STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 28, 2005

MEMORANDUM TO: Mr. Terry R. Gibson, PE
Division 6 Engineer

FROM: Philip S. Harris, III, P.E., CPM, Manager
Office of the Natural Environment
Project Development and
Environmental Analysis Branch

SUBJECT: Robeson County, Replace Bridge No. 170 on SR 1101 over Shoe Heel Creek; State Work Order Number 8.2462501; T.I.P. Number B-4248

Attached is the U. S. Army Corps of Engineers Nationwide Permit No. 23 for the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

cc: Mr. Art McMillan, P.E.
Mr. Jay Bennett, P.E.
Mr. David Chang, P.E.
Mr. Randy Garris, P.E.
Mr. Greg Perfetti, P.E.
Mr. Mark Staley
Mr. Omar Sultan
Mr. John F. Sullivan, FHWA
Mr. Jim Rerko, Division 6 DEO

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.DOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

PROJECT COMMITMENTS

Robeson County
Bridge No. 170 on SR 1101 over Shoe Heel Creek
Federal Aid Project No. BRZ-1101(8)
State Project No. 8.2462501
TIP No. B-4248

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Commitments Developed Through Project Design

Roadway Design Unit, Division 6 Construction

The existing bridge has an abandoned gear assembly located in the southwest quadrant of the project area. The gear assembly will be moved during the construction of the proposed bridge and will be accounted for under Clearing and Grubbing.

The removal of this assembly will not require clearing and grubbing and it is not located in a jurisdictional area.

Commitments Developed Through Permitting

Project Development and Environmental Analysis

Compensatory mitigation for the unavoidable impacts to 0.30 acres of riverine wetlands associated with the proposed project shall be provided by the restoration of 0.16 acre of riverine wetland on-site as identified in the Restoration Plan dated November 12, 2004. The remaining 0.14 acre of unavoidable riverine wetland impacts shall be provided by the Ecosystem Enhancement Program EEP). Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 0.28 acres of restoration equivalent riverine wetlands in the Lumber River basin (Hydrologic Cataloging Unit 03040204) by one year from the date of this permit. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

Division 6 Construction

No bridge deck drains shall be designed or allowed to discharge directly into Shoe Heel Creek.

Division 6 Construction, Office of Natural Environment – Mitigation Unit

The DOT will restore the old existing road way fill to wetlands (on the north east quarter of the project at approximately station 17+00 station 19+50). The restoration area will be 0.16 acre. The Office of Natural Environment shall be contacted to provide construction oversight to ensure that the wetland mitigation area is constructed appropriately. (See attached *Restoration Plan for Shoe Heel Creek Watershed.*)

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID: 2002-00651 **TIP No:** B-4248 **State Project No:** 8.2462501 **County:** Robeson

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Applicant: North Carolina Department of Transportation

Address: Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Telephone Number: (919) 733-7844, extension 307

Size and Location of project (waterway, road name/number, town, etc.): 125 foot long 3-span, pre-stressed concrete cored slab Bridge No. 170 on SR 1101 over Shoe Heel Creek in Robeson County, North Carolina.

Description of Activity: To replace the existing 81-foot long, single span bridge with a 125-foot long, 3-span, pre-stressed concrete cored slab bridge located approximately 20 feet to the south of the existing bridge alignment. This authorization also includes the mechanized clearing of a two-foot strip adjacent to the fill slopes in the northwest, southwest and southeast quadrants, two 50' by 60' PDEs located in the southwest quadrant, a 50-foot long special grassed lined cut ditch adjacent to the fill slope in the southeast quadrant, and the wetland restoration activity located in the northeast quadrant. Traffic will be detoured offsite onto existing roadways during construction. Three-tenths of an acre of riverine wetlands will be permanently impacted as a result of the authorized activities.

Applicable Law:
X Section 404 (Clean Water Act, 33 U.S.C. 1344)
____ Section 10 (River and Harbor Act of 1899)

Authorization:
23 Nationwide Permit Number
____ Regional General Permit Number

Your work is authorized by this Regional General (RGP) or Nationwide (NWP) Permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. If your activity is subject to Section 404 (if Section 404 block above is checked), before beginning work you must also receive a Section 401 water quality certification from the N.C. Division of Environmental Management, telephone (919) 733-1786

Please read and carefully comply with the attached conditions of the RGP or NWP. Any violation of the conditions of the RGP or NWP referenced above may subject the permittee to a stop work order, a restoration order, and/or appropriate legal action.

This Department of the Army RGP or NWP verification does not relieve the permittee of the responsibility to obtain any other required Federal, State, or local approvals/permits. The permittee may need to contact appropriate State and local agencies before beginning work.

This verification will remain valid until 26 January 2007 unless the nationwide authorization is modified, reissued or revoked. If, prior to 26 January 2007 the nationwide permit authorization is reissued and/or modified, this verification will remain valid until 26 January 2007, provided it complies with all modifications. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Action ID: 2002-00651 **TIP No:** B-4248 **State Project No:** 8.2462501 **County:** Robeson

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

If there are any questions regarding this authorization or any of the conditions of the RGP or NWP, please contact the Corps Regulatory Official specified below.

Date 26 January 2005

Corps Regulatory Official Richard K. Spencer **Telephone No.** (910) 251-4172

CF: Jim Rerko, NCDOT Div 6
Beth Barnes, NCDWQ
Beth Harmon, EEP

Action ID: 2002-00651 **TIP No:** B-4248 **State Project No:** 8.2462501 **County:** Robeson

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

SPECIAL CONDITIONS

1. Bridge demolition and removal will be accomplished in accordance with "North Carolina Department of Transportation Policy: Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999 and a copy will be provided to the contractor prior to the pre-construction conference.

2. Bridge construction shall be accomplished by utilizing top down construction.

3. Every effort shall be taken to control and detain all demolition debris before it can enter the waterway or wetlands. No bridge demolition debris should be intentionally allowed to enter the waterway or wetlands. However, incidental demolition debris that does enter the waterway and/or wetlands shall be kept to a minimum. All incidental bridge demolition debris shall be removed from the waterway and/or wetlands in its entirety upon completion of that day's demolition.

4. No bridge deck drains shall be designed or allowed to discharge directly into Shoe Heel Creek.

5. All work must be performed in strict compliance with the attached plans, which are a part of this authorization. Any modification to the permit plans must be approved by the USACE prior to implementation.

6. Compensatory mitigation for the unavoidable impacts to 0.30 acres of riverine wetlands associated with the proposed project shall be provided by the restoration of 0.16 acre of riverine wetland on-site as identified in the Restoration Plan dated November 12, 2004. The remaining 0.14 acre of unavoidable riverine wetland impacts shall be provided by the Ecosystem Enhancement Program (EEP). Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 0.28 acres of restoration equivalent riverine wetlands in the Lumber River basin (Hydrologic Cataloging Unit 03040204) by one year from the date of this permit. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

7. Traffic will be detoured onto existing roadways during construction.

Restoration Plan for Shoe Heel Creek Wetland
At Bridge No. 170
In Robeson County
TIP B-4248
November 12, 2004

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for riverine swamp impacts at the SR 1101 overpass of Shoe Heel Creek in Robeson County. This mitigation site occurs within Transportation Improvement Program (TIP) B-4248. The project begins approximately 600 feet west of Bridge No. 170 and continues to approximately 500 feet to the east of the bridge. NCDOT will restore 0.16 acres of riverine swamp wetland by removing existing causeway fill in the northeast quadrant of the project.

EXISTING CONDITIONS:

The project is located in western Robeson County about 1.5 miles (2.4 km) northeast of the South Carolina border, and six miles (9.7 km) northwest from the town of Rowland. Development in the area is comprised of scattered residential homes and farms.

The existing causeway for the SR 1101 overpass at Bridge No. 170 is located in the floodplain of Shoe Heel Creek. The floodplain harbors a mature riverine swamp forest dominated by canopy species including bald cypress (*Taxodium distichum*), red maple (*Acer rubrum*), and sweet gum (*Liquidambar styraciflua*). In the northeast quadrant of the project, the swamp wetland is at the toe of slope near the bridge. A transition zone from the toe of slope to the swamp wetland gradually widens from the bridge towards the end of the project. The transition zone is dominated by mature red maple and saplings of other hardwood species.

PROPOSED CONDITIONS:

The proposed wetland mitigation will consist of restoring approximately 0.16 acres of riverine swamp wetland. Restoration will involve removing causeway fill and transition area from the toe of slope to the easement boundary to match the swamp wetland elevation. The restored area will be planted with species commonly found in riverine swamp communities.

The Categorical Exclusion (CE) for TIP B-4248, dated April 2003, provides further details concerning existing and proposed roadway conditions.

DESIGN/CONSTRUCTION:

WETLAND MITIGATION GRADING

The design of the wetland mitigation area shall consist of removing fill associated with the existing causeway. Fill will be excavated down to the alluvium soil layer. If the alluvium soil layer is encountered at an elevation above the adjacent existing wetland, excavation shall continue until the elevation matches the existing, adjacent wetland elevation. If the alluvium soil layer is encountered below the adjacent existing wetland elevation, sandy loam shall be used to backfill these areas to match the existing wetland elevation. All excavated areas shall be ripped and disked prior to placement of any backfill material and before planting of the site.

The Office of Natural Environment shall be contacted to provide construction oversight to ensure that the wetland mitigation area is constructed appropriately.

VEGETATION PLANTING

The restoration site will be planted following the completion of the site grading. The following riverine swamp tree species will be planted: bald cypress and swamp blackgum (*Nyssa sylvatica* var. *biflora*).

The hardwood tree species utilized shall be 18"-30" in size and shall be bare root seedlings that are at least one growing season in age. Planting density shall be 680 seedlings per acre, which equates to a plant spacing of 8 feet on-center.

MONITORING:

Upon successful completion of construction, the following monitoring strategy is proposed for the mitigation site. NCDOT will document monitoring activities on the site in an annual report distributed to the regulatory agencies.

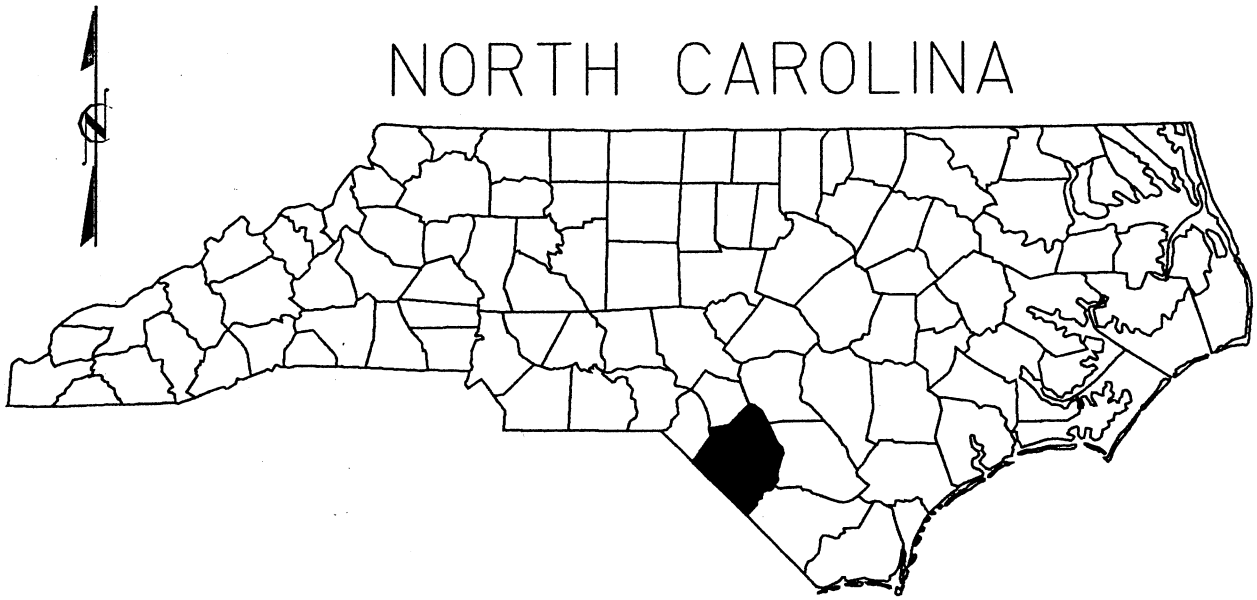
HYDROLOGIC MONITORING

No specific hydrological monitoring is proposed for this restoration site. The target elevation will be based on the adjacent wetland and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is similar to the hydrology in the reference area.

VEGETATION SUCCESS CRITERIA

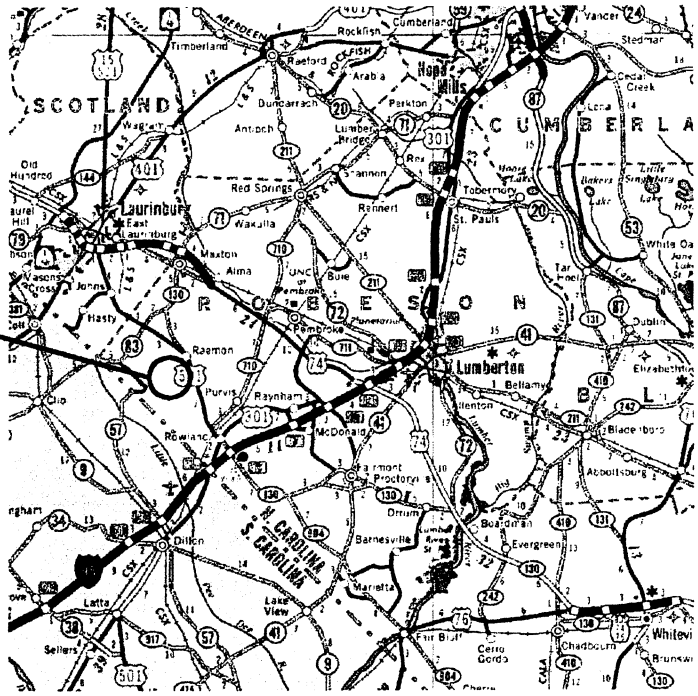
NCDOT shall monitor the restoration site by visual observation and photo points for survival of planted seedlings. NCDOT shall monitor the site for a minimum of

three years or until the site is deemed successful. Monitoring will be initiated upon completion of the site planting.



NOT TO SCALE

PROJECT



VICINITY MAPS

NCDOT

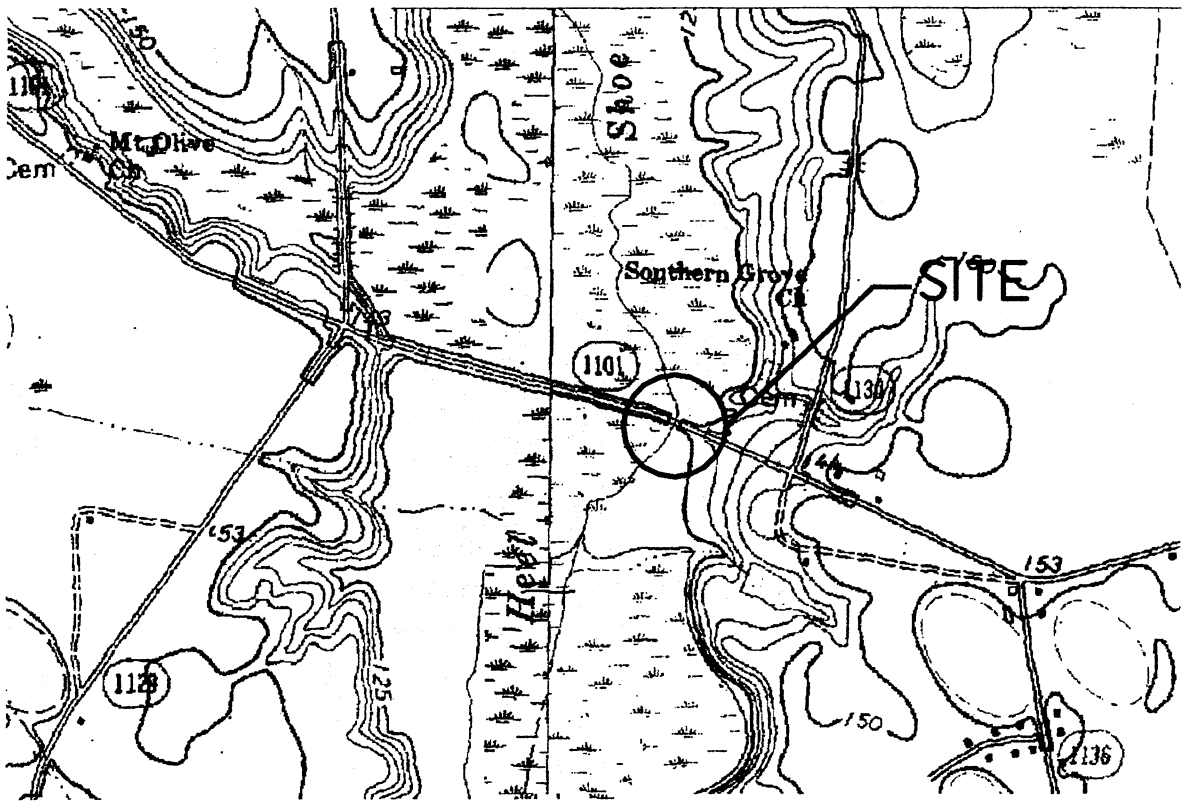
DIVISION OF HIGHWAYS

ROBESON COUNTY

PROJECT: 8.2462501 (B-4248)

PROPOSED BRIDGE REPLACEMENT BRG. # 170 OVER SHOE HEEL CREEK ALONG SR 1101

SHEET 1 **OF** 16 **11/24/04**



CONTOUR INTERVAL = 5 FEET

HORIZONTAL SCALE

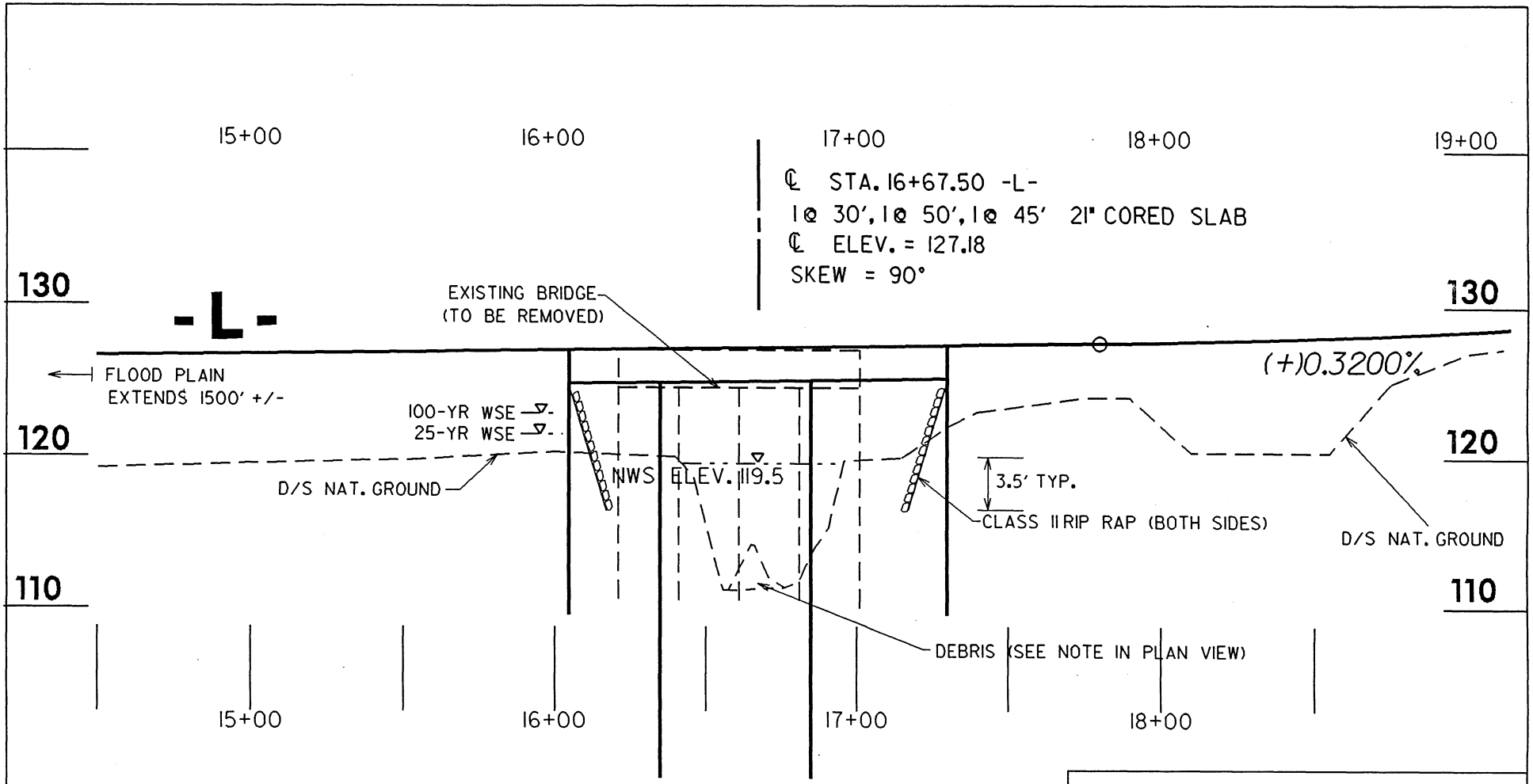
1500 0 1500

TOPOGRAPHIC MAPS

NCDOT

DIVISION OF HIGHWAYS
ROBESON COUNTY
PROJECT: 8.2462501 (B-4248)
PROPOSED BRIDGE REPLACEMENT
BRG. # 170 OVER
SHOE HEEL CREEK
ALONG SR 1101

SHEET 2 OF 16 04/15/04



PROFILE

NCDOT

DIVISION OF HIGHWAYS
ROBESON COUNTY
PROJECT: 8.2462501 (R-2246C)
PROPOSED REPLACEMENT
BRIDGE # 170 OVER
SHOE HEEL CREEK
ALONG SR 1101

SHEET 3 **OF** 16 **03/25/04**

8/17/99

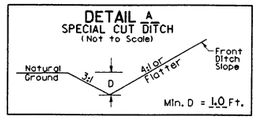
PROJECT REFERENCE NO.	SHEET NO.
B-4248	4
R/W SHEET NO.	4 of 16

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19001 ENGINEER LISA WOOTEN GRIFFIN

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 12575 ENGINEER PAUL F. FISHER

REVISED 12/01/04

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 19+00 TO 19+50 -L- RT

NOTE:
THE BRIDGE WILL BE BUILT
UTILIZING TOP DOWN CONSTRUCTION

NO DECK DRAINS WILL BE ALLOWED
TO DISCHARGE DIRECTLY INTO SHOE HEEL
CREEK

NAD 83

-L- POT Sta. 10+00.00

-L- POT Sta. 24+49.76

(2) THOMAS M. McRIMMON

BEGIN TIP PROJECT B-4248
-L- STA. 11+50.00

WOODS

10

15

20

HO WLB (EXISTING R/W (MAINTAINED))

SR 1101

S 75° 37' 29.8" E

18" BST

100' TRANSITION

EXISTING R/W (MAINTAINED)

8"M OH

+50 EXIST. R/W & 50'

+09.87 50'

+54 50'

+00 55'

+37 50'

+17.67 50'

+74 50'

MIN. EXCAVATION REQ'D (TO ELEV. 120±)

HO WLB

LIMIT OF EXCAVATION

PROPOSED TOE OF FILL

EXISTING BRIDGE (TO BE REMOVED)

PROPOSED BRIDGE
10 @ 30'± 10 @ 50'± 10 @ 45'
21" PRESTRESSED CORED SLAB

END SBG
SEE STR. #862.03
-L- LT & RT

POT Sta. 10+00.00

+19 70'

+80 70'

+25.60 50'

EXCAVATION AREA (TO RESTORE WETLANDS)
EST. 810 C.Y. EXCAVATION

EXCAVATION AREA (TO RESTORE WETLANDS)
(SEE CROSS-SECTIONS)

WOODS +72 50'

2GI

6" D/I

15" BCCS

S 72° 38' 54.1" E

OLD METAL GEAR AND MILL REMNANTS TO BE REMOVED

SBC

OUTLET PROTECTION
CL. B RIP RAP
EST. 1 TONS
FILTER FABRIC
EST 5 SY

+50 EXIST. R/W & 50'

+09.87 50'

+50 50' & 60'

+85 50' & 60'

+17.67 50'

BEGIN SBG
STA. 13+70 -L- LT
STA. 13+65 -L- RT

OUTLET PROTECTION
CL. B RIP RAP
EST. 1 TONS
FILTER FABRIC
EST 5 SY

METAL GEAR AND OLD MILL REMNANTS (TO BE REMOVED)

+51 50' & 60'

+86 50' & 60'

15" BCCS W/ 2 ELBOWS

CLASS B RIP RAP

SHOE HEEL CREEK

SOUTH FORK

PCSta. 10+36.03
PRCSta. 10+51.85
PTSta. 10+63.38
POT Sta. 11+30.03

S 19° 29' 38.5" W

5' X 10'
CLASS 'B' RIP RAP PAD
EST. 2 TONS
FILTER FABRIC
EST. 5.56 S.Y.

+25.60 50'

WOODS

SPECIAL CUT DITCH
GRASS LINED
SEE DETAIL A

(2) THOMAS M. McRIMMON

END TIP PROJECT B-4248
-L- STA. 23+50.00

5' X 10'
CLASS 'B' RIP RAP PAD
EST. 2 TONS
FILTER FABRIC
EST. 5.56 S.Y.

+98.31 50'

WOODS +50 EXIST. R/W & 50'

HO WLB
EXISTING R/W (MAINTAINED)
SR 1101

10 SR 1130

6" D/I

100' TAPER

S 64° 50' 08.8" E

18" BST

+98.31 50'

+50 EXIST. R/W & 50'

WOODS

(1) BEVERLY RANSOME BODENHAMER

-L- PCSta. 12+09.87

-L- PTSta. 14+17.67

-L- PCSta. 19+25.60

-L- PTSta. 21+98.31

DENOTES ENHANCEMENT EXCAVATION IN WETLANDS

DENOTES EXCAVATION IN WETLANDS

DENOTES FILL IN WETLANDS

DENOTES MECHANIZED CLEARING IN WETLANDS

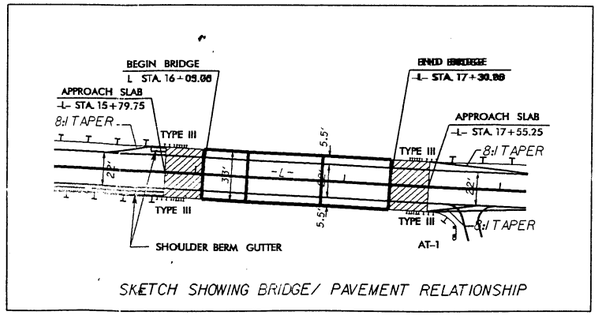
DENOTES EXISTING ROADWAY FILL TO BE EXCAVATED AND RESTORED TO WETLANDS

-L-

PI Sta 13+13.80	PI Sta 20+62.16
Δ = 2° 58' 35.7" (RT)	Δ = 7° 48' 45.3" (RT)
D = 1° 25' 56.6"	D = 2° 51' 53.2"
L = 207.80'	L = 272.71'
T = 103.93'	T = 136.57'
R = 4,000.00'	R = 2,000.00'
S.E. = .04	S.E. = .06
RO = 96'	RO = 144'

-DRIVE-

PI Sta 10+45.09	PI Sta 10+58.03
Δ = 69° 42' 51.3" (RT)	Δ = 50° 48' 12.0" (LT)
D = 440° 44' 12.4"	D = 440° 44' 12.4"
L = 15.82'	L = 11.53'
T = 9.05'	T = 6.17'
R = 13.00'	R = 13.00'



SKETCH SHOWING BRIDGE/ PAVEMENT RELATIONSHIP

FOR -L- PROFILE SEE SHEET 5

FOR STRUCTURE PLANS SEE SHEET S-1- S-25

13-DEC-2004 07:22
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Fisher AT

8/17/95

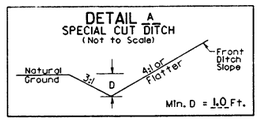
PROJECT REFERENCE NO.	SHEET NO.
B-4248	4
R/W SHEET NO.	5 of 10

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19001 ENGINEER W. DOTEN SMITH

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 12575 ENGINEER PAUL F. FISHER

REVISED 12/01/04

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 19+00 TO 19+50 -L- RT

NOTE:
THE BRIDGE WILL BE BUILT
UTILIZING TOP DOWN CONSTRUCTION

NO DECK DRAINS WILL BE ALLOWED
TO DISCHARGE DIRECTLY INTO SHOE HEEL
CREEK

NAD 83

-L- POT Sta. 10+00.00

-L- POT Sta. 24+49.76

(2) THOMAS M. McRIMMON

BEGIN TIP PROJECT B-4248
-L- STA. 11+50.00

END TIP PROJECT B-4248
-L- STA. 23+50.00

EXCAVATION AREA (TO RESTORE WETLANDS)
EST. 810 C.Y. EXCAVATION

PROPOSED BRIDGE
@ 30'-@ 50'-@ 45'
21" PRESTRESSED CORED SLAB

EXISTING BRIDGE (TO BE REMOVED)

END SBG SEE STD. #862.03 -L- LT & RT

POT Sta. 10+00.00

MIN. EXCAVATION REQ'D (TO ELEV. 120ft)

EXCAVATION AREA (TO RESTORE WETLANDS) (SEE CROSS-SECTIONS)

HQ W.L.B. LIMIT OF EXCAVATION

PROPOSED TOE OF FILL

S 75° 37' 29.8" E

SR 1101

TOE TRANSITION

15" BCCS

15" BCCS W/ ELBOWS

OUTLET PROTECTION CL "B" RIP RAP EST. 1 TONS FILTER FABRIC EST. 5 SY

BEGIN SBG STA. 15+70 -L- LT STA. 13+65 -L- RT

COLD METAL GEAR AND MILL REMNANTS TO BE REMOVED

METAL GEAR AND OLD MILL REMNANTS (TO BE REMOVED)

SHOE HEEL CREEK

S 19° 38' 38.5" W

PCSta. 10+26.03
PRCSta. 10+51.85
PTSta. 10+63.38
POT Sta. 11+30.03

5' X 10' CLASS 'B' RIP RAP PAD EST. 5 TONS FILTER FABRIC EST. 5.56 S.Y.

SPECIAL CUT DITCH GRASS LINED SEE DETAIL A

5' X 10' CLASS 'B' RIP RAP PAD EST. 5 TONS FILTER FABRIC EST. 5.56 S.Y.

100' TAPER

S 62° 50' 08.2" E

-L- PC Sta. 12+09.87

-L- PT Sta. 14+17.67

-L- PC Sta. 19+25.60

-L- PT Sta. 21+98.31

(1) BEVERLY RANSOME BODENHAMER

(2) THOMAS M. McRIMMON

(2) THOMAS M. McRIMMON

DENOTES ENHANCEMENT EXCAVATION IN WETLANDS

DENOTES EXCAVATION IN WETLANDS

DENOTES FILL IN WETLANDS

DENOTES MECHANIZED CLEARING IN WETLANDS

DENOTES EXISTING ROADWAY FILL TO BE EXCAVATED AND RESTORED TO WETLANDS

CONTOUR INTERVALS = 1 FOOT

-L-

PI Sta 13+13.80	PI Sta 20+62.16
Δ = 2° 58' 35.7" (RT)	Δ = 7° 48' 45.3" (RT)
D = 1° 25' 56.6"	D = 2° 51' 53.2"
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R = 4,000.00'	R = 2,000.00'
S.E. = .04	S.E. = .06
RO = 96'	RO = 144'

-DRIVE-

PI Sta 10+45.09	PI Sta 10+58.03
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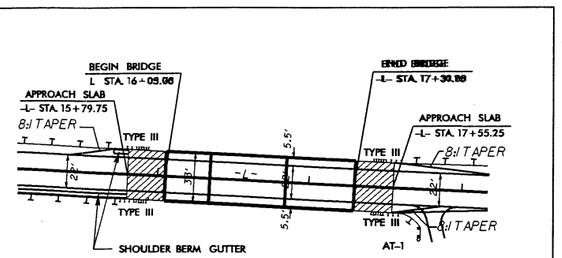
L = 15.82'	L = 11.53'
T = 9.05'	T = 6.17'
R = 13.00'	R = 13.00'



SKETCH SHOWING BRIDGE/ PAVEMENT RELATIONSHIP

FOR -L- PROFILE SEE SHEET 5

FOR STRUCTURE PLANS SEE SHEET S-L- S-25

13-DEC-2004 08:45
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dlong

5/14/9

PROJECT REFERENCE NO.	SHEET NO.
B-4248	6 of 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM #80 R/R SPIKE IN BASE OF 8" GUM TREE
TO -L- STA. 11+50.00 IS S 82°09'06" E
DISTANCE 429.95' ELEV. = 120.66'
N 304920.91 E 1887138.98

-L-

BM #81 R/R SPIKE IN BASE OF 12" PINE TREE
53.25' RIGHT OF -L- LINE STA. 23+58.77
ELEV. 140.63'

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2700 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 121.51 FT.
BASE DISCHARGE	= 3800 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 122.87FT.
OVERTOPPING DISCHARGE	= 5500 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 124.47 FT.

END GRADE
-L- STA. 23+50.00
EL= 138.56

BEGIN GRADE
-L- STA. 11+50.00
EL= 125.53

PROPOSED 2T CORED SLAB BRIDGE
1 SPAN @ 30'
1 SPAN @ 50'
1 SPAN @ 45'
SKEW = 90°
℄ -L- STA. 16+67.50

PI = 19+30.00
EL = 128.02'
K = 137
VC = 300'

(+)0.3200%

(+)2.5088%

ESTIMATED NORMAL WATER SURFACE ELEVATION 120.0' (8/03)

BEGIN SPECIAL DITCH
-L- STA. 19+00.00 (RT)
EL = 125.45

END SPECIAL DITCH
-L- STA. 19+50.00 (RT)
EL = 125.29

CLASS II RIP RAP STRUCTURE PAY ITEM

FOR -L- PLAN VIEW
SEE SHEET 4

FOR STRUCTURE PLANS
SEE SHEETS S- THRU S-

140
130
120
110
100
90
80
70

11 12 13 14 15 16 17 18 19 20 21 22 23 24

17-MAR-2004 15:44
R:\Hydr-Roll\pe-mt\B4248_hyd_pf1.dgn
ashepard

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	b4248	X-1

Sheet 7 of 16

70 60 50 40 30 20 10 0 10 20 30 40 50 60

130 125 120 115

$S: 19.37

3:1

0.0201

0.0400

125.53

125.69

12+00.00

130 125 120

0.0002

0.0598

125.50

125.53

11+50.00

125 120

125.24

11+00.00

"QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RECROSS-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."

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

01-DEC-2004 13:00
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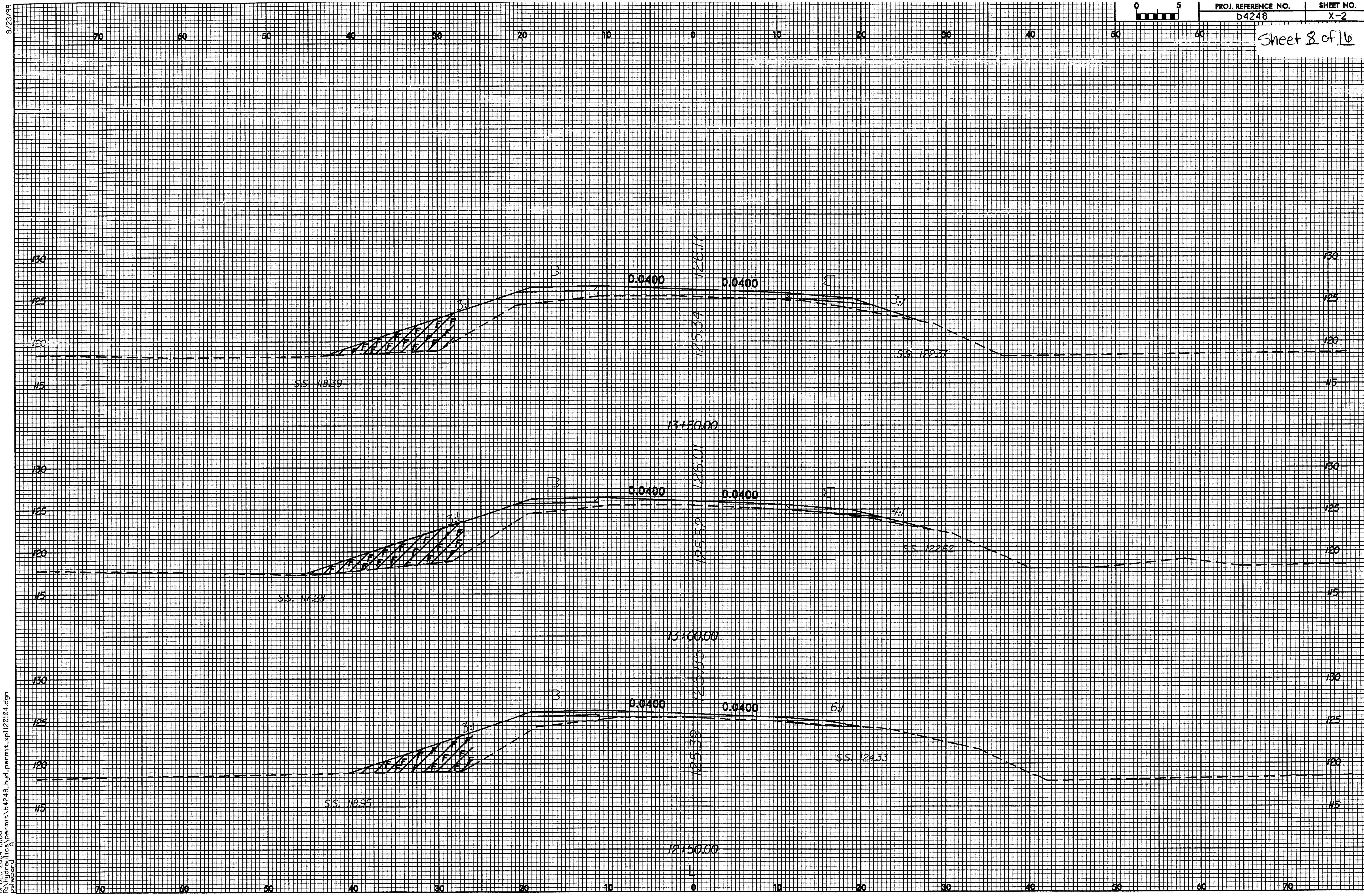
pshepard

PROJ. REFERENCE NO.	SHEET NO.
b4248	X-2

Sheet 8 of 16



8/23/99

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psheperd AT

8/23/9

PROJ. REFERENCE NO. b4248

SHEET NO. X-3

Sheet 9 of 16

70 60 50 40 30 20 10 0 10 20 30 40 50 60

130 125 120 115

0.0076 0.0200

5:1 3:1

125.40 125.60

S.S. 119.99

15+00.00

0.0124 0.0200

VAR. 3:1

125.30 125.60

S.S. 124.27 S.S. 118.92

14+50.00

0.0324 0.0324

5:1 3:1

125.15 125.60

S.S. 118.53 S.S. 116.60

14+00.00

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

01-DEC-2004 13:01
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pshepard
A1

8/23/91

PROJ. REFERENCE NO.	SHEET NO.
b4248	X-4

Sheet 10 of 16

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

130 125 120 115 135 130

0.0200 0.0200

S.S. 121.81

VAR

16+50.00

126.29

S.S. 120.01

3:1

16+00.00

S.S. 124.38

GRADE TO DRAIN
124.04

126.07

125.69

S.S. 120.19

15+50.00

01-DEC-2004 13:02
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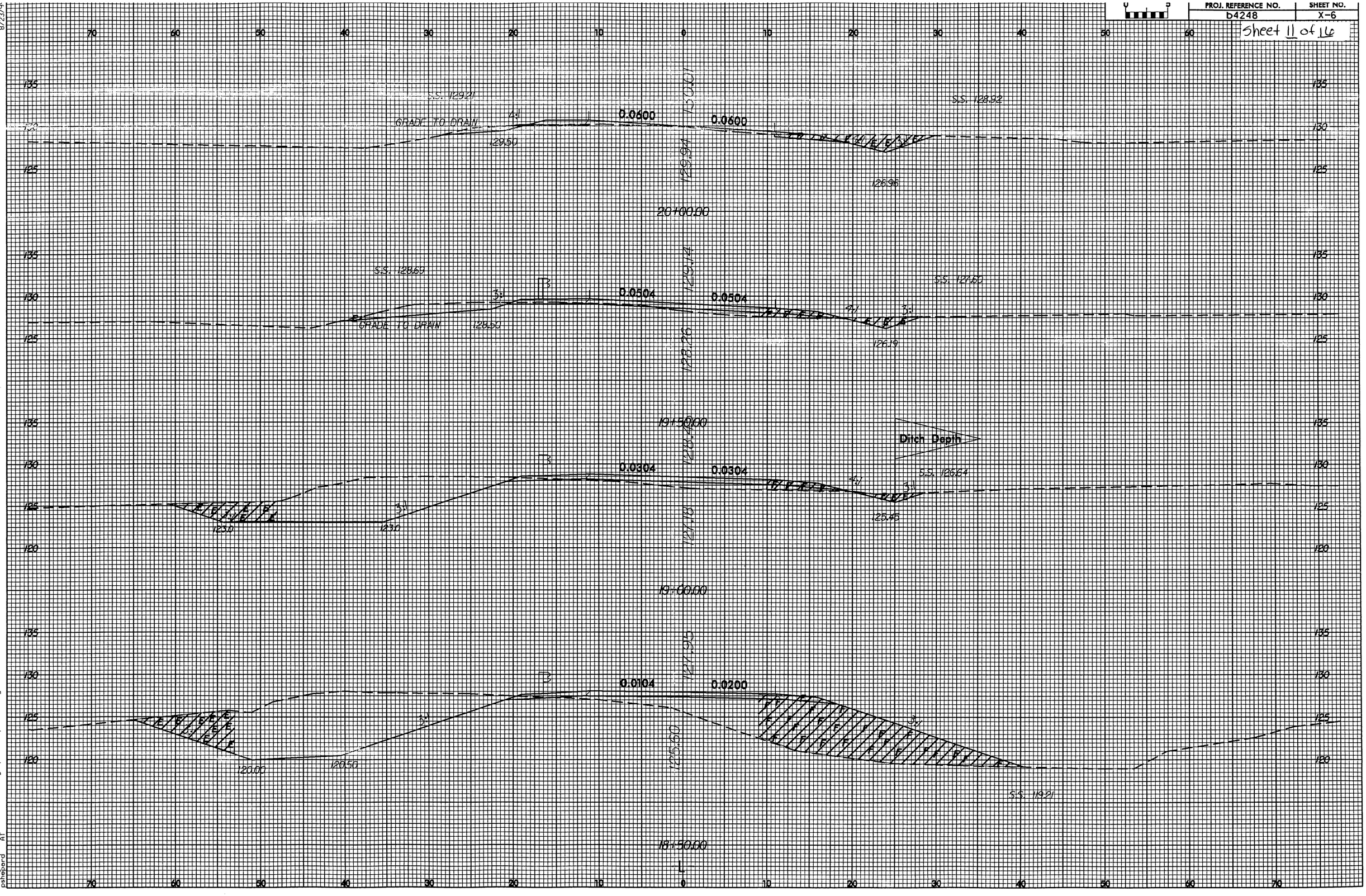
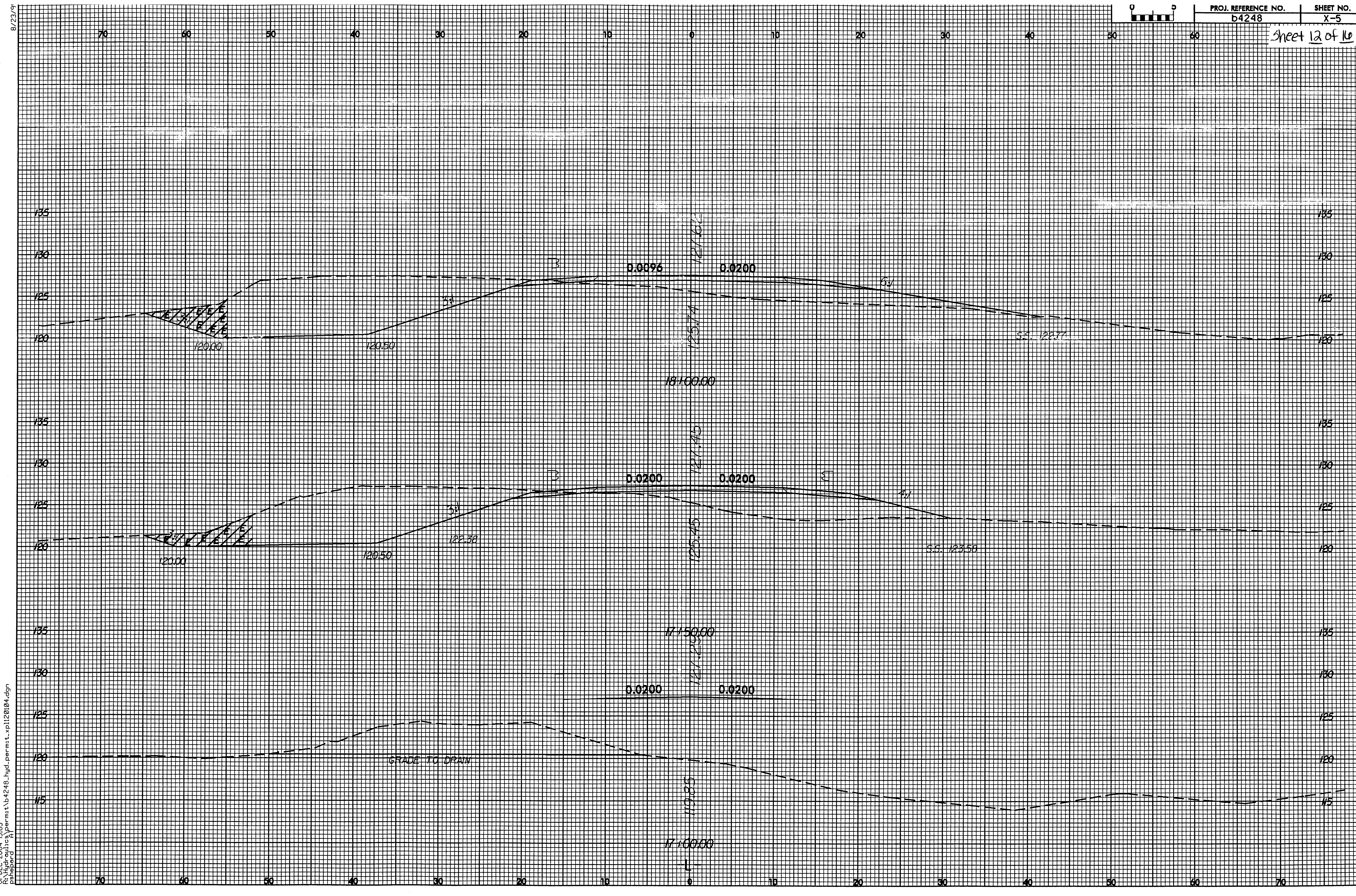
A1

8/23/95

PROJ. REFERENCE NO.	SHEET NO.
D4248	X-6

Sheet 11 of 16





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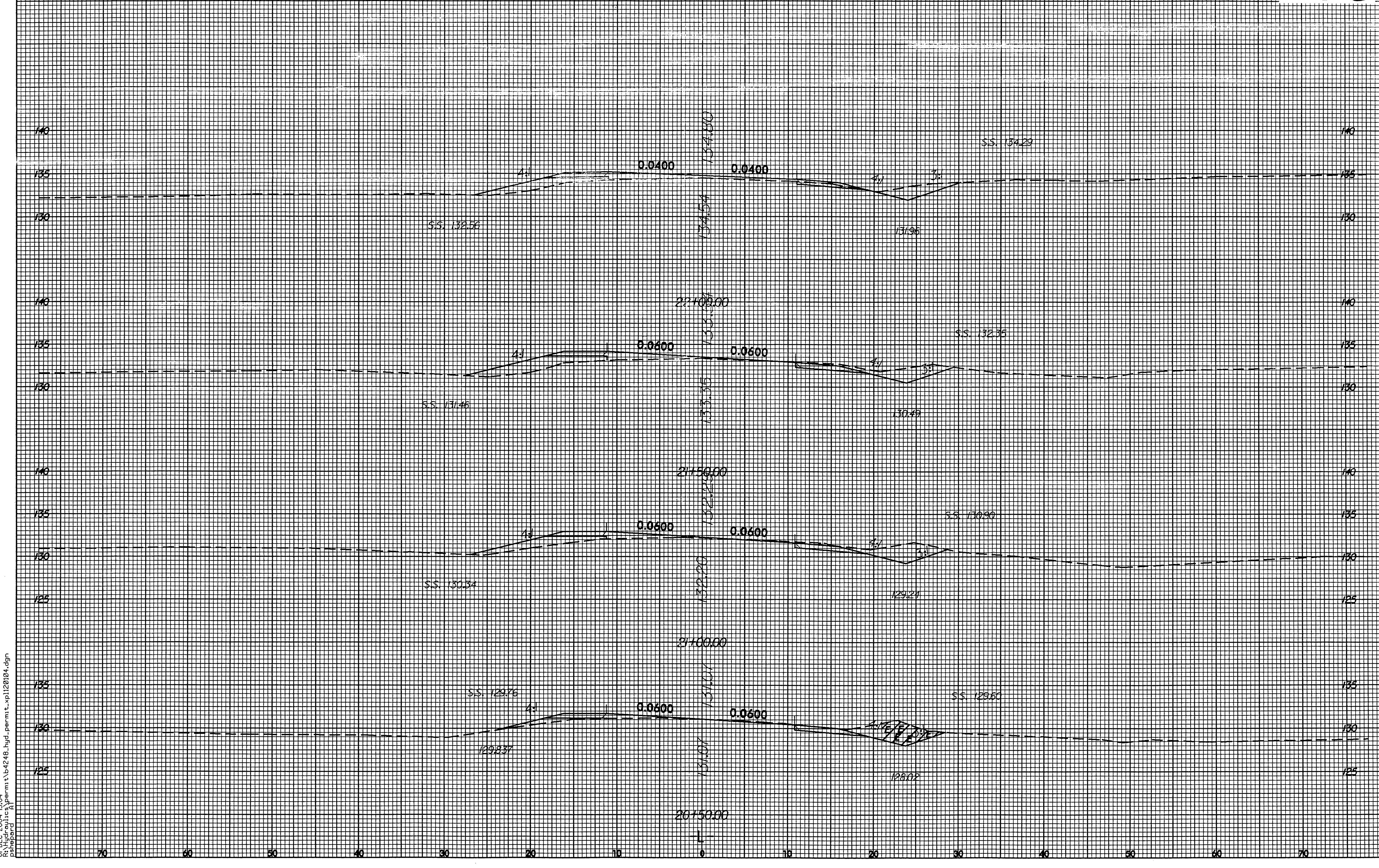
psheperd AT
8/23/9?

PROJ. REFERENCE NO.	SHEET NO.
b4248	X-7

Sheet 13 of 16



8/23/94

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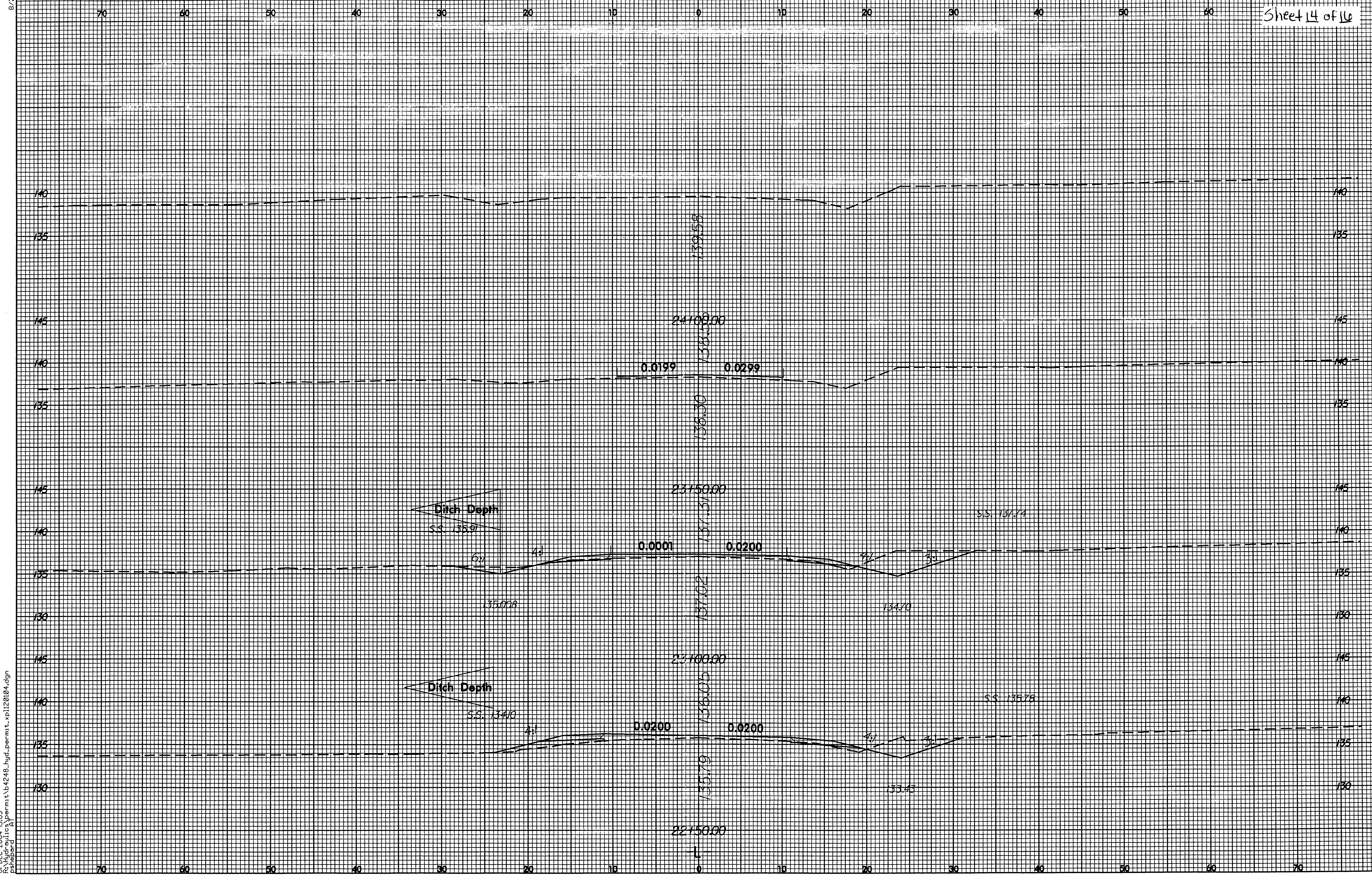
psheperd AT

PROJ. REFERENCE NO.	SHEET NO.
b4248	X-8

Sheet 14 of 16



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pshepard AT

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NUMBER	NAMES	ADDRESSES
1	BEVERLY RANSOME BODENHAMER	6932 KITCHEN ST. ROWLAND, N.C. 28383
2	THOMAS M. McCRIMMON	8263 FAILEY RD. ROWLAND, N.C. 28383

NCDOT

DIVISION OF HIGHWAYS

ROBESON COUNTY

PROJECT: 8.2462501 (B-4248)

PROPOSED BRIDGE REPLACEMENT
BRG. # 170 OVER
SHOE HEEL CREEK
ALONG SR 1101

SHEET 15 OF 16 04/15/04

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Enhancement Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	11+75 TO	ROADWAY	0.08	0	0	0	0.01	0	0	0	0	0
	14+55 -L- LT	FILL										
	13+50 TO	ROADWAY	0.03	0	0	0	0.05	0	0	0	0	0
	16+25 -L- RT	FILL										
	17+10 TO	ROADWAY	0.07	0	0.05	0	0.01	0	0	0	0	0
	21+45 -L- RT	FILL										
	17+00 TO	EXISTING ROADWAY	0	0	0	0.07	0	0	0	0	0	0
	19+50 -L- LT	EXCAVATED										
TOTALS:			0.18	0	0.05	0.07	0.07	0	0	0	0	0

NOTE: FROM STA. 17+00 TO STA. 19+55 -L- (LT), A PORTION OF THE EXISTING ROADWAY EMBANKMENT WILL BE REMOVED TO APPROXIMATELY THE NATURAL GROUND ELEVATION. THE ESTIMATED AREA TO POTENTIALLY BE RESTORED TO WETLANDS IS 0.16 ACRES.

*One Bent in Water = 12.38 square feet or < 0.001 acre

Form Revised 3/22/01

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT: 8.2462501 (B-4248)
PROPOSED BRIDGE REPLACEMENT
BRIDGE #170 OVER SHOE HEEL CREEK
ALONG SR 1101

SHEET OF 12/10/2004