STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 2, 2005

Stormwater Section
Division of Water Quality
943 Washington Square Mall
Washington, NC 27889

ATTN: Mr. Bill Moore

Dear Sir:

SUBJECT: **Stormwater Permit Request** for the Replacement of Bridge No. 11 on SR 1219 (Francis Mill Road) over the Cashie River in Bertie County. State Project No. 8.2010501; TIP No. B-4027; Federal Project No. BRZ-1219[1]; Debit WBS 33394.1.1 $420.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 11 on SR 1219 (Francis Mill Road) over the Cashie River in Bertie County. Bertie County falls under the jurisdiction of the Coastal Area Management Act (CAMA). The NCDOT is applying for a CAMA Major Development Permit, a Clean Water Act (CWA) §404 Department of Army Permit, and a North Carolina CWA §401 Water Quality Certification.

A Stormwater Application Form, Stormwater Management Plan, and two copies of the project plans are provided with this request. Please review this project for authorization by your division.

Thank you for your time and consideration. Please contact Mr. Andrew T. Nottingham at (919) 250-4100 if you have any questions or concerns with the stormwater design. If you need any additional information from our staff, contact Tyler Stanton at tstanton@dot.state.nc.us or (919) 715-1439.

Sincerely,

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

Cc: w/out attachments:
Mr. Bill Biddlecome, USACE
Ms. Lynn Mathis, NCDCM
Mr. Bill Goodwin, P.E., PDEA
File B-4027

Enclosures (4)

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

OFFICE USE ONLY		
Date Received	Fee Paid	Permit Number

State of North Carolina
Department of Environment and Natural Resources
Division of Water Quality

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
LINEAR ROADWAY PROJECT
This form may be photocopied for use as an original.

DWQ Stormwater Management Plan Review:
A complete stormwater management plan submittal includes this application form, a supplement form for each BMP proposed (see Section V), design calculations, and plans and specifications showing all road and BMP details.

I. PROJECT INFORMATION

NCDOT Project Number: 33394.1.1 (B-4027) County: Bertie

Project Name: Bridge replacement of bridge no. 11

Project Location: SR 1219 over Cashie River near Lewiston/Woodville

Contact Person: _____ Phone: _____ Fax: _____

Receiving Stream Name: Cashie River River Basin: Roanoke Class: CSw

Proposed linear feet of project: 900

Proposed Structural BMP and Road Station *(attach a list of station and BMP type if more room is needed)*:

N/A

Type of proposed project: *(check all that apply)*:

☐ New ☐Widening ☒2 lane* ☐4 lane* ☐Curb and Gutter ☒Bridge Replacement

☐Other *(Describe)* _____

**2 lane and 4 lane imply that roadside ditches are used unless Curb and Gutter is also checked.*

II. REQUIRED ITEMS CHECKLIST

Initial in the space provided below to indicate the following design requirements have been met and supporting documentation is attached. Supporting documentation shall, at a minimum, consist of a brief narrative description including (1) the scope of the project, (2) how the items below are met, (3) how the proposed best management practices minimize water quality impacts, and (4) any significant constraints and/or justification for not meeting a, b, c and d to the maximum extent practicable.

Designer's Initials

SRM a. The amount of impervious surface has been minimized as much as possible.

SRM b. The runoff from the impervious areas has been diverted away from surface waters as much as possible.

SRM c. Best Management Practices are employed which minimize water quality impacts.

SRM d. Vegetated roadside ditches are 3:1 slope or flatter.

III. OPERATION AND MAINTENANCE AGREEMENT

I acknowledge and agree by my initials below that the North Carolina Department of Transportation is responsible for the implementation of the four maintenance items listed. I agree to notify DWQ of any operational problems with the BMP's that would impact water quality or prior to making any changes to the system or responsible party.

Maintenance Engineer's Initials

SDS a. BMP's shall be inspected and maintained in good working order.

SDP b. Eroded areas shall be repaired and reseeded as needed.

SDP c. Stormwater collection systems, including piping, inlets, and outlets, shall be maintained to insure proper functioning.

Maintenance Engineer's Name: Sterling David Parker

Title: Division Maintenance Engineer

IV. APPLICATION CERTIFICATION

I, *(print or type name)* Gregory J. Thorpe of PD&EA Branch, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans and that the proposed project complies with the requirements of 15A NCAC 2H .1000.

Title: Environmental Management Director

Address: 1598 Mail Service Center, Raleigh NC 27699-1598

Signature: [signature] Date: 8/2/05

V. SUPPLEMENT FORMS

The applicable state stormwater management permit supplement form(s) listed below must be submitted for each BMP specified for this project. Contact the Stormwater and General Permits Unit at (919) 733-5083 for the status and availability of these forms.

Form SWU-102	Wet Detention Basin Supplement
Form SWU-103	Infiltration Basin Supplement
Form SWU-104	Low Density Supplement
Form SWU-105	Curb Outlet System Supplement
Form SWU-106	Off-Site System Supplement
Form SWU-107	Underground Infiltration Trench Supplement
Form SWU-108	Neuse River Basin Supplement
Form SWU-109	Innovative Best Management Practice Supplement
Form SWU-110	Extended Dry Detention Basin Supplement

STORMWATER MANAGEMENT PLAN

NCDOT Project 33394.1.1 (B-4027) Date:5/17/05
Bertie County
Bridge No. 11 on SR 1219 over Cashie River
Hydraulics Project Manager: Andrew Nottingham, PE

PROJECT DESCRIPTION

The NC Department of Transportation proposes to replace bridge no. 11 with a bridge. SR 1219 is a rural local route with an 18' pavement width and 4' grassed shoulders. The proposed roadway will have a 22' pavement width and 6' grassed shoulders. The existing structure is a four span bridge 120' long with a clear roadway width of 24'. Intermediate crutch piers have been added between the principle piers. The proposed structure will be a four-span cored-slab bridge 160' long with a clear roadway width of 32'10". Traffic will be detoured off-site during the bridge construction. Roadway improvements will result in an additional impervious area of 6803 square feet (0.156 acre).

ENVIRONMENTAL DESCRIPTION

The surrounding land use consists of woodlands, swamps, pine plantations, agricultural fields, and rural residential lots. The project area is located within a level, wide flood plain with gently sloping valley walls. Natural ground elevation at the site is approximately 40 NGVD. The project is located in the Roanoke River Basin.. This portion of the Cashie River is a poorly defined, third-order perennial stream. The best usage classification is CSw. No watershed critical areas, HQW, or ORW waters are located within 1 one mile of the project site.[1]

BEST MANAGEMENT PRACTICES

- The bridge replacement will be accomplished with a road closure that will minimize construction time and on-site impacts.
- The roadway typical section is a fill section with 3:1 grassed shoulders. Approach roadway drainage will be by sheet flow across the grassed shoulders.
- Deck drains have been eliminated from the bridge.
- Bridge deck drainage is directed away from either ends of the bridge by a gutter and drainage system, and then dispersed on rip rapped pads before entering the wetlands.

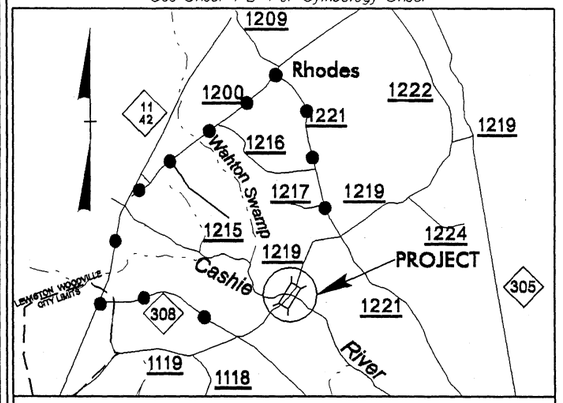
[1] NCDOT Categorical Exclusion Document March 2004

09/08/

TIP PROJECT: B-4027

CONTRACT: C201441

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology Sheet



VICINITY MAP

Detour

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

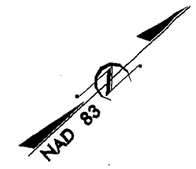
BERTIE COUNTY

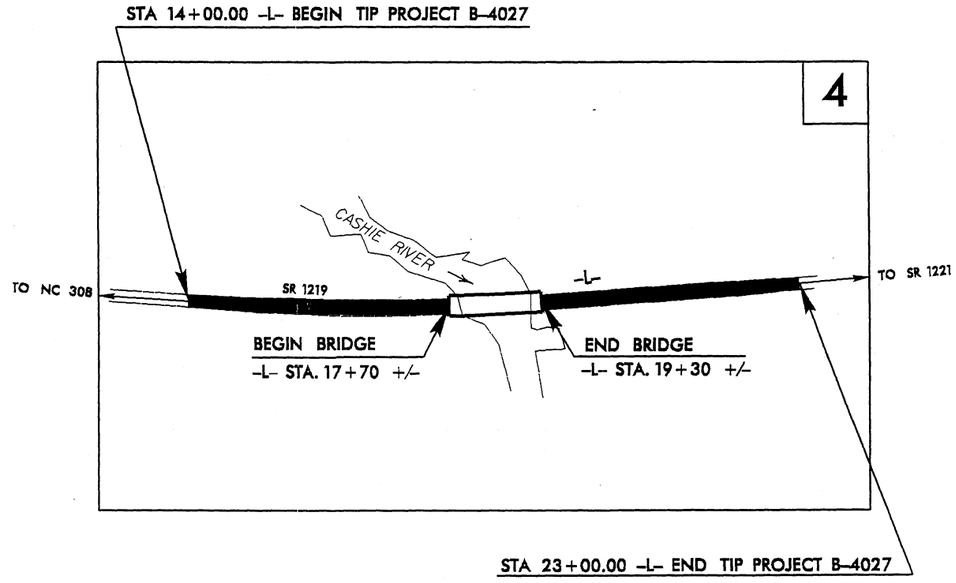
LOCATION: BRIDGE NO. 11 OVER CASHIE RIVER ON SR 1219

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4027	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33394.1.1	BRZ-1219(1)	PE
33394.2.1	BRZ-1219(1)	R/W, UTILI
33394.3.1	BRZ-1219(1)	CONST.





THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 687
ADT 2026 = 1122
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST 1% DUAL 2%
FUNC CLASS = Rural Local

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4027	=	0.140
LENGTH STRUCTURE TIP PROJECT B-4027	=	0.030
TOTAL LENGTH TIP PROJECT B-4027	=	0.170

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 24, 2005

LETTING DATE: FEBRUARY 21, 2006

BRENDA MOORE, PE
PROJECT ENGINEER

REKHA PATEL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

25-MAY-2005 11:34
R:\Roadway\Proj\B-4027_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4027	1-B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — TV
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter — G
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?U/L
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-4027	1C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET B-4027

CONTROL DATA

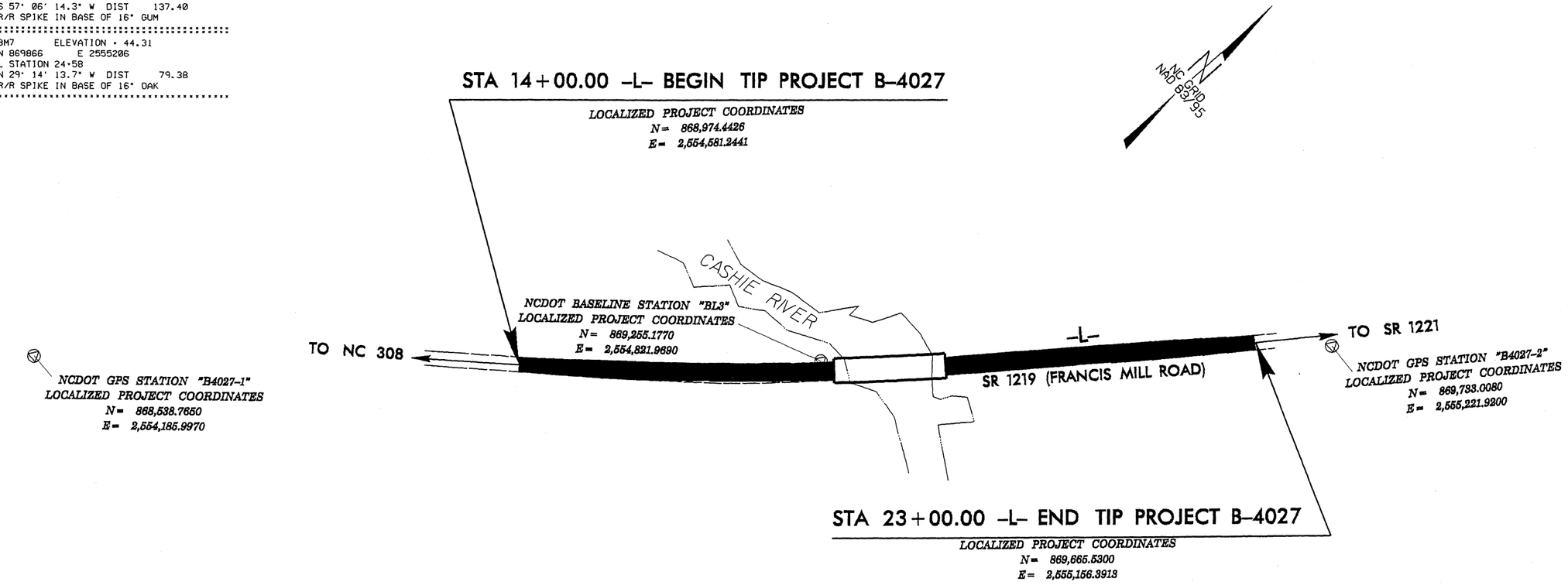
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	GPS B4027-1	868538.7650	2554185.9970	48.60	OUTSIDE PROJECT LIMITS	
BL3	BL-3	869255.1770	2554821.9690	45.28	17+70.27	12.30 LT
BL2	GPS B4027-2	869733.0080	2555221.9200	46.07	23+92.61	12.35 RT

BENCHMARK DATA

BM6 ELEVATION = 47.51
N 868618 E 2554182
L STATION 10+00
S 57° 06' 14.3" W DIST 137.40
R/R SPIKE IN BASE OF 16" GUM

BM7 ELEVATION = 44.31
N 869866 E 2555206
L STATION 24+58
N 29° 14' 13.7" W DIST 79.38
R/R SPIKE IN BASE OF 16" OAK



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4027-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 868538.765(ft) EASTING: 2554185.997(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999200
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4027-1" TO -L- STATION 14+00.00 IS
N 42° 12' 51.6" E 588.2476 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

FILE: b4027_ls_control_040922.txt

SITE CALIBRATION PARAMETERS HAVE NOT BEEN DETERMINED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.

NETWORK FOR GPS "B4027-1" ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

6/2/94c

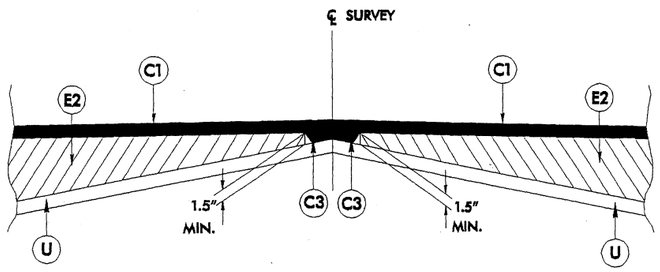
PROJECT REFERENCE NO.	SHEET NO.
B-4027	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

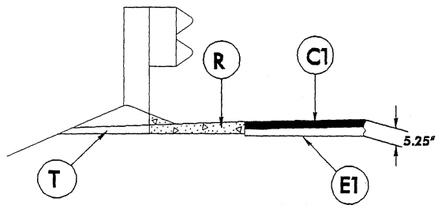
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT 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 8½" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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

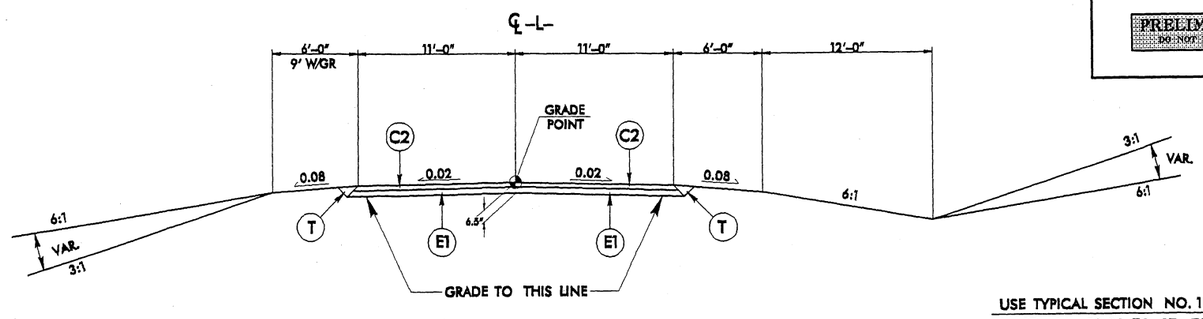


Wedging Detail



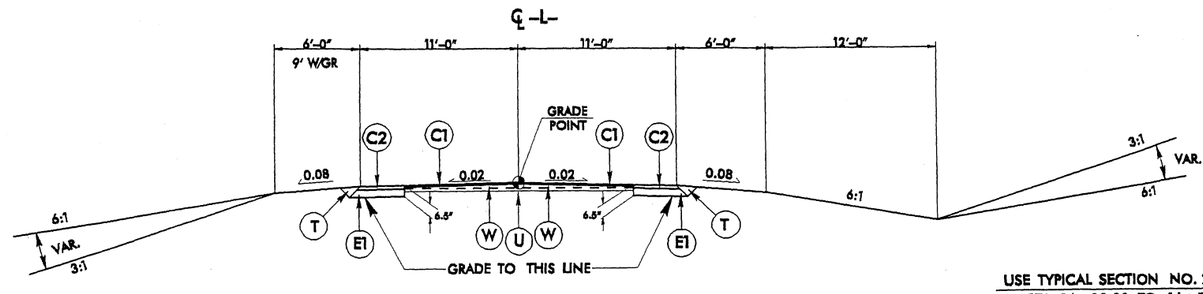
SHOULDER BERM GUTTER DETAIL

USE SHOULDER BERM GUTTER
-L- STA. 16+80.00 TO -L- STA. 17+45.00 (LT.)
-L- STA. 19+55.00 TO -L- STA. 19+60.67 (LT.)



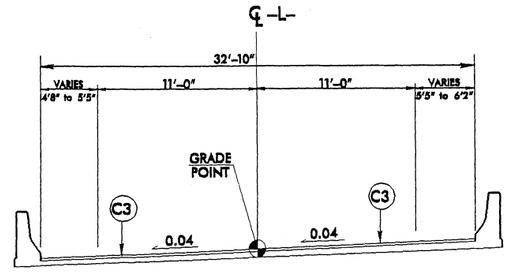
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA 16+50.00 TO 17+70 +/- (BEGIN BRIDGE)
-L- STA 19+30 +/- (END BRIDGE) TO 21+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA 14+00.00 TO 16+50.00
-L- STA 21+00.00 TO 23+00.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- STA 17+70 +/- TO 19+30 +/-

PROJECT REFERENCE NO.	SHEET NO.
B-4027	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 5

NAD 83

10 15 20

STA 14+00.00 -L- BEGIN STATE PROJECT B-4027

STA 23+00.00 -L- END STATE PROJECT B-4027

-L- POT Sta. 10+00.00

-L- PCS Sta. 13+85.33

-L- PTS Sta. 19+62.02

-L- PCS Sta. 23+56.14

-L- PTS Sta. 24+58.13

(1) KATHERINE ODOM JERNIGAN
DB 89E PG 12
DB 624 PG 352
DB 637 PG 467
DB 624 PG 354 (PLAT)

(2) JAMES C. DOUGHTIE, JR.
DB 697 PG 873
DB 619 PG 40 (PLAT)

(3) PLUM CREEK TIMBERLANDS, L.P.
DB 788 PG 23
DB 692 PG 717
PC-A PG 983

CASHIE RIVER

BL-3
-L- POC 17+70.27 (12.30'LT)

BL-2 (GPS B4027-2)
-L- POC 23+92.61 (12.35'RT)

-L- N 45°14'32.0"E

N 37°22'30.0"E -L-

SR 1219

TO NC 306

TO SR 1221

WOODS

CULT

EXISTING R/W

8" PVC (SDR 21) WATER DATUM

60" CMP

120' TAPER

GRAU 350

15" CSP W/ELBOWS 2GI

CLASS 'B' RIP RAP=2 tons P.P.=7 sq. yds.

SHOULDER BERM GUTTER -L- STA 16+50.00 TO STA 17+45 +/- (LT)

SHOULDER BERM GUTTER -L- STA 19+55 +/- TO STA 19+60.67 (LT)

Transition Fill Slope from 3:1 to 2:1 From -L- Sta. 17+40 to Begin Bridge on left. Armor w/CL. II Riprap to Shld. Pt.

CLASS II RIP RAP SEE STRUCTURE PLANS

14+00.00 EXIST. R/W 50.00'

19+62.02 50.00'

23+00.00 50.00' & EXIST. R/W

BEGIN APPROACH SLAB -L- STA. 17+45 +/-

BEGIN BRIDGE -L- STA. 17+70 +/-

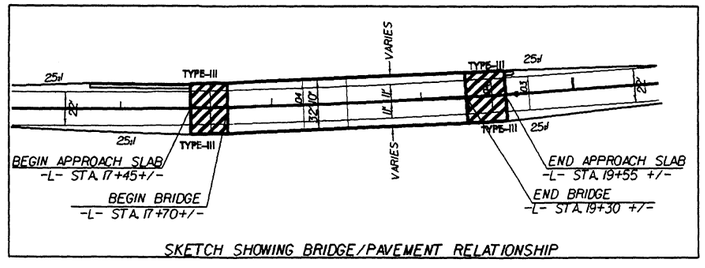
END APPROACH SLAB -L- STA. 19+55 +/-

END BRIDGE -L- STA. 19+30 +/-

TYPE-III

VARIES

-L-
PI Sta 16+74.13
Δ = 7° 52' 02.0" (LT)
D = 1° 21' 51.1"
L = 576.70'
T = 288.80'
R = 4,200.00'
SE = .04
RUNOFF = SEE PLANS



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

BRIDGE APPROACH SLAB

25-MAY-2005 11:34
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5/14/96

BM6 ELEVATION = 47.51
N 868618 E 2554182
L STATION 10+00
S 57° 06' 14.3" W DIST 137.40
R/R SPIKE IN BASE OF 16" GUM

BM7 ELEVATION = 44.31
N 869866 E 2555206
L STATION 24+58
N 29° 14' 13.7" W Dist 133.69
R/R SPIKE IN BASE OF 16" OAK

PROJECT REFERENCE NO.	SHEET NO.
B-4027	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

— 1 —

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 45.0	FT
BASE DISCHARGE	= 3600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 46.6	FT
OVERTOPPING DISCHARGE	= 5300	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 47.7	FT

BEGIN GRADE L = 1400.00
ELEV = 46.55

BEGIN BRIDGE
Station 16+92

PI = 18+60.00
EL = 47.93'
VC = 200'
K = 313

END BRIDGE
Station 20+47

END GRADE L = 2300.00
ELEV = 46.44

(+)0.3000% (-)0.3386%

50
40
30
20

12 13 14 15 16 17 18 19 20 21 22 23 24

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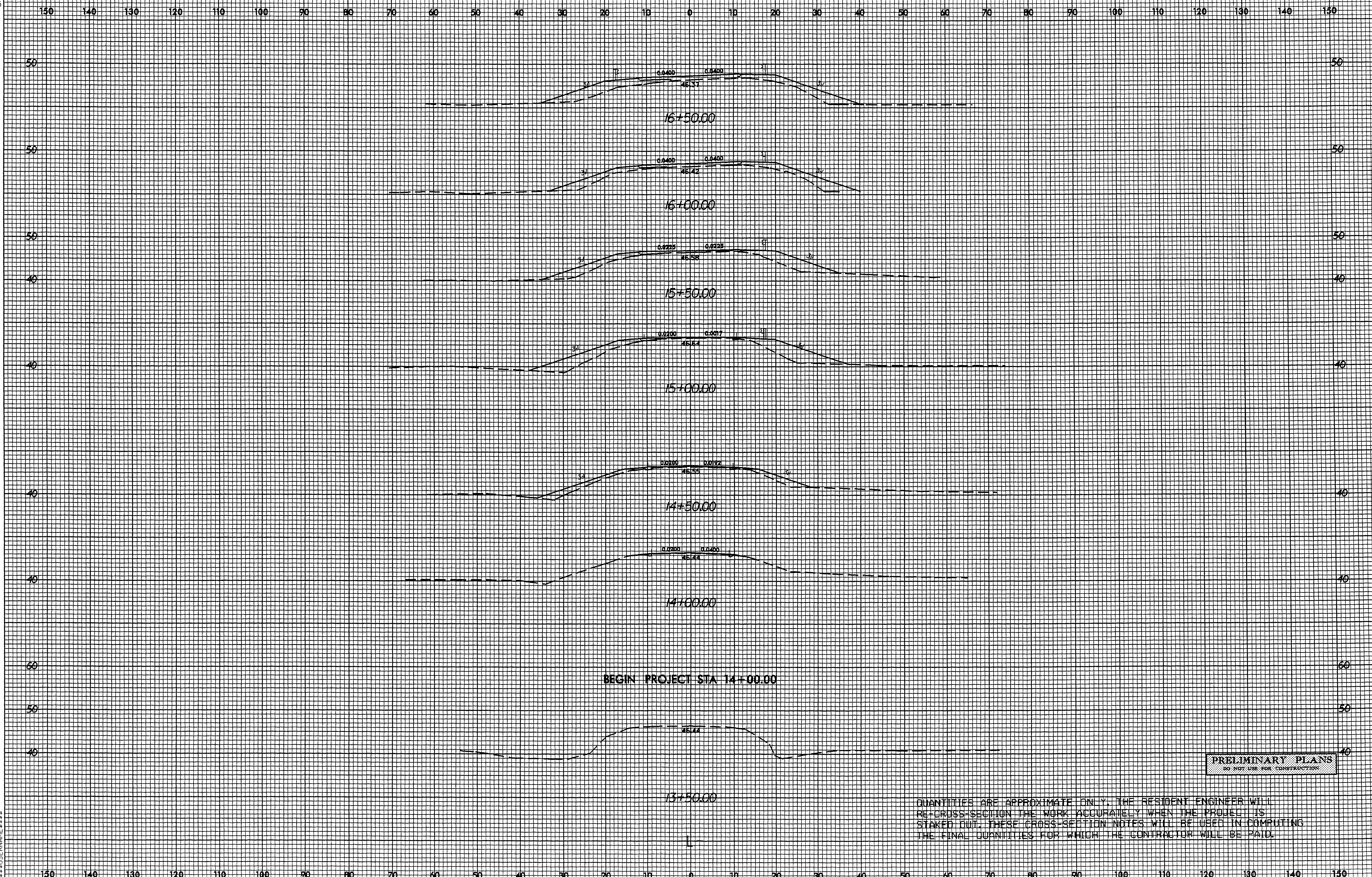
PROJ. REFERENCE NO.	SHEET NO.
B-4027	X-1



QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RE-CROSS-SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS-SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID.

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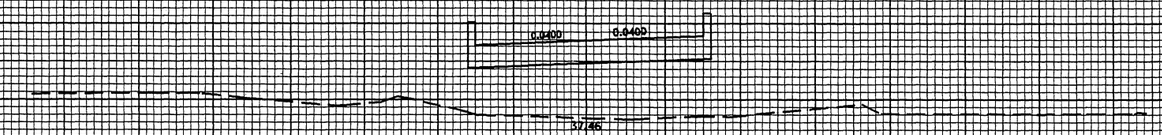
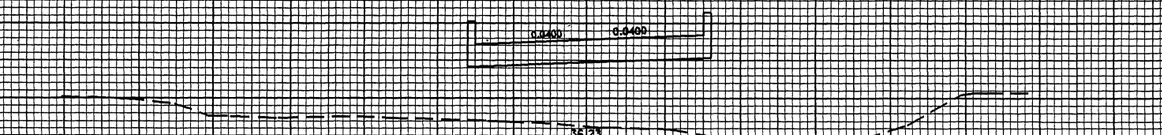
PROJ. REFERENCE NO.	SHEET NO.
B-4027	X-2

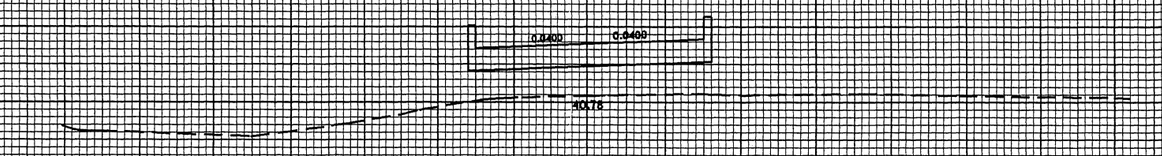
END BRIDGE STA 19+30 +/-



19+00.00

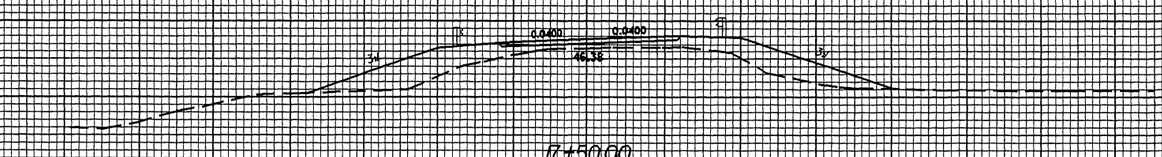


18+50.00

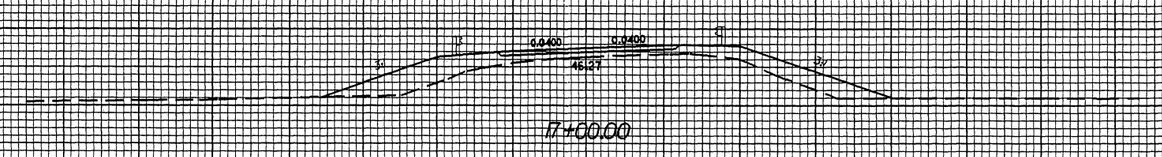


18+00.00

BEGIN BRIDGE STA 17+70 +/-



17+50.00



17+00.00

L

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$$PROGRAM$$ B4027_rdy_L_xpl.dgn
$$FILENAME$$

PROJ. REFERENCE NO.	SHEET NO.
B-4027	X-3

END PROJECT STA 23+00.00

23+00.00

22+50.00

22+00.00

21+50.00

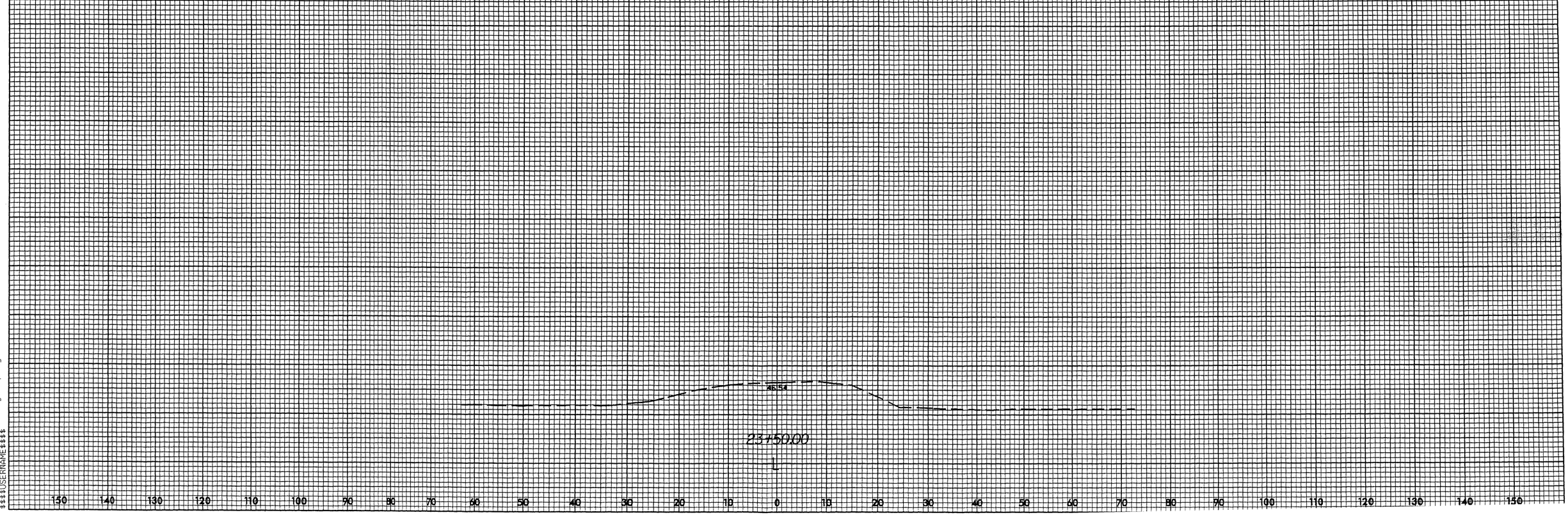
21+00.00

20+50.00

20+00.00

19+50.00

PROJ. REFERENCE NO.	SHEET NO.
B-4027	X-4

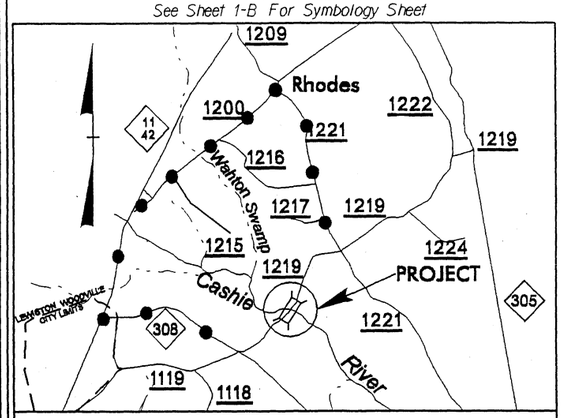


03/08/99

TIP PROJECT: B-4027

CONTRACT: C201441

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology Sheet



VICINITY MAP

Detour

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BERTIE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4027	1	

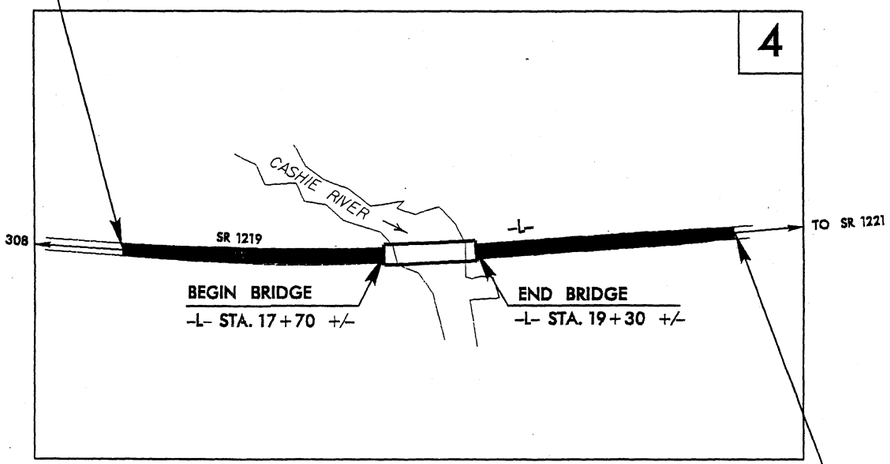
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33394.1.1	BRZ-1219(1)	PE
33394.2.1	BRZ-1219(1)	R/W, UTILI
33394.3.1	BRZ-1219(1)	CONST.

LOCATION: BRIDGE NO. 11 OVER CASHIE RIVER ON SR 1219

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83

STA 14+00.00 -L- BEGIN TIP PROJECT B-4027



STA 23+00.00 -L- END TIP PROJECT B-4027

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 687
ADT 2026 = 1122
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST 1% DUAL 2%
FUNC CLASS = Rural Local

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4027	=	0.140
LENGTH STRUCTURE TIP PROJECT B-4027	=	0.030
TOTAL LENGTH TIP PROJECT B-4027	=	0.170

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 24, 2005

LETTING DATE: FEBRUARY 21, 2006

BRENDA MOORE, PE
PROJECT ENGINEER

REKHA PATEL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

25-MAY-2005 11:34
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PROJECT REFERENCE NO.	SHEET NO.
B-4027	1-B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — EPM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — T
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter — G
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?U/L
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-4027	1C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET B-4027

CONTROL DATA

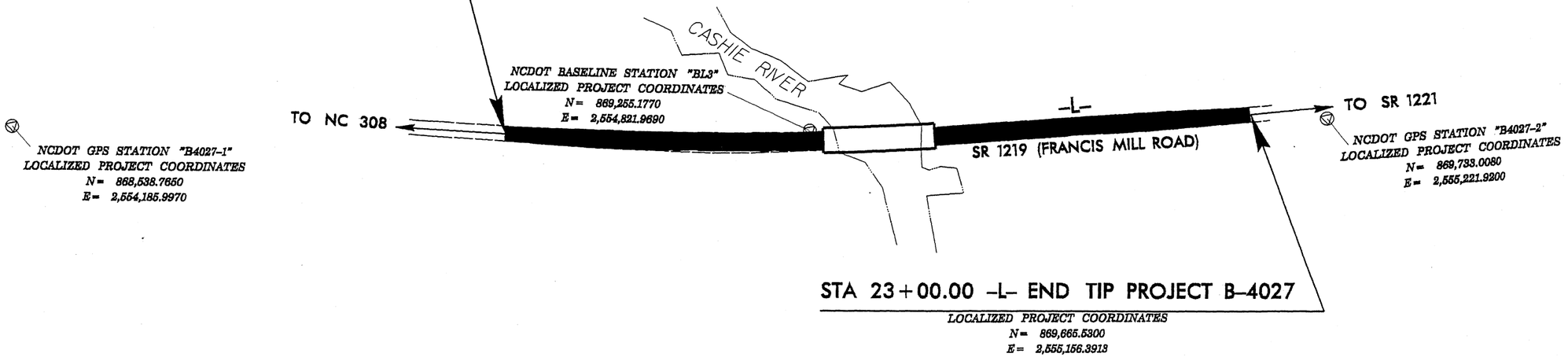
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	GPS B4027-1	868538.7650	2554185.9970	48.60	OUTSIDE PROJECT LIMITS	
BL3	BL-3	869255.1770	2554821.9690	45.28	17+70.27	12.30 LT
BL2	GPS B4027-2	869733.0080	2555221.9200	46.07	23+92.61	12.35 RT

BENCHMARK DATA

BM6 ELEVATION = 47.51
N 868618 E 2554182
L STATION 18+00
S 57° 06' 14.3" W DIST 137.40
R/R SPIKE IN BASE OF 16" GUM

BM7 ELEVATION = 44.31
N 869866 E 2555206
L STATION 24+58
N 29° 14' 13.7" W DIST 79.38
R/R SPIKE IN BASE OF 16" OAK



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4027-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 868538.765(ft) EASTING: 2554185.997(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999200 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4027-1" TO -L- STATION 14+00.00 IS N 42° 12' 51.6" E 588.2476 ft ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

FILE: b4027_ls_control_040922.txt

SITE CALIBRATION PARAMETERS HAVE NOT BEEN DETERMINED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.

NETWORK FOR GPS "B4027-1" ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

6/2/99

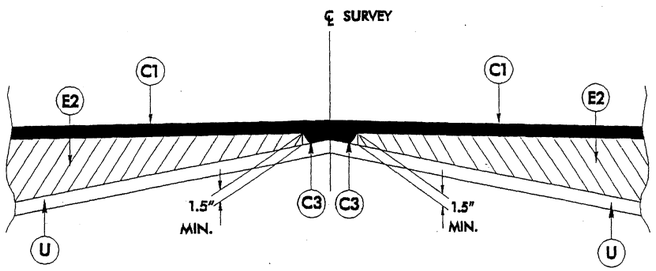
PROJECT REFERENCE NO.	SHEET NO.
B-4027	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

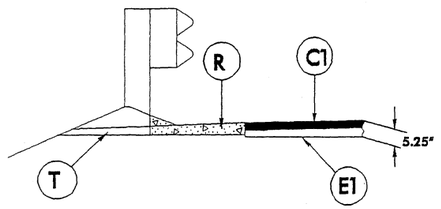
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT 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 5½" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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

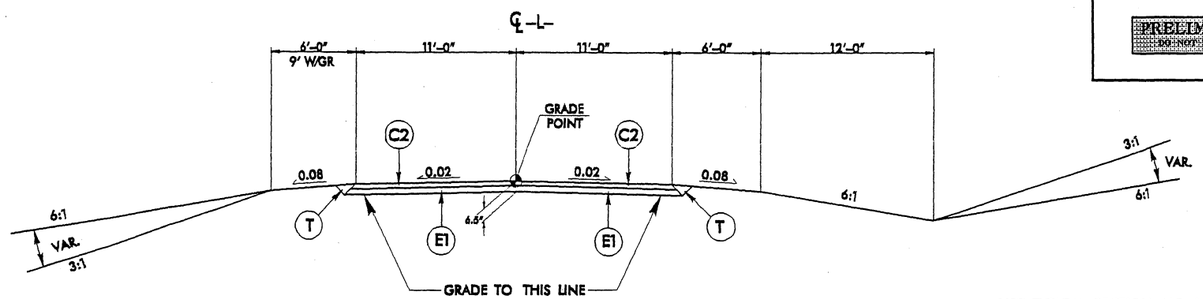


Wedging Detail



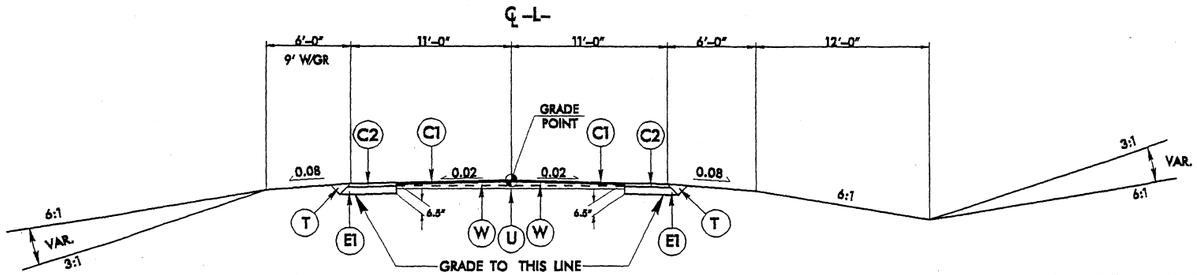
SHOULDER BERM GUTTER DETAIL

USE SHOULDER BERM GUTTER
-L- STA. 16+80.00 TO -L- STA. 17+45.00 (LT.)
-L- STA. 19+55.00 TO -L- STA. 19+60.67 (LT.)



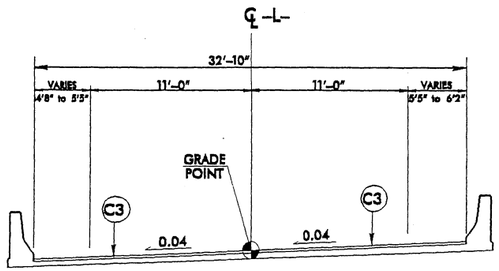
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA 16+50.00 TO 17+70 +/- (BEGIN BRIDGE)
-L- STA 19+30 +/- (END BRIDGE) TO 21+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA 14+00.00 TO 16+50.00
-L- STA 21+00.00 TO 23+00.00



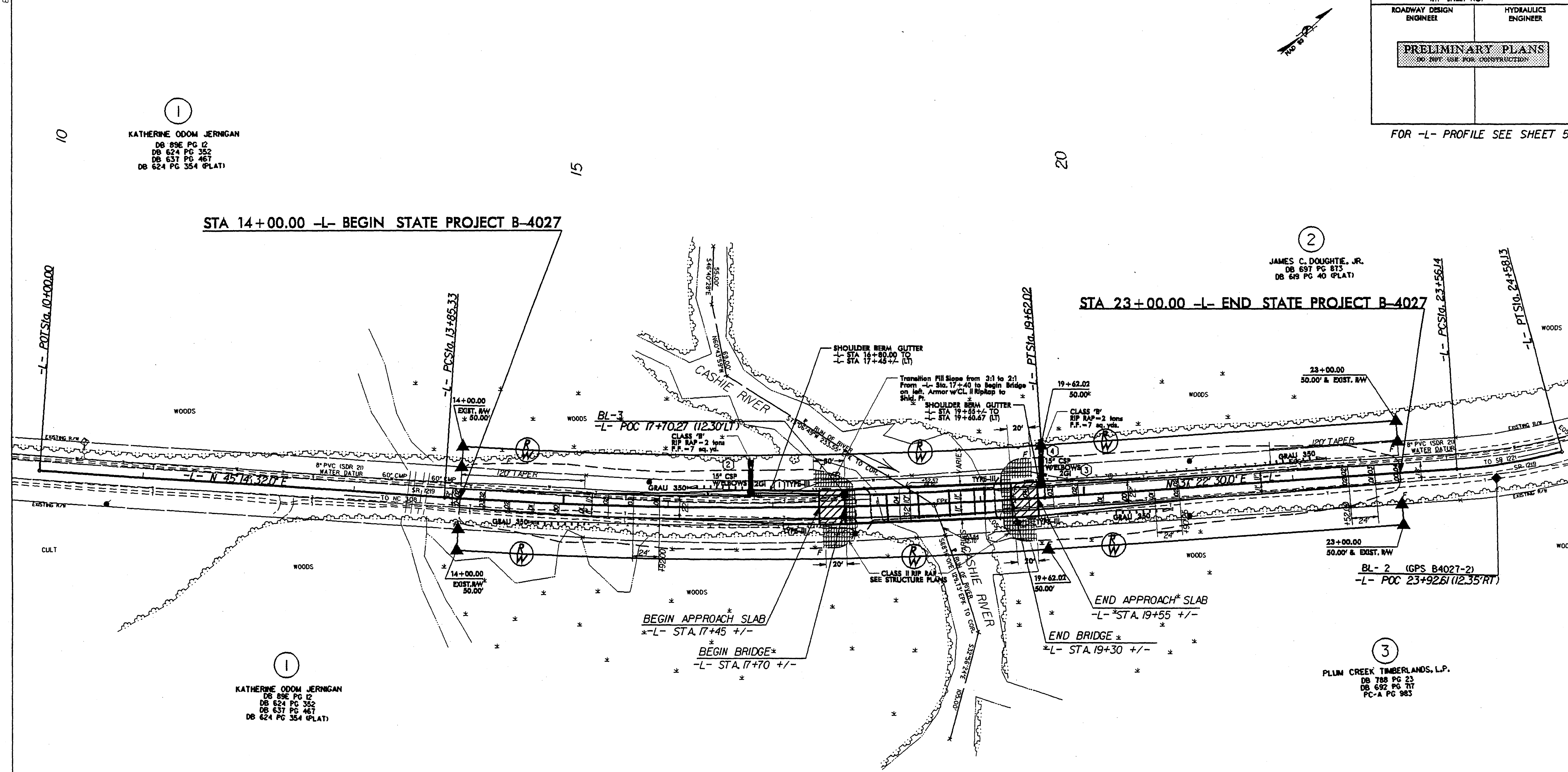
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-L- STA 17+70 +/- TO 19+30 +/-

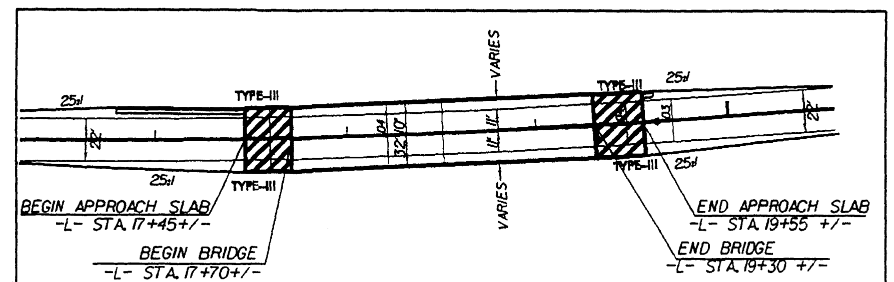
PROJECT REFERENCE NO.	SHEET NO.
B-4027	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L- PROFILE SEE SHEET 5



-L-
PI Sta 16+74.13
Δ = 7° 52' 02.0" (LT)
D = 1° 21' 51.1"
L = 576.70'
T = 288.80'
R = 4,200.00'
SE = .04
RUNOFF = SEE PLANS



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

BRIDGE APPROACH SLAB

8/17/99

25-MAY-2005 11:34
b4027_rdy_psh04.dgn
$$$$USERNAME$$$$

5/14/99

BM6 ELEVATION = 47.51
N 868618 E 2554182
L STATION 10+00
S 57° 06' 14.3" W DIST 137.40
R/R SPIKE IN BASE OF 16" GUM

BM7 ELEVATION = 44.31
N 869866 E 2555206
L STATION 24+58
N 29° 14' 13.7" W Dist 133.69
R/R SPIKE IN BASE OF 16" OAK

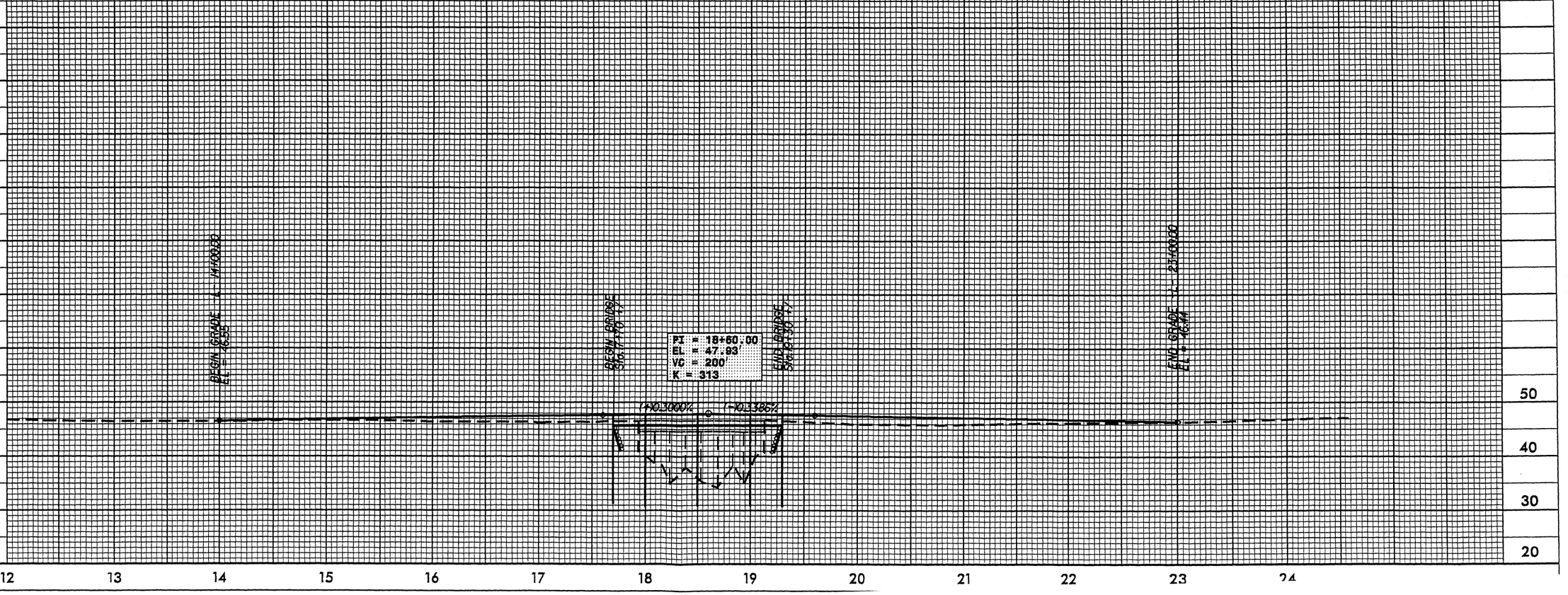
PROJECT REFERENCE NO.	SHEET NO.
B-4027	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

—L—

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 45.0	FT
BASE DISCHARGE	= 3600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 46.6	FT
OVERTOPPING DISCHARGE	= 5300	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 47.7	FT



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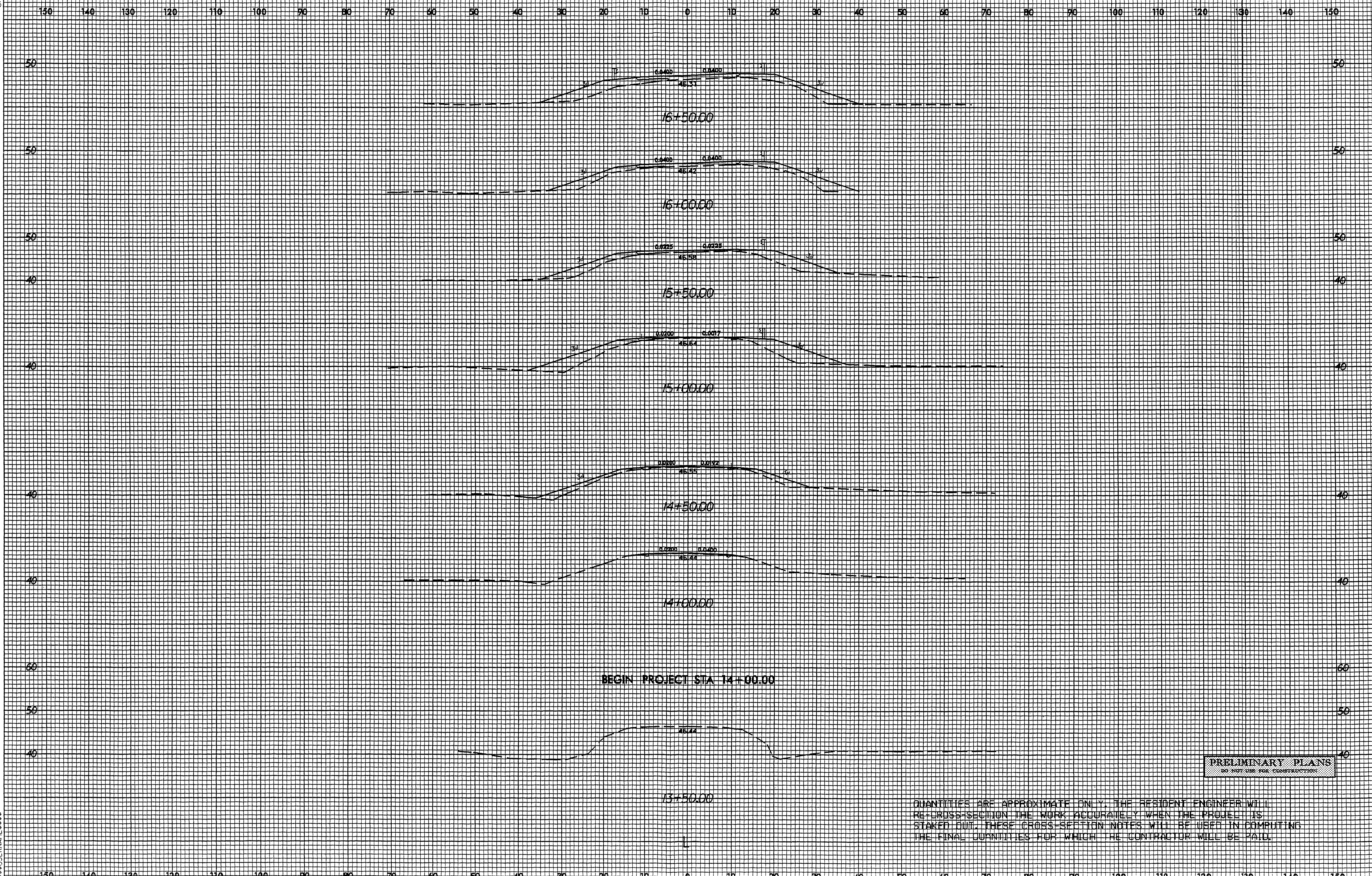
PROJ. REFERENCE NO.	SHEET NO.
B-4027	X-1



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RE-CROSS-SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS-SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID.

25-MAY-2005 11:34
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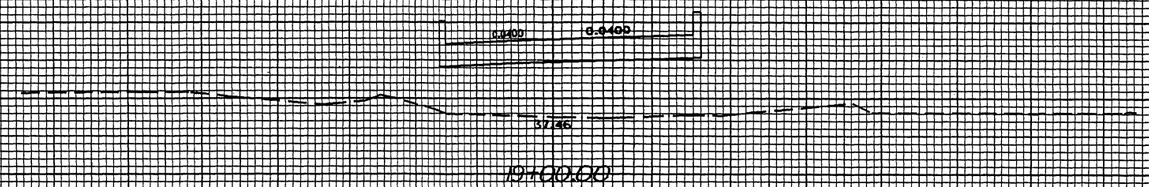
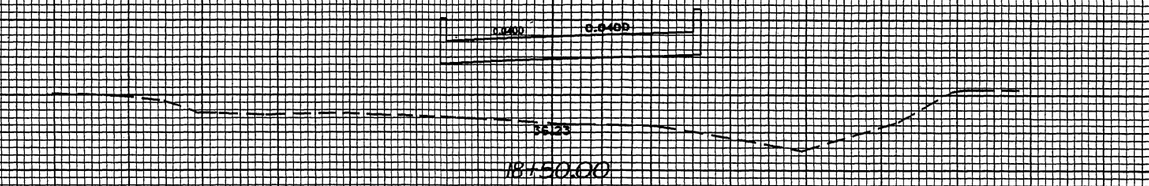
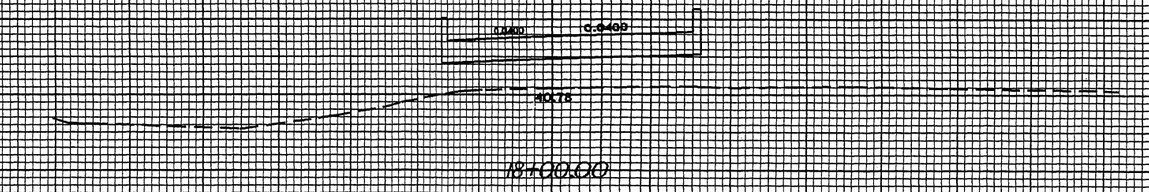
$$$$USERNAME$$$$

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4027	X-2

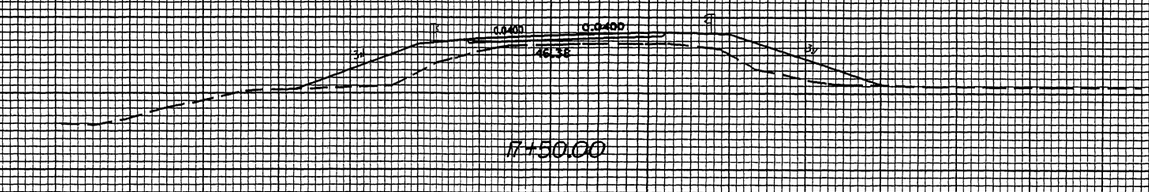
END BRIDGE STA 19+30 +/-

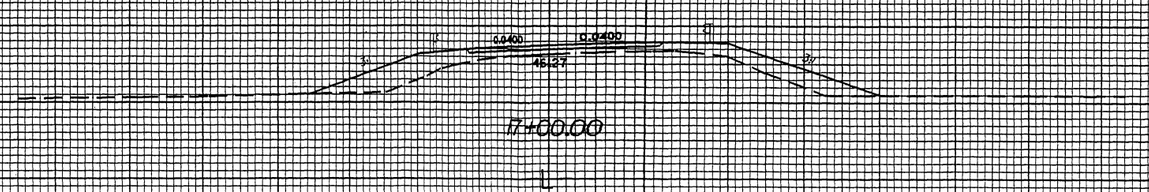






BEGIN BRIDGE STA 17+70 +/-





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0 10	PROJ. REFERENCE NO.	SHEET NO.
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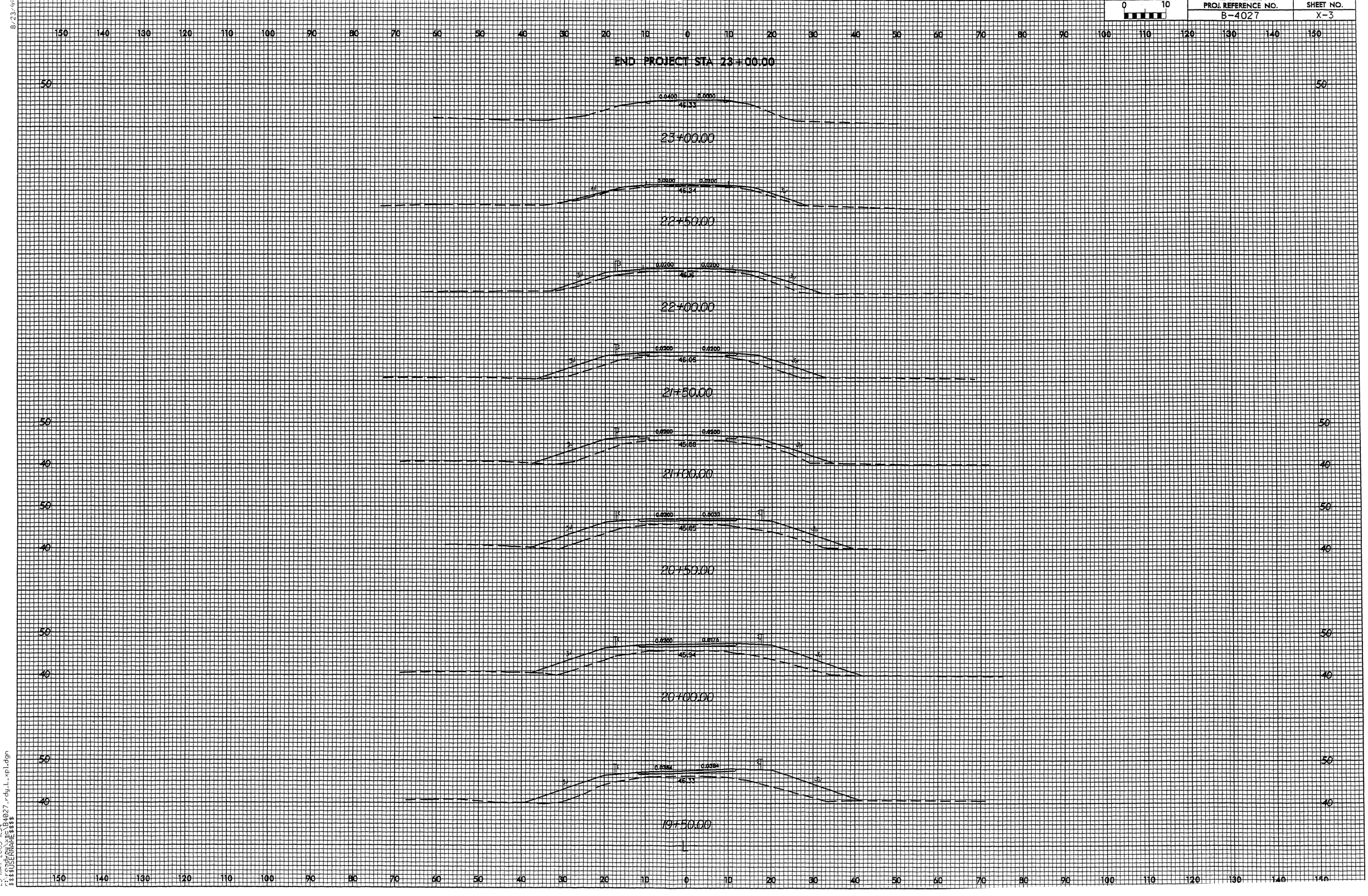
END PROJECT STA 23+00.00



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8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4027	X-4

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46.54

23+50.00

L

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

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