



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 23, 2013

N.C. Division of Water Quality
585 Waughtown St.
Winton-Salem, NC 27107

ATTN: Ms. Amy Euliss
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 401 Water Quality Certification and Jordan Lake Water Supply Watershed Buffer Certification and intent to use a Section 404 Nationwide Permit 13**, for the Replacement of Bridge No. 160 on SR 1122 (Euliss Rd.) over South Prong Stinking Quarter Creek in Alamance County, North Carolina. TIP No. B-4400. Federal Aid Project No. BRZ-1122(4).

Debit \$240.00 from WBS Element 33680.1.1.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 160 over South Prong Stinking Quarter Creek on SR 1122 (Euliss Rd.) in Alamance County. Please find enclosed the Pre-Construction Notification (PCN) form, stormwater management plan, permit drawings, and design plans for the above referenced project. For impact totals, please see the PCN.

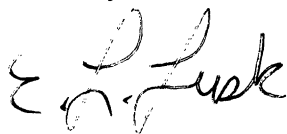
A Programmatic Categorical Exclusion (PCE) was completed for this project on September 26, 2012 and distributed shortly thereafter. Additional copies are available upon request. The proposed let date for the project is January 21, 2014 with a review date of December 3, 2013. However, the let date may advance as additional funds become available.

Because the impacts associated with this project for the Nationwide Permit 13 do not require written notification to the USACE, we are not expecting back written approval. For USACE information only.

A copy of this permit application will be posted on the NCDOT Website at:
<https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Amy James at aejames@ncdot.gov or (919) 707-6129.

Sincerely,

A handwritten signature in black ink, appearing to read "G. J. Thorpe".Handwritten initials "GJT" in black ink.

Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List



Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit	☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 13 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	☐ Yes	☒ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☒ Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No	For the record only for Corps Permit: ☒ Yes ☐ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☐ Yes	☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes	☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes	☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge no. 160 over South Prong Stinking Quarter Creek on SR 1122
2b. County:	Alamance
2c. Nearest municipality / town:	Kimesville
2d. Subdivision name:	not applicable
2e. NCDOT only, T.I.P. or state project no:	B-4400

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	not applicable
3c. Responsible Party (for LLC if applicable):	not applicable
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6129
3g. Fax no.:	(919) 212-5785
3h. Email address:	aejames2@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	<i>not applicable</i>
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	<i>not applicable</i>
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.977668 (DD.DDDDDD) Longitude: - 79.511092 (-DD.DDDDDD)
1c. Property size:	3.2 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	South Prong Stinking Quarter Creek
2b. Water Quality Classification of nearest receiving water:	WS-V; NSW
2c. River basin:	Cape Fear
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Most of the land in the project vicinity is forested or in agriculture, with a small amount of low density residential development.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.0	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 200	
3d. Explain the purpose of the proposed project: To replace a structurally deficient and functionally obsolete bridge.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 120-foot bridge with a 150-foot, 3-span bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: The only jurisdictional resource to be impacted is a perennial stream	☐ Yes ☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory						
1. Impacts Summary						
1a. Which sections were completed below for your project (check all that apply):						
☐ Wetlands		☒ Streams - tributaries		☒ Buffers		
☐ Open Waters		☐ Pond Construction				
2. Wetland Impacts						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)	
Site 1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ		
2g. Total wetland impacts					X Permanent X Temporary	
2h. Comments:						
3. Stream Impacts						
If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	Bank Stabilization	South Prong Stinking Quarter	☒ PER ☐ INT	☒ Corps ☐ DWQ	35	36
Site 2 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
3h. Total stream and tributary impacts						36 Perm 0 Temp
3i. Comments: No piers in the water.						

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
4f. Total open water impacts				X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavat ed	Flooded	Filled	Excavated	Flooded
P1								
P2								
5f. Total								

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?			☐ Neuse ☐ Tar-Pamlico ☒ Other: Jordan ☐ Catawba ☐ Randleman		
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☒ P ☐ T	Roadway	South Prong Stinking Quarter	☐ Yes ☒ No		1,399
B2 ☒ P ☐ T	Bridge	South Prong Stinking Quarter	☐ Yes ☒ No	5,852	5,269
B3 ☐ P ☐ T			☐ Yes ☐ No		
6h. Total buffer impacts				5,852	6,668
6i. Comments:					

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The proposed bridge is 30 feet longer than the existing bridge and will be at approximately the same alignment; no bridge deck drains; the new roadway grade directs most of the stormwater to a pipe system which outlets to a grass swale and permanent ditch check, thereby reducing velocities; and the implementation of Design Standards in Sensitive Watersheds.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. NCDOT Best Management Practices for Bridge Demolition, Removal and Construction will be followed, as well as those for Sedimentation and Erosion Control; and the utilization of an off-site detour.		
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain:	
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps	
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
4. Complete if Making a Payment to In-lieu Fee Program		
4a. Approval letter from in-lieu fee program is attached.	☐ Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
5. Complete if Using a Permittee Responsible Mitigation Plan		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?				☐ Yes ☒ No
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
6f. Total buffer mitigation required:				
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☒ Yes ☐ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: see attached buffer permit drawings.	☒ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☒ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes ☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes ☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes ☐ No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes ☒ No
2b. Is this an after-the-fact permit application?	☐ Yes ☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☐ Yes	☒ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	5-22-13 Date



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS



(Version 1.2; Released July 2012)

Project/TIP No.: 33680.1.1 County(ies): Alamance Page 1 of 3

General Project Information	
Project No.: 33680.1.1	Project Type: Bridge Replacement
NCDOT Contact: Marshall Clawson, P.E.	Contractor / Designer: David Bocker, PE
Address: 1020 Birch Ridge Road Raleigh, NC 27610	Address: 7500 E. Independence Blvd, Ste 100 Charlotte, NC 28227
Phone: 919-707-6713	Phone: 704-537-7300
Email: mclawson@ncdot.gov	Email: dbocker@mulkeyinc.com
City/Town: Kinstonville	County(ies): Alamance
River Basin(s): Cape Fear	CAMA County? No
Primary Receiving Water: South Prong Sinking Quarter Creek	NCDWQ Stream Index No.:
NCDWQ Surface Water Classification for Primary Receiving Water	Water Supply V (WS-V)
Other Stream Classification:	Nutrient Sensitive Waters (NSW)
303(d) Impairments:	
Buffer Rules in Effect	

Project Description	
Project Length (lin. Miles or feet): 0.08	Surrounding Land Use: Undeveloped, rural
Project Built-Up Area (ac.): 0.30	Proposed Project: 2 Lane shoulder section with paved shoulders
Typical Cross Section Description:	Existing Site: 2 Lane Shoulder section

Average Daily Traffic (veh/hr/day):	Design/Future: 2035=400 vpd	Existing: 2010=200 vpd
General Project Narrative: This narrative provides explanation in regards to stormwater design on the west side of the creek. It is our position that the stormwater design of the B-4400 project has avoided and minimized impacts to the maximum extent practical. Several options were explored during design to provide treatment of stormwater runoff prior to the buffers; a detailed list of alternatives and reasons why they were not employed are provided below: 1 - Grass Swale - Sleep grades on the west side of the creek contribute to high velocities which in turn did not allow for non-erosive velocities; thus grass swale criteria was unable to be met. 2 - Use of a level spreader - This option was not feasible due to the steep ditch grade and topography. Additionally, there is little to no floodplain on the west side of the creek. 3 - Use of a Pipe System & Performed Scour Hole - It is not standard practice to "pipe" through the buffers and again there is no flat area to construct a preformed scour hole on the west side of the creek. It is believed that open-channel base ditches lined with riprap would at least provide some degree of treatment even on the steep grades. 4 - Permanent Ditch Check (on LT & RT side of Roadway where additional impervious surface contributes to the improved ditches) - Again on the steep grades, several ditch checks would be required to provide non-erosive velocities and permanent ditch checks are not practical to use on slopes greater than 5%. For these reasons above, the following design option was incorporated into the design. 5 - Minimize contributing amount of impervious surface generated from project and stabilize ditches through the buffers (on the west side of the creek) - General site topography to the west is steep. The existing vee ditches pretty much end at the bridge abutments, no riprap is present, but some erosion & incision was observed. In order to ensure the proposed bridge abutments are protected from potential ditch erosion; the proposed design incorporates riprap lined base ditches through the buffers. Riprap at the LT & RT ditch discharge points have also been provided for bank stabilization. It is important to know that as part of the design, measures were taken to avoid and minimize the need to "ditch through the buffers". The design incorporates a roadway grade that ensure the majority of additional impervious surface (due to the project improvements) that contributes to the stormwater runoff is directed to the east side of the creek. The runoff drains to a pipe system which outlets to a grass swale and permanent ditch check which provides diffused flow and treatment prior to the buffers. Additionally, no deck drains will be used on this project. The current design is an improvement to the existing conditions. Existing ditches through the buffers (in the three quadrants) have been improved by changing the shape from "vee" ditches to base ditches and they have been realigned due to the roadway fill slopes. In general, these improvements reduce velocities and thus the potential for future erosion.		

References



(Version 1.2; Redacted July 2012)

Project/TIP No.: 33680.1.1

Country(ies):

Alamance

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Project Environmental Summary

Surface Water Impacts

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* List all stream and surface water impact locations regardless of jurisdiction or size.

Equalizer Pipes to be noted as a minimization of impacts.

All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

References



**North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS**

Version 1.2; Released July 2012)

Project/TIP No.: 33680.1.1

County(les): Alamance

Page 3 of 3

[illegible]

	YES	NO	
Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanation of why design criteria was not met.	☒	☐	

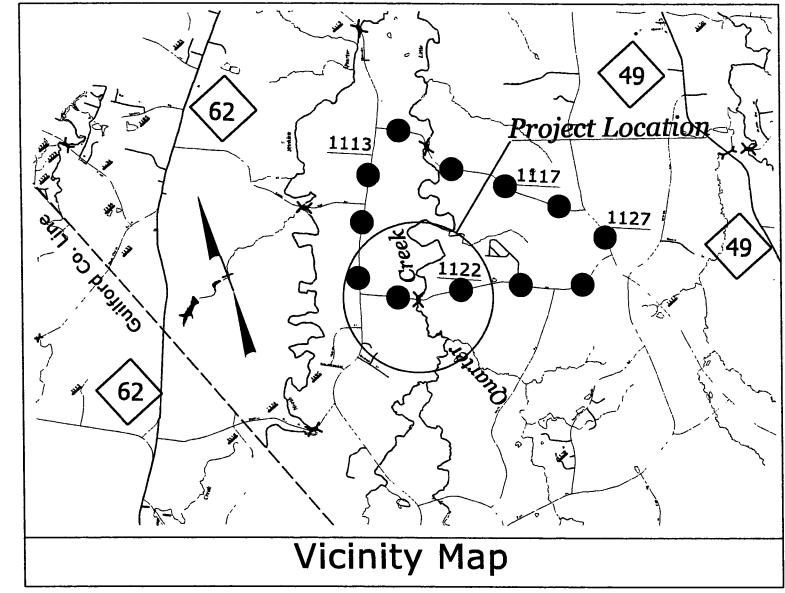
Additional Comments

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TIP PROJECT: B-4400

CONTRACT:

See Sheet 1-A For Index of Sheets



●●●●● Offsite Detour Route

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

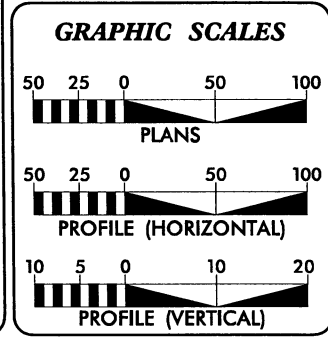
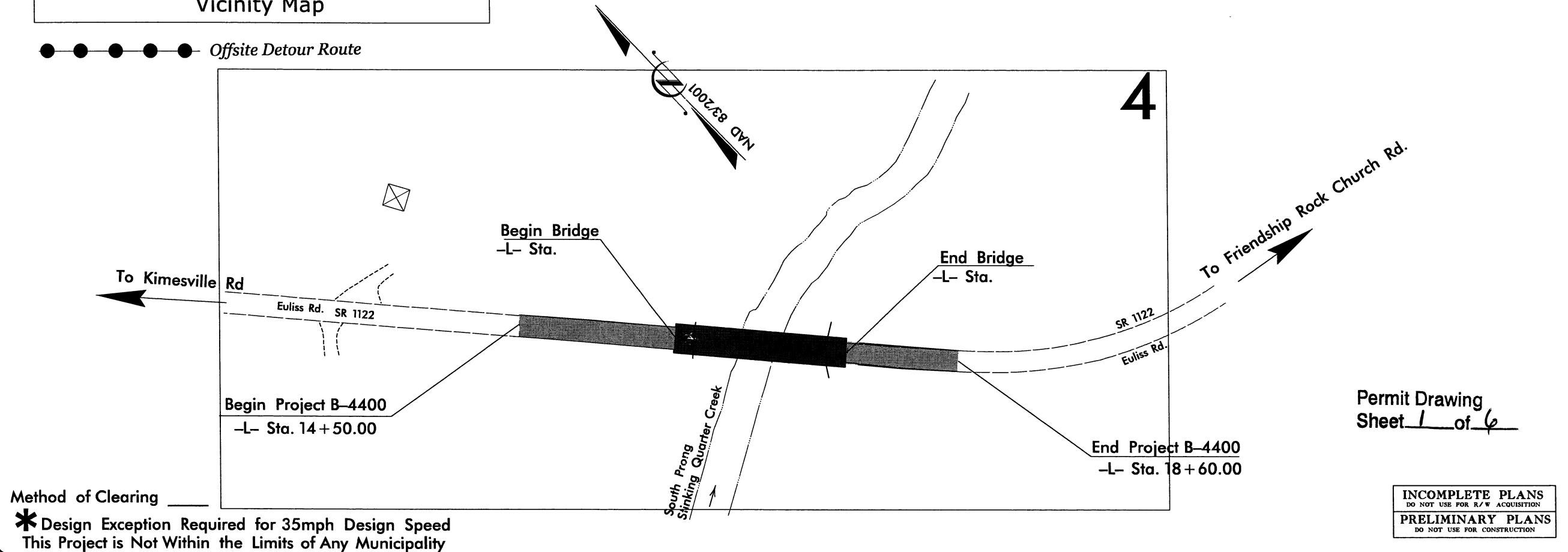
ALAMANCE COUNTY

LOCATION: Bridge #160 Over South Prong of Stinking Quarter Creek on SR 1122
(Euliss Road)

TYPE OF WORK: Grading, Drainage, Paving, and Structure

WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4400	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33680.1.1	BRZ-1122(4)	PE	



DESIGN DATA

ADT 2010 =	200 vpd
ADT 2035 =	400 vpd
DHV =	15 %
D =	55 %
T =	5 % *
* V =	35 MPH
* TTST 2% DUAL 3%	
Sub Regional Tier	

PROJECT LENGTH

Total Length TIP Project B-4400 =	0.078 Miles
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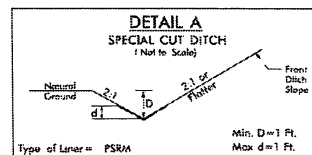
Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: May 18, 2012	James Speer, PE PROJECT ENGINEER
LETTING DATE: May 21, 2013	John Lansford, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER	
SIGNATURE: _____	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE: _____	P.E.

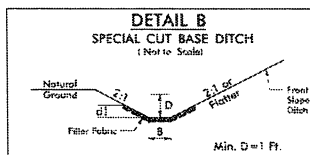
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

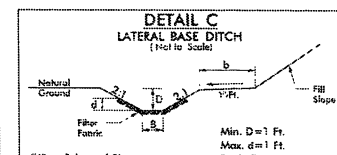
PROJECT REFERENCE NO.	SHEET NO.
B-4400	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



FROM STA.15+00 TO STA. 15+50 LT: EST. 28 SY
FROM STA.15+00 TO STA. 15+50 RT: EST. 28 SY



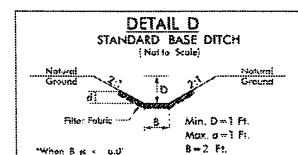
Max. d=1 Ft.
B=2 Ft.
Type of Liner= CLASS 'B' Rip-Rap
FROM STA.15+50 TO STA.16+00 LT & RT



When 8 s. 8.0' B=2 Ft.
Type of liner = CLASS 'B' Rip-Rap b=5 Ft.

FROM STA.16+00 TO STA.16+20 LT & RT
LT. SIDE
EST 9 TONS CL B RIP RAP DDE = 4 CY
EST 25 SY FILTER FABRIC

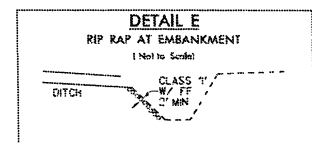
RT. SIDE
EST 9 TONS CL B RIP RAP DDE = 6 CY
EST 25 SY FILTER FABRIC



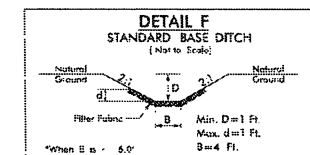
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Type of Liner = CLASS 'B' Rio-Rap
FROM STA.16 +20 TO STA.16 +80 LT
FROM STA.16 +20 TO STA.1a -50 RT
      LT SIDE
EST 27 TONS CL B RIP RAP      DDE = 74 CY
EST 76 SY FILTER FABRIC
      RT SIDE
EST 13 TONS CL B RIP RAP
EST 38 SY FILTER FABRIC      DDE = 7 CY

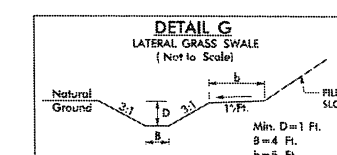
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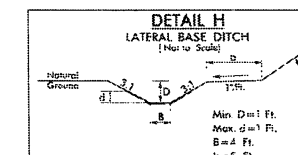
STA. 16+80 LT - EST. 5 TONS CL. IRIP RAP
WITH 2 SY FILTER FABRIC
STA. 16+50 RT - EST. 6 TONS CL. IRIP RAP
WITH 2 SY FILTER FABRIC
STA. 17+00 RT - EST. 8 TONS CL. IRIP RAP
WITH 2 SY FILTER FABRIC



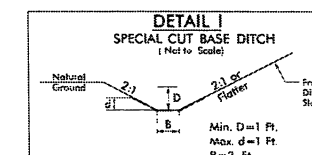
Type of Liner= CLASS 'B' Rip-Rap
FROM STA.17+00 TO STA.17+60 RT
EST. 33 TONS CL. B RIP RAP
WITH 89 SY FILTER FABRIC
DDE = 17 CY



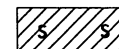
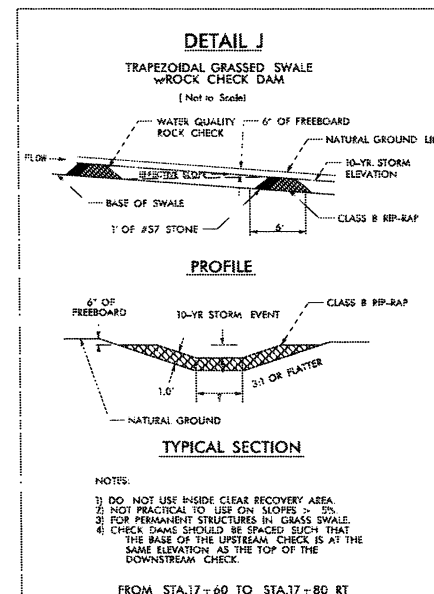
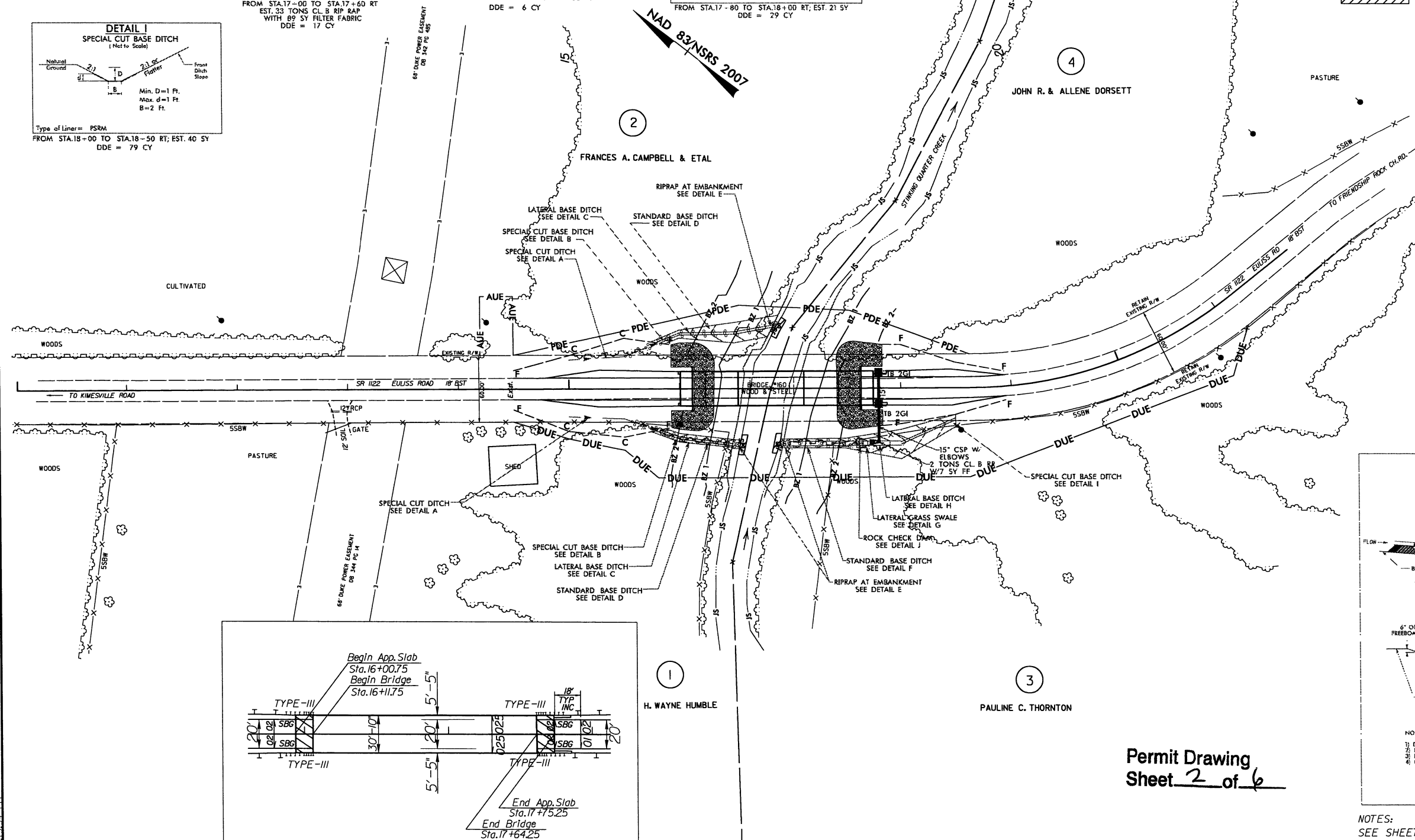
FROM STA.17+60 TO STA.17+80 RT
DDE 1 CK



FROM STA:17+80 TO STA:18+00 RT; EST. 21 SY
DDE = 29 CY

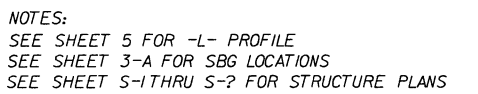


Type of Liner= PSRAM
FROM STA.18+00 TO STA.18+50 RT; EST. 40
DDE = 79 CY

DENOTES IMPACTS IN
SURFACE WATER

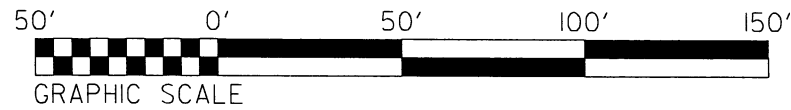
NOTES:
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 3-A FOR SBG LOCATIONS
SEE SHEET S-1THRU S-? FOR STRUCTURE PLANS

Permit Drawing
Sheet 2 of 6



Permit Drawing
Sheet 3 of 6

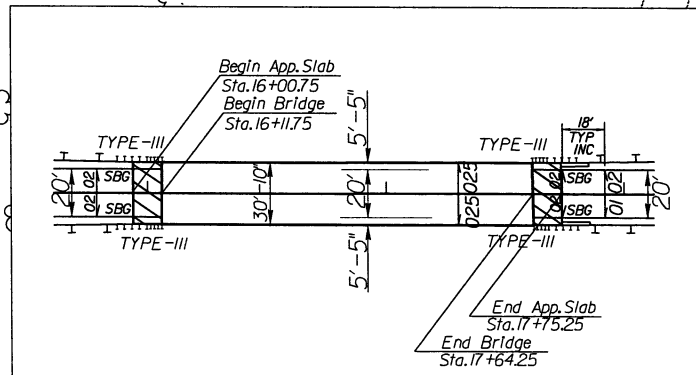
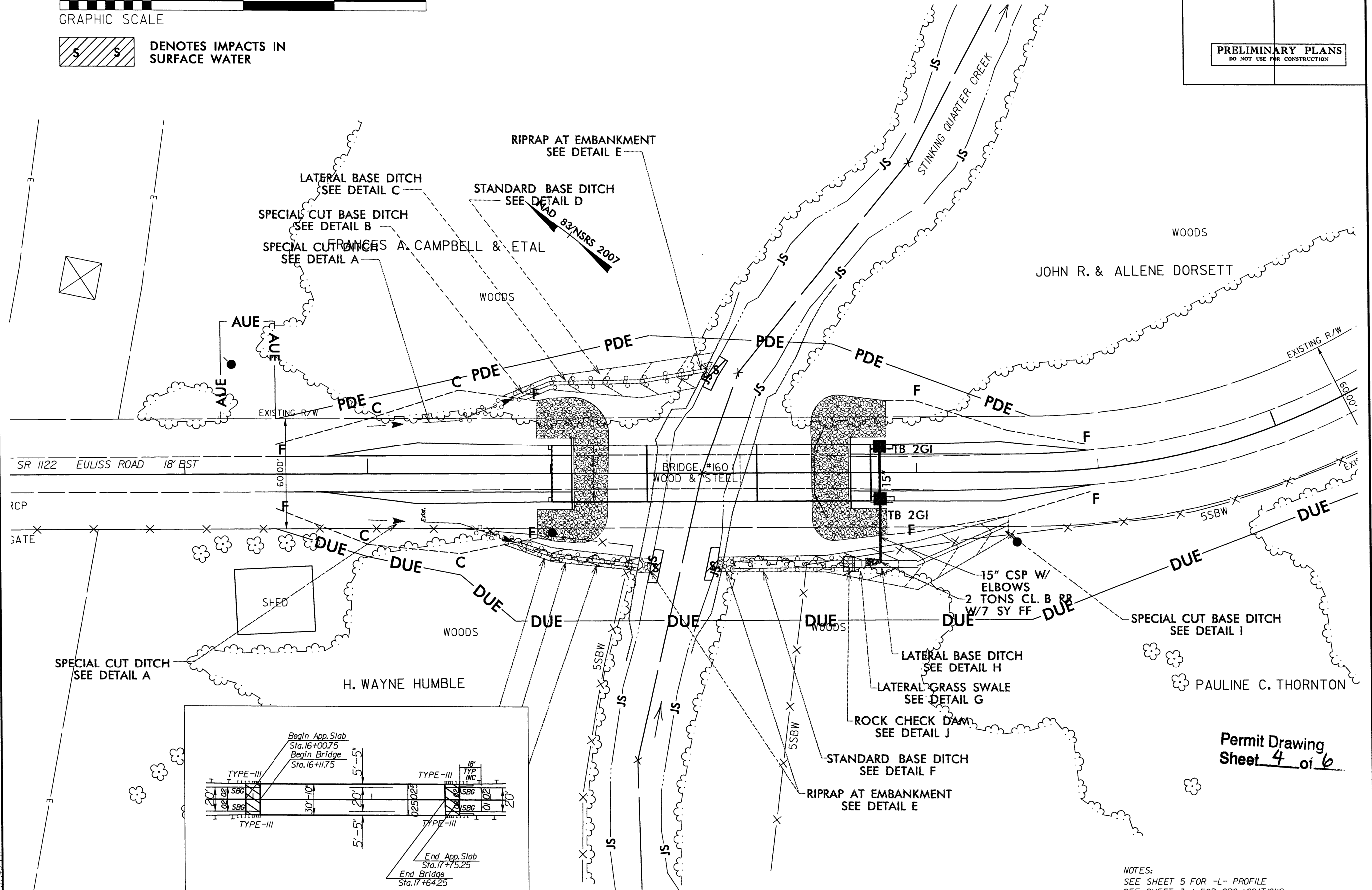
5/14/99
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DENOTES IMPACTS IN SURFACE WATER

ENLARGEMENT SHEET

PROJECT REFERENCE NO. B-4400	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

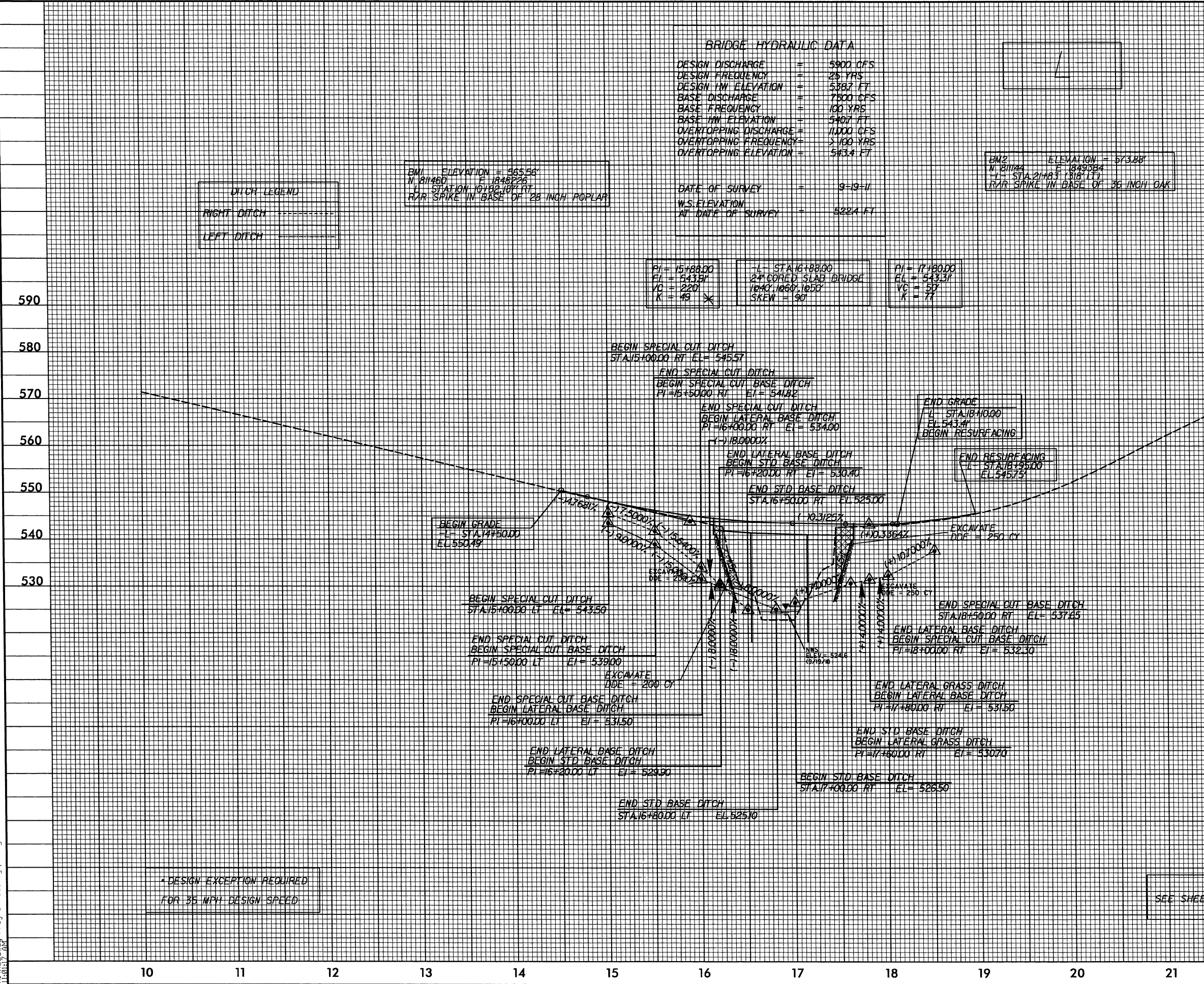


SKETCH SHOWING RELATIONSHIP BETWEEN APPROACH ROADWAY AND STRUCTURE

NOTES:
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 3-A FOR SBG LOCATIONS
SEE SHEET S-1THRU S-2 FOR STRUCTURE PLANS

Permit Drawing
Sheet 4 of 6

5/14/99
11:01:59
C:\Users\Public\Documents\Projects\4400\4400.dwg
11/01/2012



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 5900 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN IN ELEVATION	= 5387 FT
BASE DISCHARGE	= 7500 CFS
BASE FREQUENCY	= 100 YRS
BASE IN ELEVATION	= 5407 FT
OVERTOPPING DISCHARGE	= 11000 CFS
OVERTOPPING FREQUENCY	= > 100 YRS
OVERTOPPING ELEVATION	= 5434 FT
DATE OF SURVEY	= 9-19-11
W.S. ELEVATION AT DATE OF SURVEY	= 5224 FT

PROJECT REFERENCE NO. B-4400	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

* DESIGN EXCEPTION REQUIRED
FOR 35 MPH DESIGN SPEED

SEE SHEET 4 FOR PLAN DESIGN

Permit Drawing
Sheet 5 of 6

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+52 to 16+92	Bank Stabilization						<0.01		36		
TOTALS:								<0.01		36		

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALAMANCE COUNTY
WBS -33680.1.1 (B-4400)

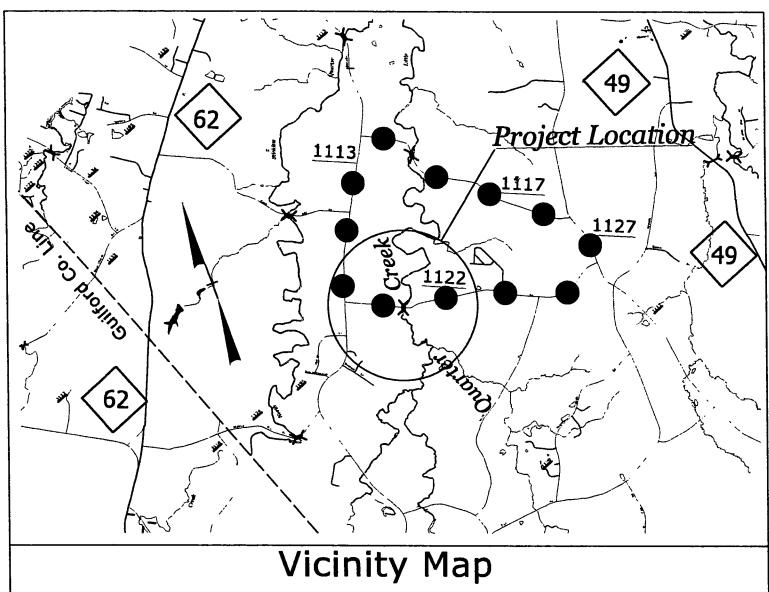
SHEET 6 of 6 12/5/2012

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TIP PROJECT: B-4400

CONTRACT:

See Sheet 1-A For Index of Sheets



Vicinity Map

Offsite Detour Route

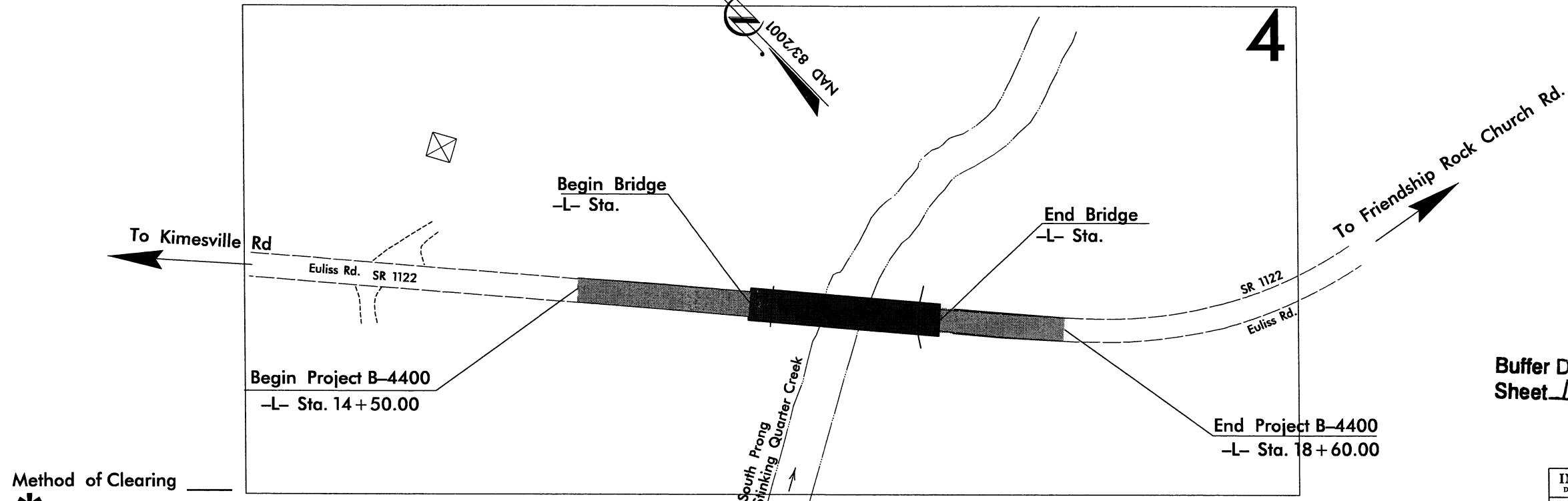
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

LOCATION: Bridge #160 Over South Prong of Stinking Quarter Creek on SR 1122
(Euliss Road)

TYPE OF WORK: Grading, Drainage, Paving, and Structure

BUFFER IMPACTS PERMIT

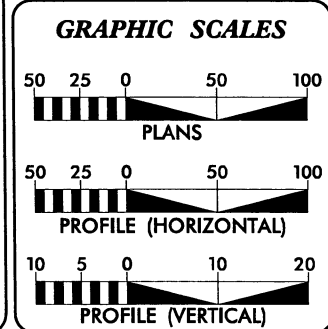


Method of Clearing

* Design Exception Required for 35mph Design Speed
This Project is Not Within the Limits of Any Municipality

Buffer Drawing
Sheet 1 of 4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA	
ADT 2010	= 200 vpd
ADT 2035	= 400 vpd
DHV	= 15 %
D	= 55 %
T	= 5 % *
* V	= 35 MPH
* TTST	2% DUAL 3%
Sub Regional Tier	

PROJECT LENGTH	
Total Length TIP Project B-4400	= 0.078 Miles

Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2006 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: May 18, 2012	James Speer, PE PROJECT ENGINEER
LETTING DATE: May 21, 2013	John Lansford, PE PROJECT DESIGN ENGINEER

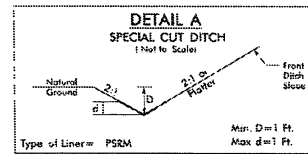
HYDRAULICS ENGINEER	
SIGNATURE:	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE:	P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

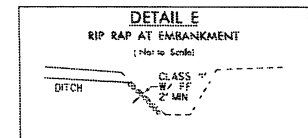
STATE HIGHWAY DESIGN ENGINEER

3/22/2013
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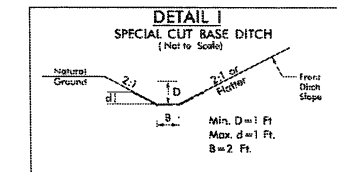
PROJECT REFERENCE NO.	SHEET NO.
B-4400	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



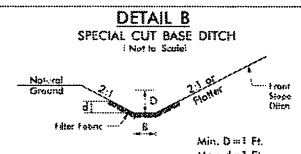
FROM STA.15+00 TO STA. 15+50 LT; EST. 28 SY
FROM STA.15+00 TO STA. 15+50 RT; EST. 28 SY



STA. 16+80 LT - EST. 5 TONS CL. 1 RIP RAP
WITH 2 SY FILTER FABRIC
STA. 16+50 RT - EST. 6 TONS CL. 1 RIP RAP
WITH 2 SY FILTER FABRIC
STA. 17+00 RT - EST. 8 TONS CL. 1 RIP RAP
WITH 2 SY FILTER FABRIC

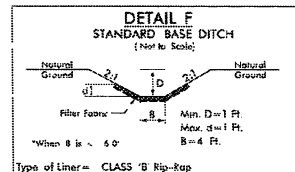


Type of Liner= P5RM
FROM STA.18+00 TO STA.18+50 RT; EST. 40 SY
DDE = 79 CY

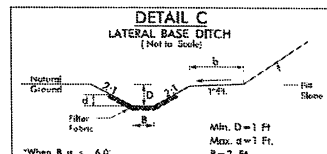


Type of Liner = CLASS 'B' Rip-Rap

LT. SIDE
EST 22 TONS CL B RIP RAP
EST 63 SY FILTER FABRIC
RT. SIDE
EST 22 TONS CL B RIP RAP
EST 63 SY FILTER FABRIC



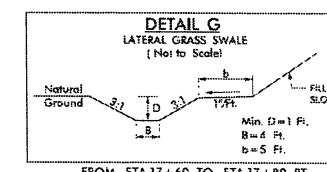
FROM STA.17+00 TO STA.17+60 RT
EST. 33 TONS CL B RIP RAP
WITH 89 SY FILTER FABRIC
DDE = 17 CY



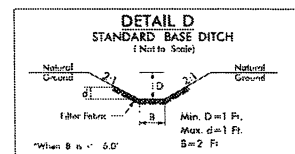
FROM STA 16+00 TO STA 16+20 FT & RT

EST 9 TONS CL B RIP RAP DDE = 4 CY
EST 25 SY FILTER FABRIC

RT. SIDE
EST 9 TONS CL B RIP RAP DDE = 6 CY
EST 25 SY FILTER FABRIC

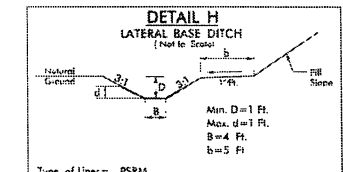


FROM STA.17+80 TO STA.17+80 RI
DDE = 0 CY

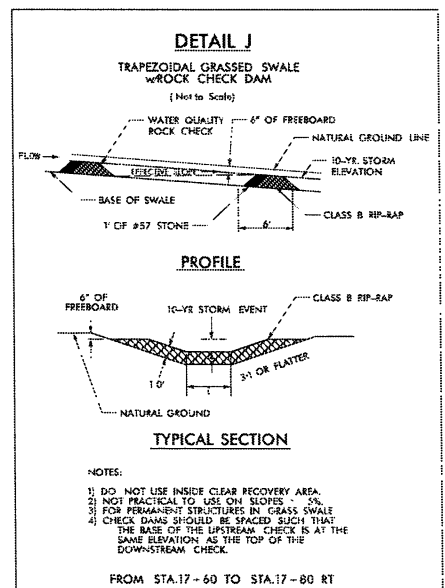
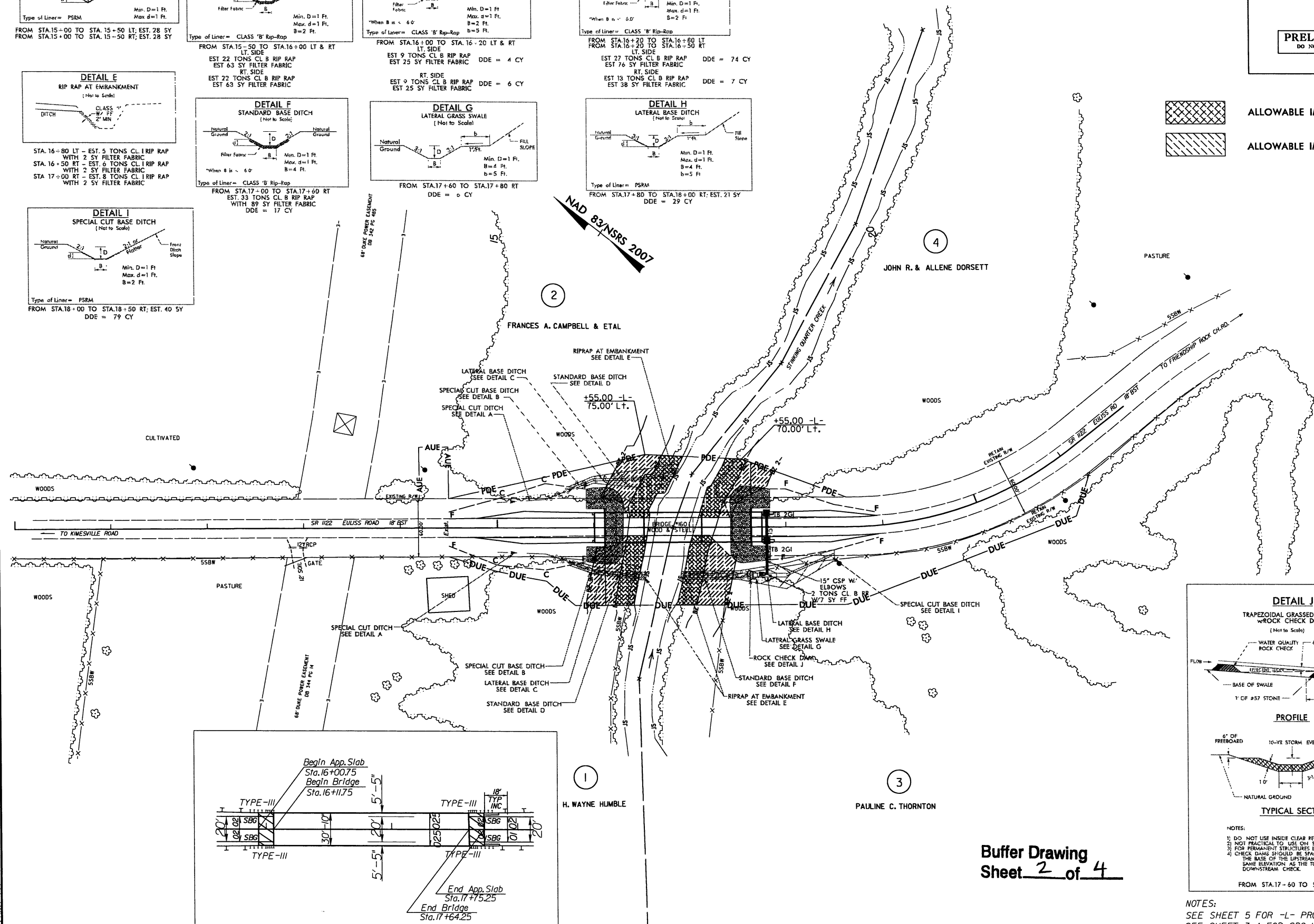
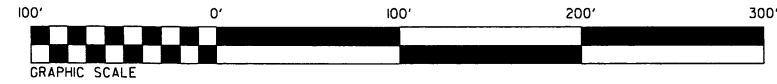


Type of liner w CLASS 'B' Rip-Rap
FROM STA.16+20 TO STA.16+60 LT

EST 27 TONS CL B RIP RAP	DDE = 74 CY
EST 76 SY FILTER FABRIC	
RT. SIDE	
EST 13 TONS CL B RIP RAP	DDE = 7 CY
EST 38 SY FILTER FABRIC	



FROM STA.17+80 TO STA.18+00 RT; EST. 21 SY

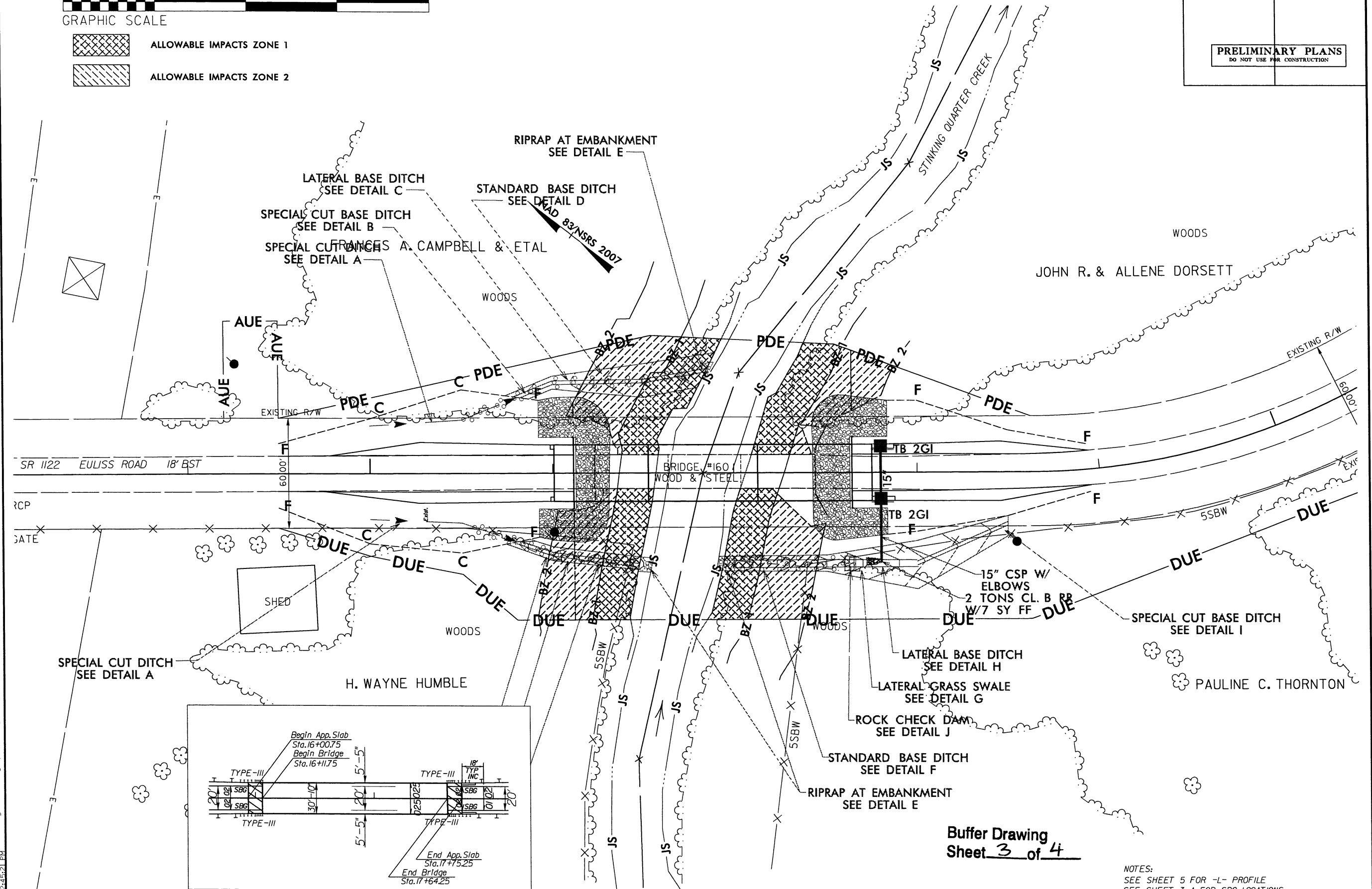


NOTES:
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 3-A FOR SBG LOCATIONS
SEE SHEET S-1THRU S-? FOR STRUCTURE PLANS

Buffer Drawing
Sheet 2 of 4



PROJECT REFERENCE NO.	SHEET NO.
B-4400	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Buffer Drawing
Sheet 3 of 4

NOTES:
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 3-A FOR SBG LOCATIONS
SEE SHEET S-1THRU S-? FOR STRUCTURE PLANS

BUFFER IMPACTS SUMMARY

			IMPACT										BUFFER REPLACEMENT	
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	TYPE			ALLOWABLE			MITIGABLE			REPLACEMENT		
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	
	Roadway Fill	15+97 to 16+11.75 17+64.25 to 17+77	X					1399	1399					
	Bridge	16+11.75 to 17+64.25		X		5852	5269	11121						
</														

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

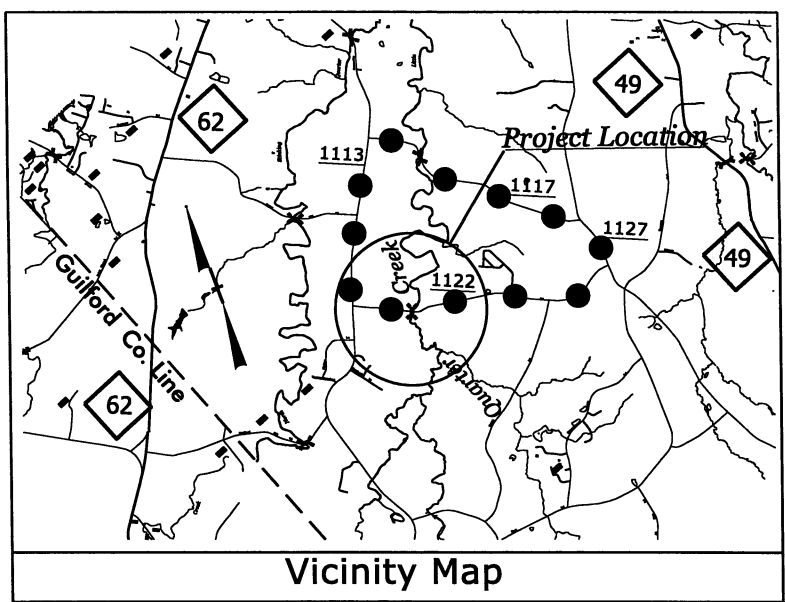
ALAMANCE COUNTY
PROJECT: 33680.1.1 (B-4400)

11-JUL-2012 14:19 R:\Roadway\Proj\B4400_rdy_tsh.dgn \$\$\$\$USERNAME\$\$\$

TIP PROJECT: B-4400

CONTRACT:

See Sheet 1-A For Index of Sheets



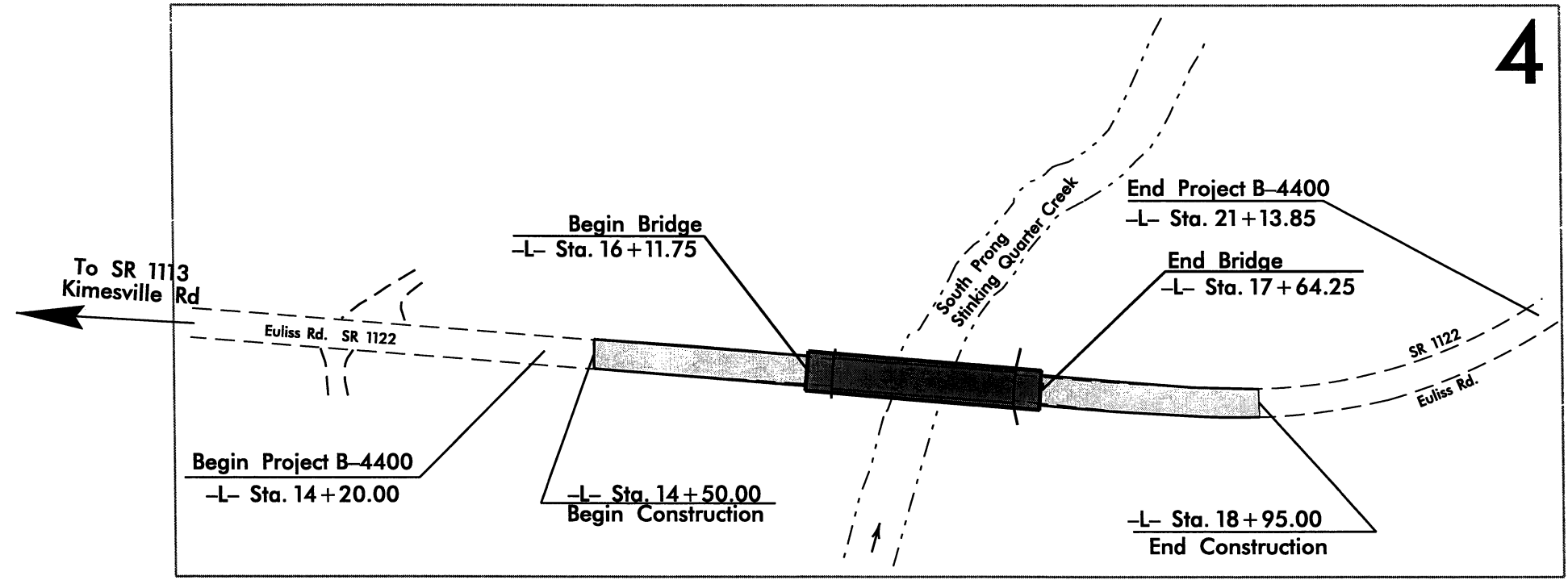
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ALAMANCE COUNTY

LOCATION: Bridge #160 Over South Prong of Stinking Quarter Creek on SR 1122
(Euliss Road)

TYPE OF WORK: Grading, Drainage, Paving and Structure

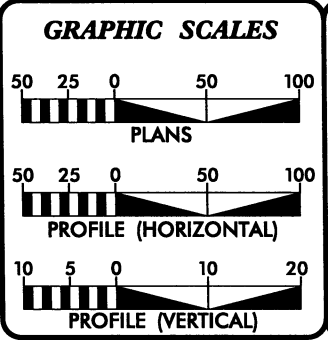
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4400	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33680.1.1	BRZ-1122(4)	PE	
33680.2.1	BRZ-1122(4)	RAW & UTIL	

●●●●● Offsite Detour Route



*** Design Exception Required for 35mph Design Speed**
This Project is Not Within the Limits of Any Municipality Boundaries
Clearing on this project shall be performed to the limits established by Method II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

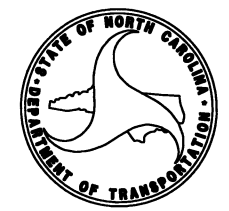
ADT 2012 =	214 vpd
ADT 2035 =	400 vpd
DHV =	15 %
D =	55 %
T =	5 % *
* V =	35 MPH
* TTST 2% DUAL 3%	
Sub Regional Tier	

PROJECT LENGTH

Total Roadway TIP Project B-4400 =	0.102 Miles
Total Structure TIP Project B-4400 =	0.029 Miles
Total Length TIP Project B-4400 =	0.131 Miles

Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: July 11, 2012	James Speer, PE PROJECT ENGINEER
LETTING DATE: October 15, 2013	John Lansford, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: _____ P.E.



Note: Not to Scale***S.U.E. = Subsurface Utility Engineering**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYSPROJECT REFERENCE NO.
B-4400SHEET NO.
1-B**CONVENTIONAL PLAN SHEET SYMBOLS****BOUNDARIES AND PROPERTY:**

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	○
Property Corner	_____
Property Monument	□
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
Proposed Chain Link Fence	-□-□-□-
Proposed Barbed Wire Fence	-◇-◇-◇-
Existing Wetland Boundary	-w-w-w-
Proposed Wetland Boundary	-w-w-w-
Existing Endangered Animal Boundary	-a-a-a-
Existing Endangered Plant Boundary	-p-p-p-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	⋈
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	_____
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-js-
Buffer Zone 1	-bz 1-
Buffer Zone 2	-bz 2-
Flow Arrow	→
Disappearing Stream	→
Spring	○
Wetland	⋈
Proposed Lateral, Tail, Head Ditch	→
False Sump	◇

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	○
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 R/W Marker	_____
Proposed Control of Access Line with Concrete C/A 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 Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◇

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	CR
Existing Metal Guardrail	_____
Proposed Guardrail	_____
Existing Cable Guiderail	_____
Proposed Cable Guiderail	_____

Equality 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	⊕
Storm Sewer	-S-

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	_____
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	⊕
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	_____
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	-F0-
Designated U/G Fiber Optics Cable (S.U.E.*)	-F0--

WATER:

Water Manhole	⊕
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 Tower	⊕
U/G TV Cable Hand Hole	_____
Recorded U/G TV Cable	-TV-
Designated U/G TV Cable (S.U.E.*)	-TV--
Recorded U/G Fiber Optic Cable	-TV F0-
Designated U/G Fiber Optic Cable (S.U.E.*)	-TV F0--

GAS:

Gas Valve	◇
Gas Meter	⊕
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	⊕
Utility Unknown U/G Line	-U/L-
U/G Tank; Water, Gas, Oil	_____
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	_____
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

12/01/2005

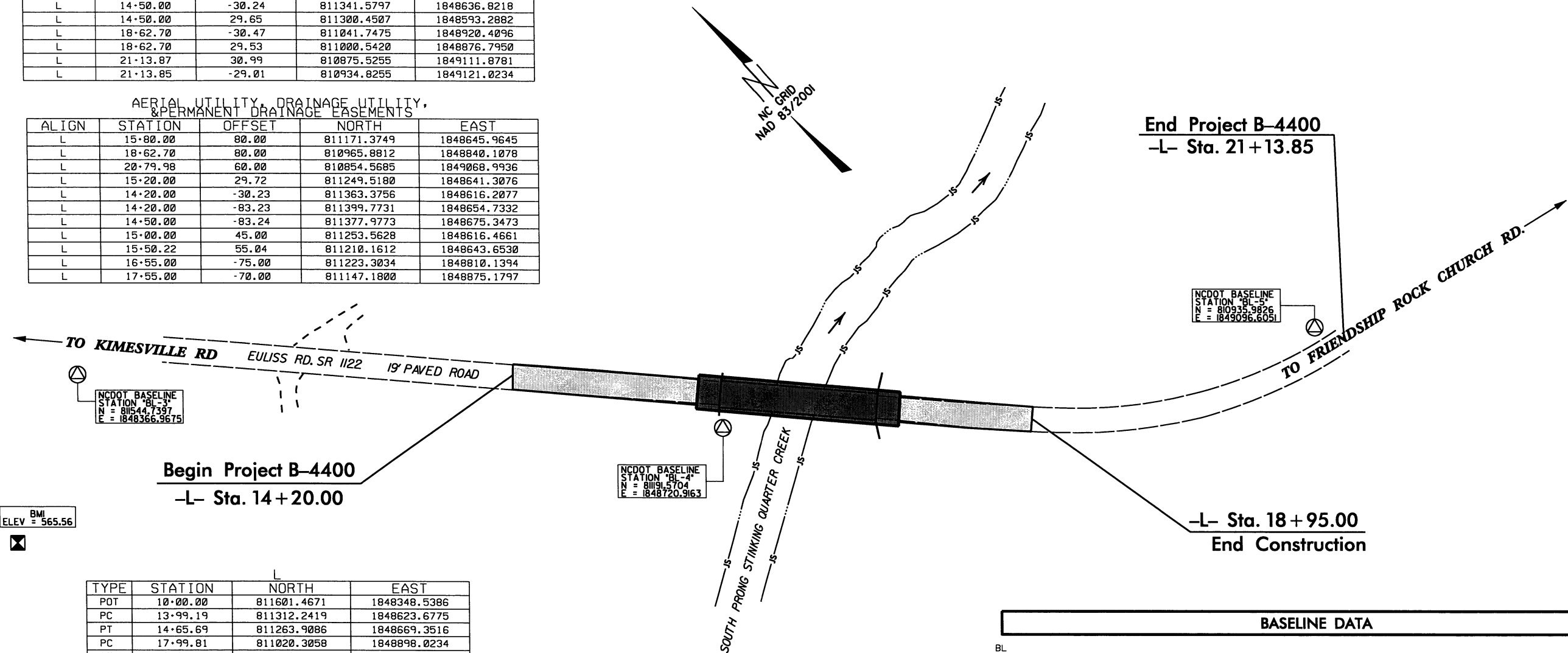
B-4400 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4400	1C
Location and Surveys	

BM2
ELEV = 573.88

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+50.00	-30.24	811341.5797	1848636.8218
L	14+50.00	29.65	811300.4507	1848593.2882
L	18+62.70	-30.47	811041.7475	1848920.4096
L	18+62.70	29.53	811000.5420	1848876.7950
L	21+13.87	30.99	810875.5255	1849111.8781
L	21+13.85	-29.01	810934.8255	1849121.0234

AERIAL UTILITY, DRAINAGE UTILITY, & PERMANENT DRAINAGE EASEMENTS				
ALIGN	STATION	OFFSET	NORTH	EAST
L	15+80.00	80.00	811171.3749	1848645.9645
L	18+62.70	80.00	810965.8812	1848840.1078
L	20+79.98	60.00	810854.5685	1849068.9936
L	15+20.00	29.72	811249.5180	1848641.3076
L	14+20.00	-30.23	811363.3756	1848616.2077
L	14+20.00	-83.23	811399.7731	1848654.7332
L	14+50.00	-83.24	811377.9773	1848675.3473
L	15+00.00	45.00	811253.5628	1848616.4661
L	15+50.22	55.04	811210.1612	1848643.6530
L	16+55.00	-75.00	811223.3034	1848810.1394
L	17+55.00	-70.00	811147.1800	1848875.1797



BM1
ELEV = 565.56

TYPE	STATION	NORTH	EAST
POT	10+00.00	811601.4671	1848348.5386
PC	13+99.19	811312.2419	1848623.6775
PT	14+65.69	811263.9086	1848669.3516
PC	17+99.81	811020.3058	1848898.0234
PT	20+50.90	810906.0272	1849116.3506
PC	21+54.63	810890.7898	1849218.9577
PT	23+70.04	810821.3795	1849421.6164
POT	29+24.42	810549.5235	1849904.7603

NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4400_LS_CONTROL_120419.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED 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 USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4400-1" WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 810,793.454(±) EASTING: 1,849,442.472(±) ELEVATION: 586.45'(±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999292518
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4400-1" TO -L- 14+20.00 IS N 57° 04' 49" E 1010.49'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3		BL-3	811544.7397	1848366.9675	563.81	11+17.00	26.39 RT
4		BL-4	811191.5704	1848720.9163	541.98	16+16.79	11.65 RT
5		BL-5	810935.9826	1849096.6051	559.60	20+87.77	25.59 LT
1		B4400-1	810793.4540	1849442.4720	586.45	OUTSIDE PROJECT LIMITS	
2		B4400-2	810479.0540	1849997.8630	610.10	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

.....
BM1 ELEVATION = 565.56
N 811460 E 1848226
L STATION 10+82.04 187 RIGHT
R/R SPIKE IN BASE OF 28 INCH POPLAR
.....
BM2 ELEVATION = 573.88
N 811144 E 1849384
L STATION 21+83.00
N 38°36'25.72" E DIST 318.01
R/R SPIKE IN BASE OF 36 INCH OAK
.....

NOTE: DRAWING NOT TO SCALE

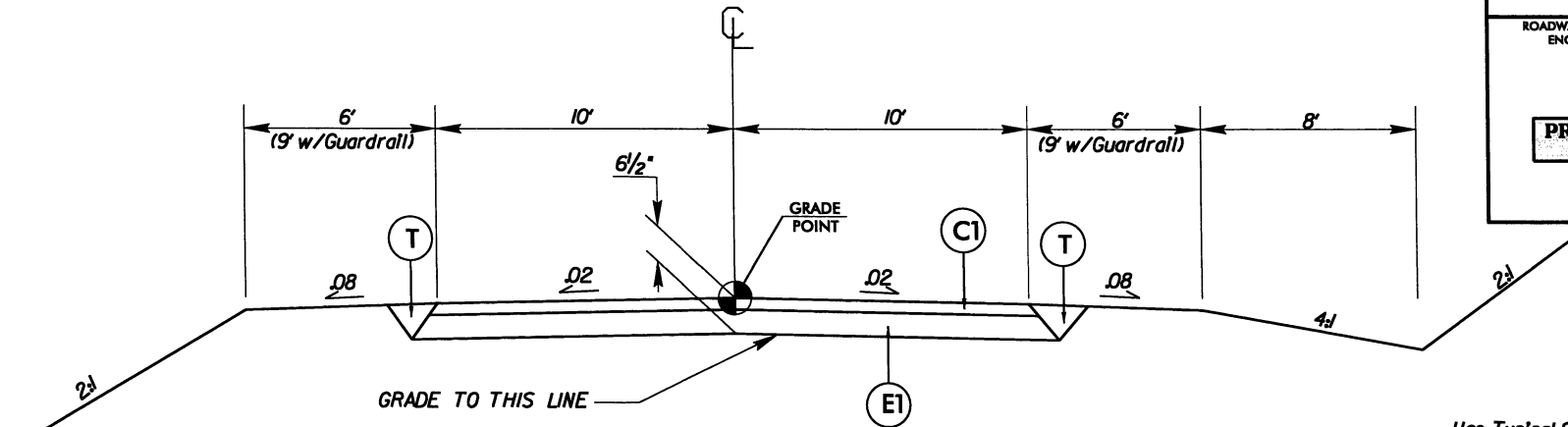
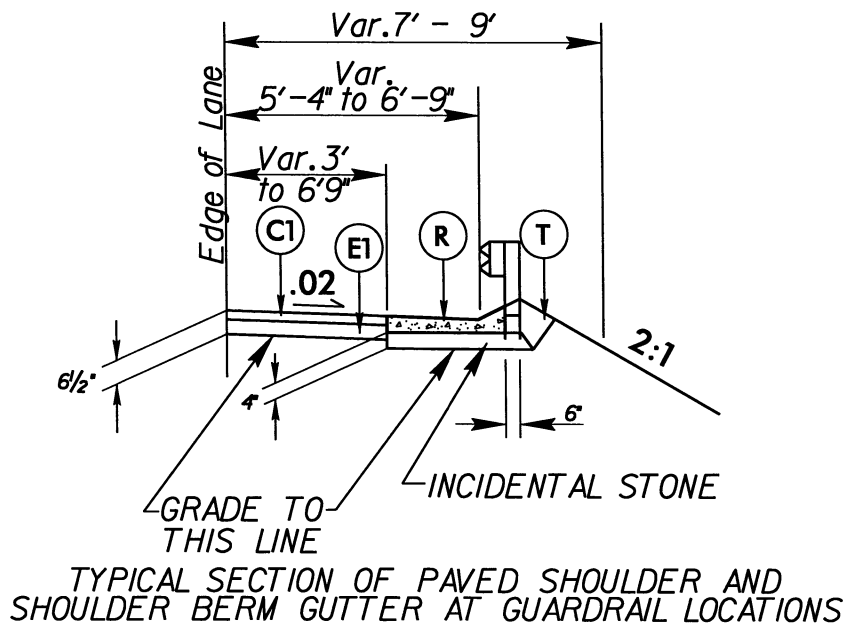
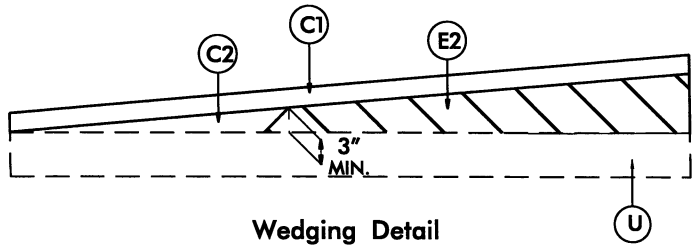
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5/14/99

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4400-1.dwg

PAVEMENT SCHEDULE	
C1	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
C2	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 B25.0, 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	ASPHALT WEDGING (SEE DETAIL)

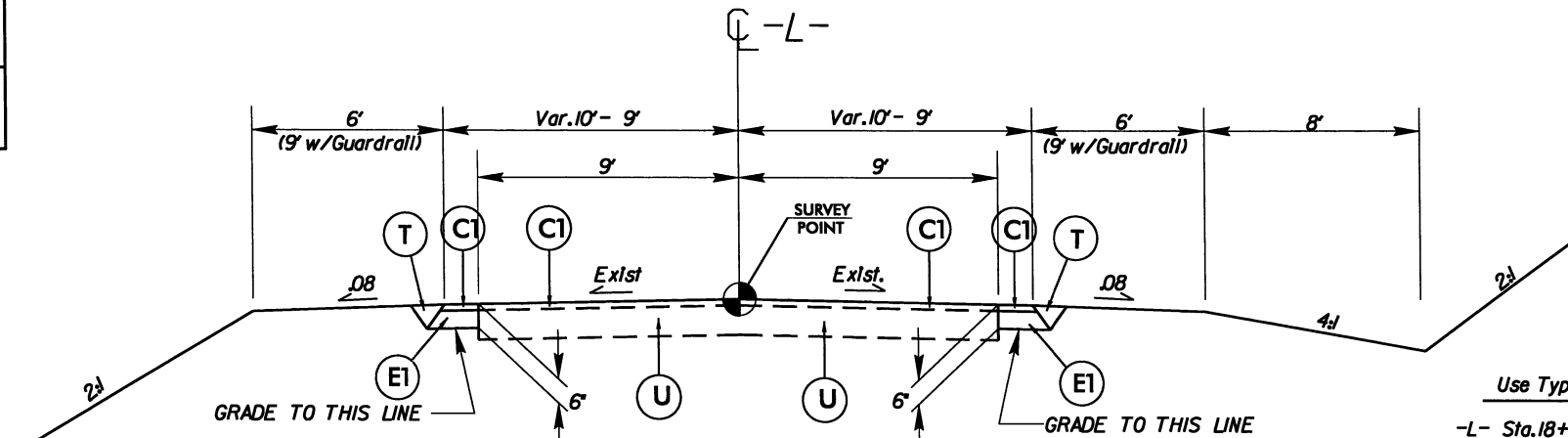
NOTE: All Slopes are 1:1 Unless Otherwise Shown



TYPICAL SECTION NO.1

Use Typical Section No.1

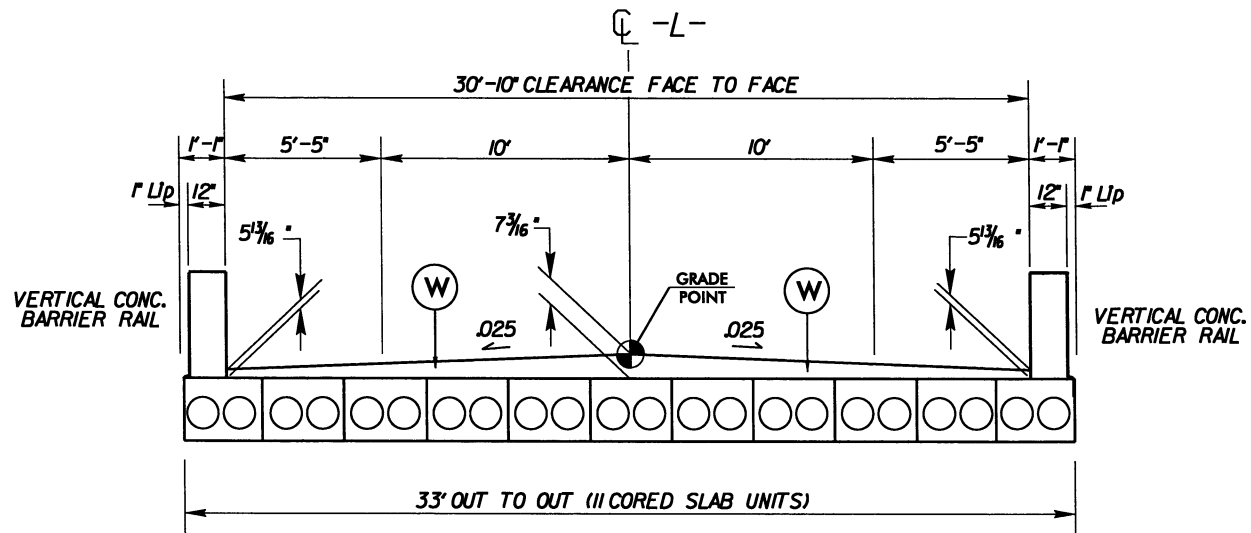
-L- Sta.14+50.00 to 16+11.75 (Begin Bridge)
-L- Sta.17+64.25 (End Bridge) to Sta.18+10.00



TYPICAL SECTION NO.2

Use Typical Section No.2

-L- Sta.18+10.00 to 18+95.00



TYPICAL SECTION OF PROPOSED BRIDGE
(SEE STRUCTURE PLANS)

-L- Sta.16+11.75 TO -L- Sta.17+64.25

PROJECT REFERENCE NO.	SHEET NO.
B-4400	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

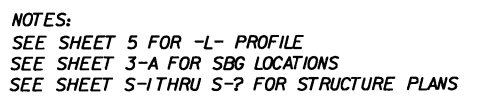
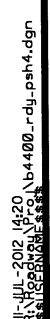
EARTHWORK SUMMARY In Cubic Yards

STATION	STATION	UNCLASS. EXCAVATION	EMBANKMENT + %	BORROW	WASTE
-L- 14 + 50	-L- 16 + 11.75	232	636	404	
-L- 17 + 64.25	-L- 18 + 95	10	538	528	
TOTAL		242	1174	932	
5% FOR BORROW PITS				47	
PROJECT TOTAL		242		979	
SAY		250		990	

Contingency Undercut = 150 CY
DDE = 222 CY

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (L.F.)
-L- LT	15 + 98.75	16 + 00.75	2
-L- RT	15 + 98.75	16 + 00.75	2
-L- LT	17 + 75.25	17 + 87.25	12
-L- RT	17 + 75.25	17 + 87.25	12
TOTAL:			28
SAY:			30



5/14/99

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PROJECT REFERENCE NO. B-4400		SHEET NO. 5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 5900 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 538.7 FT
BASE DISCHARGE = 7500 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 540.7 FT
OVERTOPPING DISCHARGE = 11,000 CFS
OVERTOPPING FREQUENCY = > 100 YRS
OVERTOPPING ELEVATION = 543.4 FT

DATE OF SURVEY = 9-19-11
W.S. ELEVATION AT DATE OF SURVEY = 522.4 FT

-L-

BM2 ELEVATION = 573.88'
N 811144 E 1849384
-L- STA. 21+83 (318' LT)
R/R SPIKE IN BASE OF 36 INCH OAK

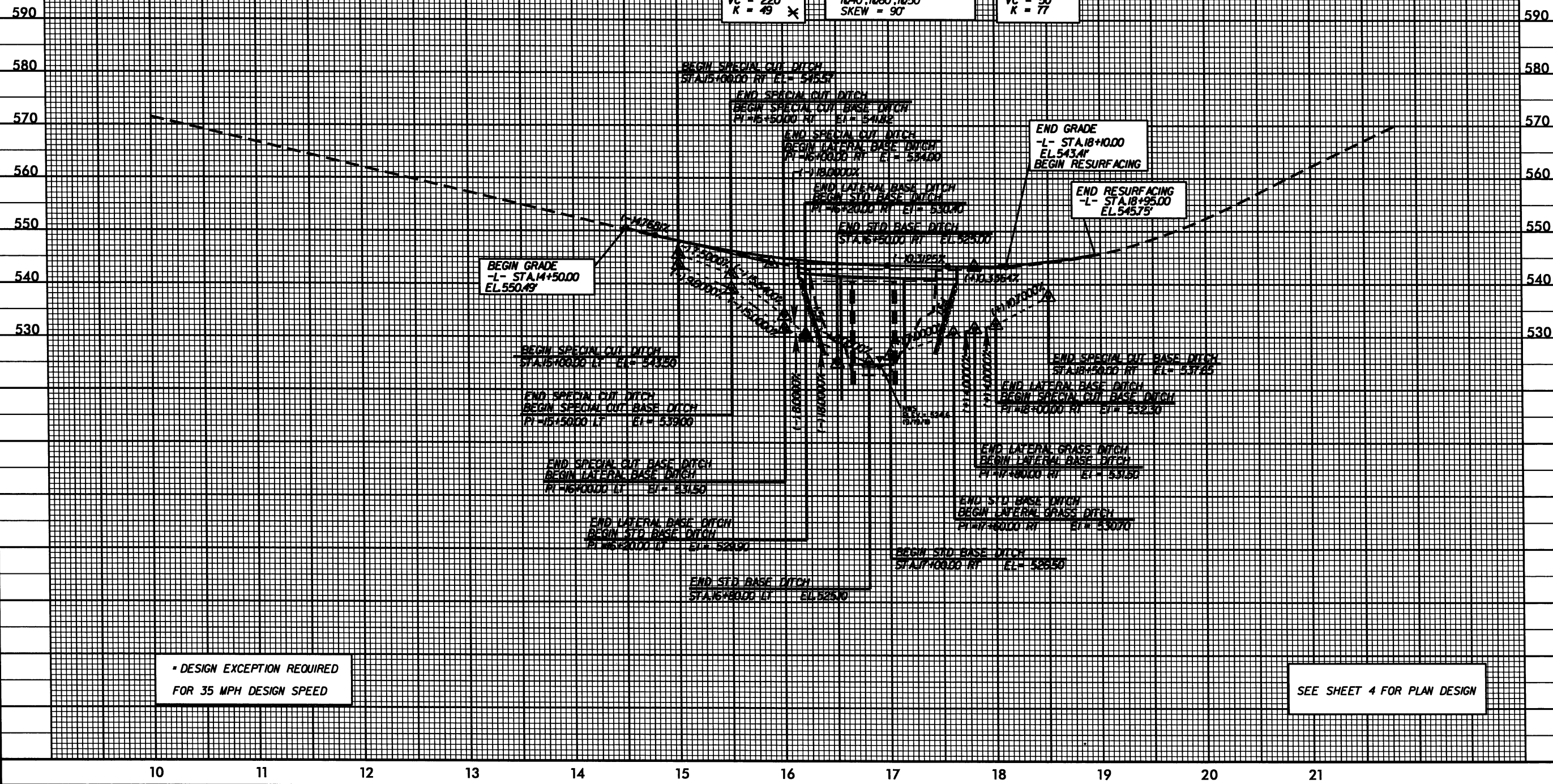
DITCH LEGEND
RIGHT DITCH - - - - -
LEFT DITCH - - - - -

BM1 ELEVATION = 565.56'
N 811460 E 1848226
-L- STATION 10+82.187 RT
R/R SPIKE IN BASE OF 28 INCH POPLAR

PI = 15+88.00
EL = 543.9'
VC = 220'
K = 49

-L- STA. 16+88.00
24" CORED SLAB BRIDGE
1040', 1060', 1050'
SKEW = 90°

PI = 17+80.00
EL = 543.3'
VC = 50'
K = 77

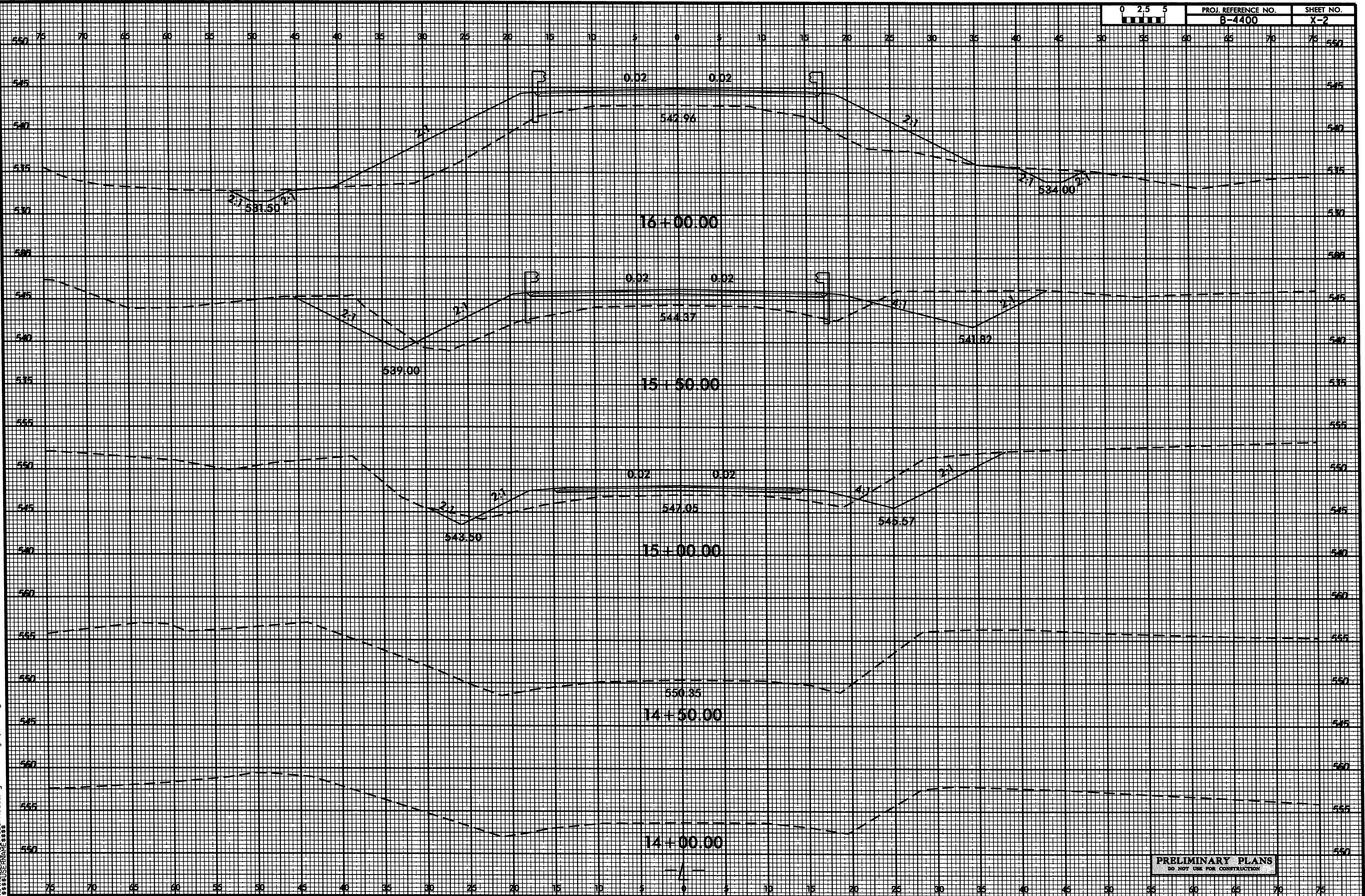


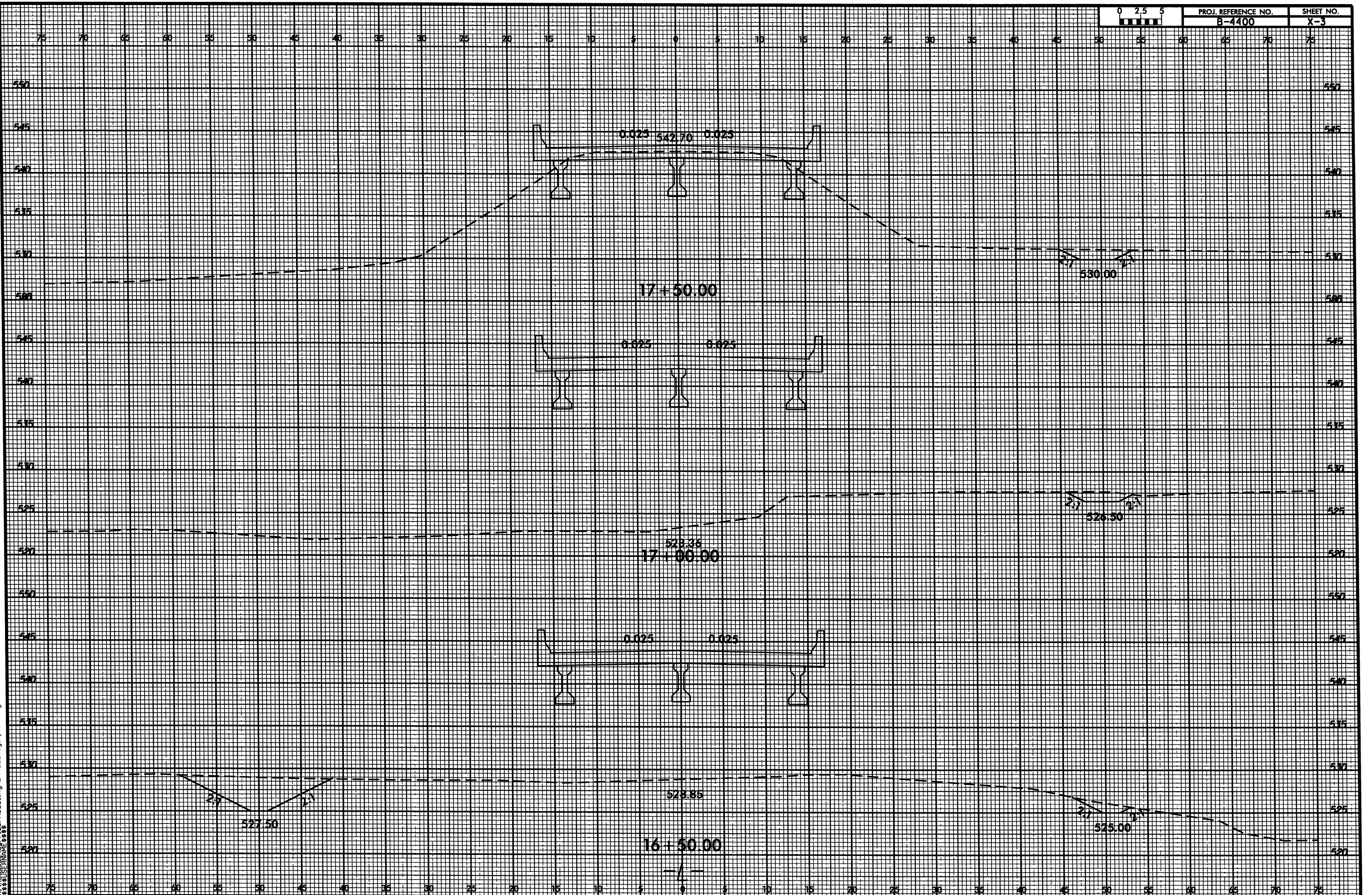
• DESIGN EXCEPTION REQUIRED
FOR 35 MPH DESIGN SPEED

SEE SHEET 4 FOR PLAN DESIGN

8/23/99

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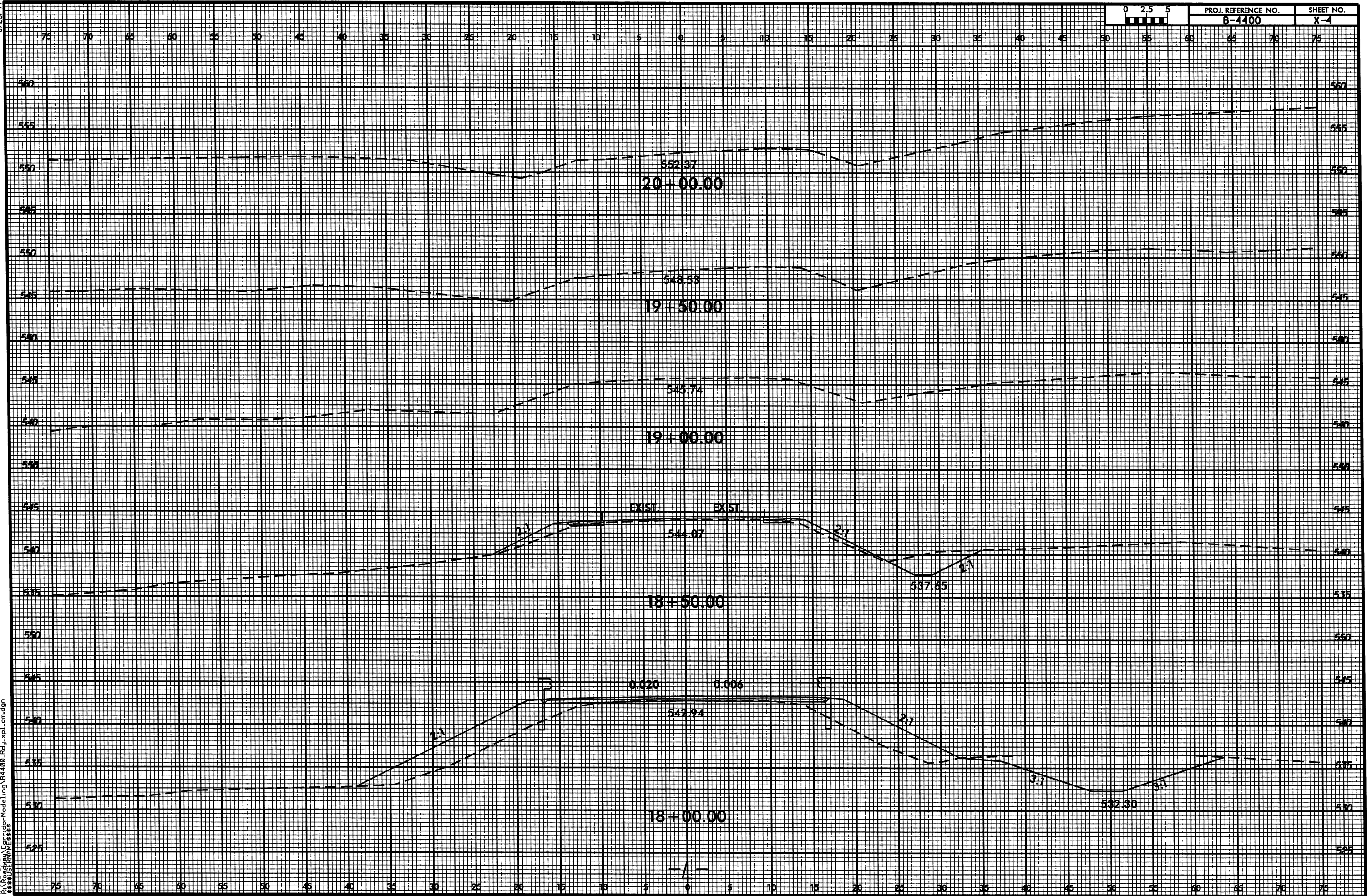
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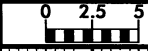
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PROJ. REFERENCE NO.
B-4400

SHEET NO.
X-4





PROJ. REFERENCE NO.
B-4400

SHEET NO.
X-5

