STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 18, 2007

North Carolina Division of Water Quality
Transportation Permitting Unit
1650 Mail Service Center
Raleigh, NC 27699-1650

ATTENTION: Mr. Rob Ridings
NCDOT Coordinator

Dear Sir:

Subject: **Application for Tar-Pamlico Riparian Buffer Authorization and Section 401 Water Quality Certification** for the replacement of Bridge No. 3 over Ruin Creek on SR 1107 (Community House Rd.), Vance County, Division 5, Federal Project No. BRZ-1107 (8), WBS Element No. 33635.1.1, T.I.P. No. B-4298.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 3 over Ruin Creek [DWQ Index # 28-17-2-(2)], a Division of Water Quality Class "C NSW" Water of the State. The project involves replacing the bridge on new alignment north of the existing facility, while using an off-site detour to maintain traffic during construction. The proposed structure will be a 195-foot, double span, pre-stressed, 72-inch concrete girder spill through bridge with 32 feet of clear roadway width. The structure will provide two 11-foot travel lanes with a 3-foot shoulder on the left and a 7-foot shoulder on the right. Because it is a two-span bridge, there will be two end bents and only one interior bent. The roadway approaches will provide two 11-foot travel lanes with 6-foot grassed shoulders (widened to 9 feet where guardrail is required). Enclosed with this permit application is a project site map, buffer permit drawings, PCN form, Categorical Exclusion (CE) document, half size plan sheets, an Ecosystem Enhancement Program (EEP) mitigation acceptance letter, and a reforestation plan.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: The project is located in the Tar-Pamlico River Basin (subbasin 03-03-01). This area is part of Hydrologic Cataloging Unit 03020101 of the South Atlantic-Gulf Coast Region. In addition to Ruin Creek, there are two unnamed, intermittent tributaries (UT) to Ruin Creek within the project area, as well as one jurisdictional wetland. Both tributaries enter Ruin Creek south of the bridge and run parallel to Community House Road. The wetland is located along the UT in the southwest quadrant of the project area.

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

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply (II) waters occur within 1.0 mile of the study corridor. Neither tributary is listed on the 2002, 2004, or Draft 2006 List of impaired waters [Section 303(d)] for the Tar-Pamlico River Basin, nor do they drain into any 303(d) waters within one mile of the project area. Listed waters do not meet water quality standards or have impaired uses.

Surface Water Impacts: No fill will be placed in Ruin Creek since no bridge bents will be removed from or placed within the creek. No other permanent or temporary impacts to jurisdictional waters are anticipated from this project.

Wetland Impacts: No permanent or temporary impacts to jurisdictional wetlands are anticipated from this project.

TAR-PAMLICO BUFFER IMPACTS

The UT to Ruin Creek found in the southwest quadrant of the project area is located on the Vance County soil survey and is subject to the Tar-Pamlico Buffer Rules. The UT to Ruin Creek in the southeast quadrant of the project area is not found on either the 7.5 minute USGS topographic map or the county soil survey; therefore, this stream is not subject to the Tar-Pamlico Buffer Rules.

Construction of the new bridge and approaches will result in buffer impacts to Ruin Creek and the southwest UT (Permit drawings 4 and 5). Under the Tar-Pamlico Buffer Rules, impacts to buffers from the construction of bridges are allowable; impacts associated with construction of the approaches which impact less than 150 linear feet or one-third of an acre are also allowable. However, buffer impacts to the southwest UT are road impacts other than those associated with stream crossings, which require mitigation (Table 1).

Table 1. Tar-Pamlico River Buffer Impacts to Ruin Creek and Southwest UT (Square Feet)

	Bridge Construction	Other than Stream Crossing Road Impacts	On-site Buffer Replacement	Impacts covered by EEP
Zone 1 Impact (sq. ft)	6892	2854	403	2451
Zone 2 Impact (sq. ft)	5641	0	--	--
Mitigation requirements (exempt, allowable or allowable with mitigation)	Allowable	Allowable with mitigation	--	--

Practical Alternatives Analysis: This bridge has been determined to be structurally deficient and functionally obsolete. Replacement of this inadequate structure and straightening of the approach roadways will result in safer and more efficient traffic operations. Because this bridge needs to be replaced, impacts to the riparian buffers of Ruin creek and the southwest UT are unavoidable. In this case, replacing the existing bridge on a slightly new alignment with an off-site detour provides the least amount of impacts to riparian buffers.

UTILITY IMPACTS

There are no utility impacts associated with this project.

AVOIDANCE AND MINIMIZATION

The NCDOT is committed to the incorporation of all reasonable and practicable design features to avoid and minimize buffer impacts. The following measures were taken during the design of the proposed

bridge to avoid and minimize impacts to the streams and buffers:

- Best Management Practices for Protection of Surface Waters and Bridge Demolition and Removal will be implemented.
- The proposed project includes complete bridging of Ruin Creek, without any bents located in the stream, allowing for pre-project stream flows to maintain current water quality, aquatic habitat, and flow regime.
- Impacts to jurisdictional streams and wetlands will be avoided.
- The roadway grade was kept as close as possible to the existing, minimizing fill height.
- The proposed bridge will be 58 feet longer and 13 feet wider than the existing bridge, increasing the floodplain under the bridge.
- An off-site detour will be utilized during construction.
- Two preformed scour holes will be constructed to filter storm-water runoff.

MITIGATION

NCDOT will perform limited on-site buffer mitigation at the SR 1107 overpass of Ruin Creek. The proposed mitigation will consist of restoring 403 sq. ft of riparian buffer within Buffer Zone 1. This restoration will involve excavating existing causeway to match the natural ground elevations. Excavated areas will be ripped and disked prior to planting if necessary. The restoration area will be planted following successful completion of site grading. As specified in the reforestation plan (enclosed), the site will be planted with a mixture of river birch (*Betula Nigra*), green ash (*Fraxinus pennsylvanica*), and black walnut (*Juglans nigra*). This mixture will be planted on six to ten foot centers at a density of 680 trees per acre. The site will be inspected following completion of the project. NCDOT proposes no annual monitoring of the site. The EEP has accepted NCDOT's request to provide mitigation for the remaining 2,451-sq. ft. of buffer impacys for this project (letter enclosed).

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service (USFWS) website (updated January 29, 2007) lists 2 federally protected species for Vance County: bald eagle (*Haliaeetus leucocephalus*) and dwarf wedgemussel (DWM) (*Alasmidonta heterodon*). Table 2 lists the species and their federal status.

Table 2. Federally-Protected Species for Vance County

Scientific Name	Common Name	Status	Biological Conclusion	Habitat Present?
Haliaeetus leucocephalus	Bald Eagle	T*	No Effect	No
Alasmidonta heterodon	Dwarf wedgemussel	E	May Affect, Not Likely to Adversely Effect	Yes

"E" - denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range). "T"- denotes Threatened (a species, which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range). "*"-Proposed for delisting

A biological conclusion of "No Effect" has been issued for the bald eagle due to the lack of habitat within the project area. The project area does not contain large areas of open water, and therefore lacks potential foraging habitat for bald eagles. There are no large ponds or lakes within one-mile of the project area.

A biological conclusion of "May Affect, Not Likely to Adversely Affect" was issued for the DWM by the USFWS on February 23, 2005 and can be found in the CE document. Concurrence was given with

the understanding that a pre-construction survey would be conducted. Records from the Natural Heritage Program indicate that DWM has been documented to occur within 1.0 mile of the project area (in 1998). A survey on April 20, 2004 and a pre-construction survey for DWM on February 27, 2007 yielded no DWM individuals.

REGULATORY APPROVALS

This project has been reviewed for jurisdiction under the Federal Clean Water Act (CWA). There are no impacts to Waters of the US, therefore none of the actions of this project fall under jurisdiction of the CWA. Therefore, no permits pursuant to the CWA are required.

Section 401 Permit: This project will impact Tar-Pamlico Riparian Buffers and written 401 concurrence will be required.

Buffer Certification: This project has been designed to comply with the Tar-Pamlico Riparian Buffer Regulations (15A NCAC 2B.0259). NCDOT requests a Tar-Pamlico Buffer Authorization from the Division of Water Quality.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html. If you have any questions or need additional information, please call Amy James at 715-7216.

Sincerely,

E. L. Lupe

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

Cc:
w/attachment
- Mr. John Hennessy, NCDWQ (5 Copies)
- Mr. Travis Wilson, NCWRC
- Mr. Gary Jordan, USFWS
- Dr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Victor Barbour, Project Services Unit
- Mr. J. Wally Bowman, P.E., Division Engineer
- Mr. Chris Murray, DEO

w/o attachment
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Majed Alghandour, P. E., Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Ms. Jennifer Goodwin, Project Planning Engineer
- Ms. Beth Harmon, EEP
- Mr. Todd Jones, NCDOT External Audit Branch
- File-B-4298

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☐ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 401 Water Quality Certification
   - ☒ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: none

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☐

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☒

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address:

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: N/A
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge 03 over Ruin Creek on SR 1107

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4298

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Vance Nearest Town: Henderson
   Subdivision name (include phase/lot number):
   Directions to site (include road numbers/names, landmarks, etc.): see vicinity map

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): -78.484723 °N 36.252658 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Ruin Creek

8. River Basin: Tar-Pamlico
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project is located in a rural area consisting of low density residential and forested areas.

10. Describe the overall project in detail, including the type of equipment to be used:

Bridge No. 03 will be replaced on new alignment to the north of the existing bridge with an offsite detour. Heavy duty excavation equipment will be used such as trucks, dozers, cranes and other various equipment necessary for roadway construction.

11. Explain the purpose of the proposed work: To replace a deteriorating bridge and improve the alignment of the approach roadways

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: no temporary or permanent wetland or stream impacts are anticipated; in addition, the construction limits of the temporary workpad will not encroach into Ruin Creek.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property:_____

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Total Stream Impact (by length and acreage)						

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	
Wetland Impact (acres):	
Open Water Impact (acres):	
Total Impact to Waters of the U.S. (acres)	
Total Stream Impact (linear feet):	

7. Isolated Waters
Do any isolated waters exist on the property? ☐ Yes ☒ No
Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

_____

_____

8. Pond Creation
If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____
Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
Current land use in the vicinity of the pond:_____
Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. Please refer to the attached cover letter

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   Mitigation by EEP (acceptance letter enclosed)

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet):_____
   Amount of buffer mitigation requested (square feet): 8159 sq. ft.
   Amount of Riparian wetland mitigation requested (acres):_____
   Amount of Non-riparian wetland mitigation requested (acres):_____
   Amount of Coastal wetland mitigation requested (acres):_____

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☒ No ☐

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	2854	3 (2 for Catawba)	8562.0
2	0	1.5	0.0
Total	2854		8562.0

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

XI. 3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. The Riparian Buffer Restoration Fund will be used for 8159 sq. ft. of the needed mitigation. The remaining 403-sq. ft. of mitigation will occur through on-site buffer replacement. Please see the reforestation plan in this permit package for details.

XII. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

XIII. Sewage Disposal (required by DWQ)

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.
N/A

XIV. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:_____

XVI. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
None

E. L. Fuck 4.18.07

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

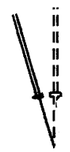
PLANTING DETAILS

SEEDLING / LINER BAREROOT PLANTING DETAIL

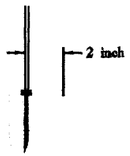
HEALING IN

1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.
4. Place a single layer of plants against the sloping end so that the root collar is at ground level.
5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.
6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.



2. Remove planting bar and place seedling at correct depth.

3. Insert planting bar 2 inches toward planter from seedling.

4. Pull handle of bar toward planter, firming soil at bottom.

5. Push handle forward firming soil at top.

6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

REFORESTATION DETAIL SHEE

N.C.D.O.T.- ROADSIDE ENVIRONMENTAL UNIT

b4298 reforestation sheet.dgn 04/10/2007 10:24:49 AM

Ecosystem Enhancement PROGRAM

January 22, 2007

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4298, Replace Bridge Number 3 over Ruin Creek on SR 1107, Vance County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the buffer mitigation for the subject project. Based on the information supplied by you in a letter dated January 8, 2007, the impacts are located in CU 03020101 of the Tar-Pamlico River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Zone 1 Buffer: 2,854 square feet

Also, as indicated in your letter, the NCDOT will provide some of the buffer mitigation required for the impacts associated with this project on-site. The total anticipated buffer mitigation required to offset the impacts is 8,562 square feet and approximately 403 square feet of buffer mitigation will be completed within the existing right of way of the project. Therefore, EEP will commit to providing the remaining buffer mitigation need of 8,159 square feet. If the buffer impacts or the amount of mitigation required for this project increases, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization

Certification, EEP will transfer funds from Tri-Party MOA Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP B-4298. Subsequently, EEP will conduct a review of current MOA mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from Tri-Party MOA Fund.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Eric Alsmeyer, USACE-Raleigh
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4298

Ecosystem Enhancement PROGRAM

January 22, 2007

Mr. John Hennessy
N. C. Division of Water Quality
Mail Service Center 1650
Raleigh, North Carolina 27699-1650

Dear Mr. Hennessy:

Subject: EEP Mitigation Acceptance Letter:

B-4298, Replace Bridge Number 3 over Ruin Creek on SR 1107, Vance County, Tar-Pamlico River Basin (Cataloging Unit 03020101)

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the buffer mitigation required for the subject project. The buffer impacts associated with this project are located in Cataloging Unit 03020101 of the Tar-Pamlico River Basin. As indicated in the NCDOT's mitigation request letter dated January 8, 2007, the project will impact buffers only. The buffer impacts are 2,854 square feet in Zone 1 with a total buffer mitigation requirement of 8,562 square feet. Approximately 403 square feet of buffer mitigation will be completed by the NCDOT within the existing right of way of the project. Therefore, EEP will commit to providing the remaining buffer mitigation need of 8,159 square feet. If the buffer impacts or the amount of mitigation required from EEP increases or decreases for this project, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from Fund 2984 (Tri-Party MOA Account) into Fund 2982 and commit to provide the appropriate buffer mitigation to offset the impacts associated with this project.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

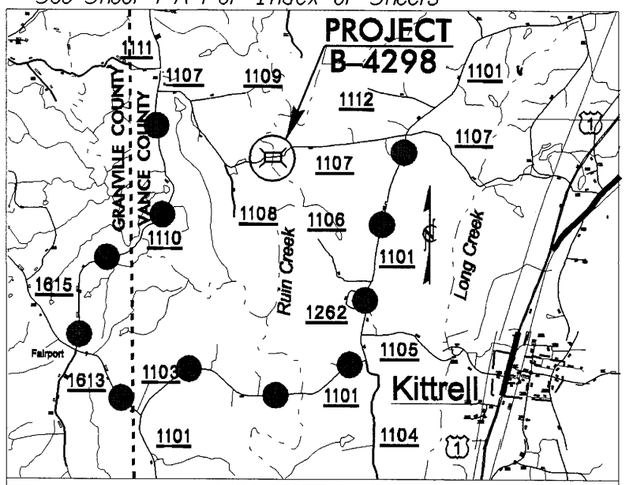
William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, P.E., PDEA, NCDOT
Mr. Eric Alsmeyer, USACE – Raleigh
File: B-4298

09/08/99

CONTRACT: C201599 TIP PROJECT: B-4298

See Sheet 1-A For Index of Sheets



VICINITY MAP

DENOTES OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

Buffer Drawing
Sheet 1 of 11

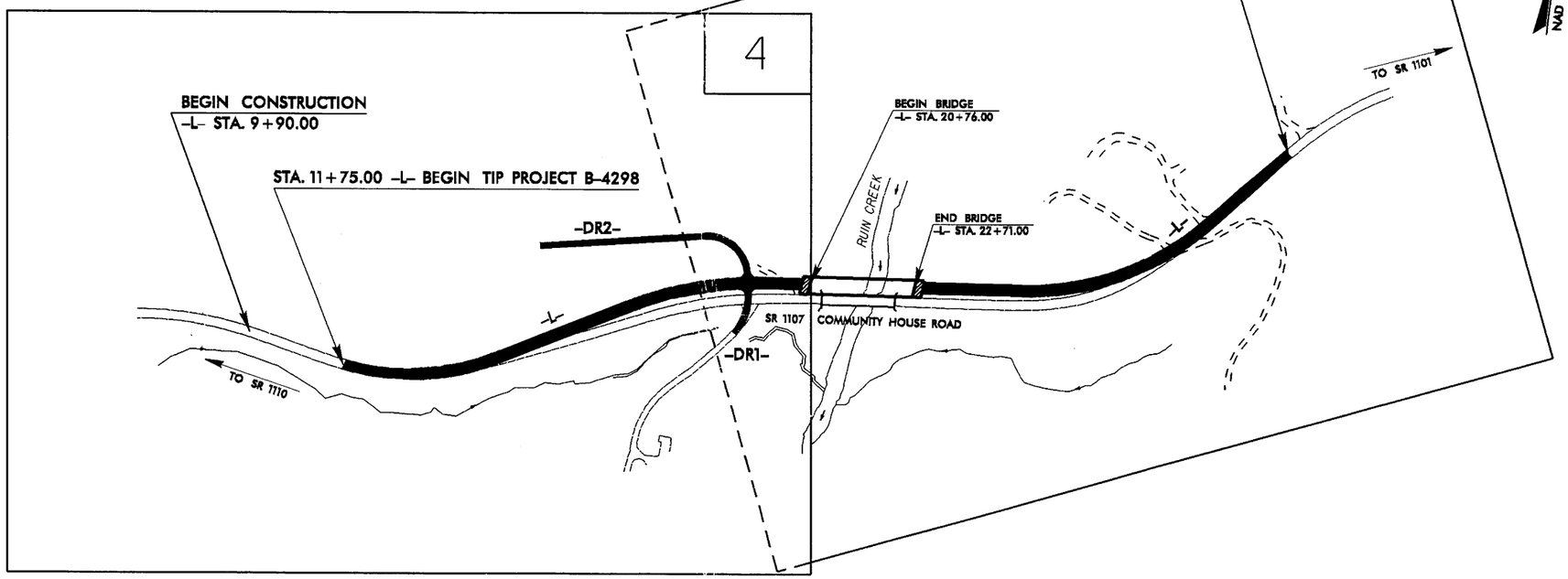
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4298	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33635.1.1	BRZ-1107(8)	PE
33635.2.1	BRZ-1107(8)	R/W & UTIL.

TAR - PAMLICO
BUFFER ZONE PERMIT
DRAWINGS
09/16/2006

LOCATION: BRIDGE NO. 3 OVER RUIN CREEK AND APPROACHES ON SR 1107 (COMMUNITY HOUSE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



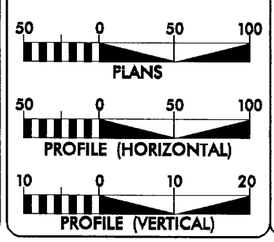
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHOULD BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD III

** DESIGN EXCEPTION FOR DESIGN SPEED REQUIRED

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 750
ADT 2025 = 1200
DHV = 13 %
D = 55 %
T = 3 % *
** V = 40 MPH
* TTST 1% DUAL 2%
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4298 = 0.318 MILES
LENGTH STRUCTURE TIP PROJECT B-4298 = 0.037 MILES
TOTAL LENGTH OF TIP PROJECT B-4298 = 0.355 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 30, 2006

LETTING DATE: MARCH 20, 2007

ROGER D. THOMAS, PE
PROJECT ENGINEER

SAMUEL L. ST. CLAIR
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

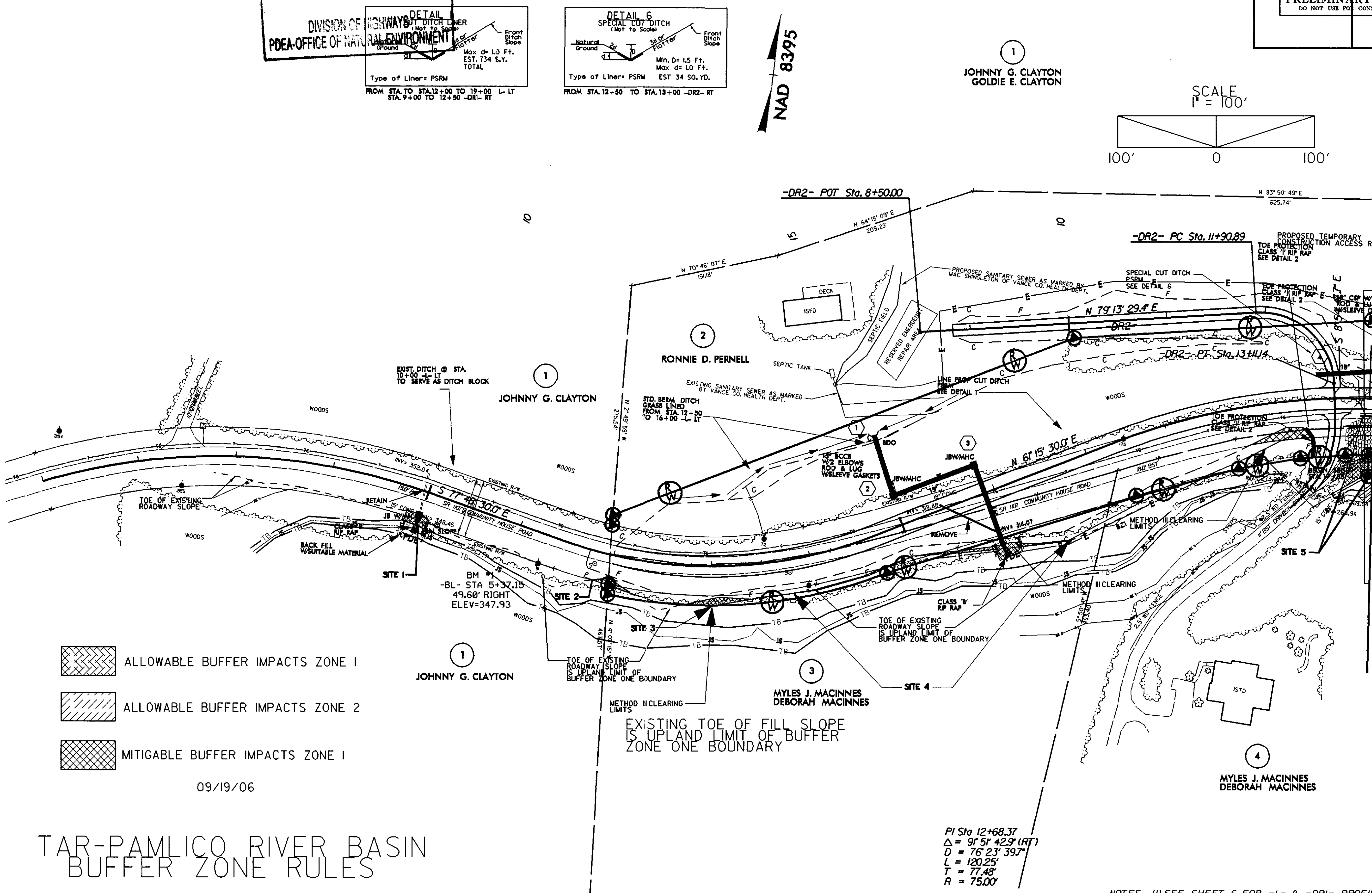
18-SEP-2006 15:46
r:\hydraulics\permit\b4298_rdy_tsh.dgn
pshepard AT H212438

PROJECT REFERENCE NO.	SHEET NO.
B-4298	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 2 of 11

REVISIONS
10/02/06 R/W REV.: PARCEL 2 - ADDED DRIVE AND T.C.E.; PARCEL 4 - REDUCED PROPOSED R/W AT -DR1- sls


DETAIL 1
CUT DITCH LINER
(Not to Scale)
Natural Ground
Front Ditch Slope
Max d= 1.0 Ft.
EST. 734 S.Y. TOTAL
Type of Liner= PSRM
FROM STA. TO STA.12+00 TO 19+00 -L- LT
STA. 9+00 TO 12+50 -DR1- RT
DETAIL 6
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
3:1 or Flatter
Front Ditch Slope
Min. D= 1.5 Ft.
Max d= 1.0 Ft.
Type of Liner= PSRM
EST 34 SQ. YD.
FROM STA. 12+50 TO STA. 13+00 -DR2- RT
NAD 83/95
SCALE
1" = 100'
100' 0 100'
JOHNNY G. CLAYTON
GOLDIE E. CLAYTON
-DR2- POT Sta. 8+50.00
-DR2- PC Sta. 11+90.89
-DR2- PT Sta. 13+11.14
N 83° 50' 49" E
625.74'
N 64°15' 09" E
209.23'
N 70° 46' 07" E
151.18'
PROPOSED TEMPORARY CONSTRUCTION ACCESS ROAD
TOE PROTECTION CLASS 'I' RIP RAP SEE DETAIL 2
SPECIAL CUT DITCH PSRM SEE DETAIL 6
PROPOSED SANITARY SEWER AS MARKED BY MAC SHINGLETON OF VANCE CO. HEALTH DEPT.
N 79°13' 29.4" E
-DR2-
RONNIE D. PERNELL
SEPTIC TANK
SEPTIC FIELD
RESERVED EMERGENCY REPAIR AREA
DECK
1SFD
EXISTING SANITARY SEWER AS MARKED BY VANCE CO. HEALTH DEPT.
LINE PROP. CUT DITCH PSRM SEE DETAIL 1
STD. BERM DITCH GRASS LINED FROM STA. 12+50 TO 16+00 -L- LT
EXIST. DITCH @ STA. 10+00 -L- LT TO SERVE AS DITCH BLOCK
JOHNNY G. CLAYTON
WOODS
15" BCCS W/2 ELBOWS ROD & LUG W/SLEEVE GASKETS
JBW/MHC
N 61°15' 30.0" E
S 77°48' 30.0" E
SR 1107 COMMUNITY HOUSE ROAD
TOE OF EXISTING ROADWAY SLOPE
RETAIN
BACK FILL W/SUITABLE MATERIAL
SITE 1
SITE 2
SITE 3
SITE 4
SITE 5
BM #1
-BL- STA 5+37.15
49.60' RIGHT
ELEV=347.93
REMOVE
METHOD III CLEARING LIMITS
CLASS 'B' RIP RAP
TOE OF EXISTING ROADWAY SLOPE IS UPLAND LIMIT OF BUFFER ZONE ONE BOUNDARY
METHOD II CLEARING LIMITS
MATCH LINE
SEE SHEET NO. 5
-L- STA. 20+00
MYLES J. MACINNES
DEBORAH MACINNES
1STO
PI Sta 12+68.37
Δ = 91°51' 42.9" (RT)
D = 76°23' 39.7"
L = 120.25'
T = 77.48'
R = 75.00'

ALLOWABLE BUFFER IMPACTS ZONE 1

ALLOWABLE BUFFER IMPACTS ZONE 2

MITIGABLE BUFFER IMPACTS ZONE 1

09/19/06

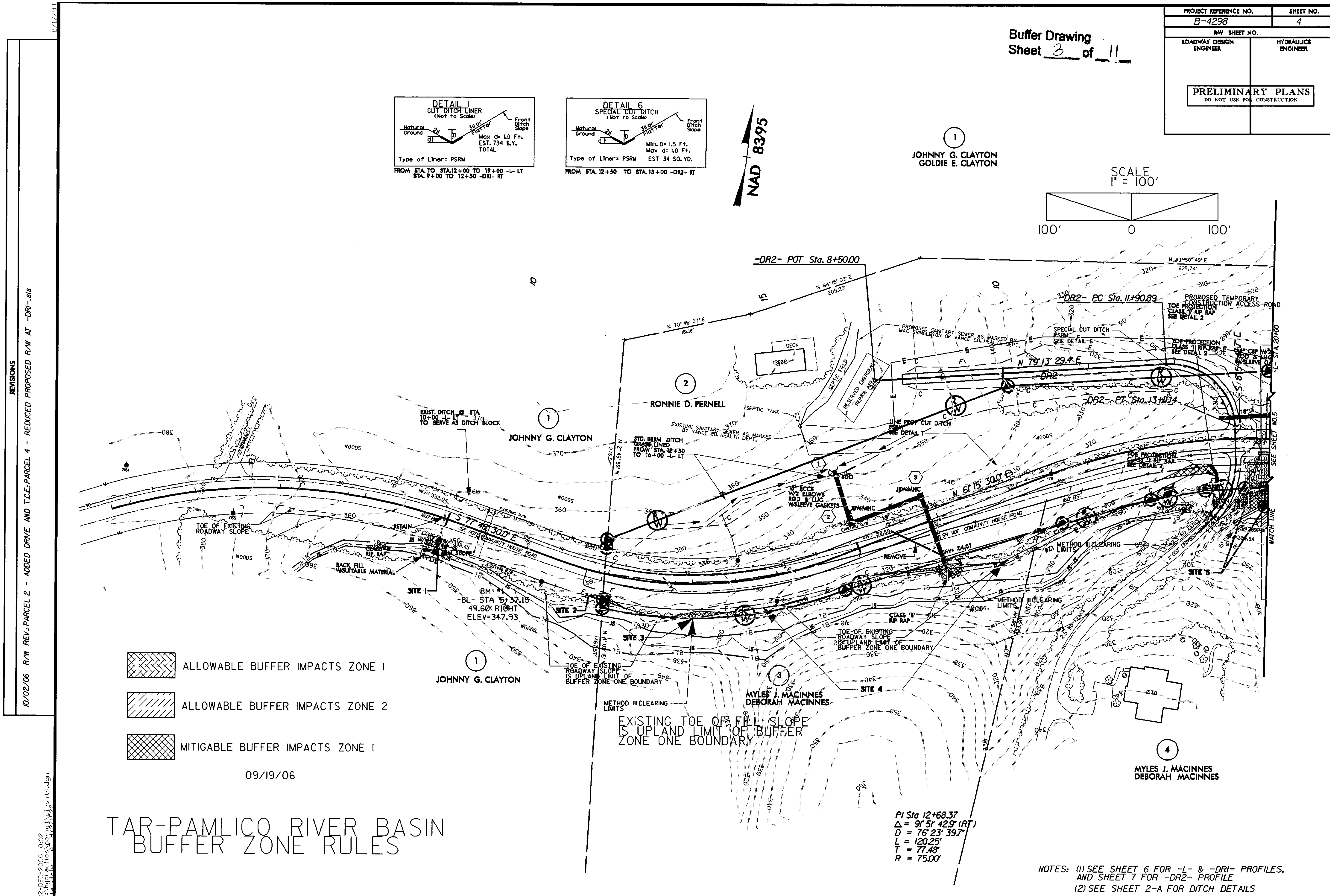
EXISTING TOE OF FILL SLOPE IS UPLAND LIMIT OF BUFFER ZONE ONE BOUNDARY

TAR-PAMLICO RIVER BASIN BUFFER ZONE RULES

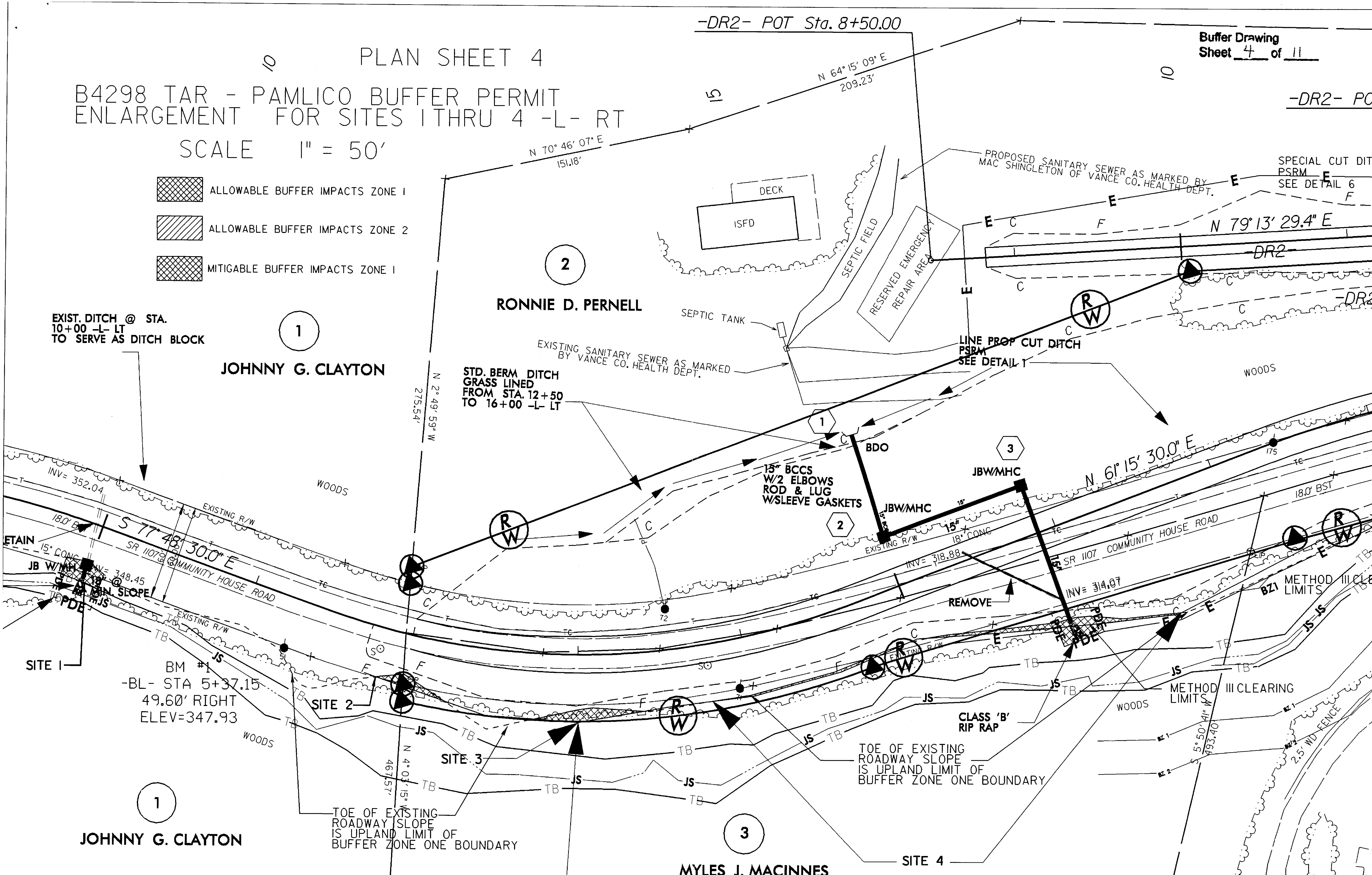
NOTES: (1) SEE SHEET 6 FOR -L- & -DR1- PROFILES. AND SHEET 7 FOR -DR2- PROFILE
(2) SEE SHEET 2-A FOR DITCH DETAILS

22-DEC-2006 10:03
r:\hydraulics\permit\pl\psht4.dgn

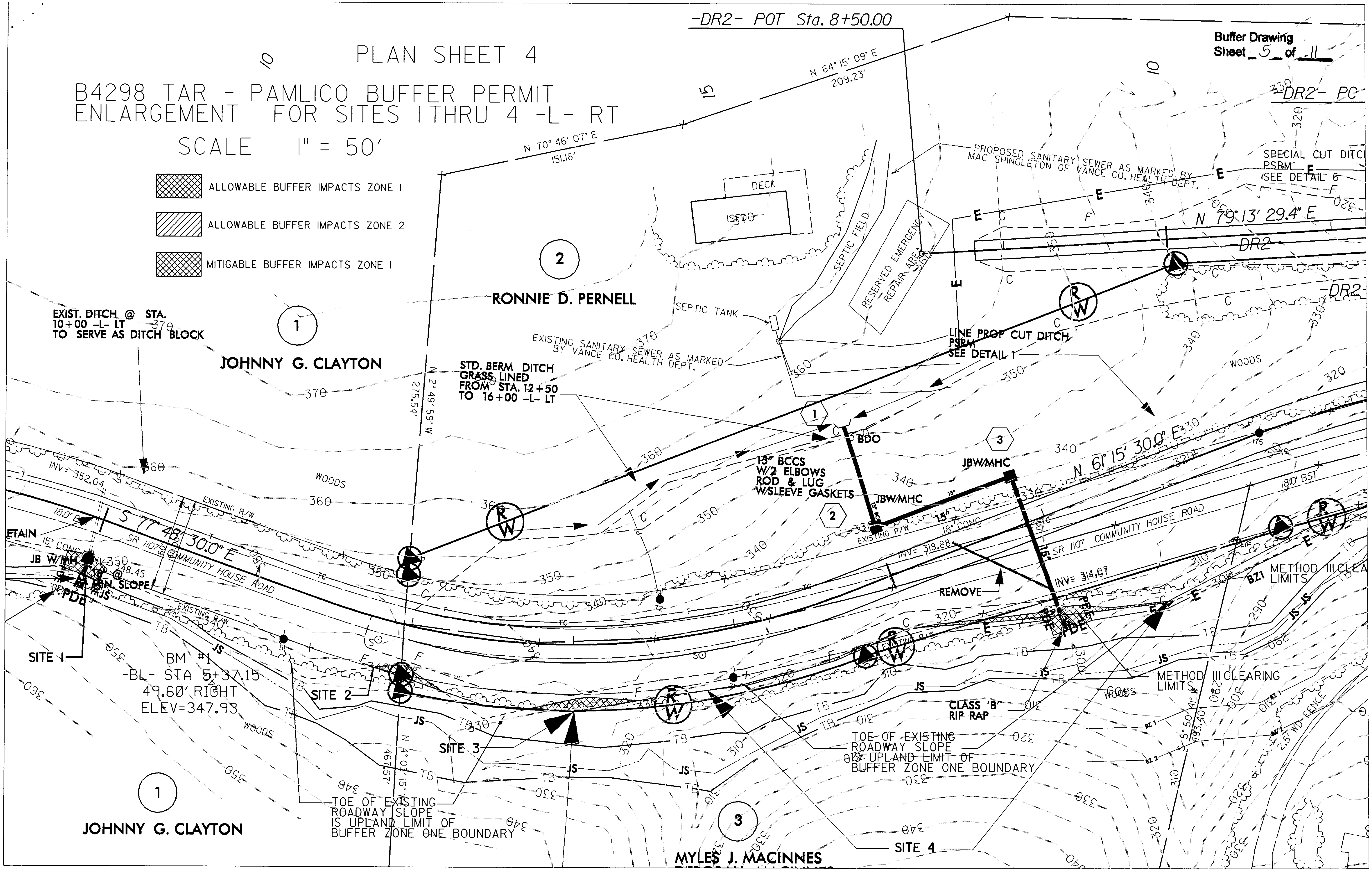
8/17/99

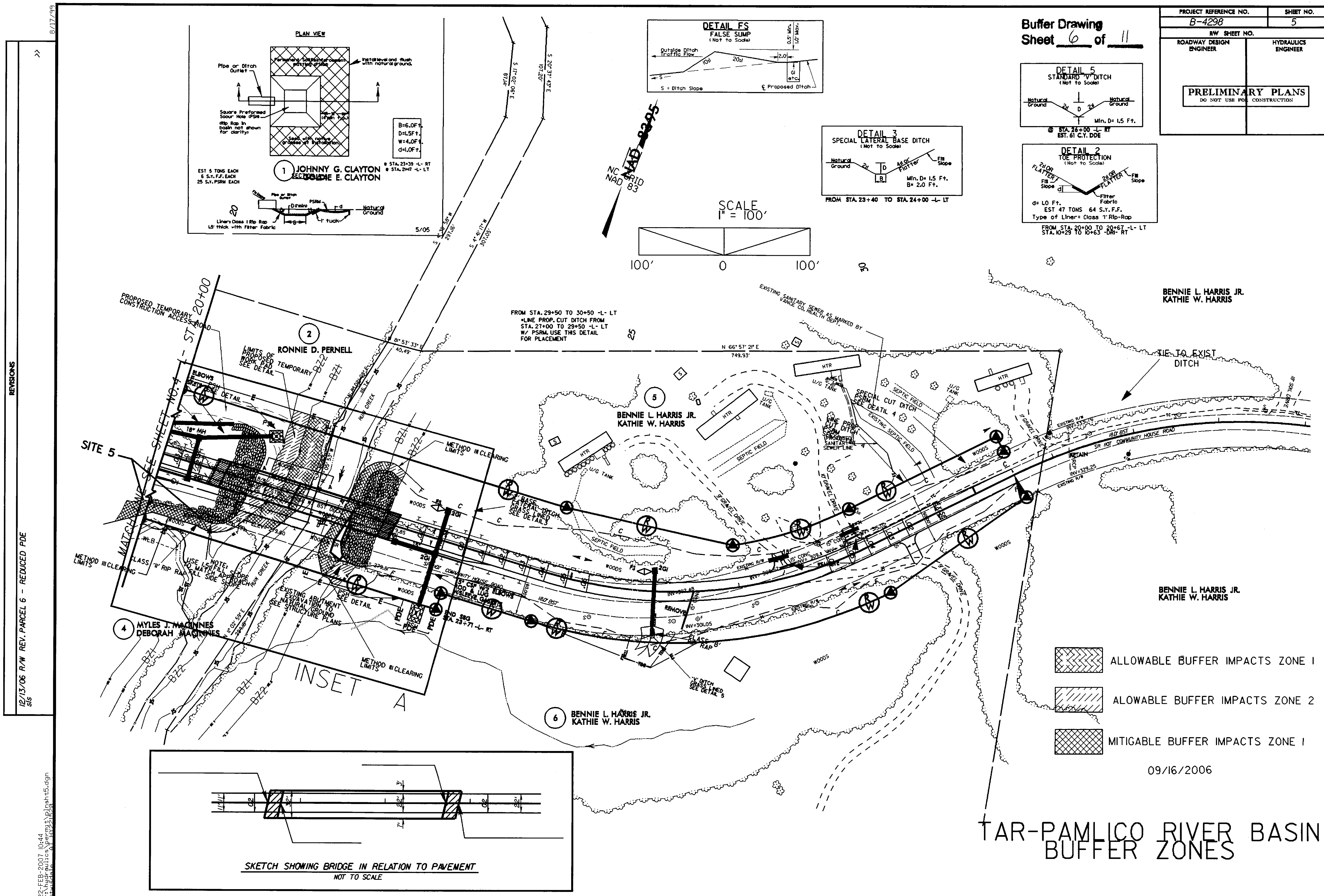


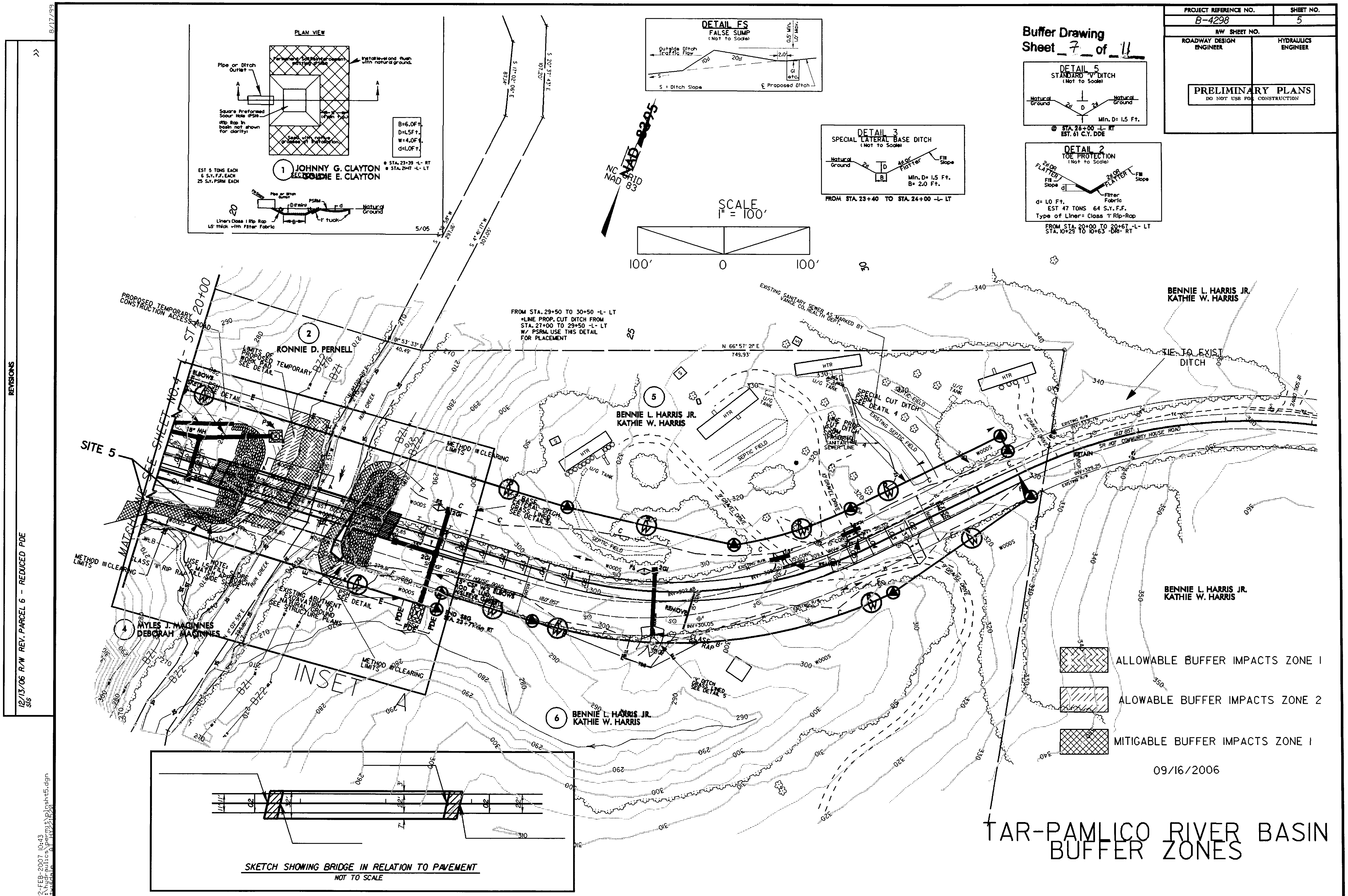
PROJECT REFERENCE NO. B-4298
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing
Sheet 3 of 11
DETAIL 1
CUT DITCH LINER
(Not to Scale)
Type of Liner= PSRM
FROM STA. TO STA. 12+00 TO 19+00 -L- LT
STA. 9+00 TO 12+50 -DR1- RT
DETAIL 6
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner= PSRM
FROM STA. 12+50 TO STA. 13+00 -DR2- RT
NAD 83/95
SCALE
1" = 100'
JOHNNY G. CLAYTON
GOLDIE E. CLAYTON
RONNIE D. PERNELL
JOHNNY G. CLAYTON
MYLES J. MACINNES
DEBORAH MACINNES
-DR2- POT Sta. 8+50.00
-DR2- PC Sta. 11+90.89
-DR2- PT Sta. 13+10.14
SITE 1
SITE 2
SITE 3
SITE 4
SITE 5
BM
-BL- STA 5+37.15
49.60' RIGHT
ELEV=347.93
EXISTING TOE OF FILL SLOPE
IS UPLAND LIMIT OF BUFFER
ZONE ONE BOUNDARY
ALLOWABLE BUFFER IMPACTS ZONE 1
ALLOWABLE BUFFER IMPACTS ZONE 2
MITIGABLE BUFFER IMPACTS ZONE 1
09/19/06
TAR-PAMLICO RIVER BASIN
BUFFER ZONE RULES
PI Sta 12+68.37
Δ = 91° 51' 42.9" (RT)
D = 76° 23' 39.7"
L = 120.25'
T = 77.48'
R = 75.00'
NOTES: (1) SEE SHEET 6 FOR -L- & -DR1- PROFILES, AND SHEET 7 FOR -DR2- PROFILE
(2) SEE SHEET 2-A FOR DITCH DETAILS
REVISIONS
10/02/06 R/W REV.:PARCEL 2 - ADDED DRIVE AND T.C.E.;PARCEL 4 - REDUCED PROPOSED R/W AT -DR1-.sls



Buffer Drawing
Sheet 4 of 11
PLAN SHEET 4
B4298 TAR - PAMLICO BUFFER PERMIT
ENLARGEMENT FOR SITES 1 THRU 4 -L- RT
SCALE 1" = 50'
ALLOWABLE BUFFER IMPACTS ZONE 1
ALLOWABLE BUFFER IMPACTS ZONE 2
MITIGABLE BUFFER IMPACTS ZONE 1
-DR2- POT Sta. 8+50.00
-DR2- PC
N 64° 15' 09" E
209.23'
N 70° 46' 07" E
151.18'
N 79° 13' 29.4" E
-DR2-
PROPOSED SANITARY SEWER AS MARKED BY MAC SHINGLETON OF VANCE CO. HEALTH DEPT.
SPECIAL CUT DITCH
PSRM
SEE DETAIL 6
DECK
ISFD
SEPTIC FIELD
RESERVED EMERGENCY REPAIR AREA
SEPTIC TANK
EXISTING SANITARY SEWER AS MARKED BY VANCE CO. HEALTH DEPT.
RONNIE D. PERNELL
JOHNNY G. CLAYTON
EXIST. DITCH @ STA. 10+00 -L- LT TO SERVE AS DITCH BLOCK
LINE PROP CUT DITCH
PSRM
SEE DETAIL 1
STD. BERM DITCH GRASS LINED FROM STA. 12+50 TO 16+00 -L- LT
N 2° 49' 59" W
275.54'
WOODS
BDO
JBW/MHC
15" BCCS W/2 ELBOWS ROD & LUG W/SLEEVE GASKETS
N 61° 15' 30.0" E
18.0' BST
SR 1107 COMMUNITY HOUSE ROAD
EXISTING R/W
INV= 318.88
INV= 314.07
REMOVE
METHOD III CLEARING LIMITS
BZ1
INV= 352.04
S 77° 48' 30.0" E
SR 1107 COMMUNITY HOUSE ROAD
JB W/MH
INV= 348.45
MIN. SLOPE
PDE
SITE 1
BM #1
-BL- STA 5+37.15
49.60' RIGHT
ELEV=347.93
SITE 2
SITE 3
TOE OF EXISTING ROADWAY SLOPE IS UPLAND LIMIT OF BUFFER ZONE ONE BOUNDARY
N 4° 03' 15" W
467.57'
CLASS 'B' RIP RAP
TOE OF EXISTING ROADWAY SLOPE IS UPLAND LIMIT OF BUFFER ZONE ONE BOUNDARY
METHOD III CLEARING LIMITS
S 5° 50' 41" W
493.40'
2.5' WD FENCE
SITE 4
MYLES J. MACINNES


PLAN SHEET 4
B4298 TAR - PAMLICO BUFFER PERMIT
ENLARGEMENT FOR SITES 1 THRU 4 -L- RT
SCALE 1" = 50'
ALLOWABLE BUFFER IMPACTS ZONE 1
ALLOWABLE BUFFER IMPACTS ZONE 2
MITIGABLE BUFFER IMPACTS ZONE 1
-DR2- POT Sta. 8+50.00
N 64° 15' 09" E 209.23'
N 70° 46' 07" E 151.18'
PROPOSED SANITARY SEWER AS MARKED BY MAC SHINGLETON OF VANCE CO. HEALTH DEPT.
SPECIAL CUT DITCH PSRM SEE DETAIL 6
N 79° 13' 29.4" E
-DR2- PC
DECK
SEPTIC FIELD
RESERVED EMERGENCY REPAIR AREA
RONNIE D. PERNELL
SEPTIC TANK
EXISTING SANITARY SEWER AS MARKED BY VANCE CO. HEALTH DEPT.
LINE PROP CUT DITCH PSRM SEE DETAIL 1
EXIST. DITCH @ STA. 10+00 -L- LT TO SERVE AS DITCH BLOCK
JOHNNY G. CLAYTON
N 2° 49' 59" W 275.54'
STD. BERM DITCH GRASS LINED FROM STA. 12+50 TO 16+00 -L- LT
BDO
13" BCCS W/2 ELBOWS ROD & LUG W/SLEEVE GASKETS
JBW/MHC
N 61° 15' 30.0" E
WOODS
EXISTING R/W
S 77° 48' 30.0" E
SR 1107 COMMUNITY HOUSE ROAD
INV= 352.04
INV= 318.88
INV= 314.07
REMOVE
JB W/MH
METHOD III CLEARING LIMITS
SITE 1
BM #1 -BL- STA 5+37.15 49.60' RIGHT ELEV=347.93
SITE 2
SITE 3
SITE 4
CLASS 'B' RIP RAP
TOE OF EXISTING ROADWAY SLOPE IS UPLAND LIMIT OF BUFFER ZONE ONE BOUNDARY
N 4° 03' 15" W 467.57'
2.5' WD FENCE
MYLES J. MACINNES


PROJECT REFERENCE NO. B-4298
SHEET NO. 5
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing Sheet 6 of 11
DETAIL FS
FALSE SUMP
(Not to Scale)
DETAIL 5
STANDARD 'V' DITCH
(Not to Scale)
Min. D= 1.5 Ft.
@ STA. 26+00 -L- RT
EST. 61 C.Y. DDE
DETAIL 3
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
B= 2.0 Ft.
FROM STA. 23+40 TO STA. 24+00 -L- LT
DETAIL 2
TOE PROTECTION
(Not to Scale)
d= 1.0 Ft.
EST 47 TONS 64 S.Y.F.F.
Type of Liner= Class 'I' Rip-Rap
FROM STA. 20+00 TO 20+67 -L- LT
STA. 10+29 TO 10+63 -DRI- RT
PLAN VIEW
B=6.0Ft.
D=1.5Ft.
W=4.0Ft.
d=1.0Ft.
EST 5 TONS EACH
6 S.Y. F.F. EACH
25 S.Y. PSRM EACH
1 JOHNNY G. CLAYTON
GOLDIE E. CLAYTON
5/05
NC GRID NAD 83
SCALE 1" = 100'
100' 0 100'
FROM STA. 29+50 TO 30+50 -L- LT
=LINE PROP. CUT DITCH FROM
STA. 27+00 TO 29+50 -L- LT
W/ PSRM. USE THIS DETAIL
FOR PLACEMENT
2 RONNIE D. PERNELL
5 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
BENNIE L. HARRIS JR.
KATHIE W. HARRIS
TIE TO EXIST DITCH
SITE 5
INSET A
4 MYLES J. MACINNES
DEBORAH MACINNES
6 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
NOT TO SCALE
ALLOWABLE BUFFER IMPACTS ZONE 1
ALOWABLE BUFFER IMPACTS ZONE 2
MITIGABLE BUFFER IMPACTS ZONE 1
09/16/2006
TAR-PAMLICO RIVER BASIN
BUFFER ZONES
REVISIONS
12/13/06 R/W REV. PARCEL 6 - REDUCED PDE



PROJECT REFERENCE NO.
B-4298
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing Sheet 7 of 11
DETAIL FS
FALSE SUMP
(Not to Scale)
S = Ditch Slope
Proposed Ditch
DETAIL 5
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground
Min. D= 1.5 Ft.
@ STA. 26+00 -L- RT
EST. 61 C.Y. DDE
DETAIL 3
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.5 Ft.
B= 2.0 Ft.
FROM STA. 23+40 TO STA. 24+00 -L- LT
DETAIL 2
TOE PROTECTION
(Not to Scale)
Fill Slope
Filter Fabric
d= 1.0 Ft.
EST 47 TONS 64 S.Y.F.F.
Type of Liner= Class 'I' Rip-Rap
FROM STA. 20+00 TO 20+67 -L- LT
STA. 10+29 TO 10+63 -DRI- RT
PLAN VIEW
Pipe or Ditch Outlet
Square Preformed Scour Hole (PSH)
B=6.0Ft.
D=1.5Ft.
W=4.0Ft.
d=1.0Ft.
EST 5 TONS EACH
6 S.Y. F.F. EACH
25 S.Y. PSRM EACH
Liner: Class I Rip Rap 1.5' thick with Filter Fabric
5/05
1 JOHNNY G. CLAYTON
GOLDIE E. CLAYTON
SCALE
1" = 100'
100' 0 100'
NC GRID NAD 83
FROM STA. 29+50 TO 30+50 -L- LT
*LINE PROP. CUT DITCH FROM
STA. 27+00 TO 29+50 -L- LT
W/ PSRM. USE THIS DETAIL
FOR PLACEMENT
PROPOSED TEMPORARY CONSTRUCTION ACCESS ROAD
2 RONNIE D. PERNELL
5 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
BENNIE L. HARRIS JR.
KATHIE W. HARRIS
EXISTING SANITARY SEWER AS MARKED BY VANCE CO. HEALTH DEPT.
N 66° 57' 21" E
749.93'
TIE TO EXIST DITCH
SITE 5
MATCHLINE SEE SHEET NO. 4
METHOD III CLEARING LIMITS
SR 1107 COMMUNITY HOUSE ROAD
SEPTIC FIELD
4 MYLES J. MAGINNES
DEBORAH MAGINNES
INSET A
6 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
BENNIE L. HARRIS JR.
KATHIE W. HARRIS
ALLOWABLE BUFFER IMPACTS ZONE I
ALOWABLE BUFFER IMPACTS ZONE 2
MITIGABLE BUFFER IMPACTS ZONE I
09/16/2006
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
NOT TO SCALE
TAR-PAMLICO RIVER BASIN
BUFFER ZONES
REVISIONS
12/13/06 R/W REV. PARCEL 6 - REDUCED PDE

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	18" RCP	STA. 9+96 -L- RT			X	0	0	0	281	0	281		
2	N/A	STA. 11+83 TO			X	0	0	0	159	0	159		
		12+27 -L- RT											
3	N/A	STA. 12+74 TO			X	0	0	0	282	0	282		
		13+40 -L- RT											
4	15" RCP	STA. 13+75 TO			X	0	0	0	679	0	679		
		16+51 -L- RT											
5	N/A	STA. 19+70 TO			X	0	0	0	1453	0	1453		
		20+65 -L- RT											
6	BRIDGE	STA. 20+63 TO		X		4110	3709	7819	0	0	0		
		21+78 -L- LT/RT											
7	BRIDGE	STA. 22+08 TO		X		2782	1932	4714	0	0	0	403	0
		22+79 -L- LT/RT											
TOTAL:						6892	5641	12533	2854	0	2854	403	0

METHOD III CLEARING

BUFFER ZONE 1 REPLACEMENT WILL BE IN FRONT OF THE EASTERN MOST EXISTING ABUTMENT REMOVAL BY EXCAVATION OF EXISTING FILL TO NATURAL GROUND.

CONSTRUCTION LIMITS OF TEMPORARY WORK PAD WILL NOT ENCROACH INTO RUIN CREEK.

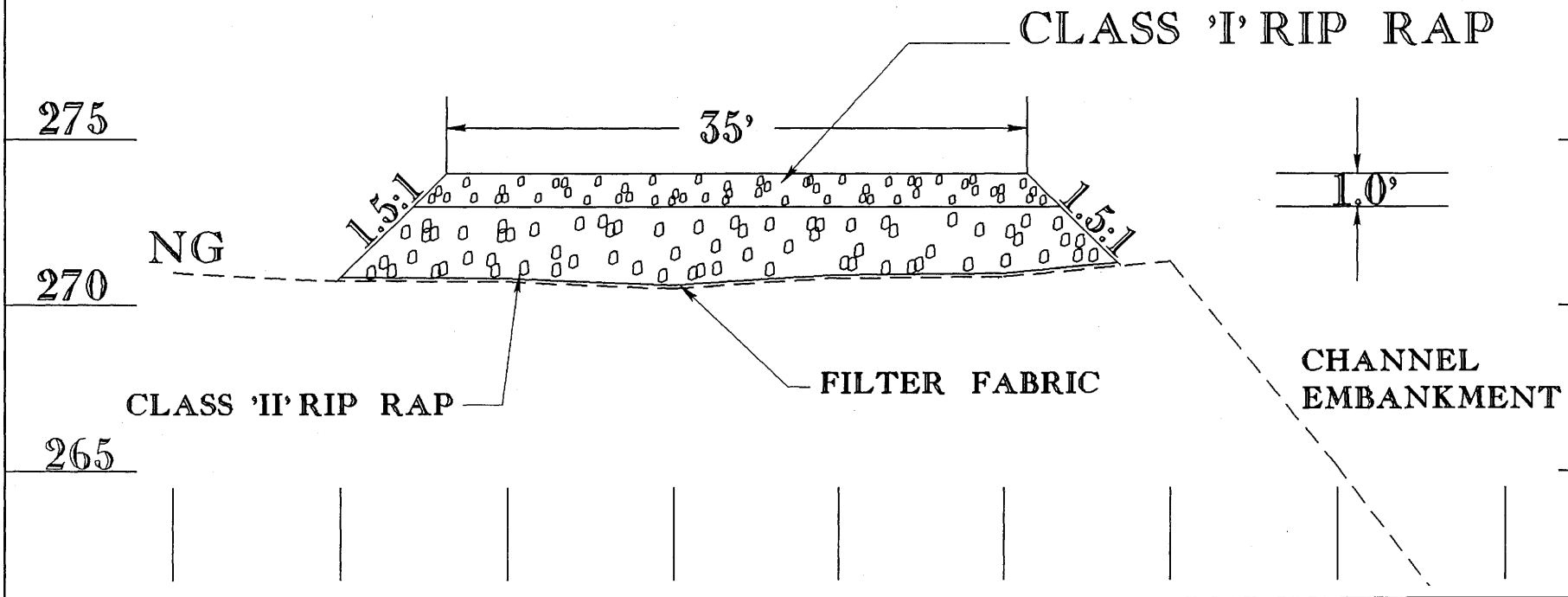
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

VANCE COUNTY
PROJECT: 33635.1.1. (B-4298)

9/19/2006

Rev. May 2006

TYPICAL SECTION A - A WORK PAD



ESTIMATE OF QUANTITIES

VOLUME OF CLASS II RIP RAP BELOW O.H.W. = 0.0

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
VANCE COUNTY
PROJECT: 33635.1.1 (B-4298)
REPLACE BRIDGE #03
OVER RUIN CREEK
ALONG SR 1107
(COMMUNITY HOUSE RD.)

SHEET 10 OF 11

Property Owner Contact Report

TIP # B-4298 VANCE Co.

Owner Last Name/ Business	Owner First Name	Address	City/Town	State	Zip Code	Contact/ Relationship	Home Phone	Contacted By	Contact Date	How Contacted	Comments
(1) Clayton	Johnny G.	1621 Community House Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
Clayton	Johnny G.	1621 Community House Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
(5) Harris	Bennie L., Jr.	535 B. L. Harris Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
(6) Harris	Bennie L., Jr.	535 B. L. Harris Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
Harris	Joel S. & Bennie L., Jr.	130 B. L. Harris Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
Harris	Joel S. & Bennie L., Jr.	130 B. L. Harris Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
(3) MacInnes	Myles J. & Deborah H.	1355 Community House Rd.	Henderson	NC	27536			Watts Fearrington	2/3/03	Letter	Certified Mail
(4) MacInnes	Myles J. & Deborah H.	1355 Community House Rd.	Henderson	NC	27536			Watts Fearrington	2/3/03	Letter	Certified Mail
MacInnes	Myles J. & Deborah H.	1355 Community House Rd.	Henderson	NC	27536			Watts Fearrington	2/3/03	Letter	Certified Mail
MacInnes	Myles J. & Deborah H.	1355 Community House Rd.	Henderson	NC	27536			Watts Fearrington	2/3/03	Letter	Certified Mail
(2) Pernell	Ronnie D.	1558 Community House Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail
Pernell	Ronnie D.	1558 Community House Rd.	Oxford	NC	27565			Watts Fearrington	2/3/03	Letter	Certified Mail

Buffer Drawing Sheet 11 of 11

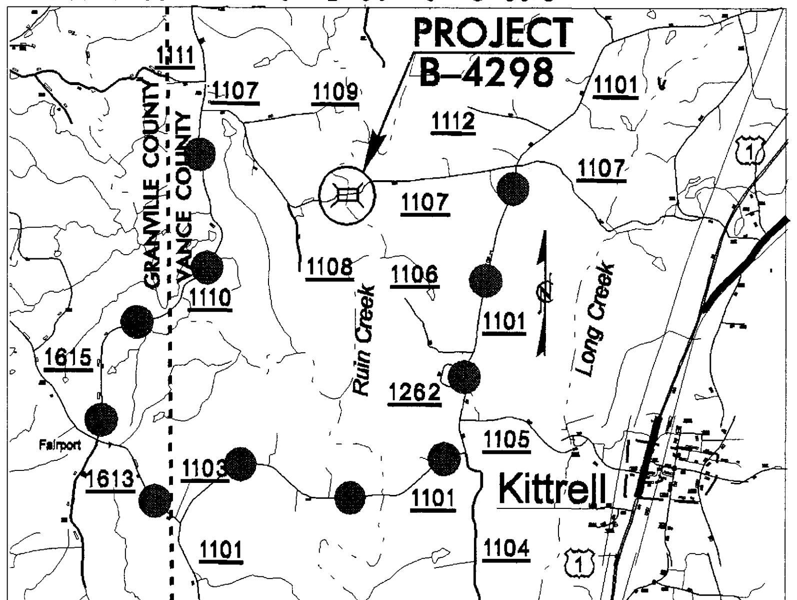
09/08/99

CONTRACT: C201599 TIP PROJECT: B-4298

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4298	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33635.1.1	BRZ-1107(8)	PE
33635.2.1	BRZ-1107(8)	R/W & UTIL.

See Sheet 1-A For Index of Sheets



VICINITY MAP

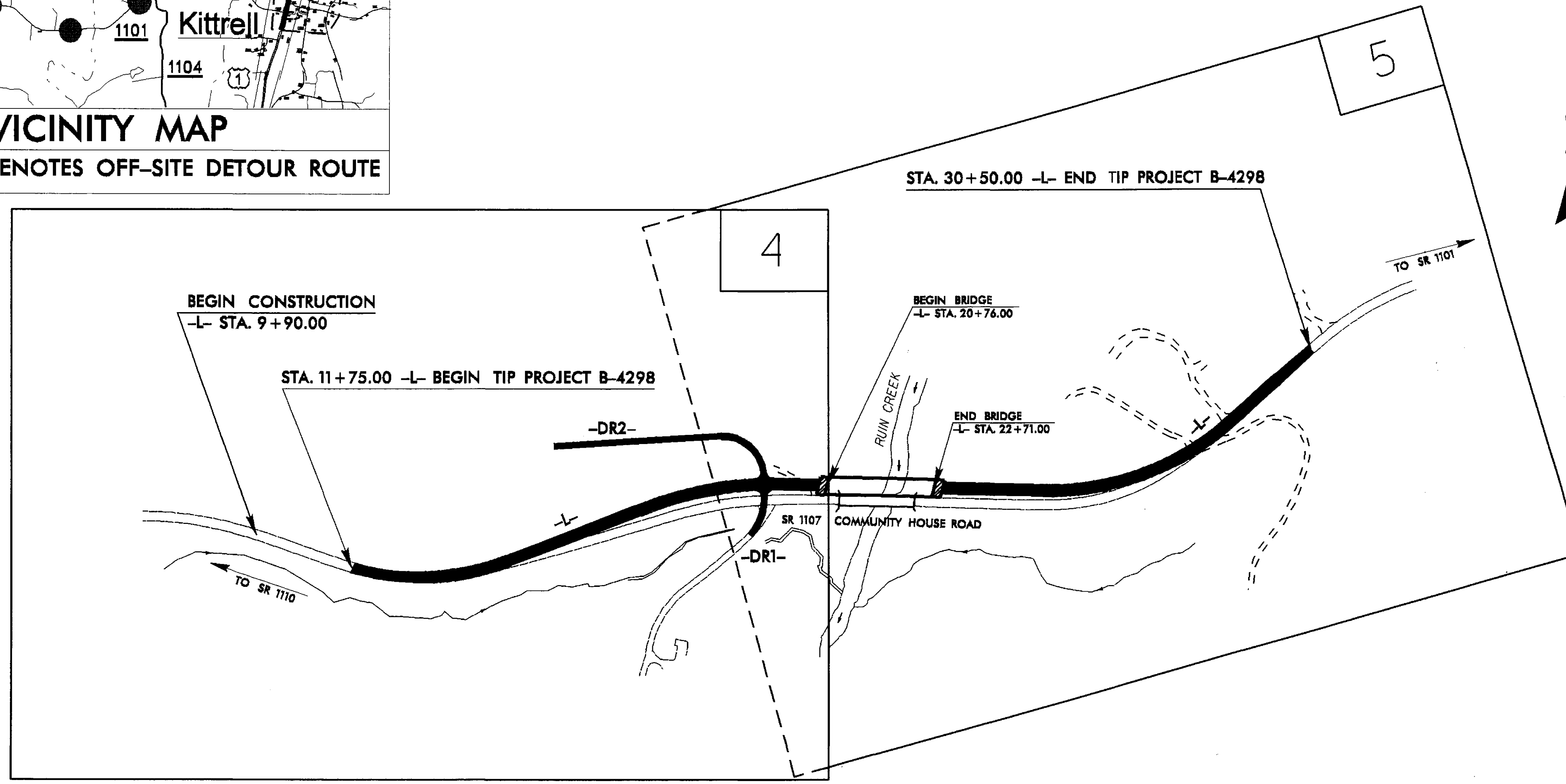
DENOTES OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

VANCE COUNTY

LOCATION: BRIDGE NO. 3 OVER RUIN CREEK AND APPROACHES ON SR 1107 (COMMUNITY HOUSE ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHOULD BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD III

** DESIGN EXCEPTION FOR DESIGN SPEED REQUIRED

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 750
ADT 2025 = 1200
DHV = 13 %
D = 55 %
T = 3 % *
** V = 40 MPH
* TTST 1% DUAL 2%
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4298	=	0.318 MILES
LENGTH STRUCTURE TIP PROJECT B-4298	=	0.037 MILES
TOTAL LENGTH OF TIP PROJECT B-4298	=	0.355 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 30, 2006

LETTING DATE: MARCH 20, 2007

ROGER D. THOMAS, PE
PROJECT ENGINEER

SAMUEL L. ST. CLAIR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

2-DEC-2006 11:57
...roadway\proj\b4298_rdy_tsh.dgn
$$$USERNAME$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4298	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 — PH
- 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 — PH
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — PH
- 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
- 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 — ?UTL
- 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.

12/06/05

PROJECT REFERENCE NO.	SHEET NO.
B-4298	1-C
Location and Surveys	

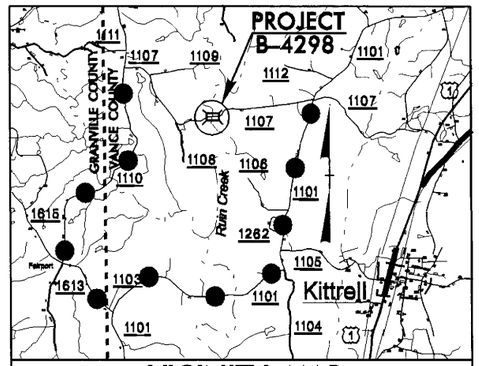
B-4298

SURVEY CONTROL SHEET B-4298

VANCE COUNTY

LOCATION: BRIDGE NO. 3 OVER RUIN CREEK AND APPROACHES ON SR 1107 (COMMUNITY HOUSE ROAD)

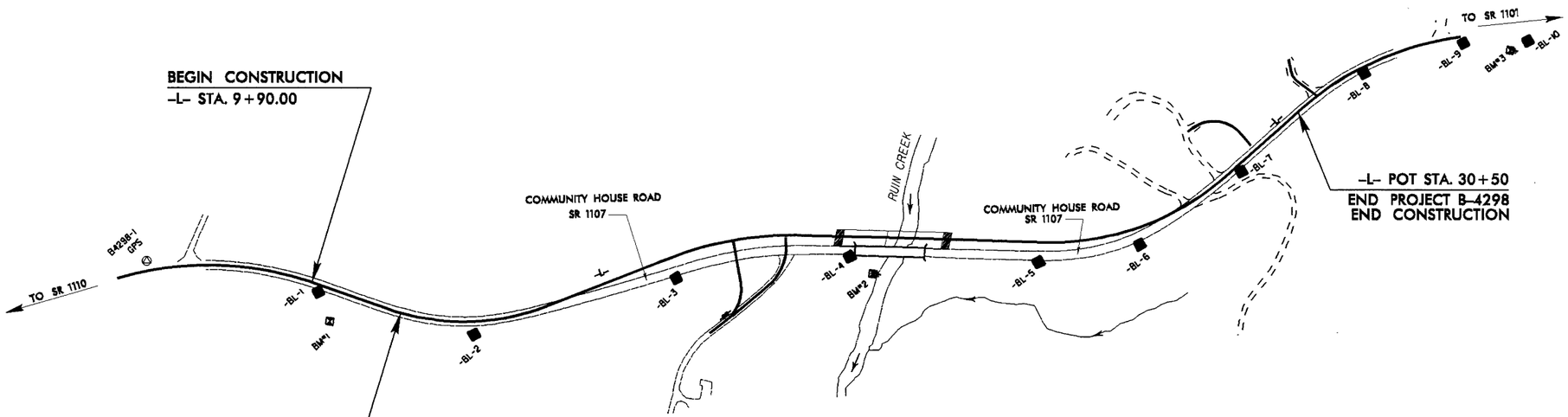
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES



VICINITY MAP

DENOTES OFF-SITE DETOUR ROUTE

NAD 83/95



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	911024.3512	2150899.1609	354.33	10+88.23	14.03 RT
2	BL-2	910960.4563	2151213.7248	335.63	13+19.67	25.45 RT
3	BL-3	911142.4715	2151596.1156	310.55	17+27.29	41.83 RT
4	BL-4	911229.3643	2151927.2752	288.96	20+89.19	39.42 RT
5	BL-5	911267.8174	2152296.6316	295.10	24+60.46	39.26 RT
6	BL-6	911326.7868	2152689.0122	320.30	28+50.35	32.55 RT
7	BL-7	911496.6760	2152668.5522	318.79	28+85.82	13.58 RT
8	BL-8	911720.3212	2152883.4282	339.54	32+03.39	12.17 RT
9	BL-9	911805.8689	2153072.1256	353.13	OUTSIDE PROJECT LIMITS	
10	BL-10	911826.8658	2153198.5944	352.77	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 347.93
N 910970 E 2158429
L STATION 10+49 61 RIGHT
BM-1
RR SPIKE SET IN 16" OAK

BM2 ELEVATION = 272.89
N 911282 E 2151977
L STATION 21+36 72 RIGHT
BM-2
RR SPIKE SET IN 24" POPLAR

BM3 ELEVATION = 359.30
N 911804 E 2153166
L STATION 34+12
S 82° 41' 37.4" E DIST 102.04
BM-3
RR SPIKE SET IN 16" PINE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4298-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 911041.895 (ft) EASTING: 2150556.581 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00001121
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4298-1" TO -L- STATION 11+75.00 IS S 85° 42' 46.4" E. 510.15 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 PROJECT CONTROL DATA AT:

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

b4298_la_lo_051207.dgn
b4298_la_control_051207.txt
b4298_la_gps_051207.gpb

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.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

6/2/99

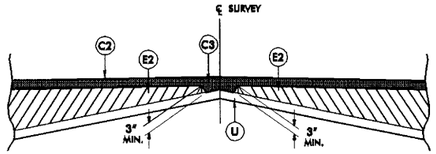
PROJECT REFERENCE NO.	SHEET NO.
B-4298	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

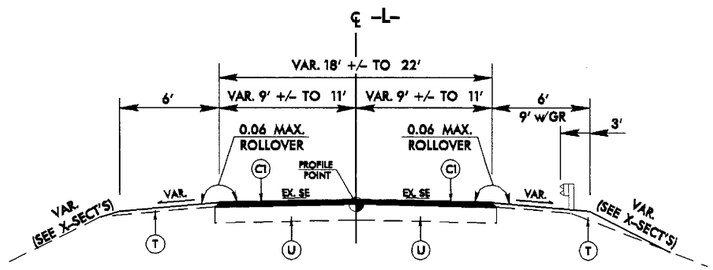
PAVEMENT SCHEDULE

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. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL)

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



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

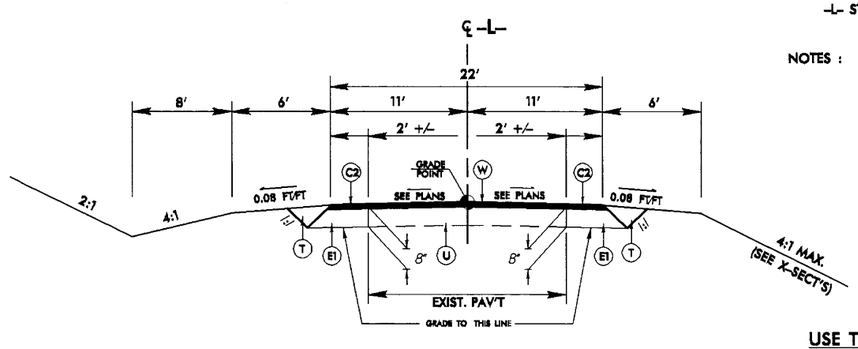
USE TYPICAL SECTION NO. 1 AS FOLLOWS:

–L– STA. 12+00.00 TO –L– STA. 13+00.00
–L– STA. 29+50.00 TO –L– STA. 30+50.00

NOTES : DEVELOP SHOULDER FROM –L– STA. 11+75.00 RT. TO –L– STA. 12+00.00 RT.

TRANSITION FROM EXISTING WIDTH TO 22' FROM –L– STA. 12+00.00 TO –L– STA. 13+00.00

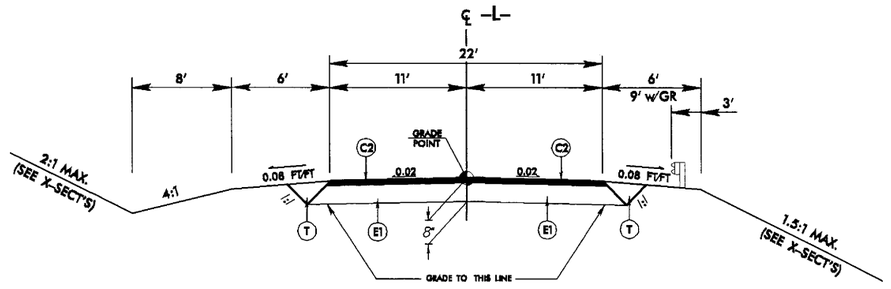
TRANSITION FROM 22' TO EXISTING WIDTH FROM –L– STA. 29+50.00 TO –L– STA. 30+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

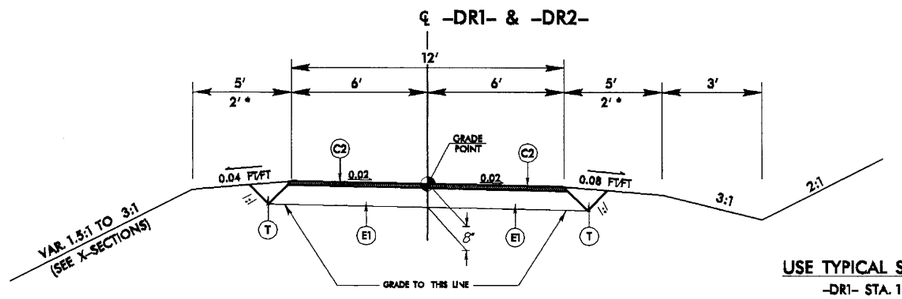
–L– STA. 28+00.00 TO –L– STA. 29+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

–L– STA. 13+00.00 TO –L– STA. 20+76.00 ± (BEGIN BRIDGE)
–L– STA. 22+71.00 ± (END BRIDGE) TO –L– STA. 28+00.00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

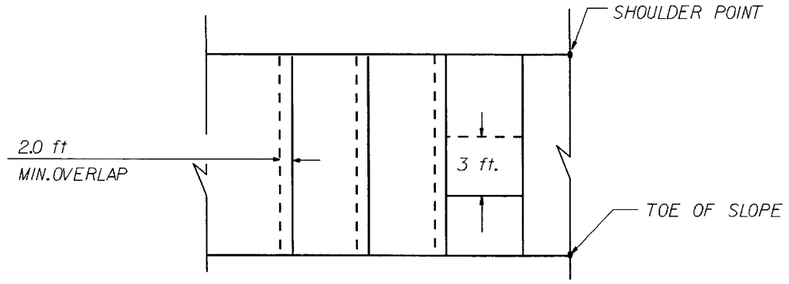
–DR1– STA. 10+18.00 TO –DR1– STA. 11+00.00
* –DR2– STA. 8+82.83 TO –DR2– STA. 13+15.25

NOTE : TRANSITION FROM 12' TO EXISTING WIDTH FROM –DR1– STA. 10+75.00 TO –DR1– STA. 11+00.00

22-DEC-2006 11:57
r:\roadway\pp94\b4298_rdy_typ.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4298	2-B

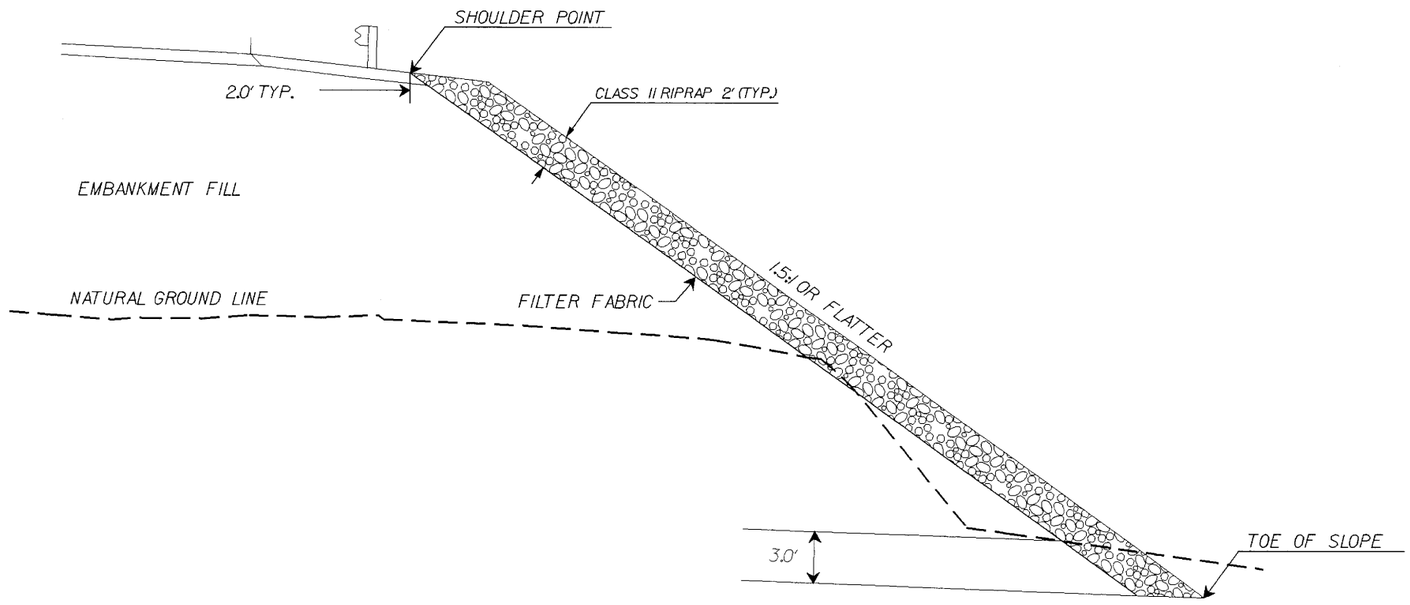


FILTER FABRIC OVERLAP DETAIL

N.T.S.

NOTES:

SEE THE SPECIAL PROVISION FOR ROCK PLATING FOR DETAILED REQUIREMENTS OF MATERIALS AND CONSTRUCTION.



TYPICAL SECTION

N.T.S.

ESTIMATED QUANTITIES:

PLAIN RIP RAP, CLASS II: 460 TONS
FILTER FABRIC FOR DRAINAGE: 540 SQ. YD.

PROJECT B-4298
VANCE COUNTY
STATION 10+75 -DR1- TO 20+65 -L-
(RIGHT SIDE)

NORTH CAROLINA PROFESSIONAL SEAL 26962 ENGINEER ERIC N. WILLIAMS

DRAWN: WDF
DATE: 02/28/06

DESIGN: ENW
DATE: 02/28/06

CHECK: JRB
DATE: 02/28/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

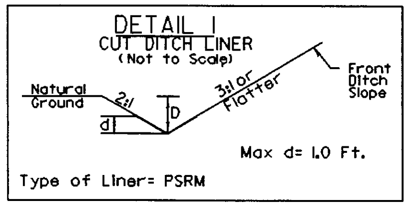
ROCK PLATING DETAIL

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4298	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

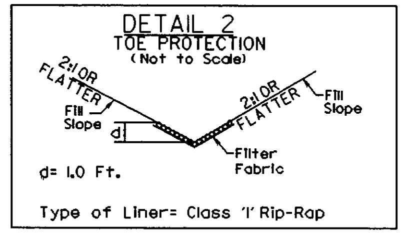
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

For PSRM Placement Only

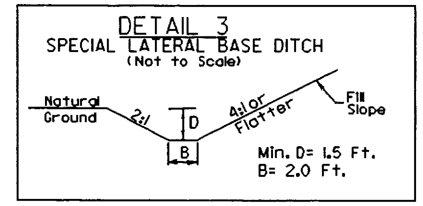


FROM STA. 12+00 TO STA. 19+44 -L- LT
EST. 496 S.Y. of PSRM
FROM STA. 9+00 TO STA. 12+50 -DR2- RT
EST. 238 S.Y. of PSRM

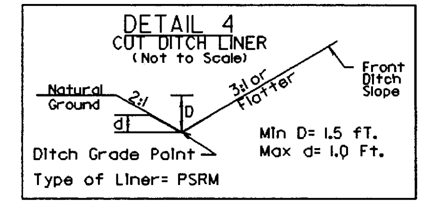
***LINE PROP. CUT DITCH FROM STA. 27+00 TO 29+50 -L- LT W/PSRM. USE THIS DETAIL FOR PLACEMENT**



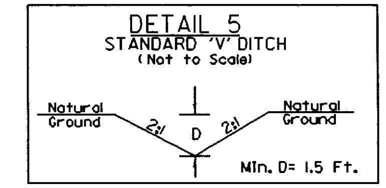
FROM STA. 20+00 TO STA. 20+67 -L- LT
(EST 33 TONS 45 S.Y. F.F.)
FROM STA. 10+29 TO STA. 10+63 -DR1- RT
(EST 14 TONS 19 S.Y. F.F.)



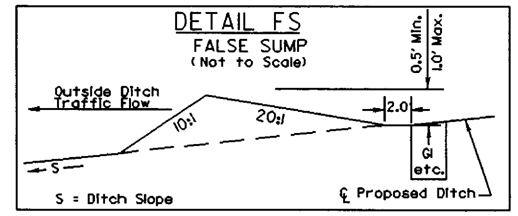
FROM STA. 23+40 TO STA. 24+00 -L- LT



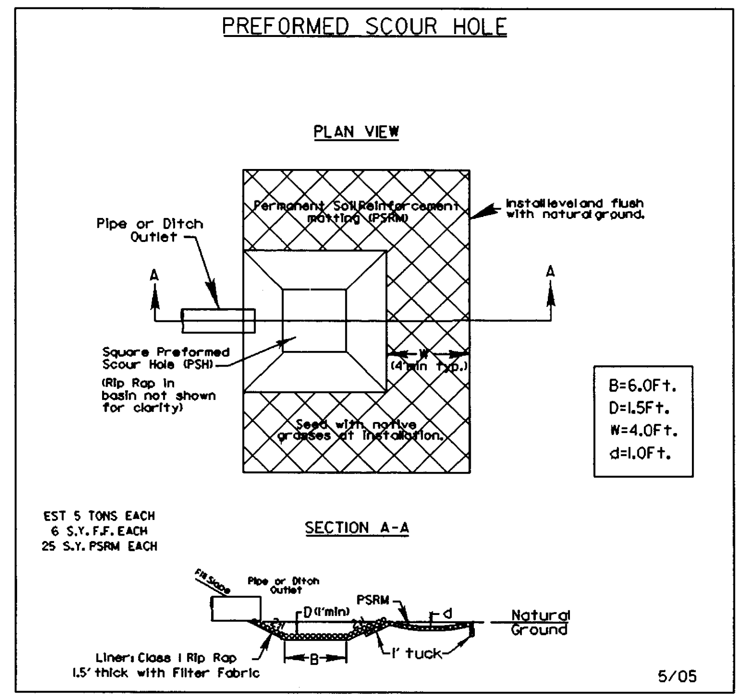
FROM STA. 29+50 TO STA. 30+50 -L- LT
EST. 233 S.Y. of PSRM
FROM STA. 12+50 TO STA. 13+00 -DR2- RT
EST. 34 S.Y. of PSRM



@ STA. 26+00 -L- RT
EST. 61 C.Y. DDE



SEE PLANS FOR LOCATIONS



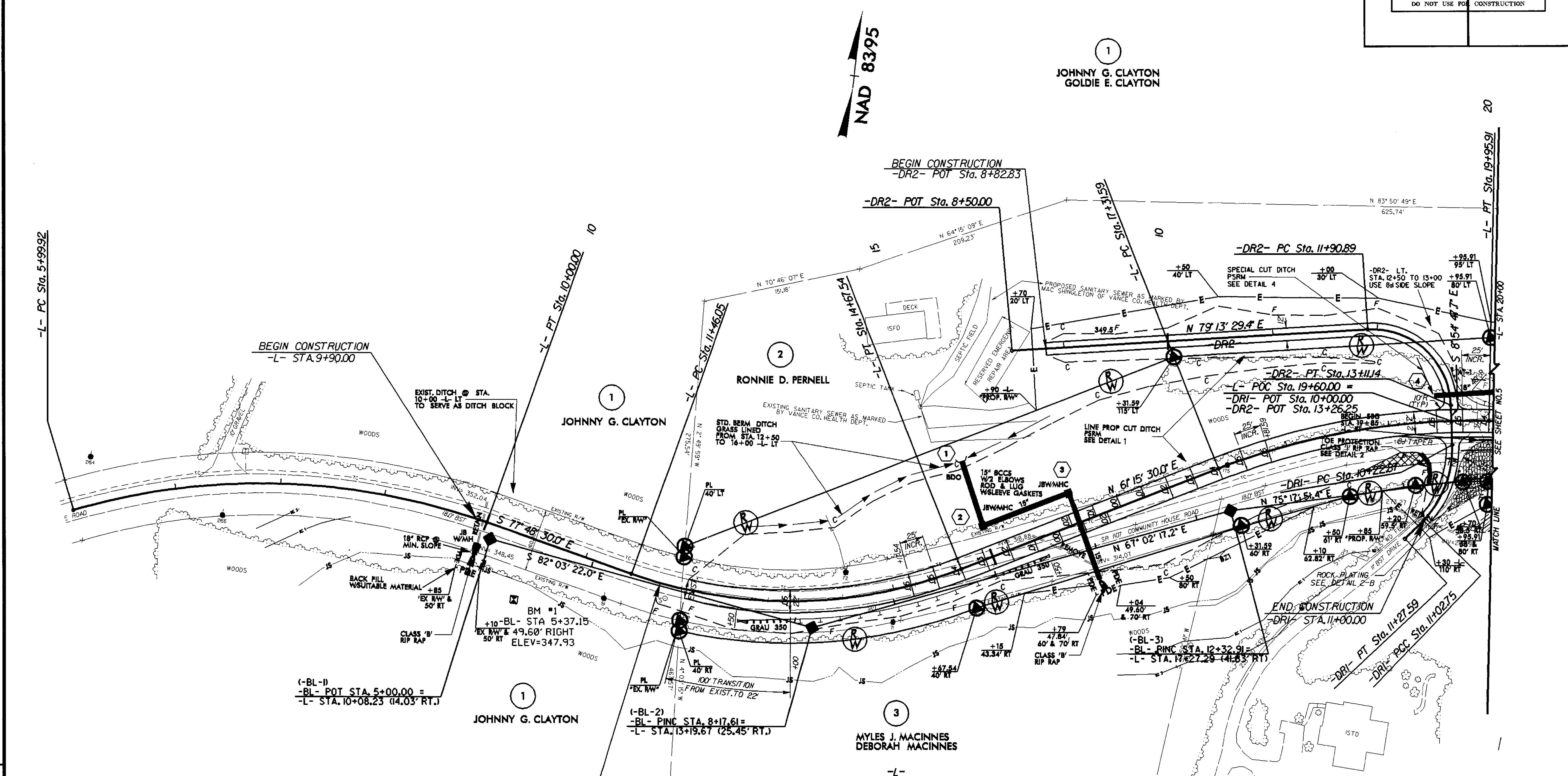
@ STA. 23+39 -L- RT
@ STA. 21+17 -L- LT

PSRM = Permanent Soil Reinforcement Matting

22-DEC-2006 11:57
R:\Drainage\ditch_detail_b4298.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4298	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L- POC STA. 11 + 75.00
BEGIN PROJECT B-4298

-L-

PI Sta 8+06.80	PI Sta 13+14.00	PI Sta 18+65.55
Δ = 35° 57' 22.7" (RT)	Δ = 40° 56' 00.0" (LT)	Δ = 22° 56' 45.0" (RT)
D = 8° 59' 14.1"	D = 12° 43' 56.6"	D = 8° 40' 52.2"
L = 400.08'	L = 321.49'	L = 264.32'
T = 206.88'	T = 167.95'	T = 133.95'
R = 637.52'	R = 450.00'	R = 660.00'

-DRI-

PI Sta 10+65.08	PI Sta 11+15.17
Δ = 45° 46' 03.1" (RT)	Δ = 2° 52' 44.7" (RT)
D = 57° 17' 44.8"	D = 11° 35' 20.2"
L = 79.88'	L = 24.84'
T = 42.21'	T = 12.42'
R = 100.00'	R = 494.40'

-DR2-

PI Sta 12+68.37
Δ = 91° 51' 42.9" (RT)
D = 76° 23' 39.7"
L = 120.25'
T = 77.48'
R = 75.00'

NOTES: (1) SEE SHEET 6 FOR -L- & -DRI- PROFILES. AND SHEET 7 FOR -DR2- PROFILE
(2) SEE SHEET 2-A FOR DITCH DETAILS

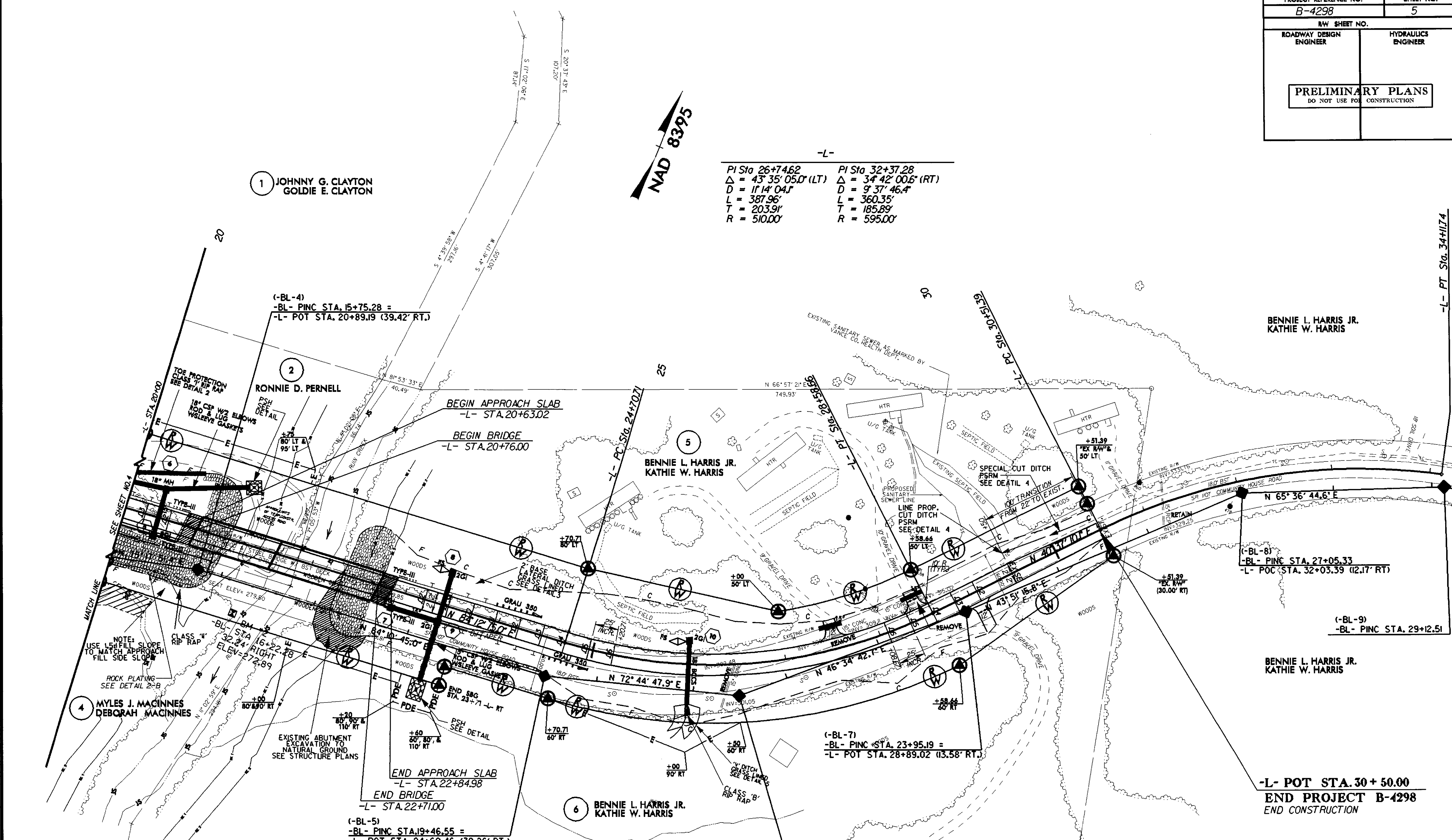
REVISIONS
10/02/06 R/W REV.: PARCEL 2 - ADDED DRIVE AND T.C.E.; PARCEL 4 - REDUCED PROPOSED R/W AT -DRI-.sls

8/17/99

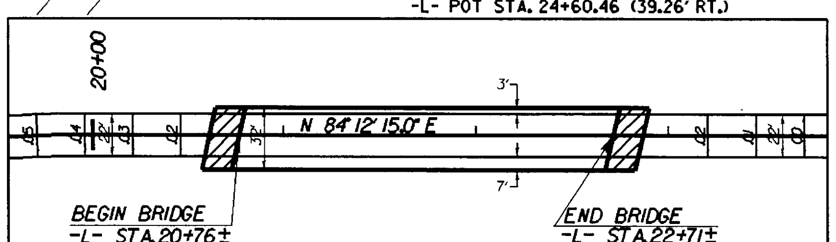
22-DEC-2006 11:57

PROJECT REFERENCE NO.	SHEET NO.
B-4298	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83/95
-L-
PI Sta 26+74.62
Δ = 43° 35' 05.0" (LT)
D = 11° 14' 04.1"
L = 387.96'
T = 203.91'
R = 510.00'
PI Sta 32+37.28
Δ = 34° 42' 00.6" (RT)
D = 9° 37' 46.4"
L = 360.35'
T = 185.89'
R = 595.00'
1 JOHNNY G. CLAYTON
GOLDIE E. CLAYTON
2 RONNIE D. PERNELL
4 MYLES J. MACINNES
DEBORAH MACINNES
5 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
6 BENNIE L. HARRIS JR.
KATHIE W. HARRIS
BENNIE L. HARRIS JR.
KATHIE W. HARRIS
(-BL-4)
-BL- PINC STA. 15+75.28 =
-L- POT STA. 20+89.19 (39.42' RT.)
BEGIN APPROACH SLAB
-L- STA. 20+63.02
BEGIN BRIDGE
-L- STA. 20+76.00
END APPROACH SLAB
-L- STA. 22+84.98
END BRIDGE
-L- STA. 22+71.00
(-BL-5)
-BL- PINC STA. 19+46.55 =
-L- POT STA. 24+60.46 (39.26' RT.)
(-BL-6)
-BL- PINC STA. 21+47.99 =
-L- POC STA. 26+50.35 (32.55' RT.)
(-BL-7)
-BL- PINC STA. 23+95.19 =
-L- POT STA. 28+89.02 (13.58' RT.)
(-BL-8)
-BL- PINC STA. 27+05.33
-L- POC STA. 32+03.39 (12.17' RT)
(-BL-9)
-BL- PINC STA. 29+12.51
-L- PC Sta. 24+70.71
-L- PT Sta. 28+58.66
-L- PC Sta. 30+51.39
-L- PT Sta. 34+11.74
-L- STA. 20+00
SEE SHEET NO. 4
MATCH LINE
N 84° 12' 15.0" E
N 72° 44' 47.9" E
N 46° 34' 42.1" E
N 43° 51' 15.8" E
N 65° 36' 44.6" E
TOE PROTECTION CLASS 'I' RIP RAP SEE DETAIL 2
18" CSP W/2 ELBOWS ROD & LUG W/SLEEVE GASKETS
CLASS 'II' RIP RAP
NOTE: USE 1.5:1 FILL SLOPE TO MATCH APPROACH FILL SIDE SLOPE
ROCK PLATING SEE DETAIL 2-B
EXISTING ABUTMENT EXCAVATION TO NATURAL GROUND SEE STRUCTURE PLANS
PSH SEE DETAIL
'V' DITCH GRASS LINED SEE DETAIL
CLASS 'B' RIP RAP
SPECIAL CUT DITCH PSRM SEE DETAIL 4
LINE PROP. CUT DITCH PSRM SEE DETAIL 4
EXISTING SANITARY SEWER AS MARKED BY VANCE CO. HEALTH DEPT.
SEPTIC FIELD
WOODS
REMOVE
RETAIN
20
25
30
-L- POT STA. 30+50.00
END PROJECT B-4298
END CONSTRUCTION



SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
NOT TO SCALE

NOTES: (1) SEE SHEET 7 FOR -L- PROFILE
(2) SEE SHEETS S-1 TO S- FOR STRUCTURE DETAILS
(3) SEE SHEET 2-A FOR DITCH DETAILS

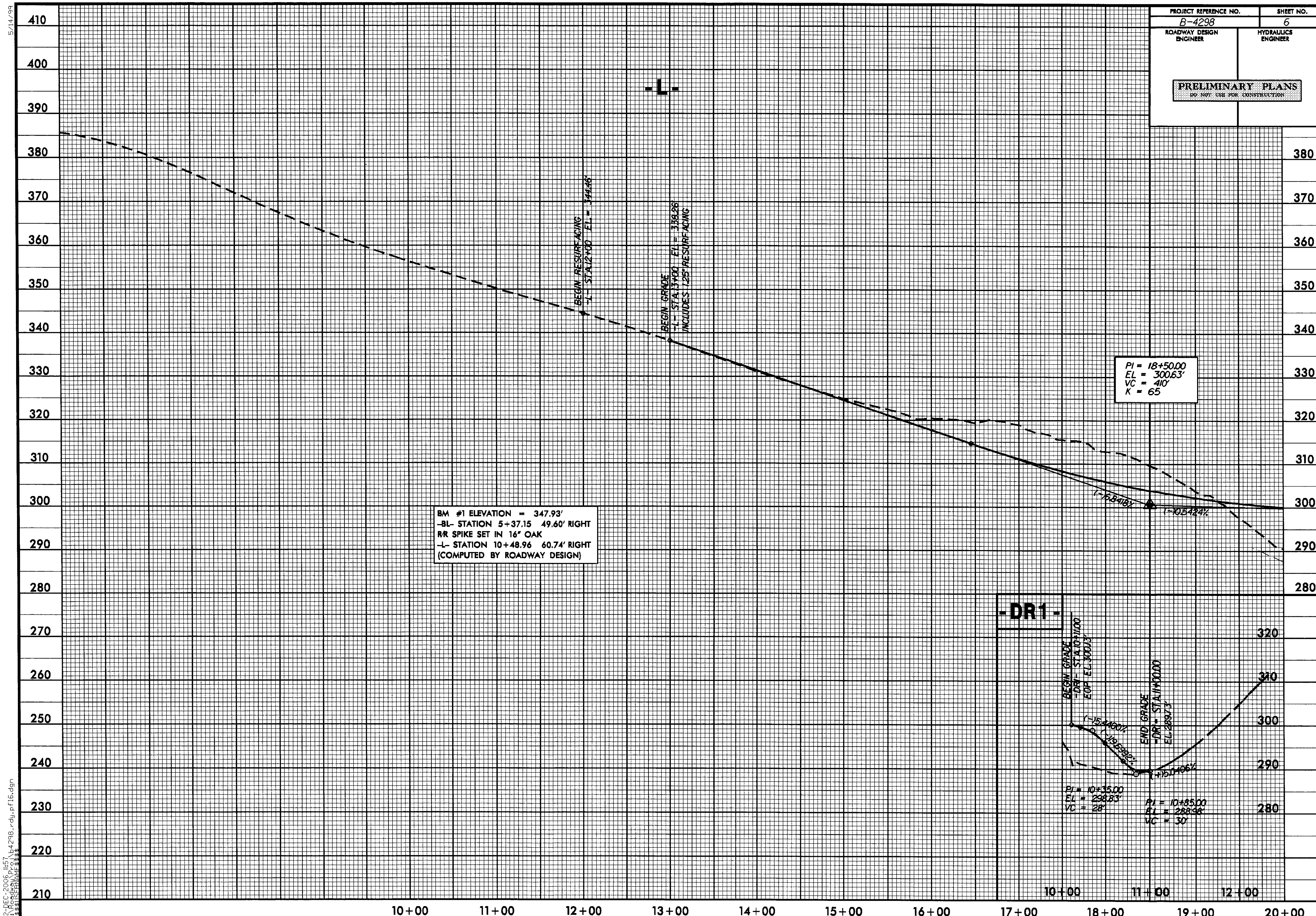
REVISIONS
12/13/06 R/W REV. PARCEL 6 - REDUCED PDE

8/17/99

22-DEC-2006 11:57
b4298_rdy_psh5.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4298	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

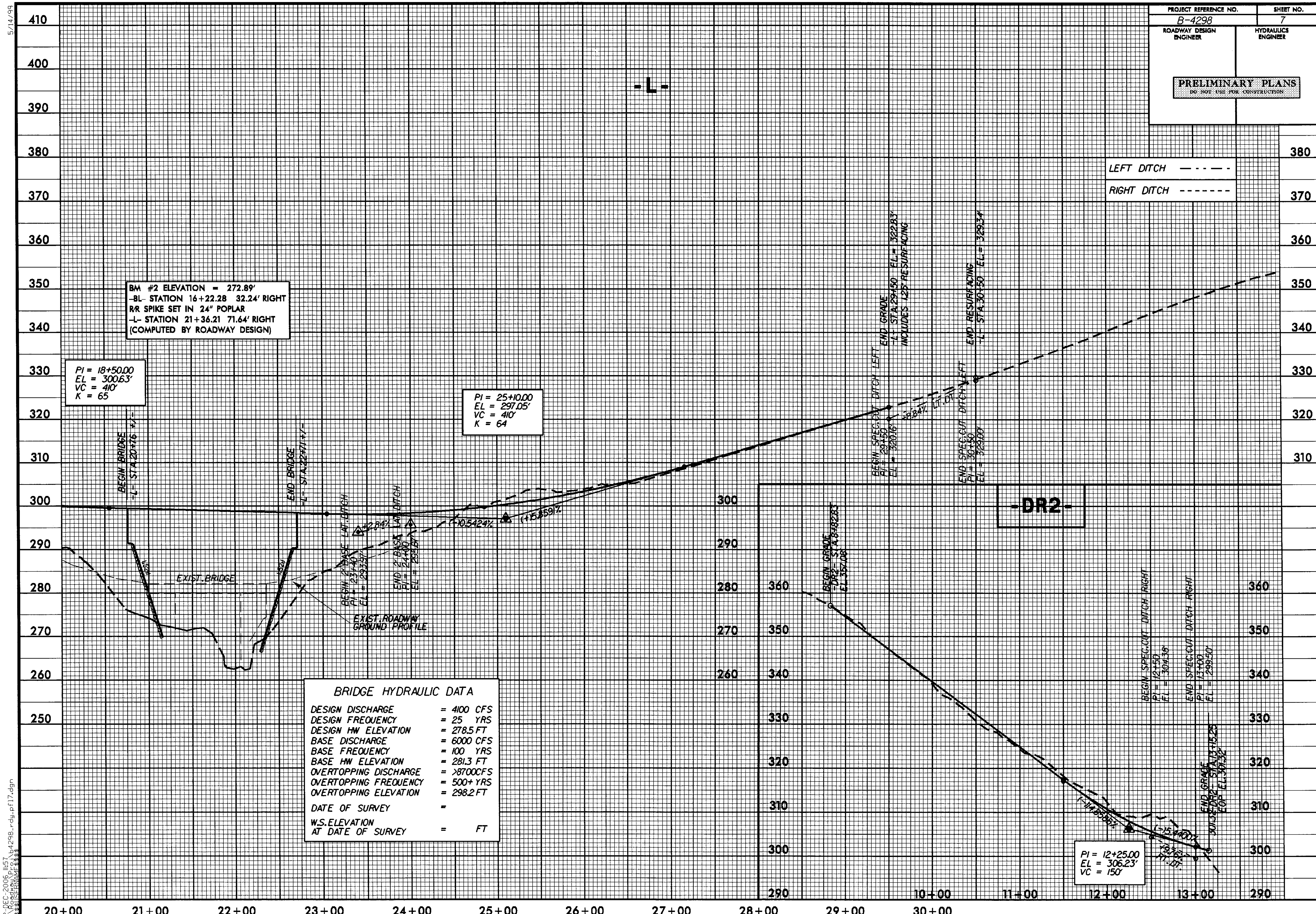
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-
BEGIN RESURFACING
-L- STA.12+00 EL = 344.46'
BEGIN GRADE
-L- STA.13+00 EL = 338.26'
INCLUDES 1.25" RESURFACING
PI = 18+50.00
EL = 300.63'
VC = 410'
K = 65
(-)6.8418%
(+)0.5424%
BM #1 ELEVATION = 347.93'
-BL- STATION 5+37.15 49.60' RIGHT
R/R SPIKE SET IN 16" OAK
-L- STATION 10+48.96 60.74' RIGHT
(COMPUTED BY ROADWAY DESIGN)
-DR1-
BEGIN GRADE
-DR1- STA.10+11.00
EOP EL.300.13'
END GRADE
-DR1- STA.11+00.00
EL.289.73'
(-)5.4400%
(-)19.6992%
(+)5.0406%
PI = 10+35.00
EL = 298.83'
VC = 28'
PI = 10+85.00
EL = 288.98'
VC = 30'
410
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260
250
240
230
220
210
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00

5/14/99

22-DEC-2006 11:57
R:\Roadway\Proj\b4298_rdy-pf16.dgn
$$$$USERNAME$$$$



PROJECT REFERENCE NO. B-4298
SHEET NO. 7
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L-
LEFT DITCH
RIGHT DITCH
BM #2 ELEVATION = 272.89'
-BL- STATION 16+22.28 32.24' RIGHT
R/R SPIKE SET IN 24" POPLAR
-L- STATION 21+36.21 71.64' RIGHT
(COMPUTED BY ROADWAY DESIGN)
PI = 18+50.00
EL = 300.63'
VC = 410'
K = 65
PI = 25+10.00
EL = 297.05'
VC = 410'
K = 64
BEGIN BRIDGE -L- STA.20+76 +/-
END BRIDGE -L- STA.22+71 +/-
EXIST. BRIDGE
EXIST. ROADWAY GROUND PROFILE
BEGIN 2' BASE LAT. DITCH PI = 23+40 EL = 293.57'
END 2' BASE LAT. DITCH PI = 24+00 EL = 295.07'
(-10.5424%
(+15.859%)
(+2.84%
BEGIN SPEC. CUT DITCH LEFT PI = 29+50 EL = 320.16'
END GRADE -L- STA.29+50 EL.= 322.83' INCLUDES 125' RESURFACING
END SPEC. CUT DITCH LEFT PI = 30+50 EL = 329.09'
END RESURFACING -L- STA.30+50 EL.= 329.34'
-DR2-
BEGIN GRADE -DR2- STA.8+28.83 EL.357.08
BEGIN SPEC. CUT DITCH RIGHT PI = 12+50 EL = 304.38'
END SPEC. CUT DITCH RIGHT PI = 13+00 EL = 299.50'
END GRADE -DR2- STA.13+15.23 EL.301.32' EOP
PI = 12+25.00
EL = 306.23'
VC = 150'
410 400 390 380 370 360 350 340 330 320 310 300 290 280 270 260 250
20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00
10+00 11+00 12+00 13+00
5/14/99
22-DEC-2006 11:57
R:\Roadway\Proj\b4298_rdy_pf17.dgn

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4100 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 278.5 FT
BASE DISCHARGE	= 6000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 281.3 FT
OVERTOPPING DISCHARGE	= >8700CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 298.2 FT
DATE OF SURVEY	=
W.S. ELEVATION AT DATE OF SURVEY	= FT

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-1

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

380 370 360 350 340

350.75

11+00.00

353.25

10+50.00

356.36

10+00.00

—/—

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

22-DEC-2006 11:57
R:\Roadway\Xsc\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-2

12+50.00

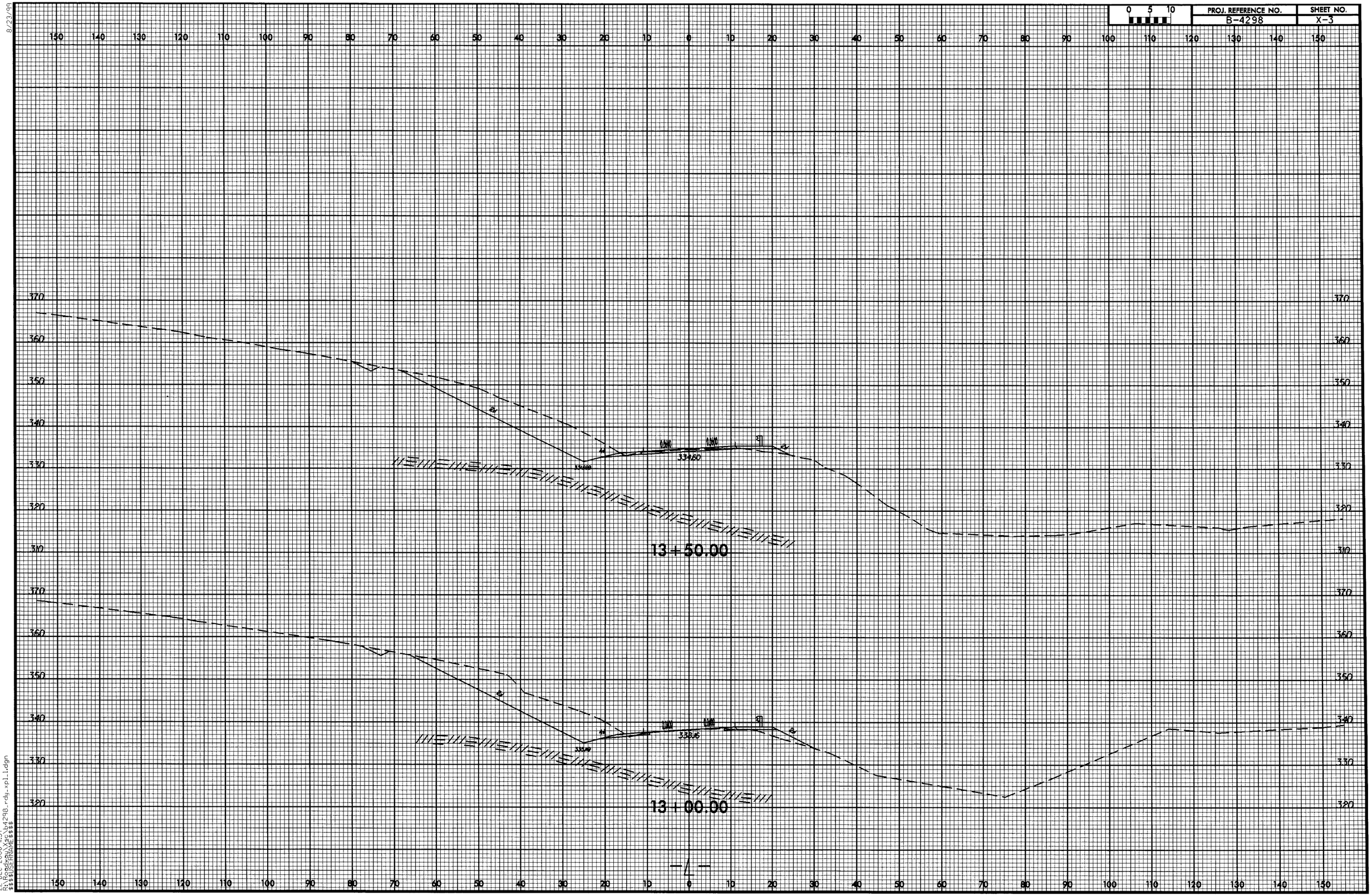
12+00.00

11+50.00

22-DEC-2006 11:57
$$$$USERNAME$$$$
c:\projects\b4298.rdy_xpl1.dgn

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-3



22-DEC-2006 11:57
R:\Roadway\xsc\b4298_rdy_xpl_1.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-4

14+50.00

14+00.00

22-DEC-2006 11:57
R:\Roadway\xs\b4298.rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-5

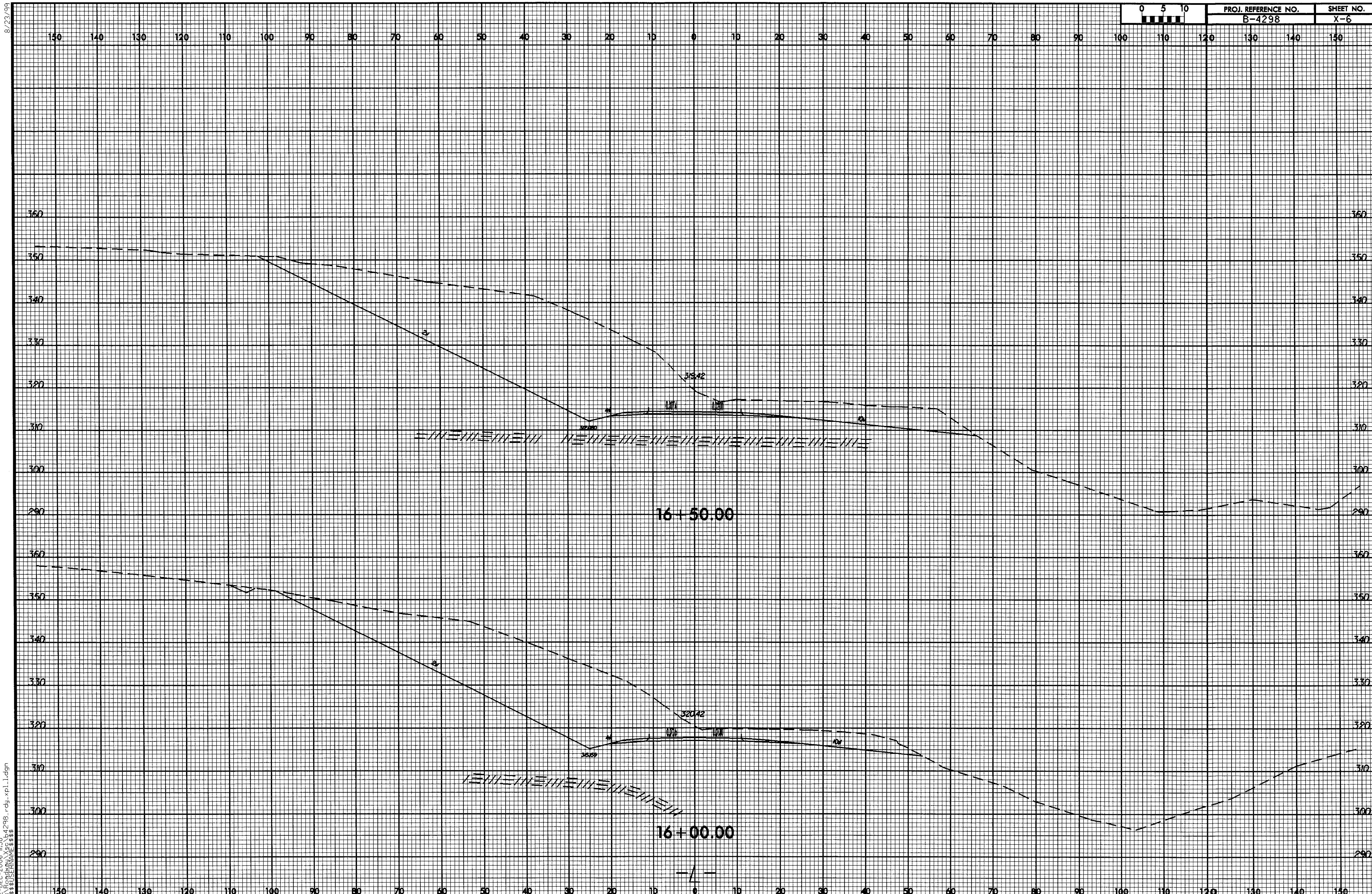
15+50.00

15+00.00

22-DEC-2006 11:57
R:\Roadway\xsc\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$

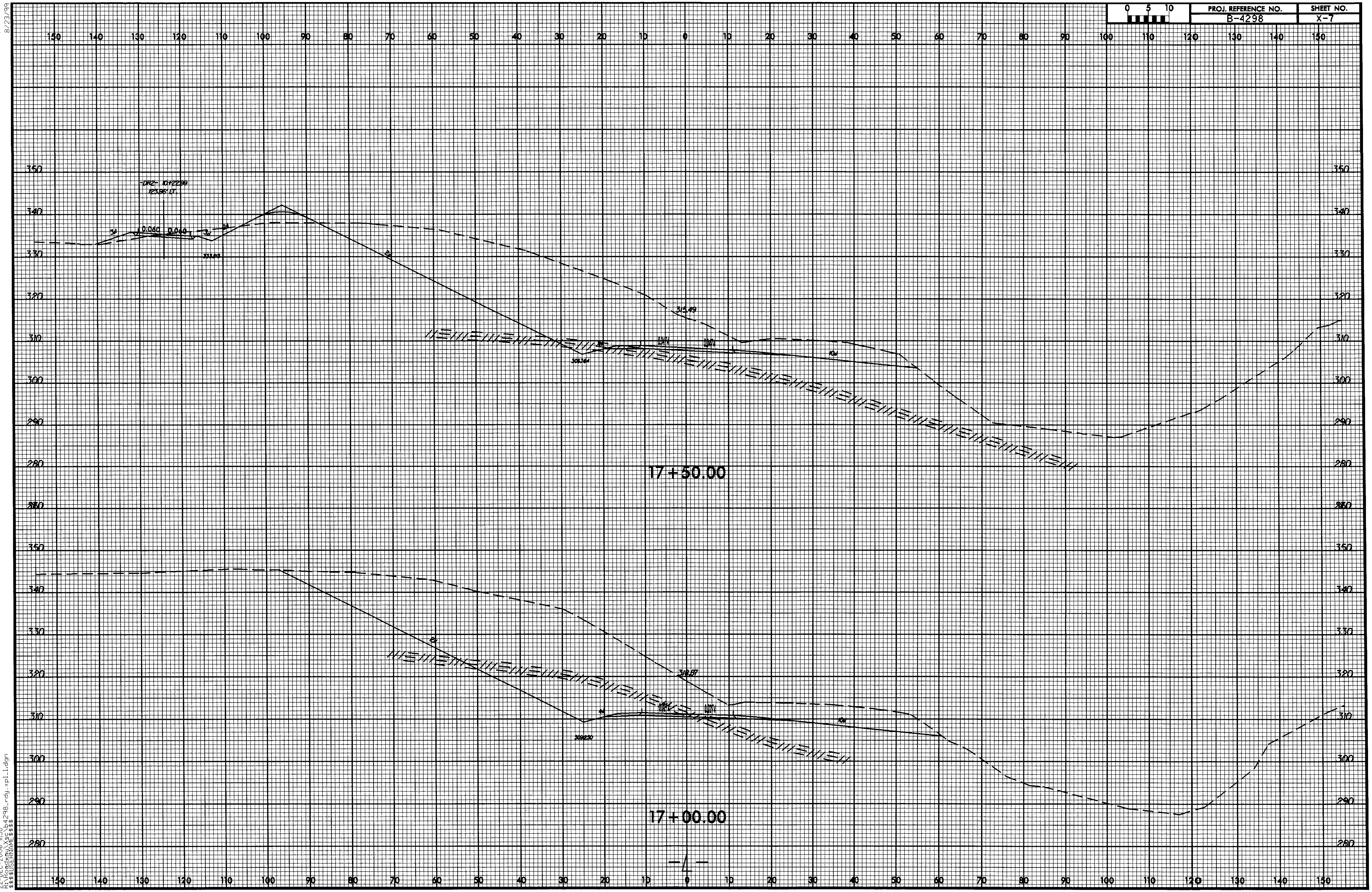
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-4298	X-6



22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl_1.dgn
$$$$USERNAME$$$$

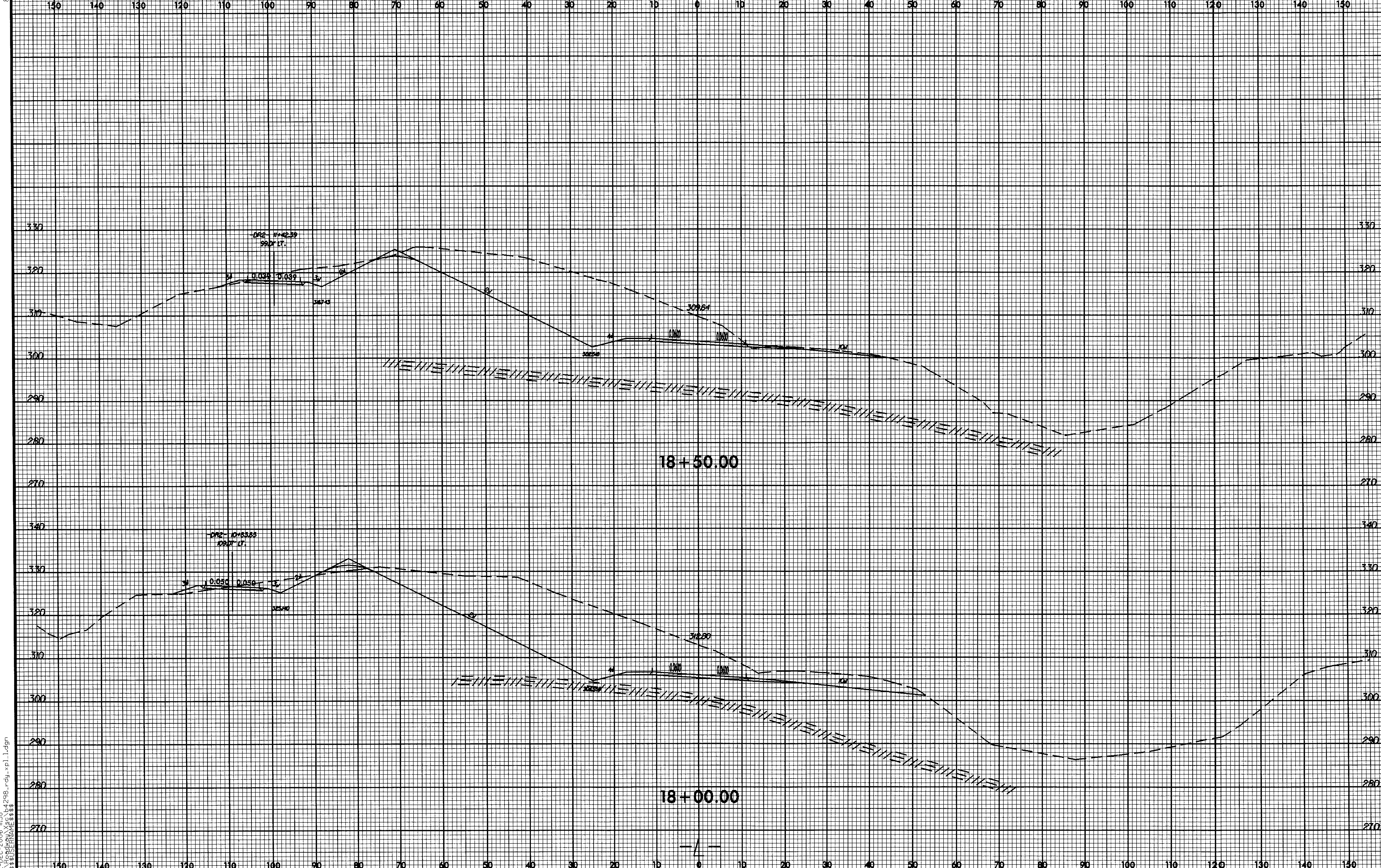
8/23/99



22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

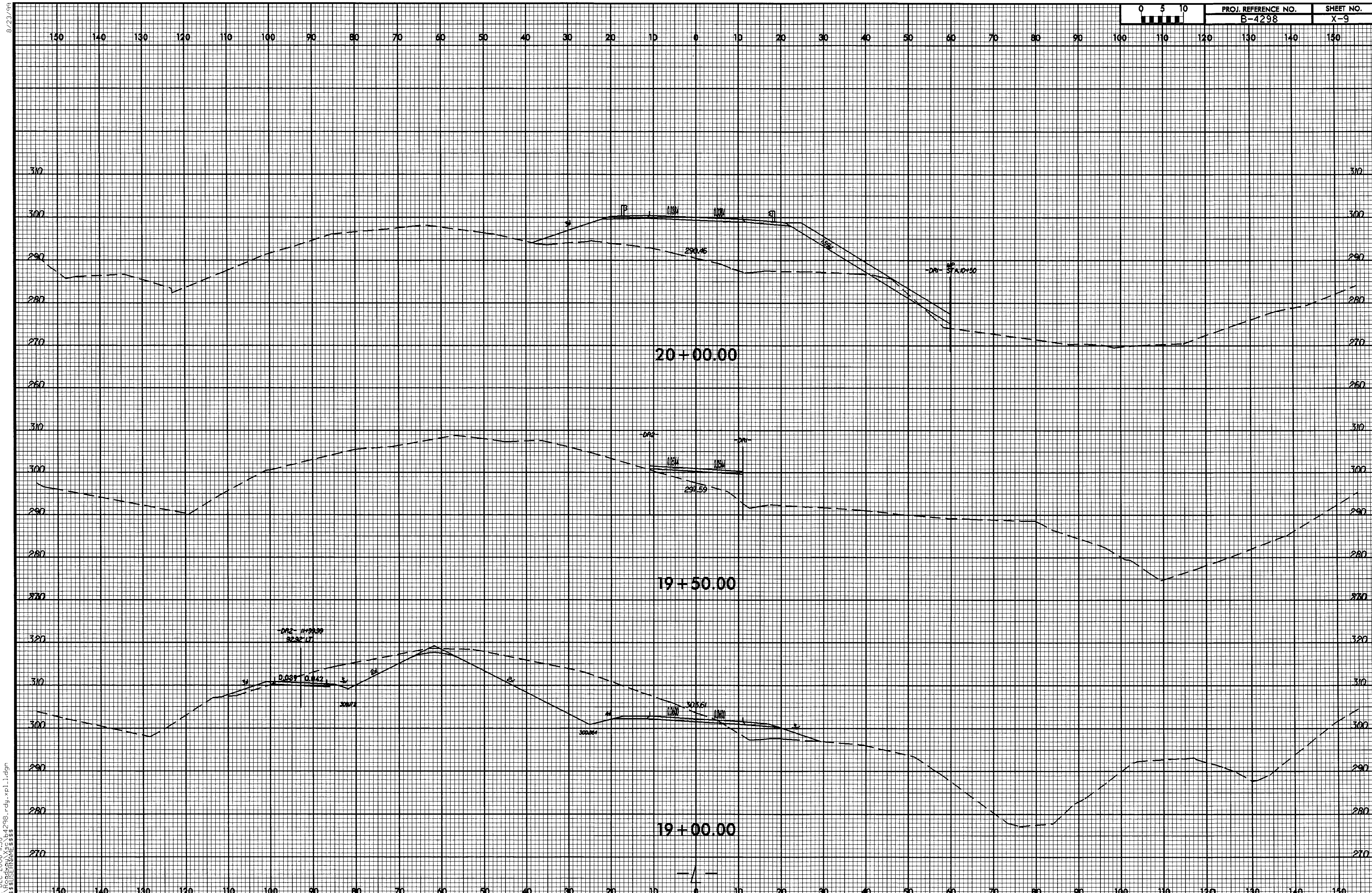
PROJ. REFERENCE NO.	SHEET NO.
B-4298	X-8



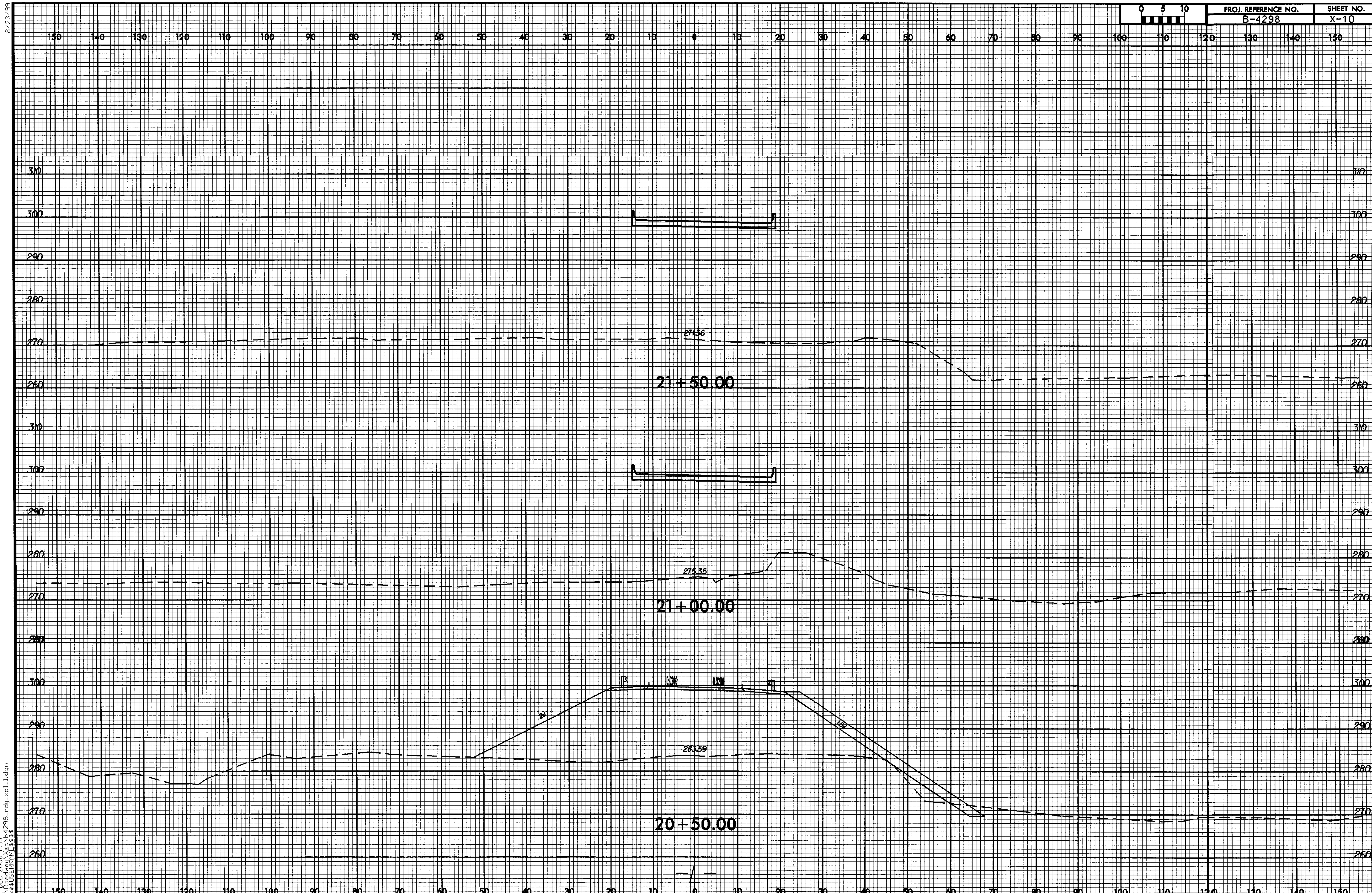
22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
B-4298	X-9



22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl_1.dgn
$$$$USERNAME$$$$



22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$
8/23/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-11

23+00.00

22+50.00

22+00.00

22-DEC-2006 11:58
C:\projects\b4298\b4298.rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-12

24+50.00

293.69

24+00.00

290.30

23+50.00

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-13

26+00.00

25+50.00

25+00.00

22-DEC-2006 11:58
R:\Roadway\xs\b4298_rdy_xpl1.dgn
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-14

28+00.00

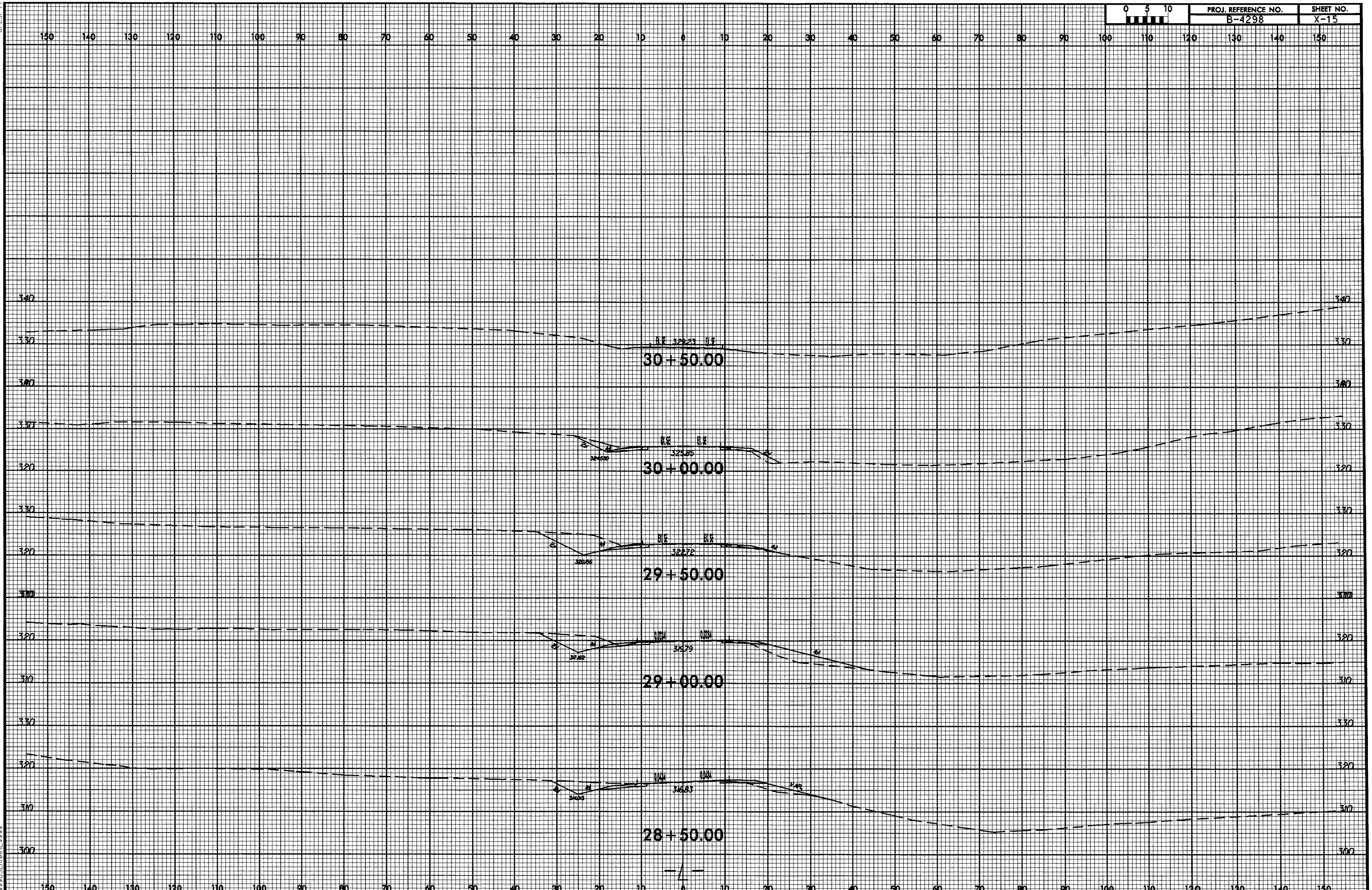
27+50.00

27+00.00

26+50.00

22-DEC-2006 11:58
R:\Roadway\xs\b4298_rdy_xp11.dgn
$$$USERNAME$$$

PROJ. REFERENCE NO.	SHEET NO.
B-4298	X-15

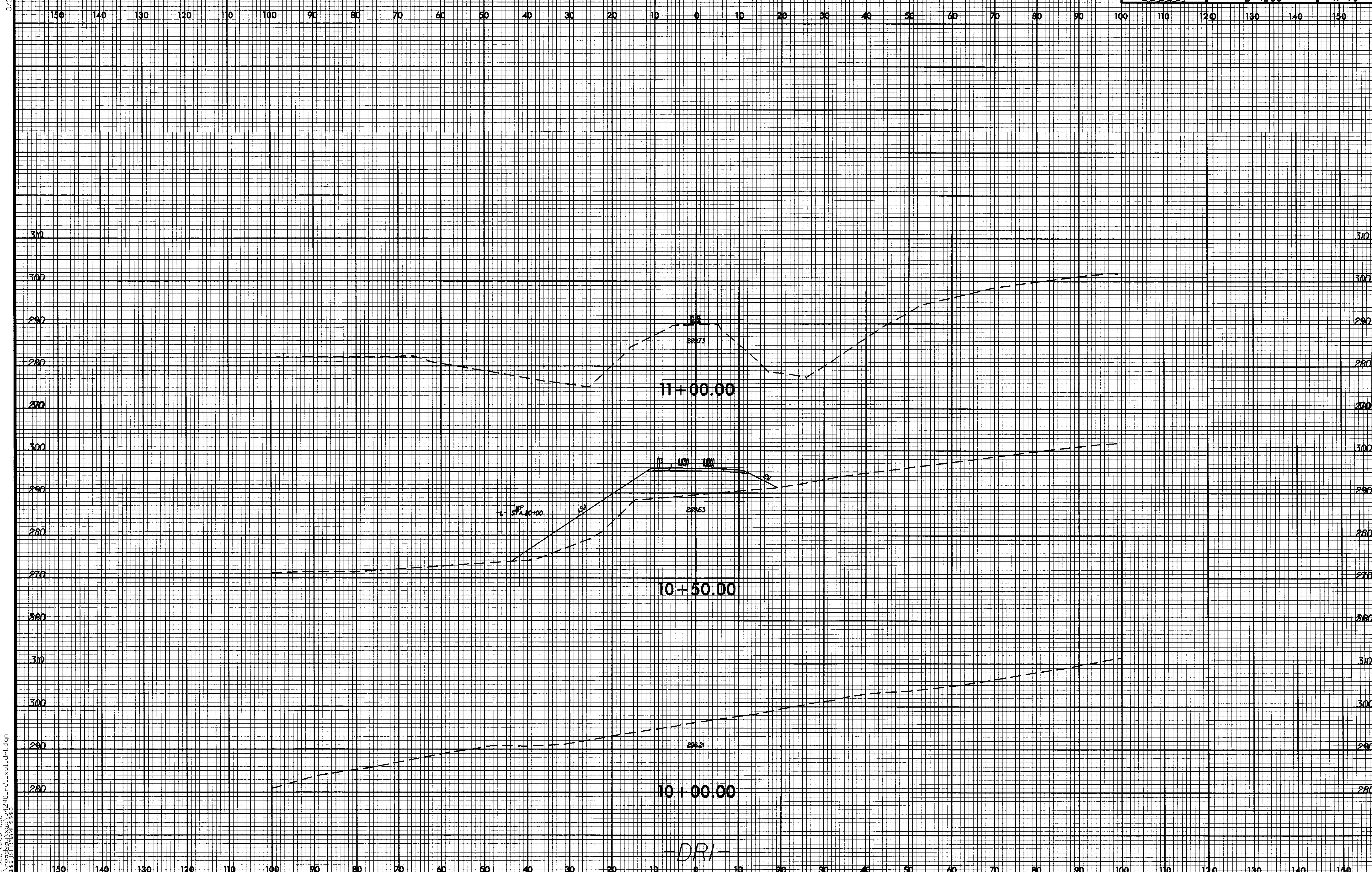


8/23/99

22-DEC-2006 11:58
R:\Roadway\Xsc\b4298_rdy_xpl_1.dgn
$$$$USERNAME$$$$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4298	X-16

8/23/99



22-DEC-2006 11:58
r:\roadway\xsc\b4298_rdy_xpl_dr1.dgn
$$$$USERNAME$$$$

Vance County
Bridge No. 3 on SR 1107
Over Ruin Creek
Federal Aid Project No. BRZ-1107(8)
State Project No. 8.2390801
WBS No. 33635.1.1
T.I.P. No. B-4298

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

1/28/05
DATE

for Gregory J. Thorpe, PhD, Environmental Management Director
Project Develoment and Environmental Analysis Branch (PDEA)

3/24/05
DATE

for John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration (FHWA)

Vance County
Bridge No. 3 on SR 1107
Over Ruin Creek
Federal Aid Project No. BRZ-1107(8)
State Project No. 8.2390801
WBS No. 33635.1.1
T.I.P. No. B-4298

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

Janurary 2005

Karen B. Capps, PE

Karen B. Capps, PE
Project Planning Engineer

William T. Goodwin Jr.

William T. Goodwin Jr., PE, Unit Head
Bridge Replacement Planning Unit

PROJECT COMMITMENTS

Vance County
Bridge No. 3 on SR 1107
over Ruin Creek
Federal Aid Project No. BRZ-1107(8)
State Project No. 8.2390801
WBS No. 33635.1.1
T.I.P. No. B-4298

Structure Design Unit, Hydraulics Unit

No proposed bents will be allowed in Ruin Creek. Where possible, the proposed bents will be pulled back from the edge of the stream bank ten feet.

Due to erosion concerns, temporary access roads for conveying construction equipment into the floodplain will be stabilized with either rock or timber matting. Rock work pads or timber matting will also be used in the floodplain for construction equipment. No construction equipment will be allowed in Ruin Creek under any circumstances.

No deck drains will be allowed to discharge into Ruin Creek.

Hydraulics Unit, Roadway Design Unit

Storm water runoff will not be channeled from the road directly into the stream. The runoff from the roadway should be allowed to continue to dissipate and sheet flow over the natural vegetation before reaching Ruin Creek. The exception will be in the southwest quadrant with the existing intermittent stream.

Roadside Environmental Unit, Division 5

Special sediment control fence will be used along the toe of slope that runs parallel to Ruin Creek to minimize the risk of adding sediment into the stream. Standard silt fence or temporary silt ditch will be used along the toe of slopes that are perpendicular to Ruin Creek.

Due to the proximity of a federally protected species, all unstabilized areas of the project located within the fifty foot riparian buffer area will be temporarily stabilized during active grading utilizing erosion control blankets, fabric, plastic, or other material(s), approved by the Roadside Environmental Unit, prior to any rain event, as directed by the Engineer on site. The temporary stabilization should be adequately anchored and utilized to prevent the loss of sediment into the water course unless runoff from these areas can be divereted to an adequately designed sediment basin or until the area is stabilized with vegetation.

Project Development and Environmental Analysis Branch, Division 5, Structure Design Unit, Hydraulics Unit, Roadway Design Unit

The project lies within the Tar-Pamlico River Basin and will adhere to all applicable riparian buffer rules.

NCDOT will be required to conduct a mussel survey before construction begins for dwarf wedgemussel. If any individuals of this endangered species found, they will be relocated out of the footprint of the project before construction begins.

Vance County
Bridge No. 3 on SR 1107
over Ruin Creek
Federal Aid Project No. BRZ-1107(8)
State Project No. 8.2390801
WBS No. 33635.1.1
T.I.P. No. B-4298

INTRODUCTION: Bridge No. 3 is included in the 2004-2010 approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 32.7 out of a possible 100 for a new structure. The structural appraisal for the existing bridge is two out of a possible nine and the deck geometry appraisal is two out of a possible nine. Therefore, the structure is considered to be structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located approximately 1.2 miles west of Floytan Crossroads and 6.5 miles southwest of Henderson, N.C. The surrounding area is sparsely developed with residential homes and is largely wooded.

SR 1107 is classified as a rural local route in the Statewide Functional Classification System and it is not a National Highway System Route. This route is not a designated bicycle route and there is no indication that an unusual number of bicyclists use this roadway.

In the vicinity of the bridge, SR 1107 has a 17-foot pavement width with 6.0-foot grass shoulders. The roadway grade is in a sag vertical curve through the project area. The existing bridge is on a tangent alignment with curves on each approach. The roadway is situated approximately 20.0 feet above the creek bed.

Bridge No. 3 is a four-span structure that consists of timber decking with an asphalt wearing surface on steel I-beams. The end bents and bents consist of reinforced abutments that have been widened with reinforced concrete caps on timber piles. The existing bridge (see Figures 3A and 3B) was constructed in 1953. The overall length of the structure is 137 feet. The clear roadway width is 19.2 feet. The posted weight limit on this bridge is 14 tons for single vehicles and 19 tons for TTST's.

There are no utilities visible in the immediate area. Overhead power lines are located on the north side of SR 1107 but terminate approximately 500 feet from the west end of the bridge. A

telephone pedestal is located on the north side of SR 1107 approximately 200 feet west of the bridge. There are no indications that the underground telephone line crosses Ruin Creek.

The current traffic volume of 600 vehicles per day (VPD) is expected to increase to 1200 VPD by the year 2025. The projected volume includes one percent truck-tractor semi-trailer (TTST) and two percent dual-tired vehicles (DT). The speed limit is posted at 45 mph in the project vicinity. The bridge marks the boundary between two school zones. Currently, three school buses cross the bridge on their morning and afternoon routes. Two of the buses cross the bridge to safely turn around and one is a through bus. Bus turnarounds will need to be provided during the construction of the project.

One accident was reported in the vicinity of Bridge No. 3 involving a single vehicle during a recent three-year period. Alcohol use and reckless driving are attributed to the cause of the accident.

III. ALTERNATIVES

A. Project Description

The replacement structure will consist of a bridge approximately 170-feet in length. The bridge will be of sufficient width to provide for two 11-foot travel lanes with a minimum required offset of three feet. The actual offsets to the bridge rail will be finalized based on hydraulic recommendations for accommodating the hydraulic spread.

The roadway grade of the new structure will be higher than the existing grade at this location to accommodate the deeper superstructure depth.

The existing roadway will be widened to a 22-foot pavement width to provide two 11-foot travel lanes. Six-foot grass shoulders will be provided on each side, widened to nine feet where guardrail is required. This roadway will continue to be designed as a rural local route.

B. Reasonable and Feasible Alternatives

The two alternatives for replacing Bridge No. 3 that were studied are described below.

Alternative 1 involves replacement of the structure along the existing roadway alignment. Improvements to the approach roadways would be required for a distance of approximately 600 feet to the west and 760 feet to the east of the structure. Traffic will be detoured offsite (see Figure 1) during the construction period. The unnamed tributary located southwest of the existing bridge would be impacted as well as the wetlands located at the junction of the tributary and Ruin Creek.

Alternative 2 (Preferred) involves replacement of the structure on a new alignment to the north of the existing bridge. Improvements to the approach roadways would be required for a distance of approximately 1170 feet to the west and 1115 feet to the east of the structure. The additional approach work is required to maintain a safe, horizontal alignment. Traffic will be detoured

offsite during construction. There are two potential relocatees on the project due to interference with the septic fields.

C. Alternatives Eliminated From Further Consideration

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1107.

"Rehabilitation" of the old bridge is not practical due to its age and deteriorated condition. The existing structure is composed of timber decking, timber rails and steel I-beams. The steel I-beams have significant rusting on the top flanges.

D. Preferred Alternative

Bridge No. 3 will be replaced on new alignment as shown by Alternative 2 in Figure 2. Alternative 2 avoids impacts to the wetlands southwest of the roadway and the tributary adjacent to the roadway that feeds into the wetlands. This alternate has potentially two relocatees. Four residents are located northeast of the bridge and the proposed alignment impacts the septic field of two of these residents. The property impacted is rental property and the landowner has property located on both sides of the road east of the existing bridge. Therefore, the potential exists for either relocating the mobile homes in the immediate project vicinity on another section of the owner's property or relocating the septic fields.

Alternative 1 impacts the tributary and wetlands adjacent to the roadway. Normally, relocating the stream and performing bank restoration mitigates impacts to the buffer areas. However, both the NCDOT Hydraulics Unit and the NCDOT Office of Natural Environment stated that the very hilly topography at this location makes relocating the stream not practical.

NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 1101, SR 1103, SR 1613 (Granville Co.), SR 1615 (Granville Co.) and SR 1110. The detour for the average road user would result in 13 minutes additional travel time (9.3 miles additional travel). The additional travel time for the assumed length of road closure of one year justifies the use of the existing bridge as an onsite detour at this location. Vance County Emergency Management Systems and Vance County School Transportation both stated that the use of an offsite detour would not negatively impact their operations. Using the existing bridge during construction would require that the proposed alignment be shifted further north in order to provide adequate distance for construction between the two structures. This shifted alignment would cause further impacts to the residents on the northeast side and additional environmental impacts due to the loss of mature vegetation. Therefore, the use of an offsite detour is acceptable and will be utilized for the proposed project.

The NCDOT Division 5 Engineer concurs with the selection of Alternative 2 as the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs for the preferred alternative is as follows:

	Alternative 1	Alternative 2 (Preferred)
Structure	$ 430,500	$ 430,500
Roadway Approaches	$ 187,010	$ 461,625
Structure Removal	$ 21,600	$ 21,600
Misc. & Mob.	$ 150,890	$ 276,275
Eng. & Contingencies	$ 110,000	$ 210,000
Total Construction Cost	$ 900,000	$ 1,400,000
Right-of-way Costs	$ 48,750	$ 109,325
Total Project Cost	$ 948,750	$ 1,509,325

V. NATURAL RESOURCES

A. Introduction

The purpose of this study is to provide an evaluation of biological resources in the area of the proposed project. The proposed project is located within the Lower Piedmont physiographic province of North Carolina, with elevations in the project area ranging from 260 to 320 feet. The project area is predominantly forested land with sparse residental development. The hydric soil within the project study area is Chewacla silt loam.

B. Physical Characteristics

Soils

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. The two soils found within the project study area are Chewacla silt loam and Cecil sandy clay loam, 8 to 15 percent slopes, eroded. The report titled Important Farmlands of North Carolina indicate that the Chewacle silt loam is only considered prime farmland if it is located in an area that is either protected from flooding or not frequently flooded during the growing season. None of these conditions exist. Cecil sandy clay loam is not considered prime farmland. Therefore, the proposed project does not affect any prime farmland and is in compliance with the Farmland Protection Act.

Water Resources

The project area is located within sub-basin 03-03-01 of the Tar-Pamlico River Basin (DWQ 1999). This area is part of USGS Hydrologic Unit 03020101 of the South-Atlantic/Gulf Region.

In this area, Ruin Creek has been assigned a Stream Index Number 28-17-2-(2) by the N.C. Division of Water Quality (DWQ 1997). A best usage classification of **C NSW** has been assigned to Ruin Creek. No designated High Quality Waters, Outstanding Resource Waters, Water Supply I, Water Supply II, watershed Critical Area waters occur within one (1.0) mile of the project area.

Ruin Creek is a well-defined, low-order, perennial, Lower Piedmont stream with low to moderate flow over a sandy to cobble substrate. At Bridge No. 3, Ruin Creek is approximately 25 wide from waters edge to waters edge, with moderately steep banks that average 3 feet high. The stream channel is moderately entrenched, has low sinuosity, and a well-defined riffle/pool sequence. The streambed is composed of sand with some gravel and rock, and some large cobbles near the bridge. Ruin Creek is not rated for ambient water quality.

The nearest named tributary to Ruin Creek is Little Ruin Creek (according to USGS mapping), which joins Ruin Creek approximately 0.6 mile upstream (north) of the project area. A small, unnamed intermittent tributary joins Ruin Creek 175 feet downstream of the bridge, with a small length of it flowing through the southwest sector of the project area.

Terrestrial Resources

Three distinct plant communities were identified within the project area: Piedmont/Low Mountain Alluvial Forest, Dry-Mesic Oak-Hickory Forest, and roadside/disturbed land. Plant community areas are estimated based on the amount of each plant community present within the project area. A summary of plant communities contained within the project area is presented in Table 1.

Table 1: Project Area Plant Communities
Areas are given in acres.

Plant Community	Area
Piedmont/Low Mountain Alluvial Forest	1.45
Dry-Mesic Oak-Hickory Forest	1.00
Roadside/Disturbed Land	0.55
Total	3.00

C. Jurisdictional Topics

Surface waters within the embankments of Ruin Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR Section 328.3). NWI mapping depicts Ruin Creek as a palustrine, forested, broad-leaved, deciduous, temporarily flooded wetland (PFO1A; Cowardin *et al.* 1979).

The Tar-Pamlico River Basin Rule applies to 50-foot wide riparian buffers directly adjacent to surface waters in the Tar-Pamlico River Basin. This rule does not apply to portions of the riparian buffer where a use is existing and ongoing. Any change in land use within the riparian buffer is characterized as an impact. The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Existing Riparian Buffers (15A NCAC 02B.0259) provides a designation for uses that cause impacts to riparian buffers within the Tar-Pamlico River Basin.

Bridge No. 3 is a four-span structure that consists of timber decking with an asphalt wearing surface on steel I-beams. The bents consist of reinforced abutments that have been widened with reinforced concrete caps on timber piles. The end bents are a combination of timber bulkhead wing walls and reinforced concrete abutments that have been widened with reinforced concrete caps on timber piles. Only one bent is located adjacent to Ruin Creek. If the demolition is conducted during low flow periods, the bent can be removed without dropping any concrete into Ruin Creek. Therefore, based on approved bridge demolition methods and low-flow conditions, there is no anticipated fill associated with the removal of Bridge No. 3 in Ruin Creek. NCDOT's Best Management Practices for Bridge Demolition and Removal must be applied for the removal of this bridge.

D. Permits

Nationwide Permit #23 (Approved Categorical Exclusions) applies to the impacts to jurisdictional streams in the project study area. Nationwide Permit #33 (Temporary Construction Access, and Dewatering) may be needed for temporary construciton access.

In the event that NWP No. 23 will not suffice, impacts attributed to bridge replacement and associated approach improvements may qualify under General Bridge Permit (GP) 031 issued by the Wilmington COE District. DWQ has made available a General 401 Water Quality Certification for GP 031. Notification to the Wilmington COE office is required if this general permit is utilized. The COE may exert discretionary authority and require an Individual Permit if avoidance and minimization have not been adequately addressed, or if mitigation is inadequate (assuming mitigation may be required).

A Section 401 General Water Quality Certification is also required for any activity that may result in a discharge into waters of the United States. Certifications are administered throught the NCDWQ.

The Tar-Pamlico River Basin Rule applies to 50-foot wide riparian buffers directly adjacent to surface waters of the Tar-Pamlico River Basin. Tar-Pamlico Buffer Certification will be needed in addition to a COE permit and DWQ Water Quality Certification.

E. Federally Protected Species

Species with the federal classification of Endangered, Threatened, Threatened due to Similarity of Appearance, Proposed De-listed, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Federally protected species listed for Vance County (February 5, 2003 FWS list) are presented in Table 3.

Table 3 Federally Protected Species listed for Vance County

Common Name	Scientific Name	Status
Bald Eagle	*Haliaeetus leucocephalus*	T (PD)
Dwarf Wedgemussel	*Alasmidonta heterodon*	E

Bald Eagle **Biological Conclusion: No Effect**

Bald eagles typically nest in tall, living trees in a conspicuous location near open water. Eagles forage over large bodies of water and utilize adjacent trees for perching (Hamel 1992). Disturbance activities within a primary zone extending 750 to 1500 feet from a nest tree are considered to result in unacceptable conditions for eagles (FWS 1987).

Plant communities within the project area are Piedmont/Low Mountain Alluvial Forest, Dry-Mesic Oak-Hickory Forest, and roadside/disturbed land. Although the forested communities may be suitable to bald eagle nesting and foraging, no large bodies of water exist within the project area, and no large bodies of water occur within 2.5 miles of the project area. Therefore, no habitat for bald eagle occurs within or adjacent to the project area.

North Carolina Natural Heritage Program (NCNHP) records indicate that bald eagle has not been documented to occur within 1.0 mile of the project area, and the project area contains no suitable habitat for this species. Based on analysis of NCNHP records and habitat types within the project area, this project will not affect the bald eagle.

Dwarf wedgemussel **Biological Conclusion: May Affect-**
Not Likely to Adversely Affect

The dwarf wedgemussel typically inhabits streams with moderate flow velocities and substrates varying in texture from gravel and coarse sand to mud with little silt deposition (Moser 1993). The preferred habitats are streams with moderate flow velocities and bottoms varying in texture from gravel and coarse sand to mud, especially just downstream of debris and on banks of accreting sediment.

Ruin Creek is a moderately entrenched, perennial stream, characterized by low to moderate flow. The streambed is primarily composed of sand, with scattered gravel and cobble near the bridge. During the mussel survey conducted on April 20, 2004, it was observed that the habitat is becoming significantly degraded with a lot of sediment and eroded banks.

NCNHP records indicate that dwarf wedgemussel has been documented to occur within 1.0 mile of the project area. However, no dwarf wedgemussel species were found during the survey. Based on NCNHP records and the recent mussel survey, the biological conclusion for the dwarf wedgemussel is "May Affect-Not Likely to Adversely Affect." This biological conclusion is valid only if appropriate conservation measures are implemented (see USFWS concurrence letter in appendix).

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture and Archaeology

The State Historic Preservation Office (SHPO) reviewed the subject project. There are no known architectural or historic sites within the proposed project area. The SHPO concurs that the project is not likely to affect any resources of historical significance (see letter dated March 22, 2002).

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

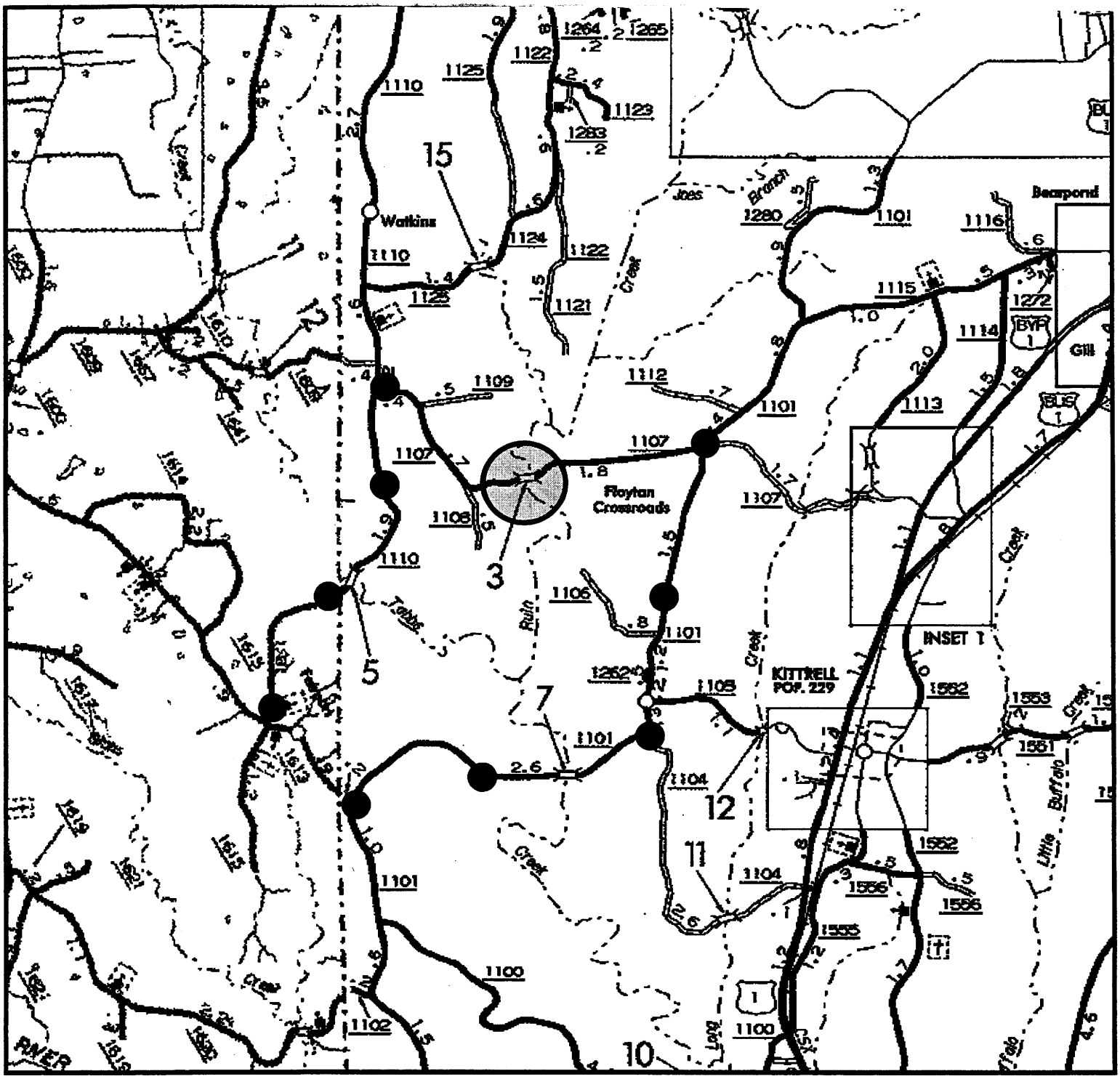
This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520.

Noise levels could increase during construction but will be temporary. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

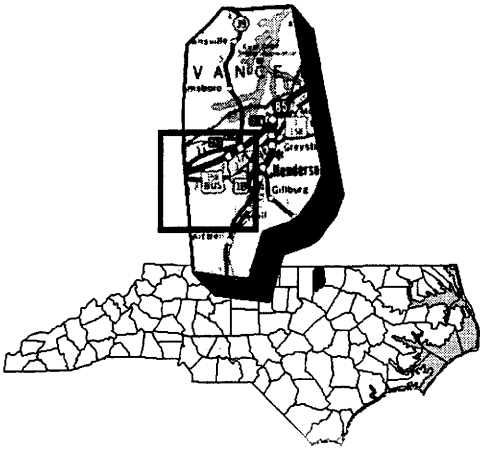
An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Vance County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project.



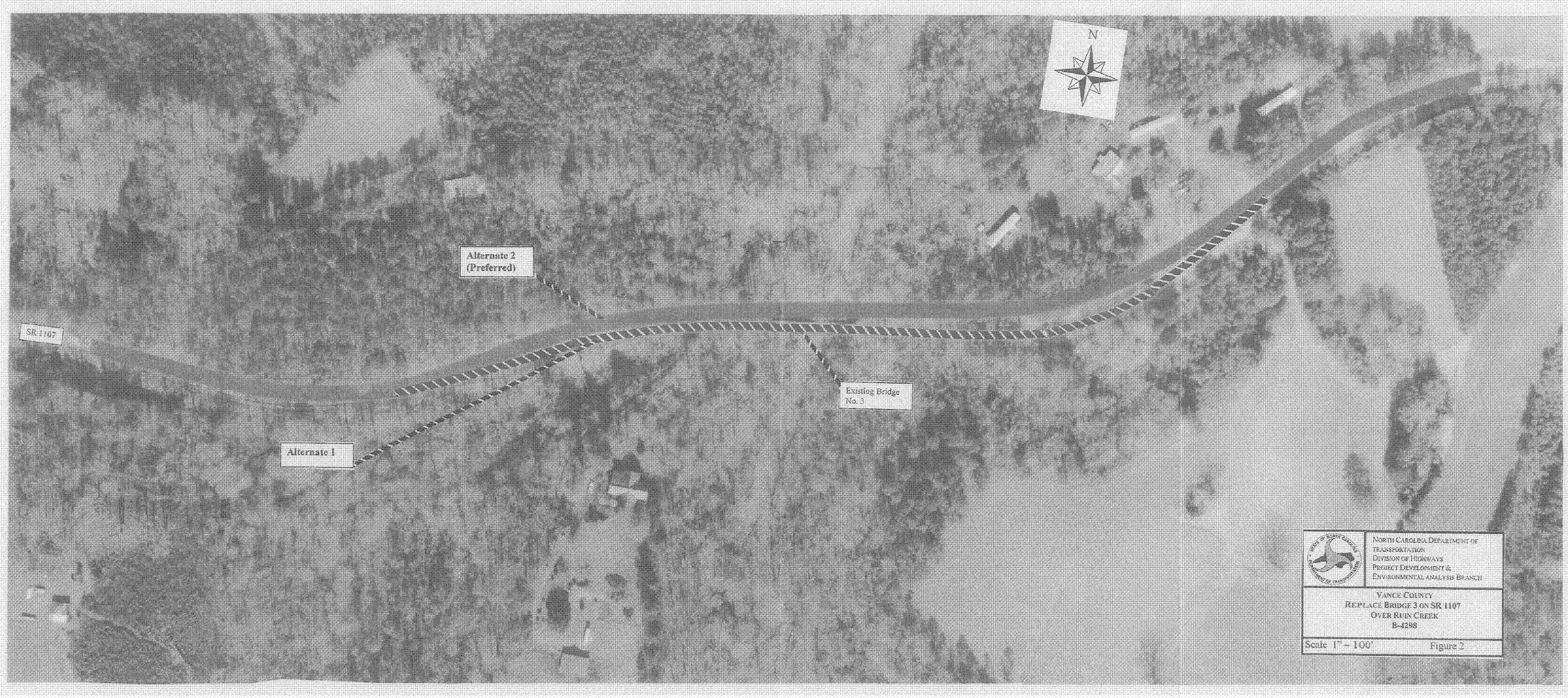
Studied Offsite Detour



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH

VANCE COUNTY
REPLACE BRIDGE NO. 3 ON SR 1107
OVER RUIN CREEK
B-4298

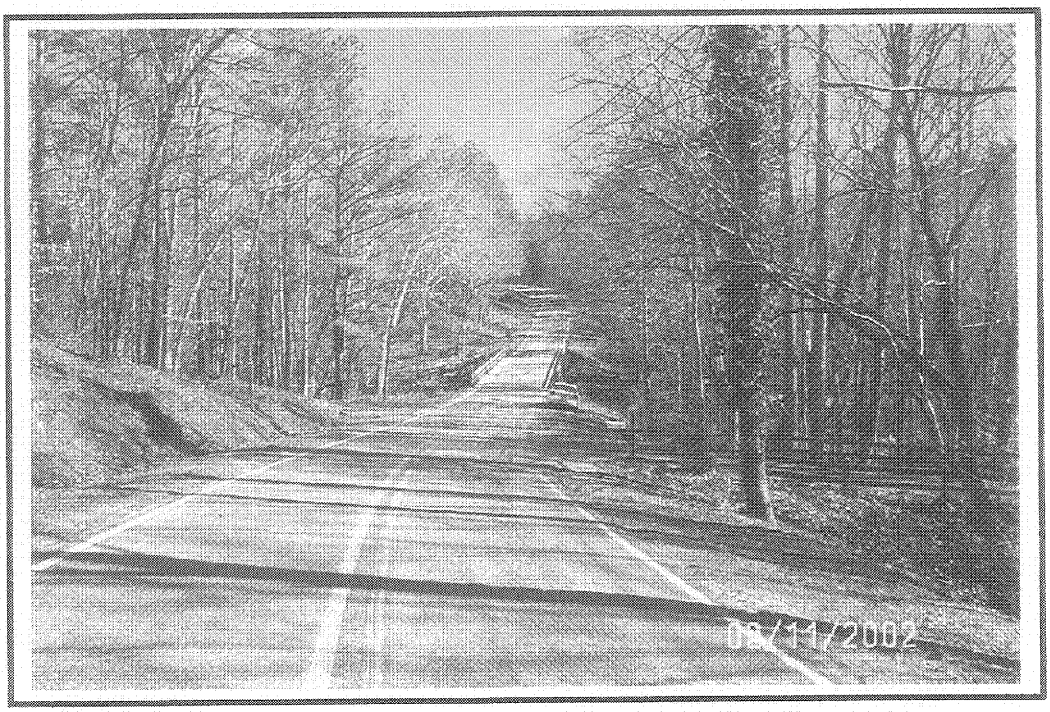
Figure 1



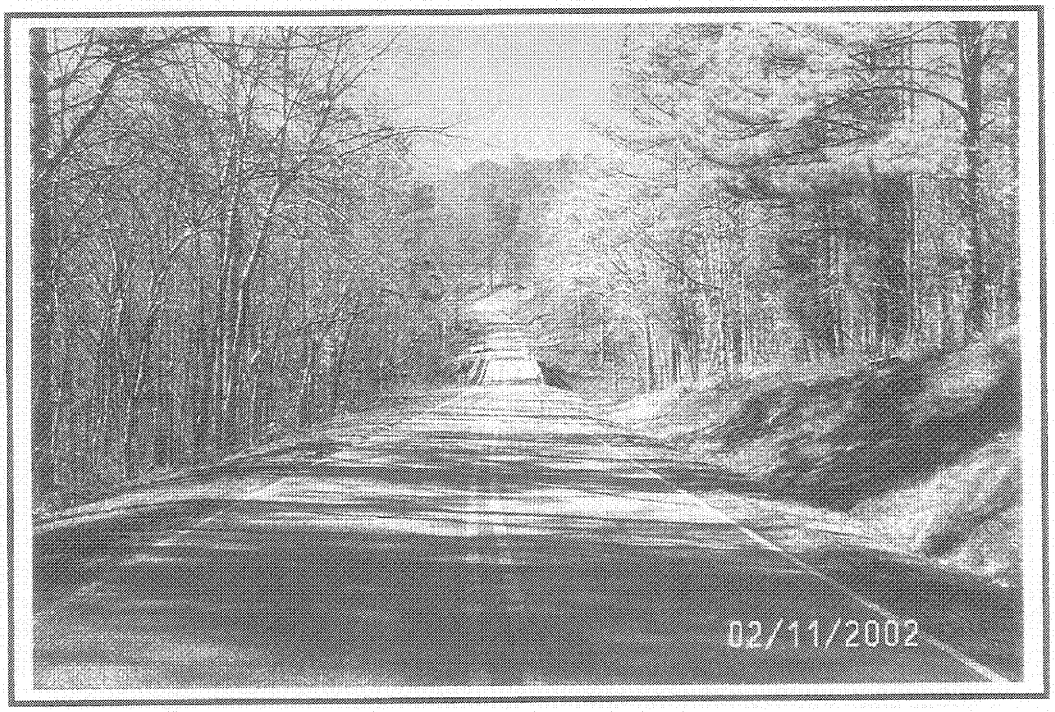
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH

VANCE COUNTY
REPLACE BRIDGE 3 ON SR 1107
OVER RUIN CREEK
B-4298

Scale 1" = 100' Figure 2



Approach Facing East



Approach Facing West

Figure 3A

North Face of Bridge

Figure 3B

Woodlief Capps

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David J. Olson, Director

March 22, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook DB/kgc for David Brook

SUBJECT: Replace Bridge No. 3 and SR 1107 over Ruin Creek, B-4298, Vance County, ER 02-8570

Thank you for your memorandum of September 25, 2001, concerning the above project.

There are no known archaeological sites within the project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Because the Department of Transportation is in the process of surveying and evaluating the National Register eligibility of all of its concrete bridges, we are unable to comment on the National Register eligibility of the subject bridge. Please contact Mary Pope Furr, in the Architectural History Section, to determine if further study of the bridge is needed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above-referenced tracking number.

DB:kgc

Administration
Location 507 N. Blount St. Raleigh, NC
Mailing Address 4617 Mail Service Center, Raleigh 27699-4617
Telephone/Fax (919) 733-4763 •733-8653
(919) 733-6547 •715-4801

Subject: **Eligibility question on CFY 2005 bridges**
Date: Mon, 10 Jun 2002 14:39:09 -0400
From: "Bill T. Goodwin" <bgoodwin@dot.state.nc.us>
Organization: North Carolina Department of Transportation
To: "Bill T. Goodwin" <bgoodwin@dot.state.nc.us> ,
Joel Johnson <joeljohnson@dot.state.nc.us> .
Robin Young <rcyoung@dot.state.nc.us> . Dennis Pipkin <dpipkin@dot.state.nc.us> ,
"John L. Williams" <jlwilliams@dot.state.nc.us> ,
Karen Capps PE <kcapps@dot.state.nc.us> . Davis Moore <dmoore@dot.state.nc.us> ,
Stacy Harris <stacyharris@dot.state.nc.us> .
Theresa Ellerby <TEllerby@dot.state.nc.us> ,
Derrick Weaver <dweaver@dot.state.nc.us> .
Missy Dickens <mdickens@dot.state.nc.us>
CC: Mary Pope Furr <mfurr@dot.state.nc.us>

The attached table shows Mary Pope's review of the Historic Bridge Survey data for the group of CFY 2005 projects that HPO asked us to refer to the survey for bridge eligibility. If you have a letter from HPO on your project that says see Mary Pope Furr for bridge eligibility - this is it.

Only 6 projects appear to need further evaluation, so far.

They are:
B-4077 Columbus
B-4103 Davidson
B-4137 Harnett
B-4158 Iredell
B-4268 Sampson
B-4434 Bertie

B-4298
No Additional Surveys

I also have part/most of the Agency comments on the NRTRs that I will be copying and distributing over the next several days on this group of projects too.

Any questions, let me know.

Thanks,

Bill

--

William T. Goodwin, Jr., PE
Unit Head - Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation

HPOstatus61002.doc

Name: HPOstatus61002.doc
Type: Microsoft Word Document (application/msword)
Encoding: base64
Download Status: Not downloaded with message

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

February 23, 2005

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of February 9, 2005 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 3 on SR 1107 over Ruin Creek in Vance County (TIP No. B-4298) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*). In addition, NCDOT has determined that the project will have no effect on the bald eagle. These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to information provided, a mussel survey was conducted at the project site on April 20, 2004. Although no specimens of dwarf wedgemussel were observed in the 2004 survey, the mussel was observed in surveys conducted in 1998. The recent survey report indicated that the habitat was becoming degraded, which is supported by the fact that only one valve of the normally common *Elliptio complanata* was found.

Mr. Gary Jordan and Mr. Dale Suiter of my staff met on site with NCDOT staff on November 18, 2002. During the field meeting, several conservation measures were discussed which would lessen the potential for effects to the dwarf wedgemussel. Subsequently, NCDOT and the Service have refined those conservation measures as stated in your current letter. Those conservation measures are as follows:

- No proposed bents will be allowed in Ruin Creek. Where possible, the proposed bents will be pulled back from the edge of the stream bank ten feet.
- Due to erosion concerns, temporary access roads for conveying construction equipment into the floodplain will be stabilized with either rock or timber matting. Rock work pads or timber matting will be used in the floodplain for construction equipment. No construction equipment will be allowed in Ruin Creek under any circumstances.
- No deck drains will be allowed to discharge into Ruin Creek.
- Storm water runoff will not be channeled from the road directly into the stream. The runoff from the roadway should be allowed to continue to dissipate and sheet flow over the natural vegetation before reaching Ruin Creek. The exception will be in the southwest quadrant with the existing intermittent stream.

- Special sediment control fence will be used along the toe of the slope that runs parallel to Ruin Creek to minimize the risk of adding sediment into the stream. Standard silt fence or temporary silt ditch will be used along the toe of the slopes that are perpendicular to Ruin Creek.
- All unvegetated fill slopes will be stabilized at the end of each day with an acceptable erosion control cloth, blanket or matting as construction progresses until the fill is ready to be permanently stabilized.
- The project lies within the Tar-Pamlico River Basin and will adhere to all applicable riparian buffer rules.
- NCDOT will be required to conduct a mussel survey before construction begins for dwarf wedgemussel. If any individuals of this endangered species are found, they will be relocated out of the footprint of the project before construction begins.

With regard to the last conservation measure, a formal section 7 consultation would be required to relocate any federally listed mussels out of the project footprint. Relocation of a federally listed mussel constitutes a "take" of that species and would require an incidental take statement provided in a biological opinion. A formal consultation requires up to 135 days to complete once a complete biological assessment is received. Therefore, it will be prudent for NCDOT to conduct the next survey early enough prior to project let in order that a formal consultation could be completed in the event that the survey reveals the presence of dwarf wedgemussel within the survey area.

Based on the mussel survey results and the commitment to the conservation measures listed above, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the dwarf wedgemussel. Due to the lack of habitat, the Service concurs with your determination that the project will have no effect on the bald eagle. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied to date. Again, it is understood that another mussel survey will be conducted prior to project construction. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Pete Benjamin
Ecological Services Supervisor

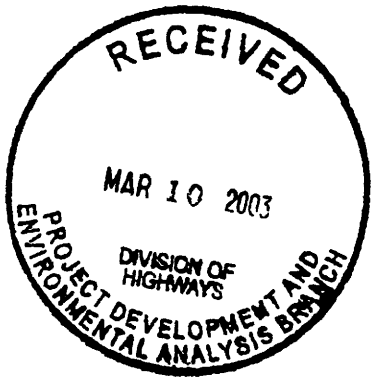
cc: Eric Alsmeyer, USACE, Raleigh, NC
Nicole Thomson, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Cape

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division
101 Pivers Island Road
Beaufort, North Carolina 28516-9722

May 30, 2002



Mr. William T. Goodwin, Jr., PE
Head, Bridge Replacement Unit
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Goodwin:

This National Marine Fisheries Service (NMFS) has reviewed the Natural Systems Technical Reports (NSTR) - Group I, for the twelve bridge replacement projects included with your February 18, 2002, letter. We understand that these projects are scheduled for construction in fiscal year 2005. We offer the following comments:

Section I - Green Light Projects (GLPs)

The bridge replacement projects listed below are located in areas that do not support NMFS trust fishery resources. Otherwise, they have normal environmental concerns and are classified as GLPs.

Bridge Number	Project Number	Location
Bridge No. 5	B - 4110	Durham County
Bridge No. 35	B - 4137	Harnett County
Bridge No. 150	B - 4268	Sampson County
Bridge No. 3	B - 4298	Vance County
Bridge No. 189	B - 4305	Wake County
Bridge No. 52	B - 4327	Wilson County
Bridge No. 3	B - 4328	Wilson County

Section II - Yellow Light Projects (YLPs)

The bridge replacement projects listed below are located in Cape Fear and Tar River Basins. These basins are likely to support NMFS trust fishery resources and the projects are classified as YLPs. YLPs are those projects that have issues for which there are existing coordination mechanisms or

processes through which issues can be resolved

Bridge Number	Project Number	Location
Bridge No. 85	B - 4091	Cumberland County
Bridge No. 11	B - 4133	Halifax County
Bridge No. 56	B - 4211	Nash County
Bridge No. 15	B - 4113	Franklin County
Bridge No. 84	B - 4124	Granville County

Spawning and nursery habitat for anadromous fishes may be adversely impacted by these projects unless measures to avoid and minimize impacts to waters and wetlands are included in the project plans. Therefore, the NMFS may recommend against Department of the Army authorization of these projects under Nationwide Permit 23, unless the following recommendations are incorporated as project features:

1. Following impact avoidance and minimization, unavoidable wetland losses shall be offset through implementation of a compensatory mitigation plan that has been approved by the Corps of Engineers, in consultation with the NMFS.

2. All construction related activities in waters and associated wetlands shall utilize techniques that avoid and minimize adverse impacts to those systems and their associated flora and fauna.

3. In order to protect anadromous fishery resources that may utilize the project areas as spawning or nursery habitat, work that is located within aquatic sites shall be restricted to the period October 1 and March 1 of any year, unless prior approval is granted by the Corps of Engineers following consultation with the NMFS.

Finally, the shortnose sturgeon, a Federally protected species under under the purview of the NMFS is know to occur in the Cape Fear River. These comments do not satisfy Federal agency consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity(ies) "may effect" listed species and habitats under NMFS purview, consultation should be initiated with our Protected Resources Division at 9721 Executive Center Drive North, St. Petersburg, Florida 33702.

We appreciate the opportunity to participate in the early review of these bridge replacement projects. Please contact me at the letterhead address, or at (252) 728-5090, if I may be of further assistance.

Sincerely,

Ron Sechler

Ron Sechler
Fishery Biologist

cc:
COE, Wilmington, NC
USFWS, Raleigh, NC
NCDMF, Raleigh

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement & Environmental Analysis Branch

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: May 22, 2002

SUBJECT: NCDOT Bridge Replacements:
Beaufort County – Bridge No. 77, NC 99, Pantego Creek, B-3611
Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
Bertie County – Bridge No. 45, SR 1110, Choowatic Creek, B-4026
Brunswick County – Bridge No. 72, NC 179, Jinnys Branch, B-4031
Chatham County – Bridge No. 142, SR 2170, Meadow Creek, B-4065
Craven County – Bridge No. 10, SR 1111, Brices Creek, B-4086
Cumberland County – Bridge No. 85, I-95 Business, Cape Fear River, B-4091
Durham County – Bridge No. 5, SR 1616, Mountain Creek, B-4110
Edgecombe County – Bridge No. 19, SR 1135, Cokey Swamp, B-4111
Franklin County – Bridge No. 15, SR 1106, Little River, B-4113
Granville County – Bridge No. 84, SR 1141, Tar River, B-4124
Greene County – Bridge No. 46, SR 1091, Wheat Swamp Creek, B-4125
Greene/Lenoir Cos. – Bridge No. 49, SR 1434, Wheat Swamp Creek, B-4126
Greene County – Bridge No. 43, SR 1438, Rainbow Creek, B-4127
Halifax County – Bridge No. 11, SR 1001, Jacket Swamp, B-4133
Harnett County – Bridge No. 35, NC 42, Norfolk and Southern Railway, B-4137
Hertford County – Bridge No. 67, SR 1118, Ahoskie Creek, B-4150
Hyde County – Bridge No. 108, SR 1340, Old State Canal, B-4154
Jones County – Bridge No. 7, SR 1129, Big Chinquapin Branch, B-4169
Lee County – Bridge No. 4, SR 1423, Gum Fork, B-4171
Martin County – Bridge No. 5, SR 1417, Conoho Creek, B-4187
Nash County – Bridge No. 56, SR 1544, Tar River, B-4211
Onslow County – Bridge No. 24, US 17, New River, B-4214
Onslow County – Bridge No. 19, NC 210, Stones Creek, B-4215
Pamlico County – Bridge No. 65, SR 1304, UT to Neuse River, B-4219
Pamlico County – Bridge No. 4, SR 1344, South Prong Bay River, B-4221
Perquimans County – Bridge No. 69, SR 1222, Mill Creek, B-4227
Pitt County – Bridge No. 98, SR 1407, Conetoe Creek, B-4234
Pitt County – Bridge No. 118, SR 1538, Grindle Creek, B-4235
Randolph County – Bridge No. 34, SR 1304, Second Creek, B-4242

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721

Randolph County – Bridge No. 257, SR 2824, Vestal Creek, B-4245
Richmond County – Bridge No. 129, SR 1321, Big Mountain Creek, B-4247
Sampson County – Bridge No. 150, SR 1006, Little Coharie Creek, B-4268
Sampson County – Bridge No. 191, SR 1845, Great Coharie Creek, B-4272
Vance County – Bridge No. 3, SR 1107, Ruin Creek, B-4298
Wake County – Bridge No. 189, SR 2333, Little River, B-4305
Washington County – Bridge No. 29, SR 1163, Maul Creek, B-4314
Wilson County – Bridge No. 52, SR 1131, Turkey Creek, B-4327
Wilson County – Bridge No. 3, SR 1634, Great Swamp, B- 4328

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Beaufort County – Bridge No. 77, NC 99, Pantego Creek, B-3611
YELLOW LIGHT. Biologists indicate that a bridge is preferred. There is potential for wetland impacts at this location due to the width of stream and site elevation. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15.

2. Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
GREEN LIGHT. No concerns indicated by biologists. Standard conditions should be appropriate.

3. Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
GREEN LIGHT. No concerns indicated by biologists. Standard conditions should be appropriate.

4. Bertie County – Bridge No. 45, SR 1110, Choowatic Creek, B-4026
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15.

5. Brunswick County – Bridge No. 72, NC 179, Jinnys Branch, B-4031
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There is also the potential for impacts to high quality coastal wetlands at this location. NCDOT should employ all measures necessary to avoid impacts to these resources.

6. Chatham County – Bridge No. 142, SR 2170, Meadow Creek, B-4065
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to the Cape Fear Shiner, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

7. Craven County – Bridge No. 10, SR 1111, Brices Creek, B-4086
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard recommendations apply.

8. Cumberland County – Bridge No. 85, I-95 Business, Cape Fear River, B-4091
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Other standard recommendations apply.

9. Durham County – Bridge No. 5, SR 1616, Mountain Creek, B-4110
YELLOW LIGHT. Due to the DWQ water quality classification, we recommend High Quality Sedimentation and Erosion Control Measures be used. Other standard recommendations apply.

10. Edgecombe County – Bridge No. 19, SR 1135, Cokey Swamp, B-4111
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

11. Franklin County – Bridge No. 15, SR 1106, Little River, B-4113
RED LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

12. Granville County – Bridge No. 84, SR 1141, Tar River, B-4124
RED LIGHT. The Tar River supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

13. Greene County – Bridge No. 46, SR 1091, Wheat Swamp Creek, B-4125
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

14. Greene/Lenoir Cos. – Bridge No. 49, SR 1434, Wheat Swamp Creek, B-4126
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

15. Greene County – Bridge No. 43, SR 1438, Rainbow Creek, B-4127
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

16. Halifax County – Bridge No. 11, SR 1001, Jacket Swamp, B-4133
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

17. Harnett County – Bridge No. 35, NC 42, Norfolk and Southern Railway, B-4137
GREEN LIGHT. No comment.

18. Hertford County – Bridge No. 67, SR 1118, Ahoskie Creek, B-4150
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Other standard comments apply.

19. Hyde County – Bridge No. 108, SR 1340, Old State Canal, B-4154
GREEN LIGHT. Standard comments apply.

20. Jones County – Bridge No. 7, SR 1129, Big Chinquapin Branch, B-4169
YELLOW LIGHT. Big Chinquapin Branch supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard recommendations apply.

21. Lee County – Bridge No. 4, SR 1423, Gum Fork, B-4171
GREEN LIGHT. Standard comments apply.

22. Martin County – Bridge No. 5, SR 1417, Conoho Creek, B-4187
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

23. Nash County – Bridge No. 56, SR 1544, Tar River, B-4211

YELLOW LIGHT. The Tar River supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard recommendations apply.

24. Onslow County – Bridge No. 24, US 17, New River, B-4214
YELLOW LIGHT. The New River is designated as a Primary Nursery Area on the downstream side of the existing US 17 bridge. Due to the potential for adult and larval stages of anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to September 30. Other standard recommendations apply.

25. Onslow County – Bridge No. 19, NC 210, Stones Creek, B-4215
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

26. Pamlico County – Bridge No. 65, SR 1304, UT to Neuse River, B-4219
YELLOW LIGHT. There is the potential for impacts to high quality coastal wetlands at this location. NCDOT should employ all measures necessary to avoid impacts to these resources. Other standard comments apply.

27. Pamlico County – Bridge No. 4, SR 1344, South Prong Bay River, B-4221
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

28. Pender County – Bridge No. 21, NC 210, NE Cape Fear River, B-4223
RED LIGHT. There are records of the federally listed Shortnose sturgeon in the NE Cape Fear in the project area. Due to the potential for anadromous fish and Shortnose sturgeon at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 1 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

29. Perquimans County – Bridge No. 69, SR 1222, UT to Mill Creek, B-4227
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

30. Pitt County – Bridge No. 98, SR 1407, Conetoe Creek, B-4234
GREEN LIGHT. Standard comments apply.

31. Pitt County – Bridge No. 118, SR 1538, Grindle Creek, B-4235

YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

32. Randolph County – Bridge No. 34, SR 1304, Second Creek, B-4242
GREEN LIGHT. Standard comments apply.

33. Randolph County – Bridge No. 257, SR 2824, Vestal Creek, B-4245
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard comments apply.

34. Richmond County – Bridge No. 129, SR 1321, Big Mountain Creek, B-4247
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard comments apply.

35. Sampson County – Bridge No. 150, SR 1006, Little Coharie Creek, B-4268
YELLOW LIGHT. Little Coharie Creek supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

36. Sampson County – Bridge No. 191, SR 1845, Great Coharie Creek, B-4272
YELLOW LIGHT. Great Coharie Creek supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

37. Vance County – Bridge No. 3, SR 1107, Ruin Creek, B-4298
RED LIGHT. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

38. Wake County – Bridge No. 189, SR 2333, Little River, B-4305
RED LIGHT. The Little River supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

39. Washington County – Bridge No. 29, SR 1163, Maul Creek, B-4314
GREEN LIGHT. Standard comments apply.

40. Wilson County – Bridge No. 52, SR 1131, Turkey Creek, B-4327
RED LIGHT. Turkey Creek supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

41. Wilson County – Bridge No. 3, SR 1634, Great Swamp, B- 4328
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard recommendations apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 769-9453. Thank you for the opportunity to review and comment on these projects.

cc: USFWS, Raleigh

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

May 22, 2002

Mr. William T. Goodwin, Jr.
North Carolina Department of Transportation
Project Development and Environmental Analysis
Unit Head, Bridge Replacement Planning
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Goodwin:

This responds to your letter of February 18, 2002, requesting comments from the U. S. Fish and Wildlife Service (Service) on 14 bridge replacement projects scheduled for construction in CFY 2005. Your letter provided a Natural Resources Technical Report (NRTR) or Natural Systems Report (NSR) for each project. These comments are provided in accordance with, provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Based on information in the project report, five projects are not likely to adversely effect any federally-protected species and entail normal concerns for water quality and lost or degradation of fish and wildlife habitat. These projects appear to fall into the category which you propose to designate as "green light" projects. These projects are:

B-4091 (I-95, Bridge No. 85 over the Cape Fear River, Cumberland County);

B-4110 (SR 1616, Bridge No. 5 over Mountain Creek, Durham County);

B-4137 (NC 42, Bridge No. 35 over the Norfolk and Southern Railway, Harnett County);

B-4268 (SR 1006, Bridge 150 over Little Coharie Creek, Sampson County); and,

B-4314 (SR 1163, Bridge No. 29 over Maul Creek, Washington County).

For the projects listed above, we believe that the requirements of Section 7 of the Act have been satisfied. We remind you that obligations under Section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The remaining nine projects have unresolved issues regarding federally-protected species and/or more significant issues of habitat loss or degradation. These projects appear to fall into the category which you propose to designate as "yellow light" projects. These projects are:

B-4111 (SR 1135, Bridge No. 19 over Cokey Swamp, Edgecombe County) - The NSR notes (p. 6) that "patches of rooted aquatic vegetation" occur in the project area. Project design and construction should avoid or minimize impacts to these areas. The Service concurs that additional surveys are required to determine impacts on the tar spinymussel (*Elliptio steinstansana*) that has suitable habitat in the project area (p. 15).

B-4113 (SR 4113, Bridge No. 15 over Little River, Franklin County) - The Service concurs that anadromous fish passage should be considered in the timing of any in-stream activities associated with bridge replacement (p. 12). This may require seasonal work restrictions. The Service concurs that additional surveys are required to determine impacts on the tar spinymussel and dwarf wedge mussel (*Alasmidonta heterodon*) that may occur in the project area.

B-4124 (SR 1141, Bridge No. 84 over the Tar River, Granville County) - Based on information in the NSR, the Service concurs that the project is not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*), harperella (*Ptilimnium nodosum*), or smooth coneflower (*Echinachea laevigata*). The Service concurs that additional surveys are required to determine impacts on the tar spinymussel and dwarf wedge mussel (*Alasmidonta heterodon*) that may occur in the project area.

B- 4133 (SR 1001, Bridge No. 11 over Jacket Swamp, Halifax County) - The NSR of November 2001 states that potential impacts to dwarf wedge mussel are "unsolved." The Service concurs that additional field observations will be necessary. The Service supports the commitment to schedule this project to avoid impacts to migratory fish (p. 12).

B-4211 (SR 1544, Bridge No. 56 over the Tar River, Nash County) - Our records indicate that the green floater (*Lasmigona subviridis*), a state endangered mussel, has been found near the project site. The subsequent surveys for both the tar spinymussel and dwarf wedge mussel should also determine the status of the green floater in the project area.

B-4298 (SR 1107, Bridge No. 3 over Ruin Creek, Vance County) - We concur with the NSR that indicates that the dwarf wedge mussel could occur in the project area and that surveys should be conducted for the species.

B-4305 (SR 2333, Bridge No. 189 over the Little River, Wake County) - While our records indicate that the dwarf wedge mussel has not been found near the project site, it has been found both up and down stream from Bridge 189. The Service supports the surveys proposed by the NCDOT to determine the status of this mussel in the project area. The title page states that SR 2333 is Glory Road while page one of the NSR calls it Smithfield Road. We believe the latter is correct.

B-4327 (SR 1131, Bridge No. 52 over Turkey Creek, Wilson County) - Design features and construction methods should minimize impacts to the freshwater marsh in the project area. The project is not likely to adversely effect the red-cockaded woodpecker (RCW) or Michaux's sumac, but additional surveys, as proposed by the NCDOT, should be performed for the dwarf wedge mussel and tar spinymussel.

B-4328 (SR 1634, Bridge No. 3 over Great Swamp, Wilson County) - While available information indicates that Federally protected species do not occur in the project area, the Service supports the proposal in the NSR to conduct field surveys for the dwarf wedge mussel.

For each project, we recommend the following conservation measures to avoid or minimize adverse environmental impacts to fish and wildlife resources:

1. In waterways that may serve as travel corridors for fish, in-water work should be avoided during moratorium periods associated with migration, spawning, and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 15;

2. Complete implementation of Best Management Practices (BMP) for Protection of Surface Waters;

3. If temporary impacts to wetlands or open water are necessary, all temporary fill should be removed at the completion of construction and the impacted areas should be planted with endemic vegetation, including trees, if necessary. For projects requiring a temporary on-site detour in wetlands, the entire detour area, including any previous detour from past construction activities, should be entirely removed and planted with appropriate vegetation;

4. Activities within designated riparian buffers should be avoided or minimized;

5. Surveys for mussels should extend 100 meters (328 feet) upstream and 300 meters (984 feet) downstream from the project site; and,

6. In waterways serving as migration routes for anadromous fish, the NCDOT should avoid in-stream work during the moratorium period of February 15 to June 15;

7. If subsequent survey for federally-protected species should determine that a given project would adversely affect the species, a biological assessment (BA) may be prepared to fulfill the section 7(a)(2) requirement and in determining whether formal consultation with the Service is necessary. Please notify this office with the results of the surveys for the listed species discussed above. Please include survey methodologies and an analysis of the effects of the action, including consideration of direct, indirect, and cumulative effects.

The Service appreciates the opportunity to provide these comments. Please continue to advise us on planning for this important project. If you have any questions regarding the comments of the Service, please contact Howard Hall at (919) 856-4520, (Ext. 27) or at the above address.

Sincerely,

John E. Ellis

for Garland B. Pardue, Ph.D.
Ecological Services Supervisor

cc: E. David Franklin, U. S. Army Corps of Engineers, Wilmington, NC
Chris Militscher USEPA, Raleigh, NC
David Cox, NC Wildlife Resources Commission, Creedmore, NC
John Hennessy, NC Division of Water Quality, Raleigh, NC
Cathy Brittingham, NC Division of Coastal Management, Raleigh, NC

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

Michael Easley, Governor
Bill Ross, Secretary
Gregory Thorpe, Director

NCDENR
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

May 17, 2002

Memorandum To: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch

Through: John Dorney
NC Division of Water Quality, 401 Unit

From: Robert Ridings
NC Division of Water Quality, 401 Unit

Subject: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2005: "Yellow Light" Projects: B-4124, B-4211, B-4298 & B-4171.

In future reports, an Executive Summary Paragraph would be helpful. This should include brief description of the work intended (i.e., replace bridge with another bridge or with a culvert), the amount of impact to wetlands and streams, and types of possible permits needed.

On all projects, use of proper sediment and erosion control will be needed. Sediment and erosion control measures should not be placed in wetlands. Sediment should be removed from any water pumped from behind a cofferdam before the water is returned to the stream. Sedimentation and Erosion Control Guidelines for Sensitive Watersheds (15A NCAC 4B .0024) must be implemented prior to any ground-disturbing activities to minimize impacts to downstream aquatic resources. Temporary or permanent herbaceous vegetation must be planted on all bare soil *within 10 days* of ground-disturbing activities to provide long term erosion control.

This office would prefer bridges to be replaced with new bridges. However if the bridge must be replaced by a culvert and 150 linear feet or more of stream is impacted, a stream mitigation plan will be needed prior to the issuance of a 401 Water Quality Certification. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

Any proposed culverts shall be installed in such a manner that the original stream profile is not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions are to be maintained above and below locations of culvert extensions.

For permitting, any project that falls under the Corps of Engineers' Nationwide Permits 23 or 33 do not require written concurrence by the NC Division of Water Quality. Notification and courtesy copies of materials sent to the Corps, including mitigation plans, are required. For projects that fall under the Corps of Engineers Nationwide Permit 14 or Regional General Bridge Permit 31, the formal 401 application process will be required including appropriate fees and mitigation plans.

Do not use any machinery in the stream channels unless absolutely necessary. Additionally, vegetation should not be removed from the stream bank unless it is absolutely necessary. NCDOT should especially avoid removing large trees and undercut banks. If large, undercut trees must be removed, then the trunks should be cut and the stumps and root systems left in place to minimize damage to stream banks.

Use of rip-rap for bank stabilization must be minimized; rather, native vegetation should be planted when practical. If necessary, rip-rap must be limited to the stream bank below the high water mark, and vegetation must be used for stabilization above high water.

Rules regarding stormwater as described in (15A NCAC 2b.0216 (3) (G)) shall be followed for these projects. These activities shall minimize built-upon surface area, divert runoff away from surface waters and maximize utilization of BMPs. Existing vegetated buffers shall not be mowed in order to allow it to be most effectively utilized for storm water sheet flow.

Please note that B-4124, B-4211, and B-4298 are located in the Tar-Pamlico River Basin. All activity should comply with the Riparian Buffer Rules for those basins.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost.