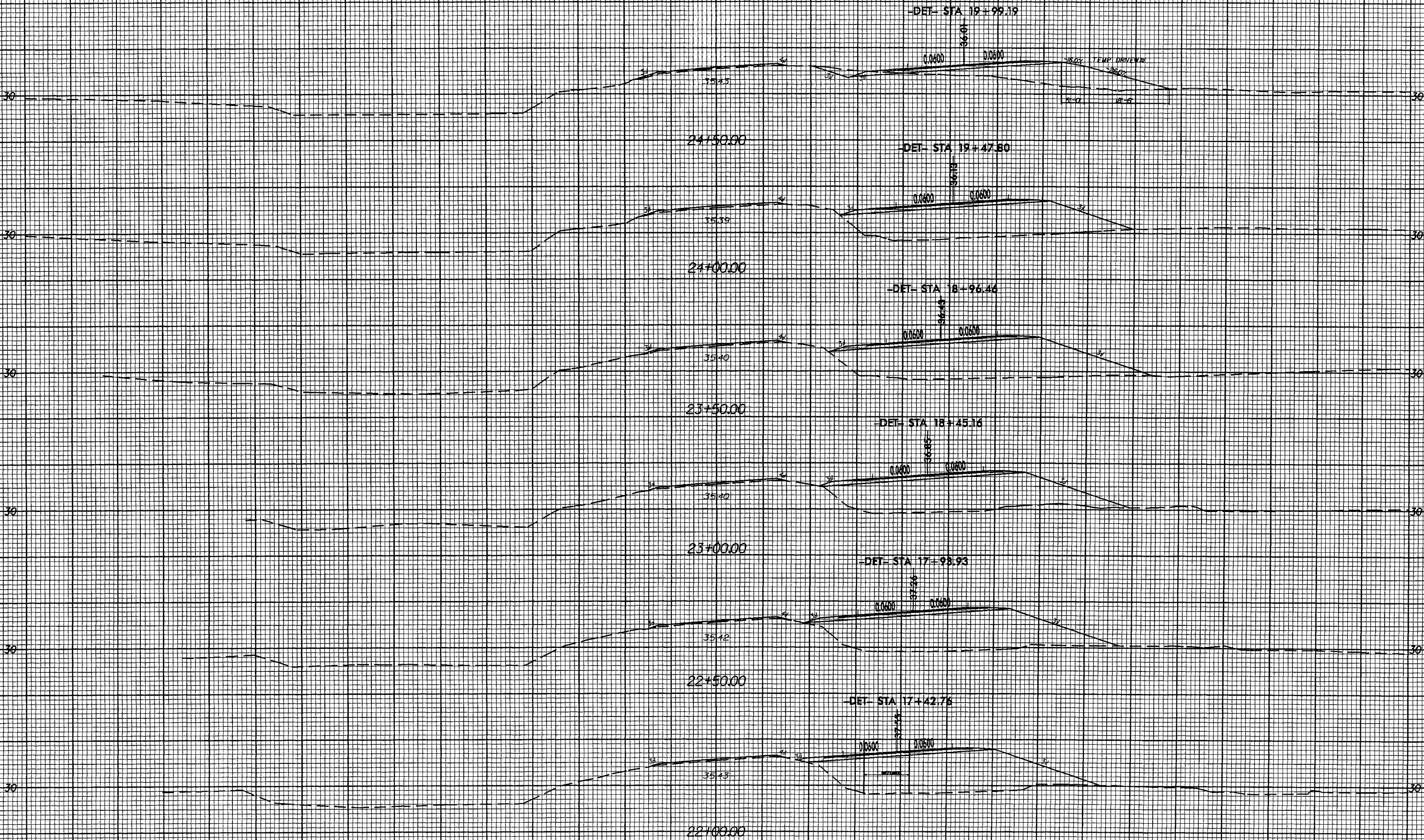
Permit Drawing

8/23/96



PROJ. REFERENCE NO. B-4077 SHEET NO. X-4

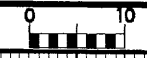
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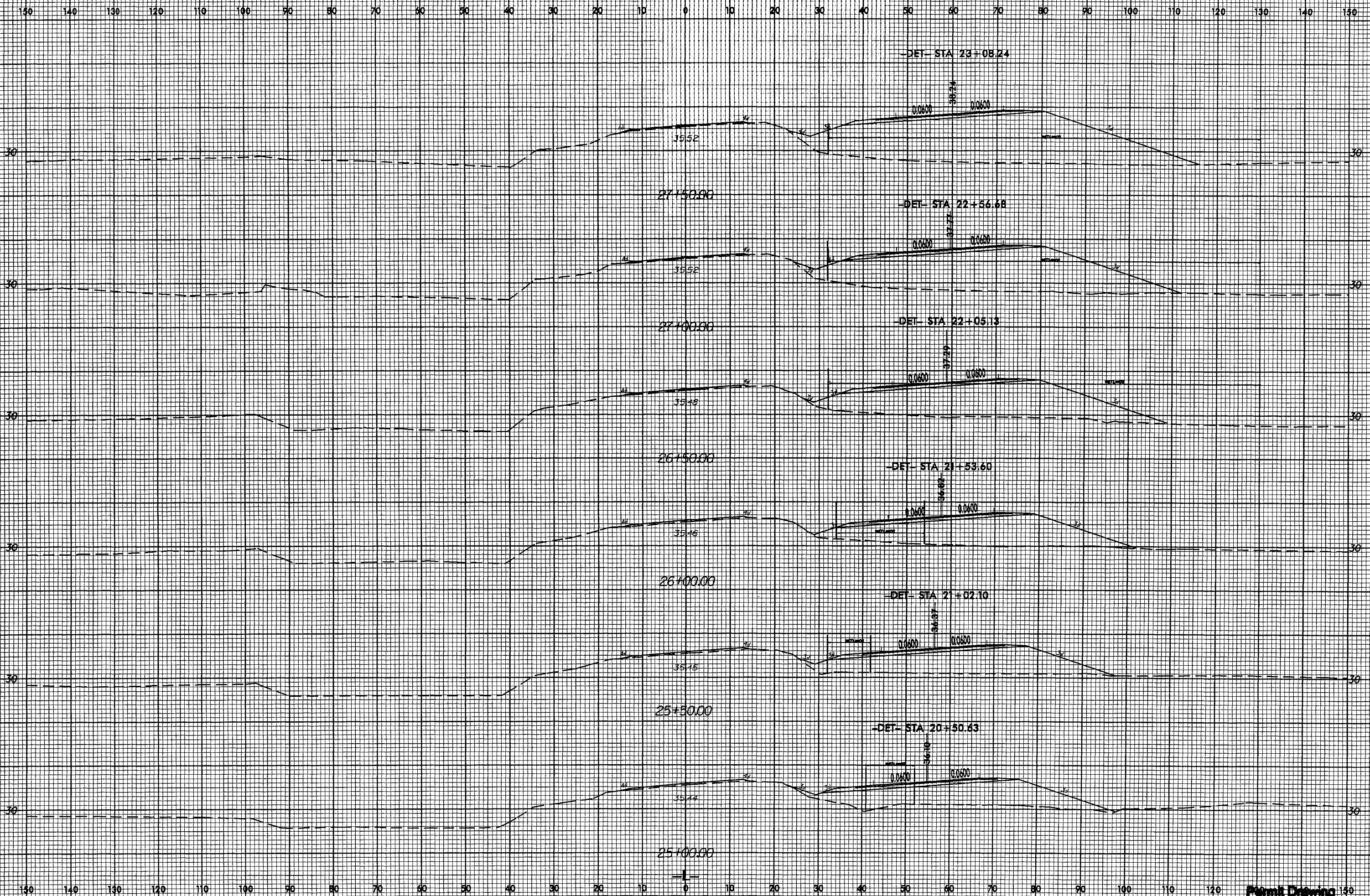
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0-OCT-2007 10:08
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AT 11/22/15
asclmber

8/23/99



PROJ. REFERENCE NO. B-4077 SHEET NO. X-5



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Permit Drawing
Sheet 19 of 27

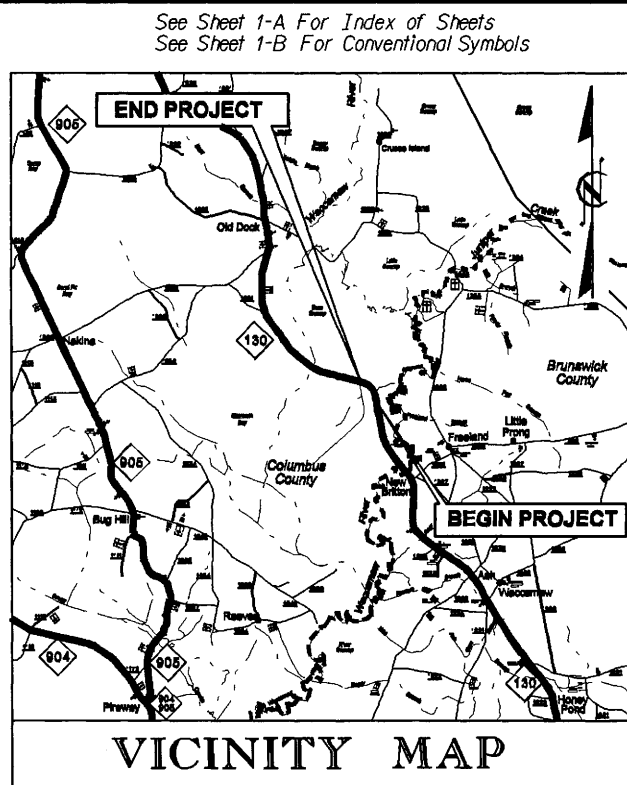
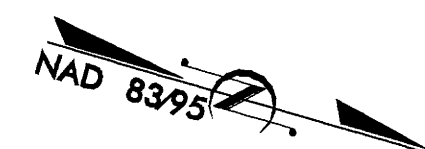
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4077	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33439.1.1	BRSTP-130(2)	PE	
33439.2.1	BRSTP-130(2)	RW	
		CONST	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

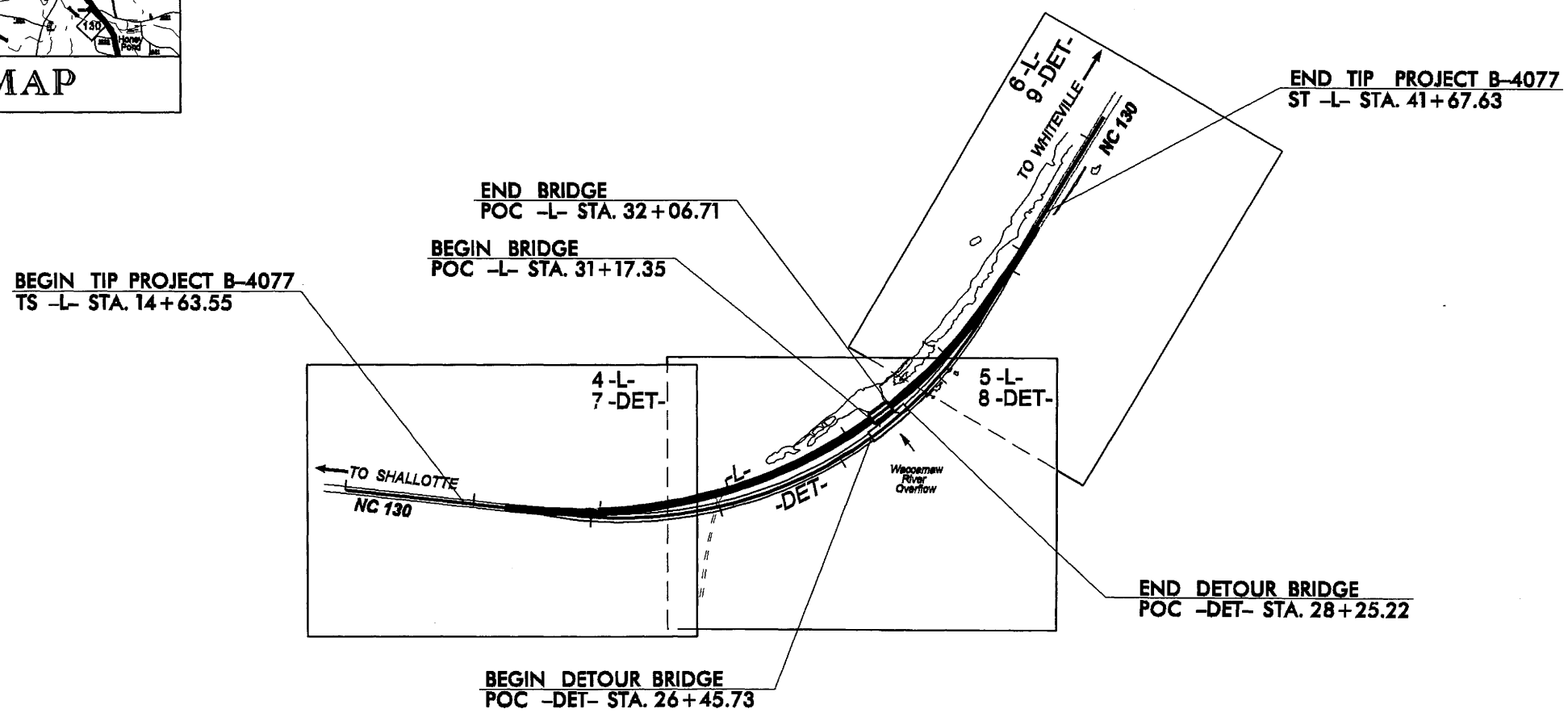
COLUMBUS COUNTY

LOCATION: BRIDGE NO. 25 ON NC 130 OVER
WACCAMAW RIVER OVERFLOW

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL,
THERMOPLASTIC PAVEMENT MARKINGS,
SNOW PLOWABLE PAVEMENT MARKERS &
STRUCTURE



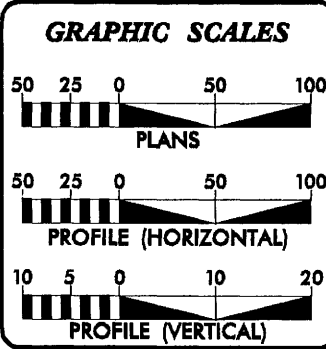
TIP PROJECT: B-4077



** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL STOPPING SIGHT DISTANCE.

NCDOT CONTACT:
CATHY S. HOUSER, PE
ROADWAY DESIGN

CONTRACT:



DESIGN DATA

ADT 2008 =	5000
ADT 2028 =	9000
DHV =	13 %
D =	60 %
T =	7 % *
** V =	60 MPH
FUNC CLASS:	RURAL MINOR ARTERIAL
* TTST	4% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4077	=	0.495 mi.
LENGTH REPLACEMENT STRUCTURE TIP PROJECT B-4077	=	0.017 mi.
TOTAL LENGTH OF TIP PROJECT B-4077	=	0.512 mi.

Prepared In the Office of:

 Q&A, INC.
 300 EAST MAIN STREET
 SUITE 302-H
 JOHNSON CITY, TN 37601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 16, 2006

LETTING DATE: SEPTEMBER 16, 2008

ALBERT H. ZIMMERMAN, PE
PROJECT ENGINEER

BRIAN P. JOHNSON, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____

ROADWAY DESIGN ENGINEER


SIGNATURE: _____

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER

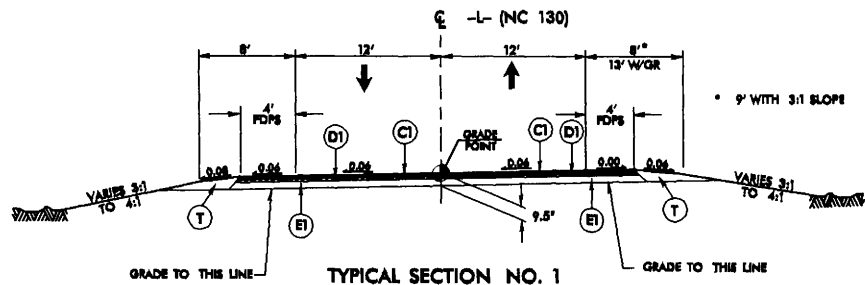
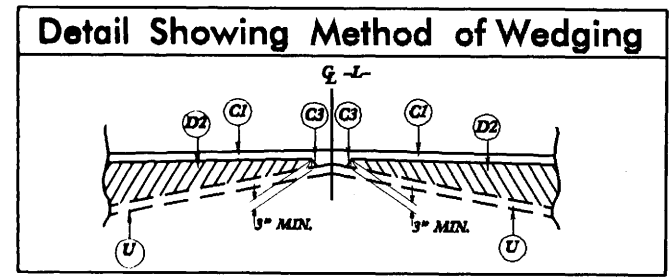
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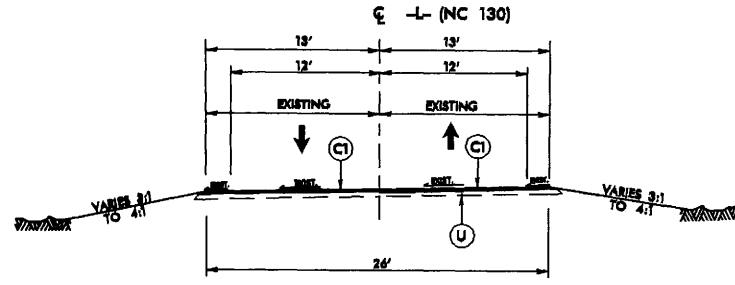
PROJECT REFERENCE NO. B-4077	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
	

PAVEMENT SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH	R	SHOULDER BERM GUTTER
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 3" IN DEPTH	J1	PROP. APPROX. 8" AGGREGATE BASE COURSE
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE 825.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

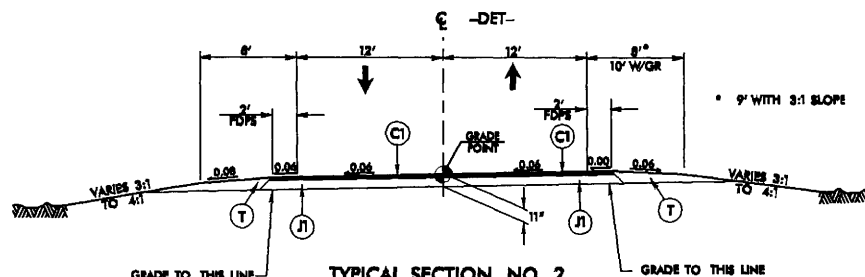
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



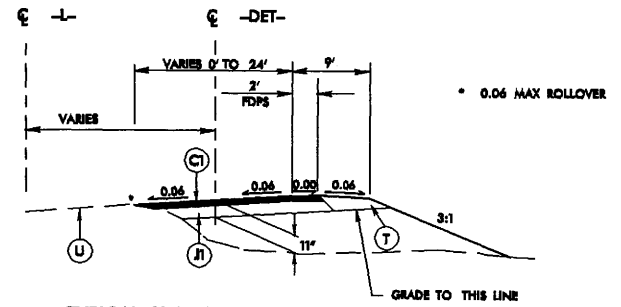
TYPICAL SECTION NO. 1
 USE TYPICAL SECTION No. 1
 -L- STA. 30+70.00 TO 31+17.35 (Begin Bridge)
 -L- STA. 32+06.71 (End Bridge) TO 34+50.00



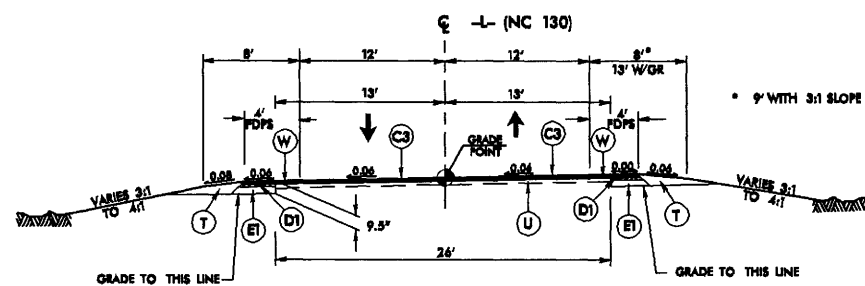
TYPICAL SECTION NO. 4
 USE TYPICAL SECTION No. 4
 -L- STA. 14+78.55 TO 28+78.47
 -L- STA. 36+33.81 TO 41+52.63
 NOTE: BLEND PAVEMENT FROM:
 -L- STA. 14+63.55 TO 14+78.55
 -L- STA. 41+52.63 TO 41+67.63



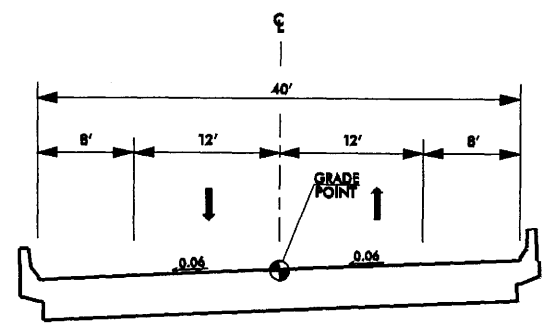
TYPICAL SECTION NO. 2
 USE TYPICAL SECTION No. 2
 -DET- STA. 15+75.00 TO 26+45.73 (Begin Bridge)
 -DET- STA. 28+25.22 (End Bridge) TO 31+75.00



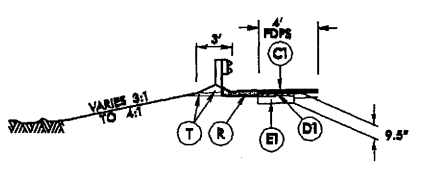
TYPICAL SECTION NO. 5
 USE TYPICAL SECTION No. 5
 -DET- STA. 11+75.00 TO 15+75.00
 -DET- STA. 31+75.00 TO 36+00.00



TYPICAL SECTION NO. 3
 USE TYPICAL SECTION No. 3
 -L- STA. 28+78.47 TO 30+70.00
 -L- STA. 34+50.00 TO 36+33.81





TYPICAL SECTION NO. 6
 USE TYPICAL SECTION No. 6
 -L- STA. 31+17.35 TO 32+06.71
 -DET- STA. 26+45.73 TO 28+25.22



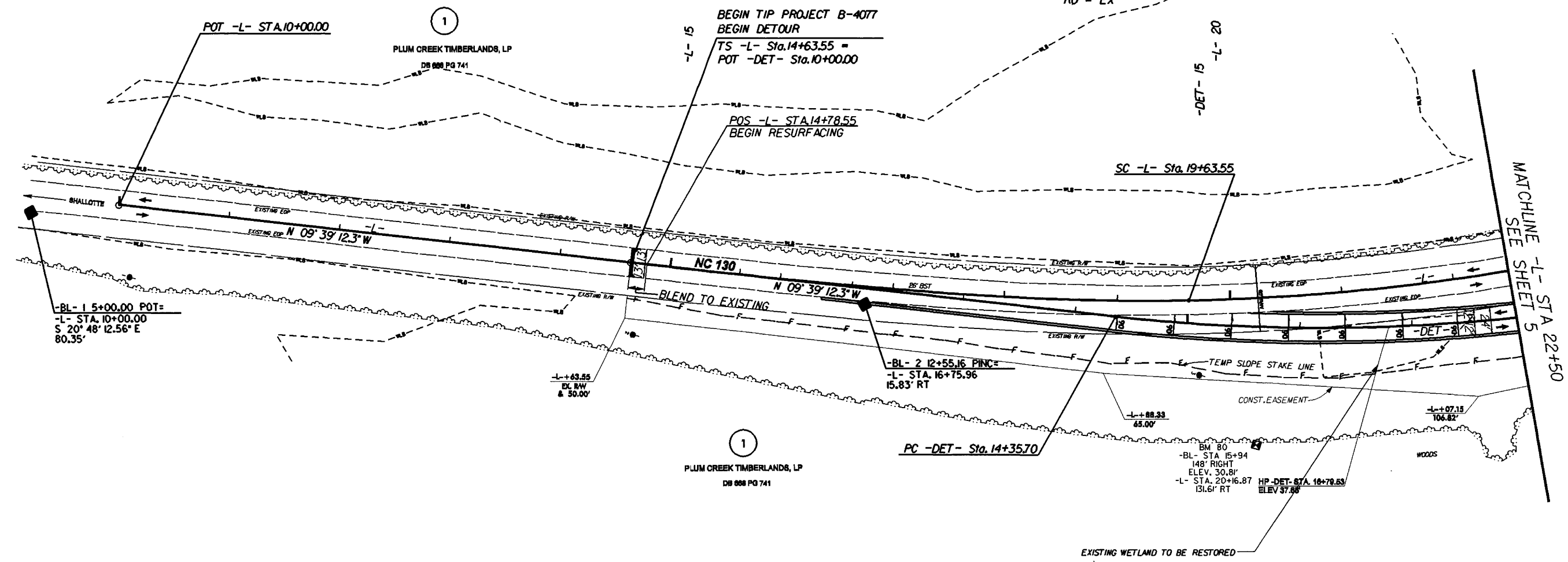
SHOULDER BERM GUTTER DETAIL
 -L- STA. 30+29.85 TO 30+92.35 (LT.)

8/17/99

PROJECT REFERENCE NO. B-4077		SHEET NO. 4	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			



-L- SPIRAL DATA
 Pts Sta 17+97.18
 $\theta_s = 7^\circ 27' 37.4''$
 $L_s = 500.00'$
 $R_c = 1920.00'$
 $LT = 333.63'$
 $ST = 166.94'$
 $SE = EX$
 $RD = EX$



NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

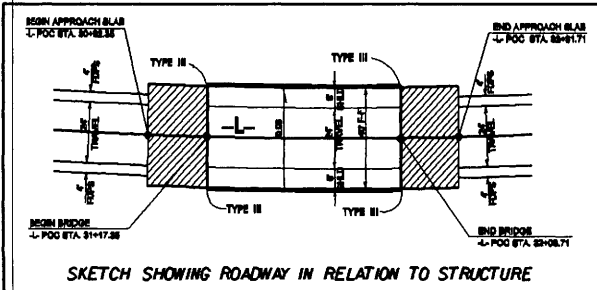
SEE SHEET 10 FOR -L- PROFILE

REVISIONS

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PROJECT REFERENCE NO. B-4077	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 23346 BRIAN P. JOHNSON	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 16701 ALBERT H. ZIMMERMAN

-L- STRUCTURE
NC 130

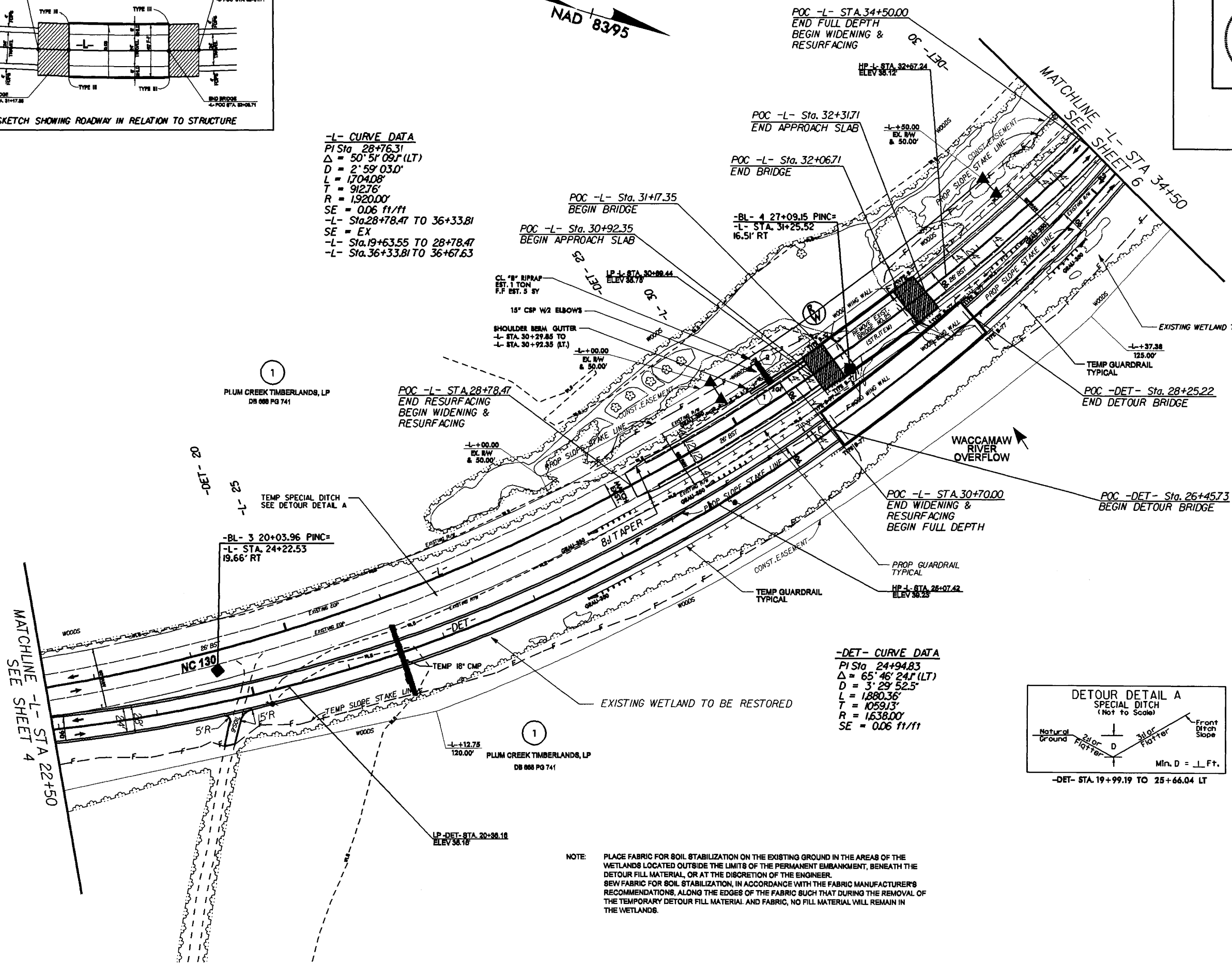


-L- CURVE DATA
 PI Sta 28+76.31
 $\Delta = 50^\circ 51' 09.1$ (LT)
 $D = 2^\circ 59' 03.0$
 $L = 1704.08'$
 $T = 912.76'$
 $R = 1920.00'$
 $SE = 0.06$ f1/f1
 -L- Sta 28+78.47 TO 36+33.81
 SE = EX
 -L- Sta. 19+63.55 TO 28+78.47
 -L- Sta. 36+33.81 TO 36+67.63

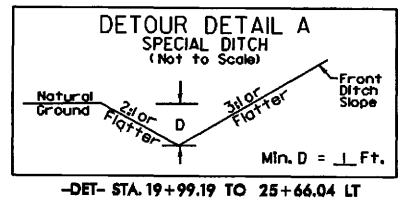


MATCHLINE -L- STA 22+50
SEE SHEET 4

MATCHLINE -L- STA 34+50
SEE SHEET 6



-DET- CURVE DATA
 PI Sta 24+94.83
 $\Delta = 65^\circ 46' 24.1$ (LT)
 $D = 3^\circ 29' 52.5$
 $L = 1880.36'$
 $T = 1059.13'$
 $R = 1638.00'$
 $SE = 0.06$ f1/f1



NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 10 FOR -L- PROFILE

8/17/99
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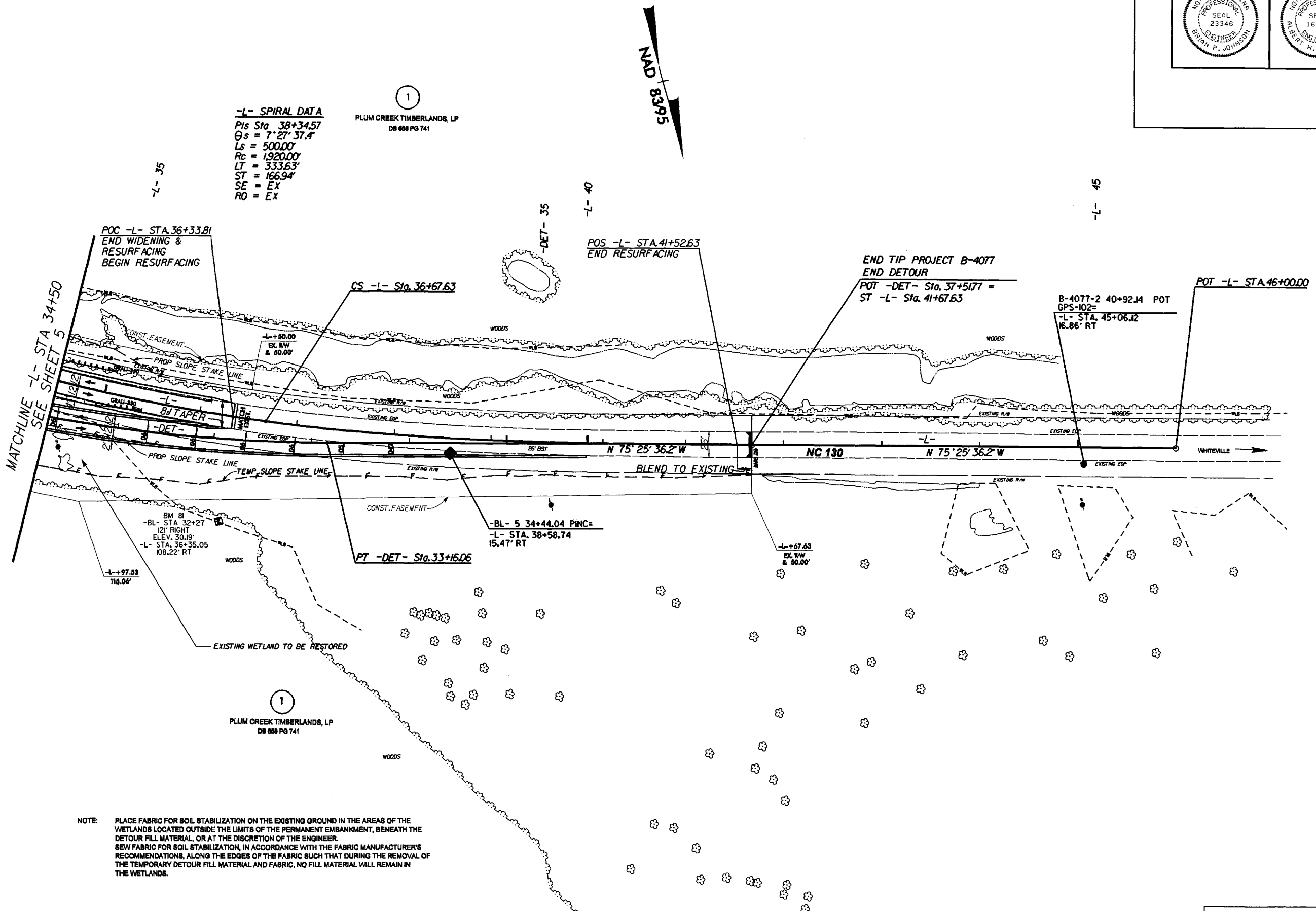
8/17/99

PROJECT REFERENCE NO. B-4077	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- SPIRAL DATA
 PIs Sta 38+34.57
 $\theta_s = 7^\circ 27' 37.4"$
 $L_s = 500.00'$
 $R_c = 1920.00'$
 $LT = 333.63'$
 $ST = 166.94'$
 SE = EX
 RO = EX

1
 PLUM CREEK TIMBERLANDS, LP
 DB 008 PG 741

MAD 8395



NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 10,11 FOR -L- PROFILE

REVISIONS

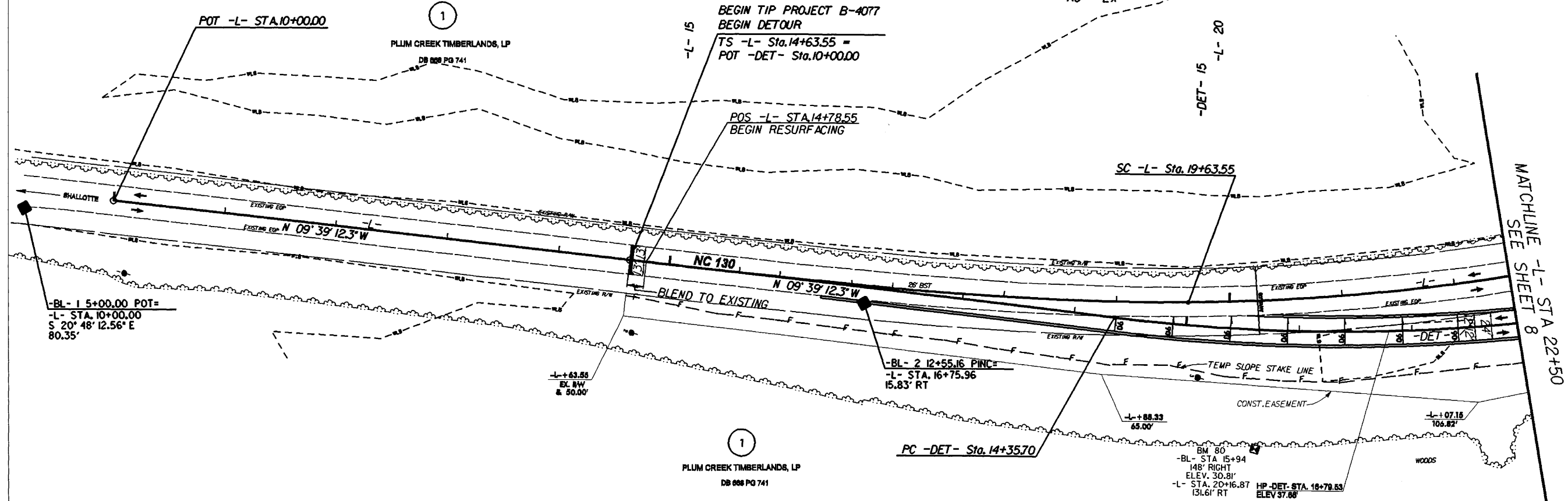
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8/17/99

PROJECT REFERENCE NO. B-4077		SHEET NO. 7
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

NAD 8395

-L- SPIRAL DATA
 Pts Sta 17+97.18
 Os = 7' 27' 37.4"
 Ls = 500.00'
 Rc = 1920.00'
 LT = 333.63'
 ST = 166.94'
 SE = EX
 RO = EX



-BL- 1 5+00.00 POT=
 -L- STA. 10+00.00
 S 20° 48' 12.56" E
 80.35'

-L- +63.55
 EX. RW
 & 50.00'

-BL- 2 12+55.16 PINC=
 -L- STA. 16+75.96
 15.83' RT

-L- +88.33
 65.00'

-L- +07.16
 106.82'

BM 80
 -BL- STA 15+94
 148' RIGHT
 ELEV. 30.81'
 -L- STA. 20+16.87
 131.61' RT
 HP -DET- STA. 16+79.53
 ELEV 37.68'

NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 11 FOR -DET- PROFILE

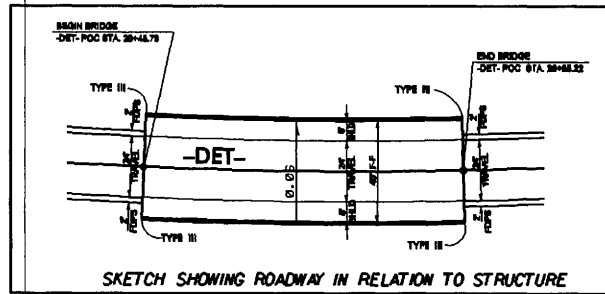
MATCHLINE -L- STA 22+50
SEE SHEET 8

REVISIONS

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PROJECT REFERENCE NO. B-4077	SHEET NO. 8
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 23346 BRIAN P. JOHNSON	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 16701 ALBERT H. ZIMMERMAN

-DET- STRUCTURE
DETOUR ALIGNMENT

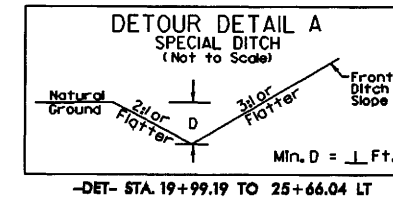


-L- CURVE DATA

PI Sta 28+76.31
 $\Delta = 50^\circ 51' 09.1''$ (LT)
 $D = 2^\circ 59' 03.0''$
 $L = 1704.08'$
 $T = 912.76'$
 $R = 1920.00'$
 $SE = 0.06$ f1/f1
 -L- Sta 28+78.47 TO 36+33.81
 $SE = EX$
 -L- Sta 19+63.55 TO 28+78.47
 -L- Sta 36+33.81 TO 36+67.63

-DET- CURVE DATA

PI Sta 24+94.83
 $\Delta = 65^\circ 46' 24.1''$ (LT)
 $D = 3^\circ 29' 52.5''$
 $L = 1880.36'$
 $T = 1059.13'$
 $R = 1638.00'$
 $SE = 0.06$ f1/f1





NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER.
 SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

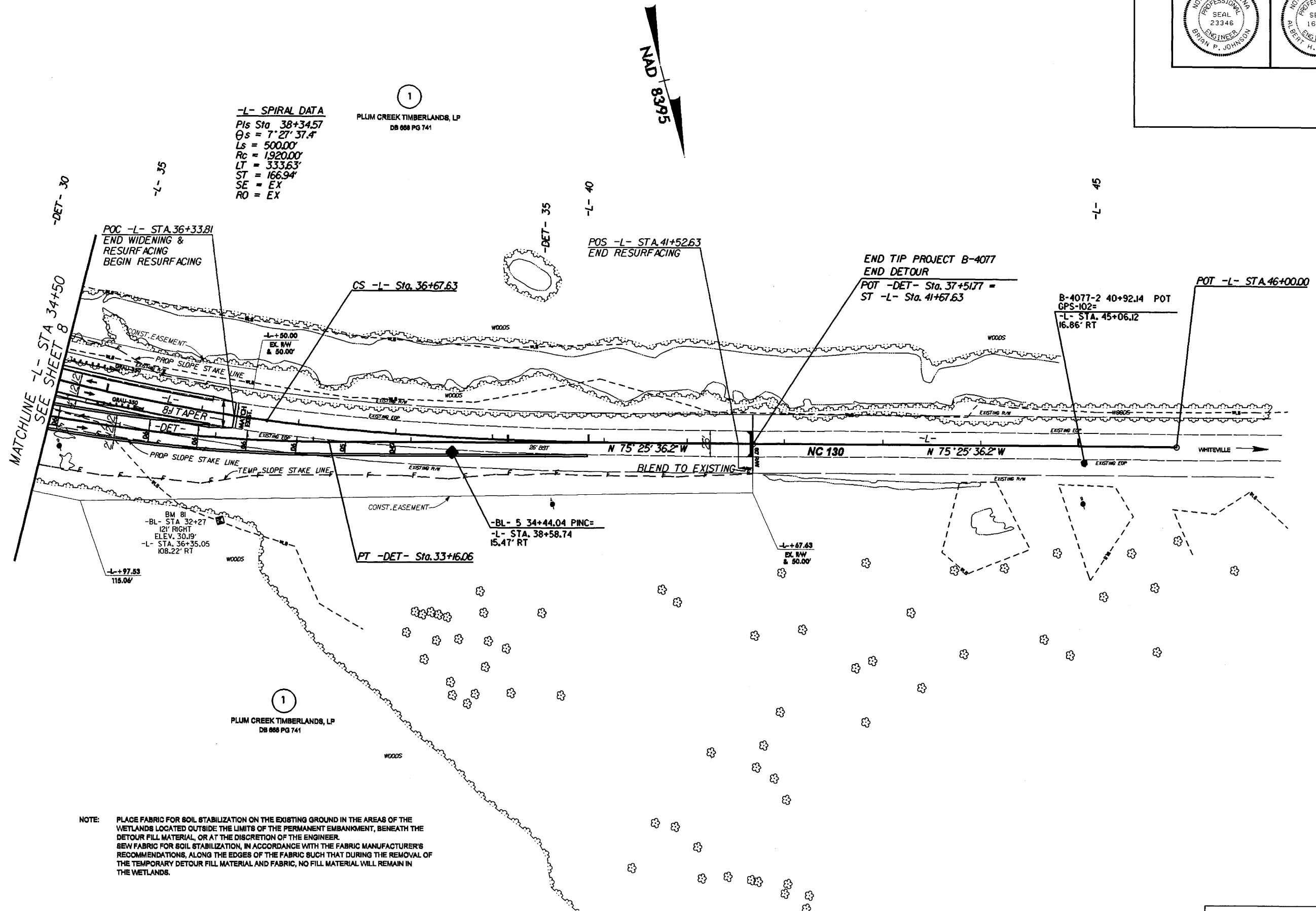
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PROJECT REFERENCE NO. B-4077	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

-L- SPIRAL DATA
 PIs Sta 38+34.57
 $\theta_s = 7^{\circ}27'37.4"$
 $L_s = 500.00'$
 $R_c = 1920.00'$
 $LT = 333.63'$
 $ST = 166.94'$
 SE = EX
 RO = EX



NOTE: PLACE FABRIC FOR SOIL STABILIZATION ON THE EXISTING GROUND IN THE AREAS OF THE WETLANDS LOCATED OUTSIDE THE LIMITS OF THE PERMANENT EMBANKMENT, BENEATH THE DETOUR FILL MATERIAL, OR AT THE DISCRETION OF THE ENGINEER. SEW FABRIC FOR SOIL STABILIZATION, IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS, ALONG THE EDGES OF THE FABRIC SUCH THAT DURING THE REMOVAL OF THE TEMPORARY DETOUR FILL MATERIAL AND FABRIC, NO FILL MATERIAL WILL REMAIN IN THE WETLANDS.

SEE SHEET 12 FOR -DET- PROFILE

8/17/99
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5/28/99

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 1765 CFS
 DESIGN FREQUENCY = 5 YR
 DESIGN HW ELEVATION = 31.2 FT
 BASE DISCHARGE = 4263 CFS
 BASE FREQUENCY = 100 YR
 BASE HW ELEVATION = 32.6 FT
 OVERTOPPING DISCHARGE = 6138+ CFS
 OVERTOPPING FREQUENCY = 500+ YR
 OVERTOPPING ELEVATION = > 33.6 FT

DATE OF SURVEY = JUNE 2004
 W.S. ELEVATION AT DATE OF SURVEY (UNDER EXISTING BRIDGE) = 24 FT

-DET-

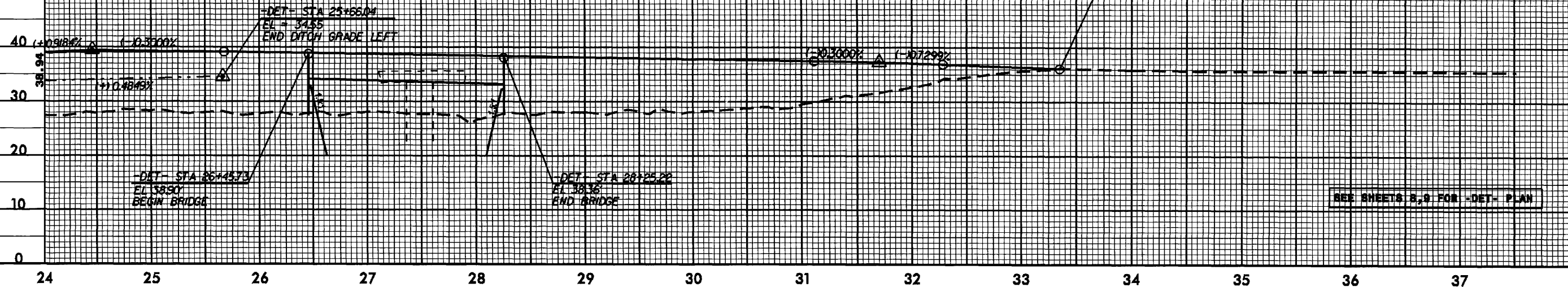
DITCH LEGEND
 LEFT DITCH
 RIGHT DITCH

PROJECT REFERENCE NO. B-4077	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

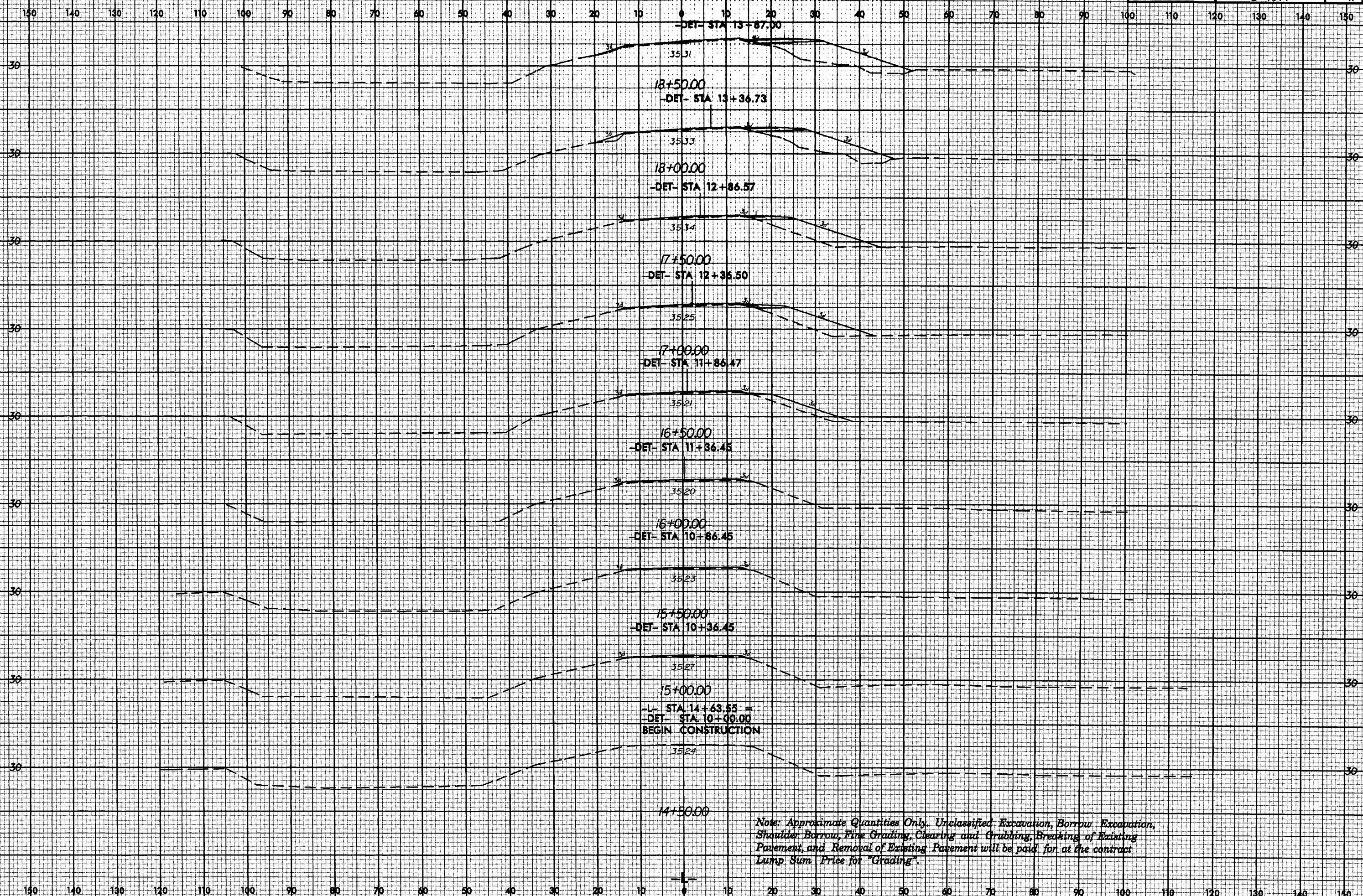
VPI STA = 24+48.56
 EL = 39.80
 VC = 243.68
 K = 200

VPI STA = 31+78.00
 EL = 37.38
 VC = 117
 K = 272

DET STA 33+35.00
 EL STA 37+52.00 (12.5 FT)
 (EXIST. TOP)
 EL 36.12
 END GRADE



SEE SHEETS 8, 9 FOR -DET- PLAN

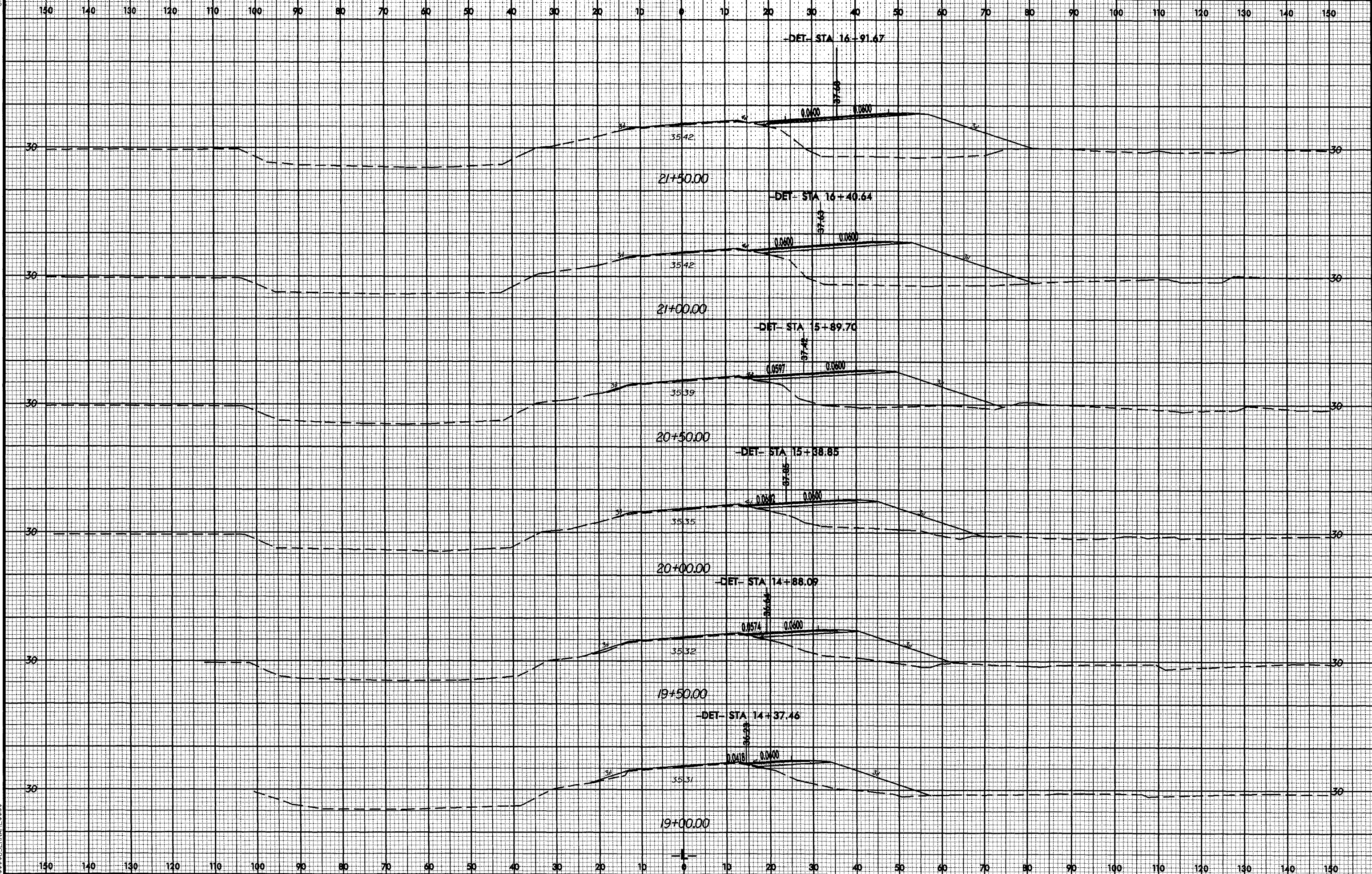


Note: Approximate Quantities Only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract Lump Sum Price for "Grading".

8/23/99



PROJ. REFERENCE NO. B-4077 SHEET NO. X-3

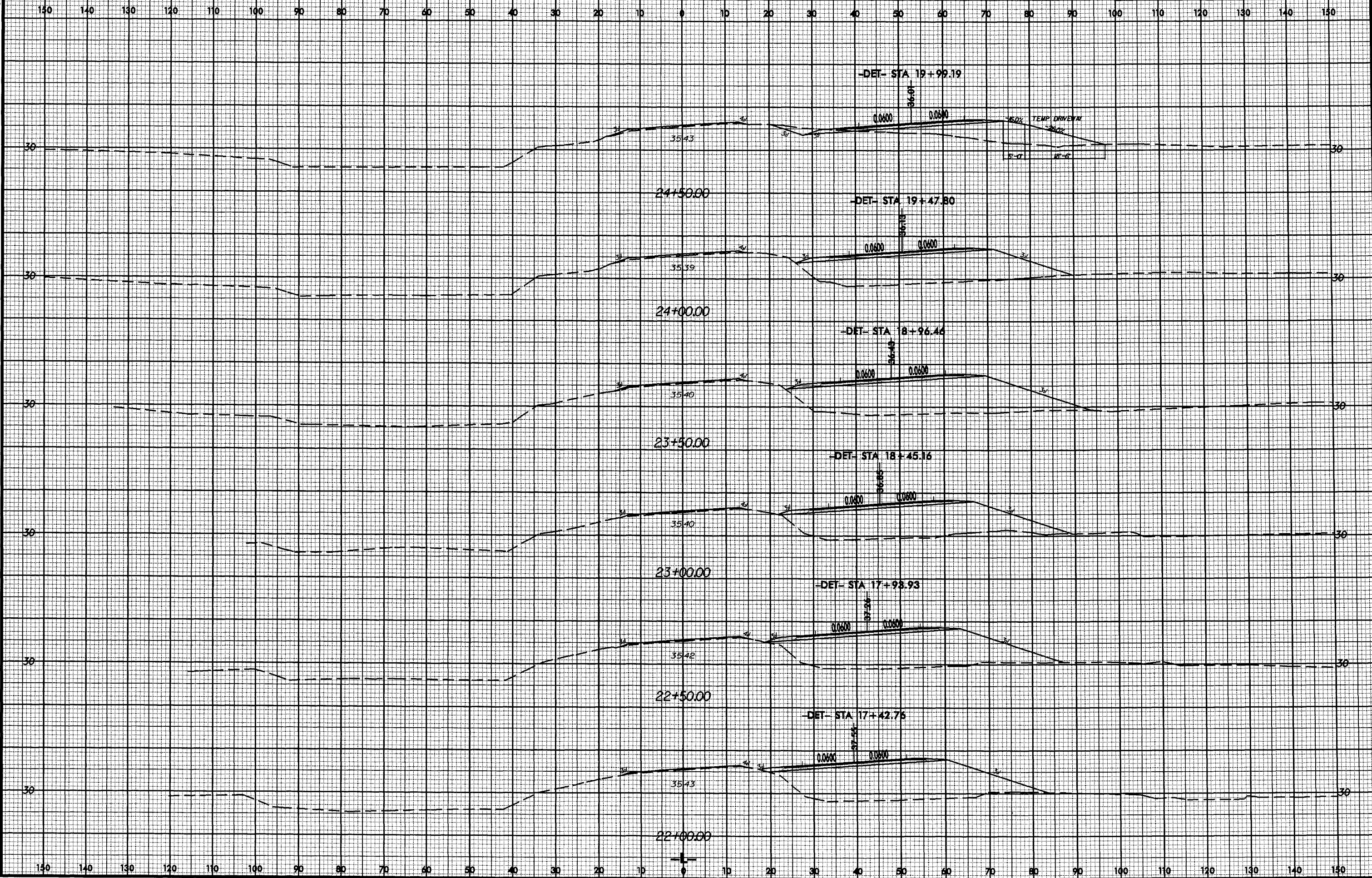


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\$\$\$\$\$BOSERMAN\$\$\$\$\$

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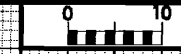


PROJ. REFERENCE NO. B-4077	SHEET NO. X-4
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8/23/99



PROJ. REFERENCE NO.
B-4077

SHEET NO.
X-5

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

-DET- STA 23+08.24

-DET- STA 22+56.68

-DET- STA 22+05.13

-DET- STA 21+53.60

-DET- STA 21+02.10

-DET- STA 20+50.63

35.52

35.52

35.48

35.46

35.45

35.44

27+50.00

27+00.00

26+50.00

26+00.00

25+50.00

25+00.00

0.0600 0.0600

0.0600 0.0600

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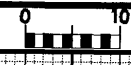
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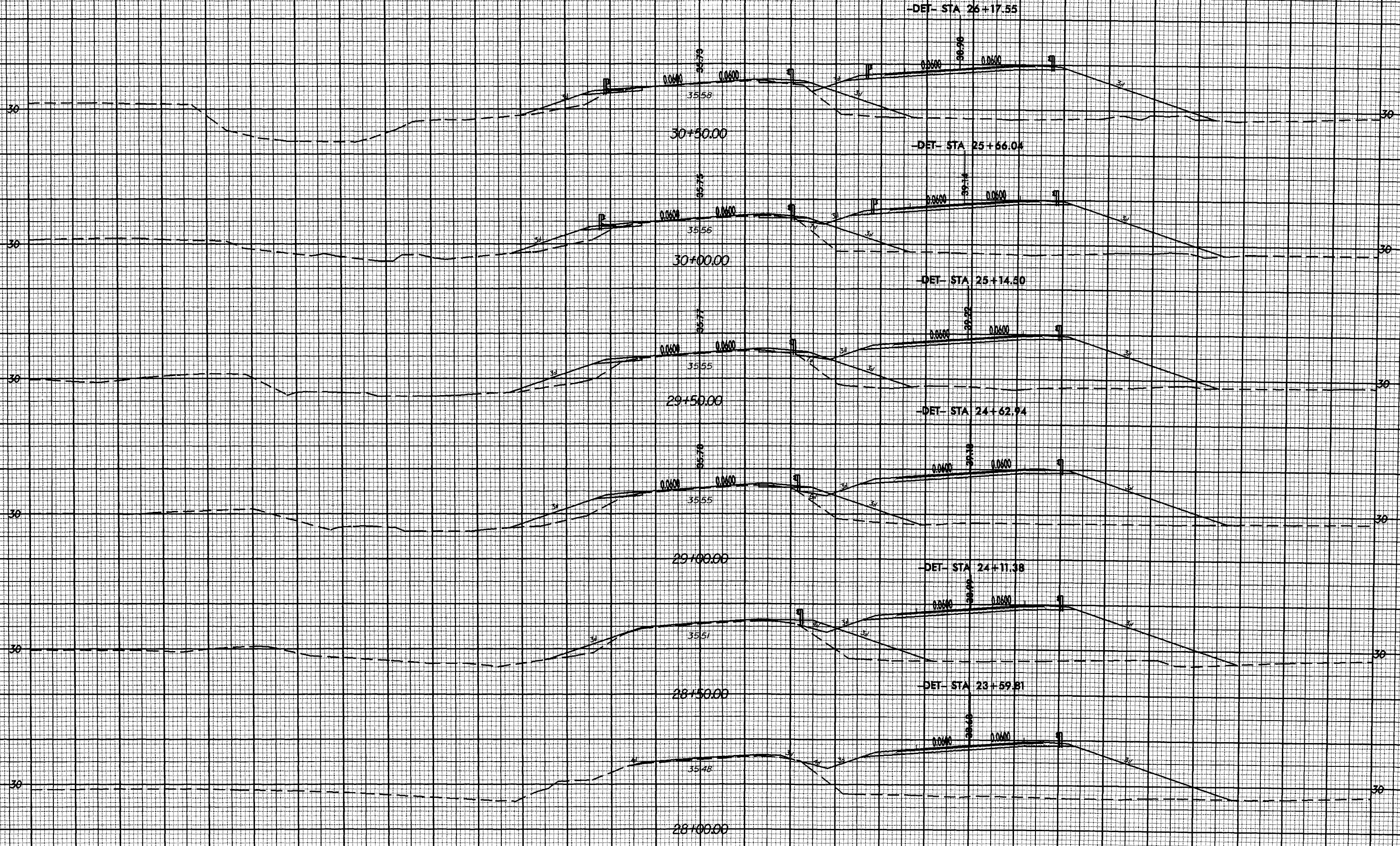
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PROJ. REFERENCE NO.
B-4077

SHEET NO.
X-6

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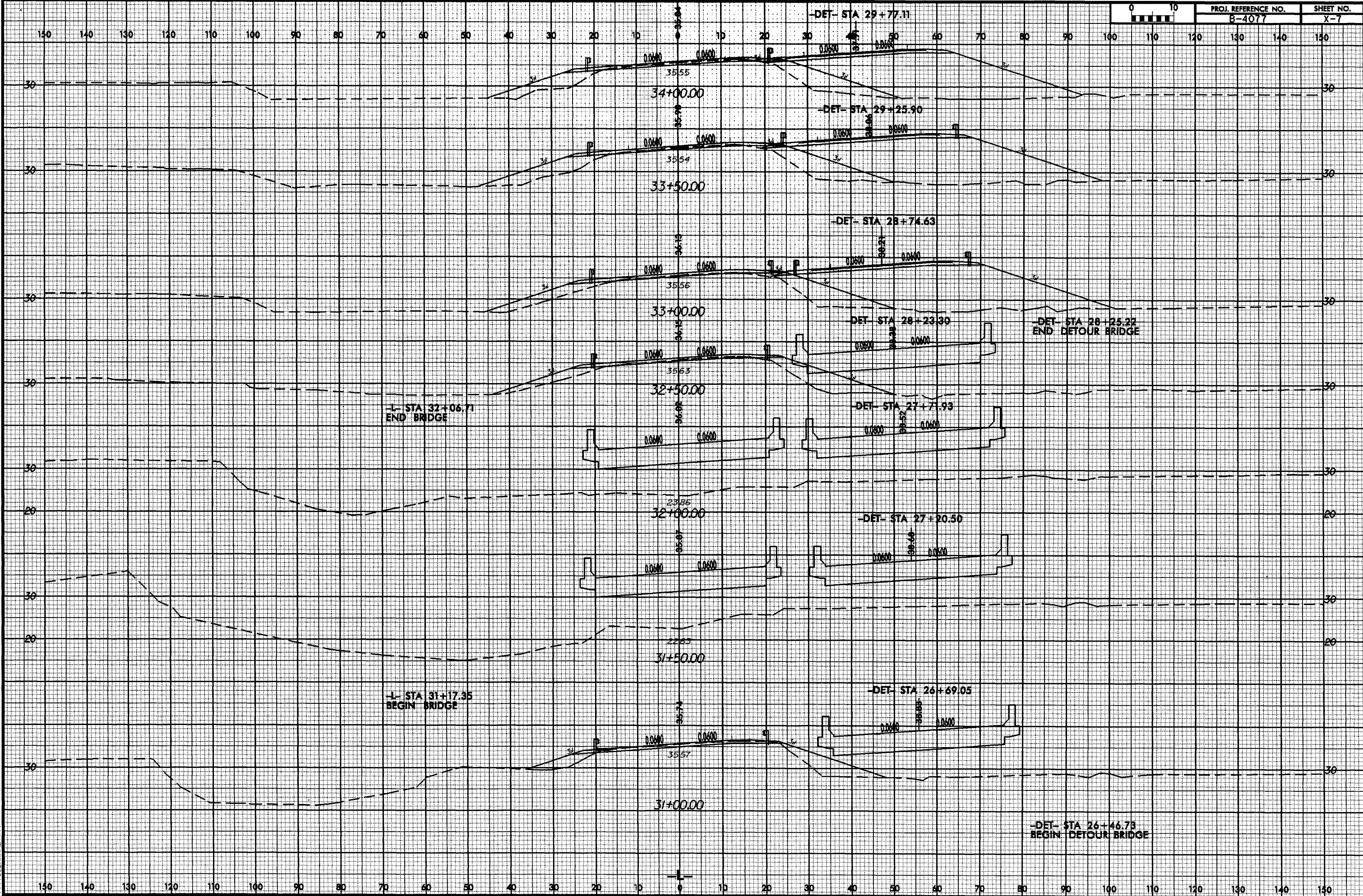
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PROJ. REFERENCE NO.	SHEET NO.
B-4077	X-7

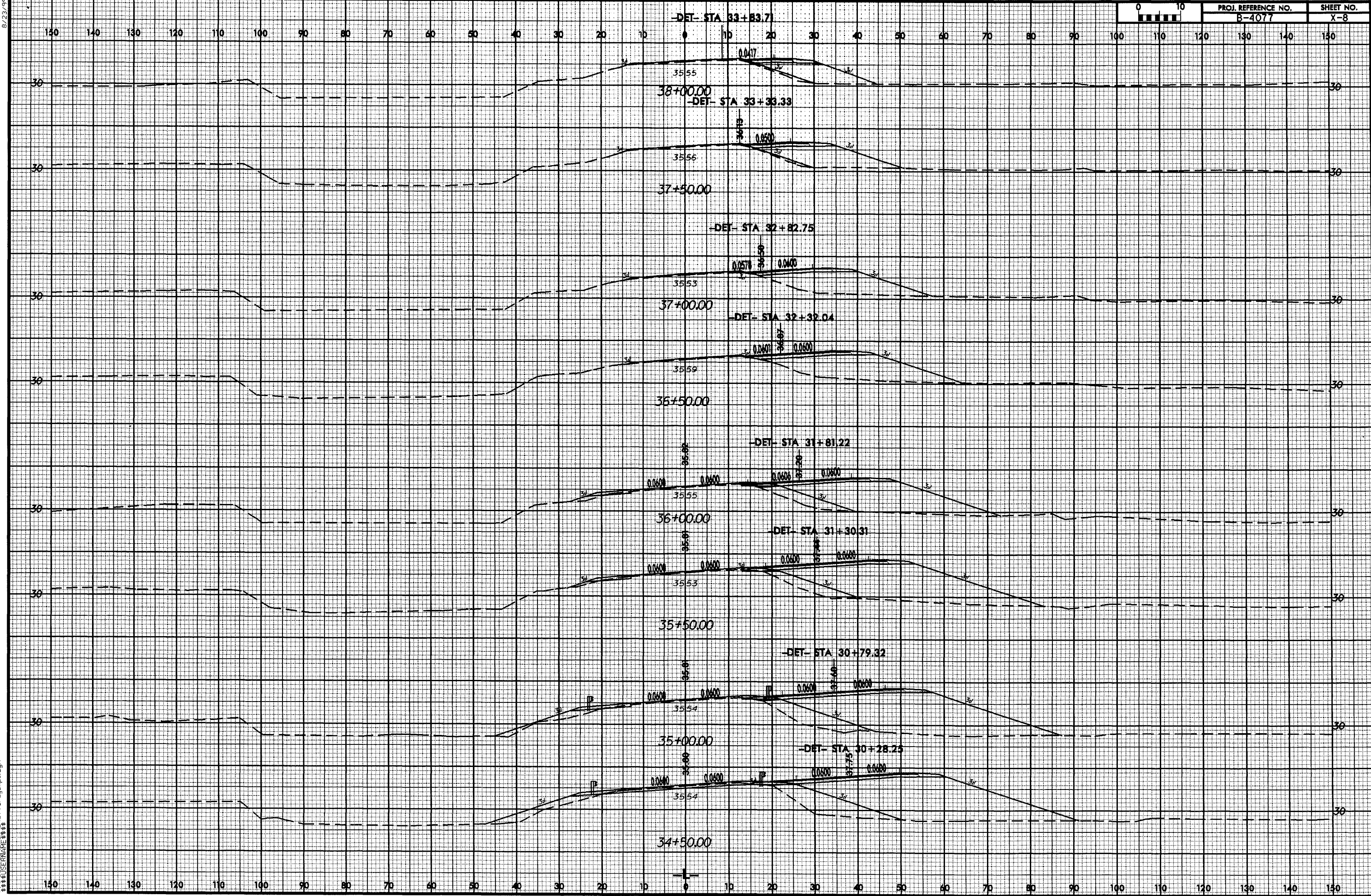


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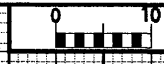


PROJ. REFERENCE NO.	SHEET NO.
B-4077	X-8



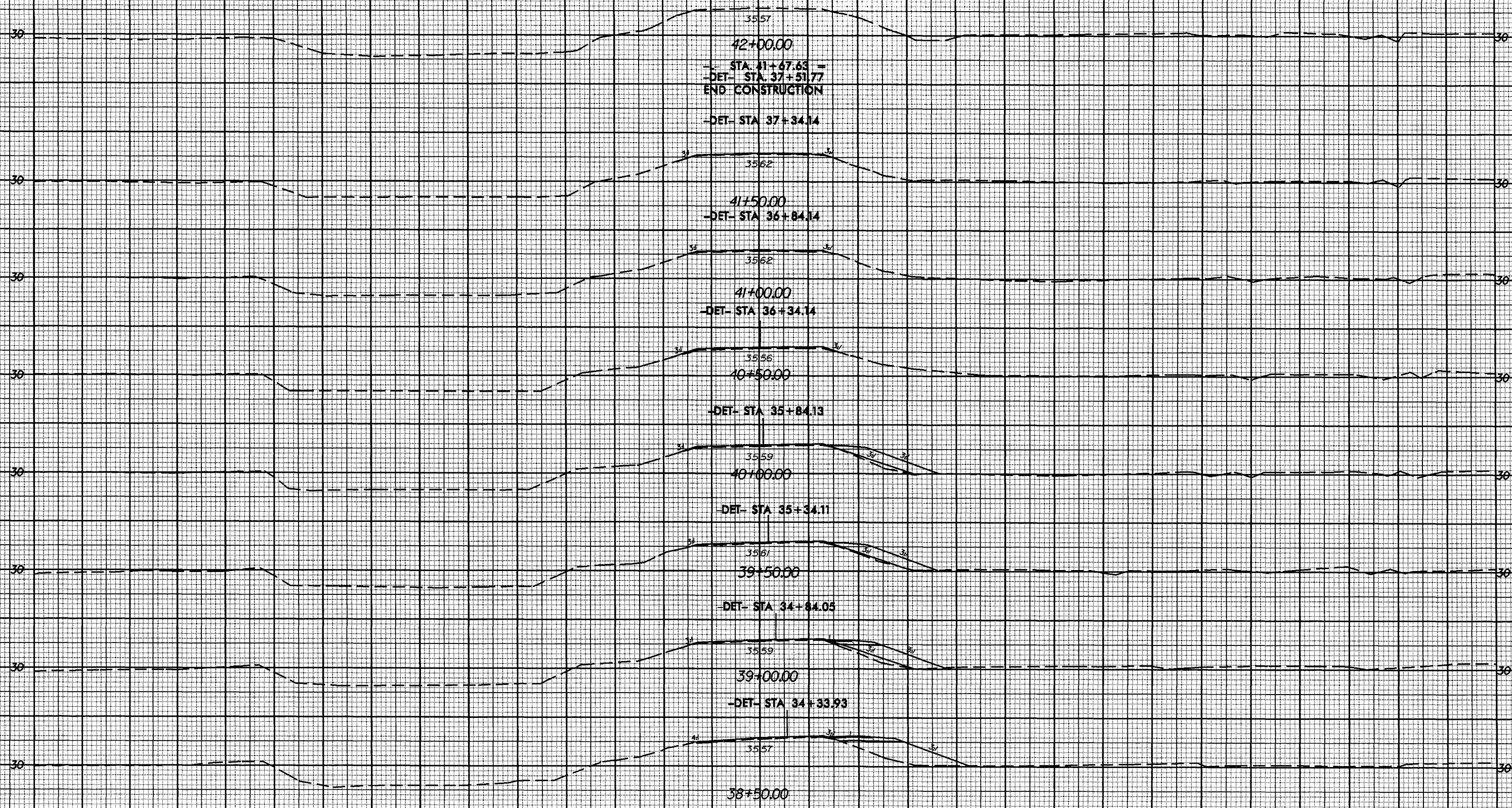
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PROJ. REFERENCE NO. B-4077 SHEET NO. X-9

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