STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 19, 2008

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

Mr. Stephen Lane
Division of Coastal Management
N. C. Dept. of Env. & Natural Resources
400 Commerce Avenue
Morehead City, NC 28557

Dear Sirs:

Subject: **Nationwide 23 and 33 Permit Application and CAMA Major Development Permit Application** for the proposed replacement of Bridge No. 24 over New River on US 17, in Onslow County. Federal Aid Project No. BRSTP-0017(34), TIP No. B-4214. Debit $400.00 from WBS 33560.1.1.

Please find enclosed the permit drawings, certified mail receipts, PCN, and MP forms for CAMA Major Application for the above referenced bridge replacement. The NCDOT proposes to replace existing Bridge No. 24 on US 17 over New River in Onslow County. A Categorical Exclusion (CE) was completed for this project in December 2003, and distributed shortly thereafter. Additional copies will be made available upon request. The NCDOT Bridge Maintenance Unit records indicate that Bridge No. 24 has a sufficiency rating of 34.1 out of a possible 100 for a new structure and is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations. The proposed construction will replace and the existing 770-foot bridge with an 830-foot bridge at approximately the same location and with an increased roadway elevation of 7.5 feet over the original structure using phased construction.

Impacts to riparian wetlands from the proposed construction include 0.02 acre of mechanized clearing for a proposed stormwater pond, <0.01 acre of permanent fill from a proposed walkway and 0.09 acre of temporary fill from timber-mats in CAMA wetlands. Surface water impacts from proposed bents and work bridge include 0.09 of permanent and 0.14 of temporary impacts.

Due to the project's schedule and need to expedite utility relocations, NCDOT has applied and received a CAMA General Permit and a Nationwide 12 Permit from the USACE for utility work.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Thank you for your time and assistance with this project. Please contact John Merritt at jsmerritt@ncdot.gov or (919) 715-5536 if you have any questions or need additional information.

Sincerely,

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

Enclosures (5)

CC:
W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Ms. Anne Deaton, NCDMF
Ms. Stacy Oberhausen
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. H. Allen Pope, P.E., Division 3 Engineer
Mr. Mason Herndon, Division 3 Environmental Officer
Mr. Brian Wrenn, NCDWQ

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name: N. C. Department Of Transportation		Project Name (if applicable): B-4214		
Applicant 1: First Name: Gregory	MI: J	Last Name: Thorpe		
Applicant 2: First Name:	MI:	Last Name:		
If additional applicants, please attach an additional page(s) with names listed.				
Mailing Address: 1598 Mail Service Center		PO Box:	City: Raleigh	State: NC
ZIP: 27699-1548	Country: USA	Phone No.: 919 - 733 - 5536 ext.	FAX No.: 919 - 733 - 5501	
Street Address *(if different from above)*:		City:	State:	ZIP: -
Email:				

2. Agent/Contractor Information

Business Name:				
Agent/ Contractor 1: First Name:	MI:	Last Name:		
Agent/ Contractor 2: First Name:	MI:	Last Name:		
Mailing Address:		PO Box:	City:	State:
ZIP:		Phone No. 1: - - ext.	Phone No. 2: - - ext.	
FAX No.:		Contractor #:		
Street Address *(if different from above)*:		City:	State:	ZIP: -
Email:				

<Form continues on back>

3. Project Location

County (can be multiple)	Street Address		State Rd. #
Onslow	US 17 Bus. (Marine Blvd.)		
Subdivision Name	**City**	**State**	**Zip**
	Jacksonville	NC	28540 -

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? White Oak	b. Name of body of water nearest to proposed project New River
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. Wilson Bay
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Jacksonville

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
1,153 ft.	667,339
c. Size of individual lot(s) N/A, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* 15.5 ft. ☐NHW or ☒NWL

e. Vegetation on tract

The project study area consists of existing maintained right-of-way, urban disturbed areas, pine and pine/hardwood forests and a tidal freshwater marsh. The tidal marsh community is dominated by Typha latifolia, Juncus effusus, Zizania aquatica with Salix nigra and Magnolia virginiana present along the terrestrial edge.

f. Man-made features and uses now on tract

Bridge #24 over New River and associated causeway is the only structure and use.

g. Identify and describe the existing land uses adjacent to the proposed project site.

Commercial properties, and undeveloped

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable)
Comercial	☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal? ☐Yes ☒No

k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. ☒Yes ☐No ☐NA

If yes, by whom?

l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? ☒Yes ☐No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site? ☒Yes ☐No

(ii) Are there coastal wetlands on the site? ☒Yes ☐No

(iii) If yes to either (i) or (ii) above, has a delineation been conducted? ☒Yes ☐No
(Attach documentation, if available)

n. Describe existing wastewater treatment facilities.
Sanitary sewer line runs along the project

o. Describe existing drinking water supply source.
Water main runs along the project

p. Describe existing storm water management or treatment systems.
Surface runoff

5. Activities and Impacts

a. Will the project be for commercial, public, or private use? ☐Commercial ☒Public/Government ☐Private/Community

b. Give a brief description of purpose, use, and daily operations of the project when complete.
The NCDOT Bridge Maintenance Unit records indicated that Bridge No. 24 has a sufficiency rating of 34.1 out of a possible 100 for a new structure and is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored.
Typical roadway construction methods and techniques. The project is necessary to replace an aging bridge. Heavy equipment will be used to remove the existing bridge, causeway, and construct the new bridge. Construction method will be top-down. Staging will be determined by contractor.

d. List all development activities you propose.
Replace Bridge No. 24, create two stormwater basins and a boardwalk.

e. Are the proposed activities maintenance of an existing project, new work, or both? Both

f. What is the approximate total disturbed land area resulting from the proposed project? 322,819 ☒Sq.Ft or ☐Acres

g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of? ☐Yes ☒No ☐NA

h. Describe location and type of existing and proposed discharges to waters of the state.
Existing water is removed via deck drains on bridge. Surface runoff for proposed bridge will be be directed into pipes and directed to two infiltration basins located on either side of New River on the south side of Bridge No. 24.

i. Will wastewater or stormwater be discharged into a wetland? ☐Yes ☒No ☐NA

If yes, will this discharged water be of the same salinity as the receiving water? ☐Yes ☒No ☐NA

j. Is there any mitigation proposed? ☐Yes ☒No ☐NA
If yes, attach a mitigation proposal.

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name See attached list
Phone No.

Address

Name
Phone No.

Address

Name
Phone No.

Address

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

USACE NW 12 permit dated November 14, 200
Action ID: 2001 1174

General CAMA Permit dated November 20, 2008

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date December 19, 2008 Print Name E.L. Lusk

Signature E.L. Lusk

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information ☒DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
New River

c. Type of bridge (construction material):
54" prestressed girder bridge

d. Water depth at the proposed crossing at NLW or NWL:
10 feet

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 770 feet
(iii) Width of existing bridge: 67.6 feet
(iv) Navigation clearance underneath existing bridge: 14.5 feet
(v) Will all, or a part of, the existing bridge be removed? (Explain) All

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed? (Explain)

g. Length of proposed bridge: 830 feet

h. Width of proposed bridge: 94 feet (out to out)

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒Yes ☐No
If yes, explain: The proposed bridge will have a greater span length between piers; therefore, the main channel will have a larger opening for vessels.

k. Navigation clearance underneath proposed bridge: 21.0 feet

l. Have you contacted the U.S. Coast Guard concerning their approval? ☒Yes ☐No
If yes, explain: By letter, the December 2003 response gave advance approval and indicated an individual permit will not be required. A copy is attached.

m. Will the proposed bridge cross wetlands containing no navigable waters? ☐Yes ☒No
If yes, explain:

n. Height of proposed bridge above wetlands: The proposed bridge is approximately 13.5 feet above the wetlands in the area adjacent to the bridge (22.1 feet above the wetlands at the center of the bridge).

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

_____

_____

_____

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

_____

_____

_____

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

_____

i. Depth of culvert to be buried below existing bottom contour.

_____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

_____

_____

_____

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

_____

_____

_____

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: _____

(v) Amount of material to be excavated in cubic yards: _____

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

_____

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: _____

(iii) Avg. width of area to be excavated: _____

(iv) Avg. depth of area to be excavated: N/A

(v) Amount of material to be excavated in cubic yards: _____

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: Uplands, suitable offsite location

(ii) Dimensions of the spoil disposal area: To be determined by contractor

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☒No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed below NHW or NWL? ☐Yes ☒No

If yes,

(ii) Avg. length of area to be filled: _____

(iii) Avg. width of area to be filled: _____

(iv) Purpose of fill:

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☒CW 4 ☐SAV _____ ☐SB _____

☐WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

Retaining wall and boardwalk

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 10

(iii) Avg. width of area to be filled: 10

(iv) Purpose of fill: Board walk

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☒No

If yes, explain: General utility permit attached

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☐Yes ☒No

If yes, explain:

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Best Management Practices will be utilized

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy road construction equipment to be determined by the contractor

f. Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

December 19, 2008
Date

B-4214
Project Name

E.L. Lusk
Applicant Name

E. L. Lusk
Applicant Signature

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: NW 23, 33

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
   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: _____
   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: _____

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4214

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

4. Location
   County: Onslow Nearest Town: Jacksonville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): _____

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): 34.7531 °N 77.4330 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Wilson Bay (SC, HQW, NSW)

8. River Basin: White Oak
   (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: Commercial

10. Describe the overall project in detail, including the type of equipment to be used: Replacement of the existing 770-foot bridge structure with a 830-foot bridge at approximately the same location and with an increased roadway elevation of 7.5 feet over the orignal structure using phase construction.

11. Explain the purpose of the proposed work: The bridge is considered to be structurally deficient and functionally obsolete and the replacement will result in safer traffic operations.

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. NW 12 dated 11/14/08 and CAMA General Permit dated 11/20/08

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: mechanized clearing, permanent fill and temporary fill in wetlands, and temporary and permanent surface water impacts

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)
Site 1	Mechanized clearing	Marsh	Yes	158	0.02
Site 3	Permanent fill	Marsh	Yes	<5	<0.01
Site 4	Temporary fill	Marsh	Yes	200	0.09
				Total Wetland Impact (acres)	0.11

3. List the total acreage (estimated) of all existing wetlands on the property: 3.0 acres

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)
Site 2	New River	Permanent SW	Perennial	700	N/A	0.09
Site 2	New River	Temporary SW	Perennial	700	N/A	0.14
Total Stream Impact (by length and acreage)						0.23

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)
N/A				
Total Open Water Impact (acres)				

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

Stream Impact (acres):	0.0
Wetland Impact (acres):	0.11
Open Water Impact (acres):	0.23
Total Impact to Waters of the U.S. (acres)	0.34
Total Stream Impact (linear feet):	0

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.
N/A

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.): N/A
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. An in-water construction moratorium will be in effect from March 15 to September 30 for anadromous fish and due to the downstream site being designated as a primary nursery area. Construction activities will adhere to the guidelines outlined in Precautions For Construction In Areas Which May Be Used By The West Indian Manatee In North Carolina (1996 USFWS). Non-vibration techniques for pile removal work will be utilized to minimize sedimentation into surface waters. Turbidity curtains for all in-water work will be utilized from February 15 through March 15 to minimize sedimentation into surface waters, this was agreed upon by NCDOT and WRC by email on 12/19/05. Design Standards in Sensitive Watersheds will also be utilized during demolition of the existing bridge and construction of the new bridge.

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.
   Due to the limited impacts, NCDOT is not proposing mitigation.

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): 0
   Amount of buffer mitigation requested (square feet): 0
   Amount of Riparian wetland mitigation requested (acres): 0

Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): 0

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
Total	0		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.

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.

N/A

XI. 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. Runoff will be directed towards two stormwater basins, both located south of the proposed bridge with one on each side of the river.

XII. 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

XIII. 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 ☒

XIV. 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:
N/A

XV. 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).

E. L. Lusk December 19, 2008

Applicant/Agent's Signature **Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

US 17 (Marine Boulevard)
Bridge No. 24 over the New River
Onslow County
Federal-Aid Project No. BRSTP-0017(34)
State Project No. 8.1262001
T.I.P. No. B-4214

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

12-30-03
DATE

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

12-31-03
DATE

for John F. Sullivan, III
Division Administrator
Federal Highway Administration

US 17 (Marine Boulevard)
Bridge No. 24 over the New River
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CATEGORICAL EXCLUSION

December 2003

Document Prepared by:
Mulkey Engineers & Consultants
Cary, North Carolina

12/29/03
Date

J. A. Bissett, Jr., P.E.
Raleigh Branch Manager

12/29/03
Date

Pamela R. Williams
Project Manager

For the North Carolina Department of Transportation

12-30-2003
Date

John Wadsworth, PE
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

US 17 (Marine Boulevard)
Bridge No. 24 over the New River
Onslow County
Federal-Aid Project No. BRSTP-0017(34)
State Project No. 8.1262001
T.I.P. No. B-4214

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Design Standards in Sensitive Watersheds, Erosion and Sediment Control Guidelines for Contract Construction, Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Division Engineer/Design Services Unit/Project Development & Environmental Analysis Branch

An in-water construction moratorium will be in effect from February 15 to September 30. This moratorium is required due to the standard anadromous fish moratorium and the downstream site being designated as a primary nursery area. The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable. Anadromous

The North Carolina Geodetic Survey will be contacted prior to construction regarding the relocation of benchmark (ON-11).

Construction activities will adhere to the guidelines outlined in Precautions For Construction In Areas Which May Be Used By The West Indian Manatee In North Carolina (1996 USFWS).

Non-vibration techniques for pile removal will be utilized to minimize sedimentation into surface waters. * Have for - Version

Letting will be coordinated with the completion of US 17 By-pass.

Coordination with the City of Jacksonville for street lights, aesthetic enhancements and accommodation for the boardwalk under the new structure will be required.

Hydraulic Design

Bridge deck drains will not discharge directly into the New River.

- Turbidity curtains for in-water work (per WRC) Feb. 15 - March 15. Have to utilize turbidity curtains for all in-water work during this time.

US 17 (Marine Boulevard)
Bridge No. 24 over the New River
Onslow County
Federal-Aid Project No. BRSTP-0017(34)
State Project No. 8.1262001
T.I.P. No. B-4214

INTRODUCTION: The replacement of Bridge No. 24 is included in the North Carolina Department of Transportation (NCDOT) 2004-2010 Transportation Improvement Program (T.I.P.) and in the Federal-Aid Bridge Replacement Program. The location of the bridge is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate that Bridge No. 24 has a sufficiency rating of 34.1 out of a possible 100 for a new structure and is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 24 is located on US 17 (Marine Boulevard) over the New River within the city limits of Jacksonville, North Carolina (Figure 1). Bridge No. 24 is locally referred as the Buddy Phillips Bridge. US 17 in the project's vicinity is classified as an urban principal arterial by the statewide functional classification system. US 17 is part of the Strategic Highway Network (STRAHNET) and the National Highway System (NHS). It is also a main route to the City of Wilmington and the Wilmington Port south of Jacksonville. US 17 provide connectivity between the Marine Bases, residential, and commercial areas within the City of Jacksonville.

The New River is designated as a Primary Nursery Area on the downstream side of the bridge and marked as a "no wake zone" in the project area. Land use in the project area is primarily commercial property. This area of the New River is used by pleasure craft; there is no commercial navigation in the project area.

The 2003 estimated average daily traffic (ADT) volume is 52,700 vehicles per day (vpd). The projected ADT is 71,000 vpd by the design year 2030. The percentages of truck traffic is 6% dual tired vehicles (DUALS) and 5% TTST. The posted speed limit is 45 miles per hour (mph) {80 kilometers per hour (km/h)}.

Bridge No. 24 was built in 1943 and was widened on both sides in 1957 (Figure 2). It is a four-lane facility with two-lanes in each direction separated by a paint striped 8-foot (2.4 meters) median. Five-foot (1.5 meters) sidewalks are located on both sides of the bridge. The 90 degree skew bridge is approximately 766.5 feet (233.6 meters) long with 22 spans, and has an out to out width of 67.9 feet (20.7 meters) with a clear roadway width of 56 feet (17 meters) between sidewalks. The superstructure

is comprised of reinforced concrete deck girders with an asphalt-wearing surface. The end bents and interior bents consist of reinforced concrete caps on prestressed concrete piles. The bridge deck is approximately 30 feet (9.1 meters) from crown to streambed. Bridge No. 24 is not presently posted for single vehicle (SV) or truck-tractor semi trailer (TTST). Bridge No. 24 currently provides approximately 12 feet (3.6 meters) of vertical clearance from normal surface water elevation to bottom of existing structure.

The approach roadway from the west consists of two-lanes north bound, a center turn lane, and two-lanes south bound that taper to three-lanes south bound approximately 700 feet (213 meters) west of the bridge. The approach roadway from the east consists of two lanes in each direction and a center turn lane that tapers to three lanes in each direction and a center turn lane approximately 500 feet east of the bridge. Approaching the bridge 10-foot (3.0 meter) grass shoulders are provided.

Numerous utilities are present both on and off the bridge. Lights are attached to the bridge alternating from side to side. The City of Jacksonville has a 6-inch (15.2-centimeter) sewer force main attached to the bridge that carries sewage from the south side of town to Court Street located in downtown Jacksonville. There are no navigational lights attached to the bridge.

There are approximately 200 school bus crossings on Bridge No. 24 each day.

There were 47 accidents reported in the project area during the period from December 1999 to November 2002 with no fatalities. Over 50% of the accidents were rear end collisions and 60% of the accidents occurred in the vicinity of the intersection of US 17 and Riverview Drive.

This section of US 17 Onslow County is not part of a designated bicycle route nor is it listed in the T.I.P. as needing incidental bicycle accommodations. The City of Jacksonville has a proposed bike route that utilizes Old Bridge Street and avoids the use of Bridge No. 24.

III. ALTERNATIVES

A. Project Description

The recommended replacement structure consists of a bridge with a length of approximately 770 feet (236 meters). The recommended bridge length is based on a preliminary hydraulic analysis. The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined by a detailed hydrologic study during the final design phase.

The proposed bridge will provide three 12-foot (3.6-meter) travel lanes southbound, a 16-foot (4.8-meter) paint stripped median and two 12-foot (3.6-meter) travel lanes northbound. In addition 2-foot (0.6 meter) gutter and 5.5-foot (1.65-meter) sidewalks and streetlights will be provided on each side of the proposed structure (Figure 3).

The proposed approach roadway from the west will consist of a curb and gutter facility providing three 12-foot (3.6-meter) travel lanes southbound, two 12-foot (3.6-meter) travel lanes northbound, and a 16-

foot (4.8-meter) paint stripped median(Figure 3). Existing sidewalk along the south side of US 17 will be replaced with 5-foot (1.5 meter) sidewalk.

The proposed approach roadway from the east will consist of a curb and gutter facility providing three 12-foot (3.6-meter) travel lanes southbound, two 12-foot (3.6-meter) travel lanes northbound, and a 16-foot (4.8-meter) paint stripped median (Figure 3). The east approach will also include a taper to tie in to the existing traffic lanes.

The proposed structure will provide adequate clearance for the City of Jacksonville to construct a future board walk under the bridge. The board walk will provide connectivity to the proposed convention center and downtown Jacksonville.

B. Build Alternatives

The two build alternatives studied for replacing Bridge No. 24 propose to construct the new structure in phases at the existing location. NCDOT will coordinate this project with the US 17/ NC 24 Bypass (U-2107) project around Jacksonville to insure the bypass is open prior to construction beginning on this project. Stormwater basins will be required for this project. The two alternatives are described below:

Alternative A (Figure 4A) replaces Bridge No. 24 on existing alignment utilizing phase construction. During Phase 1 traffic will be maintained on the existing bridge providing two lanes of traffic, one-lane in each direction. During Phase 2 traffic will be maintained on two lanes of the new structure, one-lane in each direction. Phase 3 will shift traffic to the permanent traffic pattern.

The elevation of the new structure will be raised approximately 3 feet (0.9 meters) to maintain the existing vertical clearance. A minimum grade of 0.3 percent will be maintained across the proposed structure to facilitate drainage.

Alternative A was not selected as the preferred alternative because it has greater right-of-way impacts and higher natural communities and wetland impacts than Alternative C.

Alternative C (Preferred) (Figure 4B) replaces Bridge No. 24 on existing alignment utilizing phase construction. During Phase 1 traffic will be maintained on the existing bridge providing two lanes of traffic, one-lane in each direction. During Phase 2 traffic will be maintained on two lanes of the new structure, one-lane in each direction. Phase 3 will shift traffic to the permanent traffic pattern

Alternative C increases the vertical clearance to 20 feet (6.0 meters) above normal water surface elevation by placing the bridge on a crest vertical curve. The maximum difference in elevation between the existing and proposed structure is approximately 9 feet (2.7 meter) at the maximum vertical separation.

C. Alternatives Eliminated From Further Study

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not desirable due to the traffic service and community connectivity provided by US 17 and Bridge No. 24.

Alternative B replaces Bridge No. 24 on existing alignment utilizing phase construction and an off-site detour. During Phase 1 traffic will be maintained on the existing bridge providing two lanes of traffic south bound and detours the northbound traffic along Old Bridge Street. Phase 2 diverts the south bound traffic on to two lanes of the new structure and detours the northbound traffic along Bridge Street. Phase 3 will shift traffic to the permanent traffic pattern. The elevation of the new structure will be raised approximately 3 feet (0.9 meters) to maintain the existing vertical clearance. A minimum grade of 0.3 percent will be maintained across the proposed structure to facilitate drainage.

Alternative B was eliminated because of the difficulty in handling traffic volume on the proposed detour route. In addition, the U. S. Marine Corps noted that this alternative would not provide an acceptable route to accommodate military vehicles. The City of Jacksonville expressed concerns about the detour route and requested funding for improvements and future damage along the detour route if this alternative was chosen.

Investigation of the existing structure by the Bridge Maintenance Unit indicates that "rehabilitation" of this bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative C was selected as the preferred alternative because this alternative minimizes right-of-way impacts, natural communities' impacts and wetland impacts. Alternative C is more economical while providing additional vertical clearance for navigation than Alternative A. The bridge is on the STRAHNET and will be designed for HS 25 loading.

The NCDOT Division Office concurs with Alternative C as the preferred alternative.

IV. ESTIMATED COST

The estimated costs, based on current prices are as follows:

	Alternative A	Alternative C (Preferred)
Structure Removal (Existing)	$ 522,200.00	$ 522,200.00
Structure Proposed	$ 5,275,725.00	$ 5,528,250.00
Roadway Approaches	$ 591,975.00	$ 380,650.00
Miscellaneous and Mobilization	$ 1,136,100.00	$ 1,078,850.00
Engineering Contingencies	$ 1,174,000.00	$ 1,190,050.00
ROW/Const. Easements/Utilities	$ 865,000.00	$ 198,000.00
TOTAL	$ 9,565,000.00	$ 8,898,000.00

The estimated cost of the project as shown in the 2004-2010 Transportation Improvement Program is $7,365,000 including $865,000 for right-of-way, $6,000,000 for construction and $500,000 in prior years.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources. The Jacksonville North (1978) and Jacksonville South (1988), NC, U.S. Geological Survey (USGS) 7.5-minute topographic maps were consulted to determine physiographic relief and to assess landscape characteristics. U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping was also consulted to determine what potential wetland types may be encountered in the field. The Soil Survey of Onslow County, North Carolina (USDA 1992), and recent aerial photography (1 inch = 100 feet) furnished by the NCDOT were also used in the evaluation of the project study area.

The aerial photograph served as the basis for mapping plant communities and wetlands. Plant community patterns were identified from available mapping sources and then field verified. Plant community descriptions are based on a classification system utilized by the NC Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names typically follow nomenclature found in Radford et al. (1968).

Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin et al. (1979).

Water resource information for the New River was derived from the most recent versions of the White Oak River Basinwide Water Quality Plan [Division of Water Quality (DWQ) 1997], Basinwide Assessment Report-White Oak River Basin (DWQ 2000), and several NC Division of Water Quality (DWQ) internet resources. Quantitative sampling was not undertaken to support existing data.

The most current FWS list (reviewed at http://nc-es.fws.gov/es/cntylist/onslow on 9/30/03, last updated 2/25/03) of federal protected species with ranges extending into Onslow County was reviewed for this project. In addition, NHP records documenting occurrences of federal or state-listed species were consulted before commencing the field investigation. Direct observations of terrestrial and aquatic wildlife were documented, and expected population distributions were determined through observations of available habitat and review of supportive documentation found in Martof et al. (1980), Webster et al. (1985), Menhinick (1991), Hamel (1992), Rohde et al. (1994), and Palmer and Braswell (1995). Field surveys were conducted along the proposed project corridor on July 31, 2001.

The project study area is located on US 17 over the New River in the City of Jacksonville in Onslow County, North Carolina. The bridge is located approximately 1 mile (0.6 kilometer) west of the intersection of US 17 and NC 24.

The project vicinity, which describes an area extending 0.5 mile (0.8 kilometer) on all sides of the project study area, includes primarily urban/commercial areas and open water areas (New River channel).

B. Physiography and Soils

The project study area is located in the lower Coastal Plain physiographic province of North Carolina. The topography in the project study area is characterized as nearly level. Elevations in the project study area range from sea level to 30 feet (9 meters) above mean sea level (USGS 1988). The project study area consists of existing maintained right-of-way, the New River, urban and commercial areas, and a tidal freshwater marsh.

The project vicinity is urban in nature and surrounding land use includes a mixture of urban and commercial uses.

The project study area crosses two soil-mapping units as well as the open water area of the New River. The mapping units include Dorovan muck (Typic Medisaprists) and Urban land. Hydric soils that are mapped as occurring within the project study area include only the Dorovan series, which is frequently flooded. The Dorovan series is present along the northeastern edge of the project study area. The Urban land mapping unit consists of areas where more than 85 percent of the surface is covered by buildings, streets, and parking lots (USDA 1992). Urban land occupies the majority of the project study area adjacent to the New River.

From a broader perspective, the project study area is located in two separate soil associations (USDA 1992). The majority of the project study area is located in the Muckalee-Dorovan association. This soil association contains nearly level, poorly drained soils that are loamy throughout and very poorly drained soils that are muck throughout located on floodplains. A small portion of the project study area is located in the Norfolk-Goldsboro-Onslow association. The soil association contains nearly level, to gently sloping, well drained, moderately well drained, and somewhat poorly drained soils that have loamy subsoil located on uplands.

C. Water Resources

1. Waters Impacted

The project study area is located within sub-basin 030502 of the White Oak River Basin (DWQ 1997) and is part of USGS hydrologic unit 03020106 (USGS 1974). The New River is the only water resource likely to be impacted by the proposed bridge replacement project. The New River originates east of the community of Potters Hill in Jones County and flows south to its confluence with the Atlantic Ocean approximately 17 miles (27 km) south of the project study area. This stream has been assigned Stream Index Number (SIN) 19-(7) by the DWQ from Blue Creek to the US 17 bridge. The channel has been assigned SIN 19-(10.5) from the US 17 bridge to the Atlantic Coast Line railroad trestle.

2. Water Resource Characteristics

The New River is a perennial river with moderate flow over substrate consisting of mud, sand, and silt. A tidal freshwater marsh is present along the northeast bank of the river. The channel ranges from approximately 670 to 720 feet (204 to 219 meters) wide and depths are estimated to be greater than 10 feet (3 meters). Preliminary observations indicate that this particular section of the New River may represent a "C" type channel pursuant to Rosgen (1996).

A Best Usage Classification is assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. The New River has been assigned a best usage classification of SB NSW from Blue Creek to the US 17 bridge (DWQ 2001). The New River has been assigned a best usage classification of SB HQW NSW from the US 17 bridge to the Atlantic Coast Line railroad trestle. The SB designation indicates saltwaters designated for primary recreation as well as aquatic life propagation and survival, fishing, and wildlife. The NSW supplemental classification indicates nutrient sensitive waters which require limitations on nutrient inputs. The HQW supplemental designation indicates waters that are rated as excellent based on biological and physical/chemical characteristics through division monitoring or special studies.

Waters designated as HQW are a subset of waters with higher quality than 15A NCAC 2B.0101(e)(5) standards. Procedures required for HWQ include strict regulations on NPDES wastewater discharges, and special stormwater management rules described in 15A NCAC 2H .1006. No Outstanding Resource Waters (ORW), WS-I, or WS-II Waters occur within 3.0 miles (4.8 kilometers) upstream or downstream of the project study area.

The New River is considered "Inland Waters" above the US 17 bridge and "Coastal Waters" below the US 17 bridge in Jacksonville (NCMFC 2001). "Inland Waters" are all inland waters except private ponds and all waters connecting with or tributary to coastal sounds or the ocean extending from the dividing line between coastal fishing waters and inland fishing waters agreed upon by the NC Marine Fisheries Commission (NCMFC) and the North Carolina Wildlife Resources Commission (NCWRC). "Coastal Waters" include: the Atlantic Ocean; the various coastal waters; and estuarine waters up to the dividing line between coastal fishing waters and inland fishing waters agreed upon by the NCMFC and the NCWRC.

3. Water Quality Information

One method used by DWQ to monitor water quality is through long-term monitoring of macroinvertebrates. Another measure of water quality being used by the DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of fish communities. Between 1994 and 1995, monitoring stations in the 5 subbasins of the White Oak River Basin were sampled to determine overall water quality. Benthic macroinvertebrates from the New River were sampled in July 1995 on NC 24 near Richlands and in July 1999 on SR 1314 north of Jacksonville. The NC 24 site, which is labeled as P1200000, received a bioclassification rating of Fair. The SR 1314 site, which is labeled as P0600000, received a bioclassification rating of Good-Fair (DWQ 2000).

4. Essential Fish Habitat Assessment

Essential Fish Habitat (EFH) is defined by the National Marine Fisheries Service (NMFS) as "those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity" (NMFS 1999). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (NMFS 1999). An EFH Assessment is an analysis of the effects of a proposed action on EFH. Pursuant to 50 CFR 600.920 (g) mandatory contents include: a description of the proposed action, an analysis of the effects of that action on EFH, the Federal action agency's views on those effects; and proposed mitigation, if applicable. An adverse effect includes any impact which reduces the quality and/or quantity of EFH. Pursuant to 50 CFR 600.810 adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, or reduction in a species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Any significant stream or river in a county under the jurisdiction of the Coastal Area Management Act (CAMA) may be considered EFH unless otherwise documented by the NMFS. Current species list prepared by the NMFS pertaining to EFH has been reviewed, and all listed species are either marine or estuarine species. The project study area occurs at the point of division between "Inland Waters" and "Coastal Waters" as indicated by the NCMFC and described previously. In a letter dated 12/06/2002 the NMFS recommended that an Essential Habitat Assessment be prepared for this project. The letter is included in the appendix.

An Essential Fish Habitat Assessment was completed in May 2003. No net change in EFH for the species shown on Table 1 is anticipated due to construction of a new bridge. It is expected that any EFH impacts related to bridge construction will be minimal and temporary. The project will not create any obstructions to anadromous fish passage in the New River.

Table 1.
Anadromous and Federally Managed Fish Species Likely to Occur in the Project Area

Common Name	Scientific Name	Life Stages Known to Occur
Atlantic sturgeon[2]	*Acipenser oxyrhynchus*	E, L, J, A
Blueback herring[2]	*Alosa aestivalis*	E, L, J, A
Hickory shad[2]	*Alosa mediocris*	E, L, J, A
Alewife[2]	*Alosa pseudoharengus*	E, L, J, A
American shad[2]	*Alosa sapidissima*	E, L, J, A
American eel[2]	*Anguilla rostrata*	E, L, J, A
Atlantic menhaden[1]	*Brevoortia tyrannus*	A

Table 1. continued.
Anadromous and Federally Managed Fish Species Likely to Occur in the Project Area

Common Name	Scientific Name	Life Stages Known to Occur
Blue crab[3]	*Callinectes sapidus*	J, A
Sandbar shark[1]	*Carcharhinus plumbeus*	J, A
Black sea bass[1]	*Centropristis striata*	L, J, A
Spotted seatrout[1]	*Cynoscion nebulosus*	A
Weakfish[1]	*Cynoscion regalis*	A
Gag grouper (Red grouper)[1]	*Epinephelus morio*	J
Spot[3]	*Leiostomus xanthurus*	J, A
Gray snapper[1]	*Lutjanus griseus*	J
Atlantic croaker[3]	*Micropogonias undulatus*	J, A
Striped bass[2]	*Morone saxatalis*	E, L, J, A
Summer flounder[1,3]	*Paralichthys dentatus*	L, J, A
Southern flounder[2]	*Paralichthys lethostigma*	E, L, J, A
Brown shrimp[1,3]	*Penaeus aztecus*	E, L, J, A
Pink shrimp[1,3]	*Penaeus duorarum*	E, L, J, A
White shrimp[1,3]	*Penaeus setiferus*	E, L, J, A
Bluefish[1]	*Pomatomus saltatrix*	E, L, J, A
Cobia[1]	*Rachycentron canadum*	E, L, J, A
Red drum[1,3]	*Sciaenops ocellatus*	E, L, J, A
King mackerel[1]	*Scomberomorus cavalla*	J, A
Spanish mackerel[1]	*Scomberomorus maculatus*	J, A
Spiny dogfish[1]	*Squalus acanthias*	J, A

E = Eggs J = Juvenile
L = Larval A = Adult

[1]Per National Marine Fisheries Service List of Essential Fish Habitat Species, dated October 1999 for the New River (from mouth northward to US 17 in Jacksonville, NC).

[2]Per North Carolina Division of Marine Fisheries list of anadromous fish, dated April 2003.

[3]Per Ron Sechler, Habitat Conservation Division, National Marine Fisheries Service, letter dated December 6, 2002.

5. Permitted Dischargers

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as "point sources." Wastewater point source discharges include municipal (city and county) and industrial wastewater treatment plants and small domestic wastewater treatment systems serving schools, commercial offices, residential subdivisions, and individual homes (DWQ 2000). Stormwater point source discharges include stormwater collection systems for municipalities and stormwater discharges associated with certain industrial activities. Point source dischargers in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. Discharge permits are issued under the NPDES program, delegated to DWQ by the Environmental Protection Agency (EPA). Within subbasin 030502 there are five major NPDES dischargers. There are

several minor NPDES dischargers in the subbasin; however, only the major dischargers are described below in Table 2.

Table 2. Major NPDES Dischargers Located in Subbasin 030502 of the White Oak River Basin

Permit	Facility	Receiving Stream	Discharge (MGD)	Distance from Study Area
NC0062995	USMC/Camp Geiger WWTP	New River	1.60	<5 mile (<8km) downstream
NC0024121	Jacksonville/Wilson Bay WWTP	New River	4.46	<5 mile (<8km) downstream
NC0063011	USMC/Camp Johnson WWTP	Northeast Creek	1.00	<5 mile (<8km) downstream
NC0063002	USMC/Tarawa Terrace WWTP	Northeast Creek	1.25	<5 mile (<8km) downstream
NC0063029	USMC/Hadnot Point WWTP	New River	8.00	<5 mile (<8km) downstream

Several parking lots are adjacent to the project study area. Runoff from these parking lots may contribute non-point source discharge to the New River.

6. Anticipated Impacts to Water Resources

a. General Impacts

Short-term impacts to water quality, such as sedimentation and turbidity, may result from construction-related activities. Best Management Practices (BMPs) can minimize impacts during construction, including implementation of stringent erosion and sedimentation control measures, and avoidance of using wetlands as staging areas. Development activities which require an Erosion and Sedimentation Control Plan in accordance with rules established by the NC Sedimentation Control Commission or local erosion and sedimentation control program approved in accordance with 15A NCAC 4B .0218, and which drain to and are within one mile (1.6 kilometer) of HQW shall be required to follow stormwater management rules as specified in 15A NCAC 2H .1000.

Other impacts to water quality, such as changes in water temperature as a result of increased exposure to sunlight due to the removal of stream-side vegetation or increased shade due to the construction of the bridge, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels, can be anticipated as a result of this project if roadway or bridge surface area increases. However, due to the limited amount of overall change anticipated in the surrounding areas, impacts are expected to be temporary in nature.

In-stream construction activities will be scheduled to avoid and minimize impacts to aquatic resources/organisms. The NCMFC and NCWRC were contacted for comments regarding this project and potential impacts. The NCMFC responded that there are Areas of Environmental Concern in the project area, and that wetlands should be protected as much as possible. Tidal wetlands in the northeast quadrant and wetlands in the Coastal Shoreline Buffer were noted as having the greatest significance. The NCWRC commented that the New River is a Primary Nursery Area downstream of the US 17

bridge. "Stream Crossing Guidelines for Anadromous Fish Passage" will be adhered to. This includes a moratorium on in-water work from February 15 to September 30.

b. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents dated 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

Bridge No. 24 was constructed in 1943 and has a sufficiency rating of 34.1. It has 22 spans totaling approximately 766.5 feet (233.6 meters) in length. The deck and railings of the superstructure are composed of reinforced concrete. The substructure is composed of reinforced concrete abutments and reinforced concrete caps on concrete octagon piles. The rails will be removed without dropping them into waters of the United States. There is potential for components of the deck and substructure to be dropped into the water.

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. The maximum potential temporary fill associated with demolition procedures is estimated to be 6,233 cubic yards (4,758 cubic meters). Due to potential sedimentation concerns resulting from demolition of the bridge, a turbidity curtain will be used where practicable to contain and minimize sedimentation in the water. The resident engineer will coordinate with appropriate agencies prior to demolition and removal.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project would fall under Case 2, which states that **no work shall be performed in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas.** This conclusion is based upon the classification of the waters within the project area and vicinity, and agency comments received from the National Marine Fisheries Service, North Carolina Division of Coastal Management, and North Carolina Wildlife Resources Commission.

D. Biotic Resources

1. Plant Communities

Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. Urban development and commercial building have resulted in the present vegetative patterns. When appropriate, the plant community names have been adopted and modified from the NHP classification system (Schafale and Weakley 1990) and the descriptions written to reflect local variations within the

project study area. One natural plant community occurs within the project study area and one community results from human activities.

a. Tidal Freshwater Marsh

Tidal freshwater marsh is located on the north side of US 17, east of the New River. Cattail (*Typha latifolia*) dominates this community with other species present including soft rush (*Juncus effusus*), wildrice (*Zizania aquatica*), climbing hempweed (*Mikania scandens*), and water smartweed (*Polygonum amphibium*). Black willow (*Salix nigra*) and sweetbay (*Magnolia virginiana*) are present along the terrestrial edge.

b. Maintained/Disturbed Land

Maintained/disturbed land can include roadways, parking lots, roadsides, maintained residential yards, powerline rights-of-way, and areas where other human related activities dominate the landscape. Roadsides, lawns, and powerline rights-of-way are typically maintained by mowing and/or herbicides. Species observed within the road rights-of-way include blackberry (*Rubus argutus*), winged sumac (*Rhus copallina*), Chinese privet (*Ligustrum sinese*), and Japanese honeysuckle (*Lonicera japonica*).

The plant communities within the project study area were mapped on an aerial photograph base and field verified. A summary of the coverage of each plant community within the project study area is presented in Table 3.

Table 3. Plant Communities Located Within the Project Study Area.

Build Alternatives	Plant Communities	
	Tidal Freshwater Marsh	Maintained/Disturbed Land
ALT. A	0.410 AC (0.166 HA)	1.645 AC (0.666 HA)
ALT C. (Preferred)	0.231 AC (0.093 HA)	1.459 AC (0.591 HA)

2. Wildlife

The project study area was visually surveyed for signs of terrestrial wildlife. Very little terrestrial wildlife was observed within the project study area. Mammals expected to occur in and around the project study area include raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), and Virginia opossum (*Didelphis virginiana*).

No terrestrial reptiles were observed within the project study area. Reptile species expected to occur in and around the project study area include green anole (*Anolis carolinensis*), box turtle (*Terrapene carolina*), American alligator (*Alligator mississippiensis*) and rat snake (*Elaphe obsoleta*).

The only terrestrial or arboreal amphibian observed was green tree frog (*Hyla cinerea*). Other terrestrial or arboreal amphibians expected to occur in and around the project study area include such species as southern leopard frog (*Rana utricularia*) and spring peeper (*Pseudacris crucifer*).

Little was observed in regards to avian species within the project study area. Species expected to utilize the terrestrial portion of the project study area include species adapted to urban landscapes, such as rock dove (*Columba livea*), house sparrow (*Passer domesticus*), and house finch (*Carpodacus mexicanus*). Species expected to utilize the tidal freshwater marsh include red-winged blackbird (*Agelaius phoeniceus*), common yellowthroat (*Geothlypis trichas*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), and great blue heron (*Ardea herodias*).

Most of the terrestrial wildlife occurring in the project study area is typically adapted to life in fragmented landscapes, and overall impacts should be minor. Due to the lack of, or limited, infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. Wildlife movement corridors are not expected to be substantially impacted by the proposed project.

3. Aquatic Communities

The aquatic habitat located within the project study area associated with Bridge No. 24 includes the New River and the adjacent tidal freshwater marsh where regular flooding is evident. No distinct areas containing substantially amounts of aquatic vegetation were observed during the field investigation.

Kick-netting, seining, dip-netting, and electro-fishing were prohibited due to the depth of the channel and unstable substrate. Visual observation of stream banks and channel within the project study area were conducted along the New River to document the aquatic community. The depth of the channel and salinity of the New River prevented the use of the back-mounted electro-shocker.

No fish species were documented in the New River during the field investigation. Fish species expected to occur within the project study area include the following species documented from the project vicinity (Menhinick 1991): striped mullet (*Mugil cephala*), hogchoker (*Trinectes maculatus*), inland silverside (*Menidia beryllina*), bay anchovy (*Anchoa mitchilli*), and American eel (*Anguilla rostrata*). Estuarine species such as spot (*Leiostomus xanthurus*) and Atlantic croaker (*Micropogonias undulatus*) are also expected. Coastal Plain streams are often used by anadromous fish species such as striped bass (*Morone saxatillis*) and shad (*Alosa* spp.). Menhinick (1991) documents the following anadromous fish as having occurred in the New River: gizzard shad (*Dorosoma cepedianum*), American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), alewife (*Alosa pseudoharengus*), and striped bass.

The New River provides limited riparian and benthic habitat for amphibians and aquatic reptiles. Although none were observed during the field investigation, the following species are expected to occur in the tidal freshwater marsh portion of the project study area: green frog (*Rana clamitans*), snapping turtle (*Chelydra serpentina*), banded water snake (*Nerodia fasciata*), and cottonmouth (*Agkistrodon piscivorus*).

Birds expected to utilize this portion of the New River and flooded tidal freshwater marsh include such species as mallard (*Anas platyrhynchos*), osprey (*Pandion haliaetus*), great egret, green heron (*Butorides virescens*), and great blue heron.

Benthic macroinvertebrate sampling was not conducted due to unfavorable site conditions. Unstable substrate, depth of the channel, and substantial disturbance such as concrete rubble under the bridge prevented the use of kick-nets and bottom sampling. The banks of the New River were surveyed for any aquatic wildlife. Aquatic wildlife directly observed under the New River bridge include blue crab (*Callinectes sapidus*), Northern quahog (*Mercenaria mercenaria*), scorched mussel (*Brachidontes exustus*), ribbed mussel (*Geukensia demissa*), fragile barnacle (*Chthamalus fragilis*), and wharf crab (*Sesarma cinereum*).

4. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

The replacement of Bridge No. 24 is expected to involve minor impacts to the terrestrial communities located within the project study area. The replacement of the existing structure in place will reduce permanent impacts to plant communities and limit community fragmentation. Impacts resulting from bridge replacements are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. Plant communities within the project study area are presented in Table 2; however, actual impacts will be limited to the designed right-of-way and permitted construction limits. Due to the anticipated lack of, or limited, infringement on natural communities, the proposed bridge replacement should not result in substantial loss or displacement of known terrestrial animal populations. Wildlife movement corridors should not be substantially impacted by the proposed project. Wildlife usage of the urbanized project study area is limited and species expected to utilize the project study area are generally acclimated to fragmented landscapes. Bridge No. 24 replacement should not create any additional detrimental conditions to terrestrial wildlife within the project study area.

b. Aquatic Communities

The replacement of Bridge No. 24 will likely cause temporary impacts to the aquatic communities in and around the project study area. Potential impacts to down-stream aquatic habitat will be avoided by bridging the New River to maintain regular flow and stream integrity. Support structures will be designed to avoid wetland or open water habitats whenever possible. In addition, temporary impacts to downstream habitat from increased sediment during construction will be reduced by limiting in-stream work to an absolute minimum, except for the removal of the portion of the sub-structure below the water. Waterborne sediment flowing downstream can be minimized by use of a floating silt curtain. Stockpiled material will be kept a minimum of 50 feet (15 meters) from the river channel. Silt fences will also be erected around any stockpiled material in order to minimize the chance of erosion or run-off from affecting the river channel. Best Management Practices (BMPs) for the protection of surface waters will be strictly enforced to reduce impacts during all construction phases.

Aquatic wildlife may be temporarily displaced during the bridge replacement project. No long-term impacts are expected to result from this project. Anadromous fish species have been documented by

Menhinick (1991) as occurring upstream and downstream from the project study area. NCDOT's "Stream Crossing Guidelines for Anadromous Fish Passage" will be utilized to ensure that the replacement of the bridge will not impede anadromous fish. Resident aquatic species may be displaced during construction activities; however, anticipated impacts are expected to be minor and temporary.

E. Special Topics

1. Waters of the United States

Water bodies such as rivers, lakes, and streams are subject to jurisdictional consideration under the Section 404 program of the Clean Water Act (CWA). Additionally, wetlands are also considered "waters of the United States" and are also subject to jurisdictional consideration. Wetlands have been defined by EPA and COE as:

Those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)(1986)].

Wetlands subject to review under Section 404 of the CWA (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987).

Two wetland types occur within the project study area. The surface waters within the channel of the New River exhibit characteristics of estuarine, subtidal, unconsolidated bottom, waters (E1UBL) pursuant to Cowardin et al. (1979). The tidal freshwater marsh on the east side of the New River exhibits characteristics of an estuarine, scrub-shrub, evergreen, irregularly flooded wetland (E2SS7P) pursuant to Cowardin et al. (1979).

Jurisdictional wetlands were delineated based on current COE methodology, and the areas were subsequently mapped with Trimble ™ Global Positioning System (GPS) units. Approval of the delineation was received from the COE in a Notification of Jurisdictional Determination dated January 2, 2002. Table 4 contains the approximate acreage of the two wetland types occurring within the project study area.

Table 4. Jurisdictional Wetlands and Surface Waters Located Within the Project Study Area.

Alternatives	Wetland Type		
	E1UBL Surface Waters		E2SS7P (Wetland)
	Area	Linear	
ALT. A	1.4 ac (0.57 ha)	91 ft (27 m)	0.410 AC (0.166 HA)
ALT C. (Preferred)	1.4 ac (0.57 ha)	91 ft (27 m)	0.231 AC (0.093 HA)

Based on results of GPS maps and project study area limits and functional designs.

Anticipated impacts to these jurisdictional wetlands and surface waters will be determined during the final design phase of the project. Actual impacts will be limited to right-of-way widths and is anticipated to be less than the amounts described in Table 4

2. Permits

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. Nationwide Permit (NWP) No.23 [33 CFR 330.5(a)(23)] has been issued by the COE for CEs due to expected minimal impact. DWQ has issued a General 401 Water Quality Certification for NWP No.23. However, use of this permit will require written notice to DWQ. In the event that NWP No.23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized. NWP No.33 may be needed if temporary structures, work and discharges, including cofferdams are required for this project.

Onslow County is a coastal county and is therefore under the additional jurisdiction of CAMA as regulated by the Coastal Resources Commission (CRC) and the North Carolina Division of Coastal Management (NCDCM). Activities that impact certain coastal wetlands under the jurisdiction of CAMA or Areas of Environmental Concern (AEC) typically require CAMA approval through the NCDCM (NCDCM 2001). Portions of the project study area qualify as an AEC because of the following four criteria defining CAMA's AECs: 1) public trust waters; 2) estuarine waters; 3) coastal shorelines; and 4) coastal wetlands. Public trust waters are the coastal waters and submerged lands that every North Carolinian has the right to use. These areas often overlap with estuarine waters, but also include many "inland" fishing waters (NCDCM 2001). Estuarine waters are the state's oceans, sounds, tidal rivers and their tributaries, which stretch across coastal North Carolina and link to the other parts of the estuarine system: public trust areas, coastal wetlands and coastal shorelines (NCDCM 2001). Coastal shorelines include all lands within 75 feet (23 m) of the normal high water level of estuarine waters. Coastal wetlands include any marsh in the 20 coastal counties that regularly or occasionally flood by lunar or wind tides, and include one or more of the ten listed CAMA plant species. Most of the project study area along the New River meets these four criteria, and replacement of Bridge No. 24 will require CAMA approval.

The United States Coast Guard (USCG) is responsible for authorizing bridges pursuant to Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946. The purpose of these Acts is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce.

Bridge construction or replacement over navigable waters may require USCG authorization pursuant to 33 CFR 114-115. The USCG has indicated in a letter in the appendix that this project meets criteria for advance approval waterways and no individual permit will be required.

A state stormwater permit will be required for this project.

Anticipated impacts to wetlands and open water areas will be limited to the actual construction limits and will be determined by NCDOT during the design phase of this project. Impacts to open water areas of the New River (E1UBL) are limited to support structures for the channel-spanning bridge. During bridge removal procedures, NCDOT's BMP's will be utilized, including erosion control measures. Floating turbidity curtains will be used where practicable to minimize the amount of turbid water flowing off-site.

Wetland Avoidance –Due to the extent of wetlands and surface waters within the project study area, complete avoidance of jurisdictional impacts may not be possible.

Minimization – Minimization of jurisdictional impacts can be achieved by utilizing as much of the existing bridge corridor as possible. Spanning the New River will serve to minimize direct impacts to the stream channel.

If no practical alternative exists to remove the current bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will be considered during the permitting process. A worst-case scenario will be assumed with the understanding that if there is any other practical method available, the bridge will not be dropped into the water. Permitting will be coordinated such that any permit needed for bridge construction will address issues related to bridge demolition.

3. Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States, specifically wetlands. Such action should be undertaken in areas adjacent to or contiguous to the discharge site.

Utilization of BMP's will be implemented in an effort to minimize impacts, including avoiding placing staging areas within wetlands. Temporary impacts associated with the construction activities will be mitigated by replanting disturbed areas with native species and removal of any temporary fill material within the floodplain upon project completion.

Due to the urbanized landscape within the project study area, no practical on-site compensatory wetland restoration mitigation was identified. Urban and residential development in the project vicinity also limits mitigation opportunities. Little opportunity for on-site or directly adjacent mitigation exists with

the exception of possible enhancement activities for the tidal freshwater marsh on the east side of the New River.

F. Rare and Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). The following federally protected species are listed for Onslow County (FWS list last updated February 25, 2003, search performed October 2, 2003):

Table 5. Federally Protected Species Listed for Onslow County, North Carolina.

Common Name	Scientific Name	Status	Biological Conclusion
American alligator	*Alligator mississippiensis*	T(S/A)	Not applicable
Loggerhead sea turtle	*Caretta caretta*	T	No effect
Piping plover	*Charadrius melodus*	T	No effect
Green sea turtle	*Chelonia mydas*	T	No effect
Leatherback sea turtle	*Dermochelys coriacea*	E	No effect
Eastern cougar	*Felis concolor couguar*	E	No effect
Bald eagle	*Haliaeetus leucocephalus*	T2	No effect
Red-cockaded woodpecker	*Picoides borealis*	E	No effect
Seabeach amaranth	*Amaranthus pumilus*	T	No effect
Golden sedge	*Carex lutea*	E	No effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	No effect
Cooley's meadowrue	*Thalictrum cooleyi*	E	No effect

T = Threatened
E = Endangered
T(S/A) = Threatened due to similar appearance
T2 = Threatened, Proposed for delisting

American alligator – American alligator is listed as Threatened based on the similarity in appearance to other federally listed crocodilians; however, there are no other crocodilians native to North Carolina. American alligators can be found in a wide variety of freshwater to estuarine habitats including swamp forests, bottomland hardwood forests, marshes, large streams, canals, ponds and lakes (Palmer and Braswell 1995). This habitat exists within the project study area, and the potential for alligators within the project study area does exist. No individuals or direct evidence of occurrence was observed during the field investigation conducted by ESI biologists. Construction activities may temporarily displace any American alligators in the vicinity; however, no long-term impact to the American alligator is anticipated as a result of this project.

BIOLOGICAL CONCLUSION: Not applicable

No biological conclusion is required for the American alligator since it is listed as T(S/A).

Sea turtles - Three marine turtles are listed for Onslow County: the loggerhead sea turtle, green sea turtle, and leatherback sea turtle. The loggerhead sea turtle is the most common sea turtle on the coast of the North Carolina and is most numerous from late April to October. This species averages 31 to 47 inches in length (0.8 to 1.2 meters) and weighs from 170 to 500 pounds (lbs) [77 to 227 kilograms (kg)] (Martof et al. 1980). The loggerhead sea turtle is basically temperate or subtropical in nature, and is primarily oceanic, but it may also stray into freshwater bays, sounds, and large rivers. Nesting habitat for loggerhead sea turtles consists of ocean beaches.

Both the green sea turtle and leatherback sea turtle typically nest on sandy beaches in tropical areas. The green sea turtle is most commonly found in the Caribbean where they breed, although individuals, usually immatures, are occasionally found along the North Carolina coast. The green sea turtle reaches a length of 30 to 60 inches (0.8 to 1.5 meters) and weights of 220 to 650 lbs (100 to 295 kg), and has a smooth, heart-shaped shell (Martof et al. 1980). Green sea turtles are omnivorous, primarily eating jellyfish and seaweeds. Although primarily tropical in nature, the range of the leatherback sea turtle may extend to Nova Scotia and Newfoundland (Martof et al. 1980). The leatherback sea turtle sometimes moves into shallow bays, estuaries, and even river mouths. The leatherback sea turtle is distinguished by its larger size (46- to 70-inch [1.2 to 1.8 meter] carapace, 650 to 1500 lbs [295 to 680 kg]) and a ridged shell of soft, leathery skin. The leatherback sea turtle also feeds extensively on jellyfish, although its diet often includes other sea animals and seaweed.

BIOLOGICAL CONCLUSION: No Effect

These marine species utilize barrier beaches for nesting, and occasionally feed in estuarine waters. These species are not expected to occur in the project study area streams due to lack of nesting habitat and minimal feeding opportunities. This project will not affect sea turtles due to the lack of suitable nesting and foraging habitat for these species. NHP records do not show that any of these three species have been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

Piping plover - Piping plovers are small shorebirds that occur along beaches above the high tide line, sand flats at the ends of sand spits and barrier islands, gently sloping fore dunes, blowout areas behind primary dunes, and wash over areas cut into or between dunes (FWS 1996a). Nests are typically found on open, wide sandy stretches of beach similar to those associated with inlets and capes.

BIOLOGICAL CONCLUSION: No Effect

This project will not affect piping plover because there is no suitable habitat (barrier beaches or inlets) within the project study area. NHP records do not show that piping plover has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

Eastern cougar - The eastern cougar is a possibly extinct eastern subspecies of the widespread mountain lion species. This species was possibly extirpated from North Carolina by the late 1800's although recent sporadic sightings have been reported from remote areas of the Mountains and Coastal Plain (Lee 1987). Mountain lions are large, long-tailed cats; adult males may measure 7.0 to 9.0 feet

(2.1 to 2.7 meters) total length with females averaging 30 to 40 percent smaller (Handley 1991). Adult mountain lion tracks measure approximately 3.5 inches (0.09 meters) (Lee 1987).

Recent specimens of mountain lion taken in North Carolina and elsewhere in mid-Atlantic states have proved to be individuals of other subspecies that have escaped or been released from captivity (Lee 1987, Handley 1991). The eastern cougar would require large tracts of relatively undisturbed habitat that support large populations of white-tailed deer (Webster et al. 1985).

BIOLOGICAL CONCLUSION: No Effect

No tangible evidence has been produced documenting the existence of this subspecies in Onslow County. Due to the lack of wilderness area within the project study area, no suitable habitat for this subspecies is believed to be present. No cat tracks of sufficient size for eastern cougar were identified during field investigations. NHP records do not show that eastern cougar has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001. The proposed project will not affect this species.

Bald eagle - The bald eagle is a large raptor with a wingspan greater than 6.0 feet (1.8 meters). Adult bald eagles are dark brown with white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter et al. 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near water and forage over large bodies of water with adjacent trees available for perching (Hamel 1992). Preventing disturbance activities within a primary zone extending 750 to 1500 feet (229 to 457 meters) outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (FWS 1997). FWS recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out to a distance of 1 mile (1.6 kilometers) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet (457 meters) of roosting sites.

BIOLOGICAL CONCLUSION: No Effect

Potential nesting habitat for bald eagle, consisting of tall, living trees near open water bodies, does not exist within the project study area. NHP does not document the occurrence of the bald eagle within 3.0 miles (4.8 kilometers) of the project study area as of December 20, 2001.

Red-cockaded woodpecker (RCW) - This small woodpecker (7.0 to 8.5 inches [0.2 meters] long) has a black, prominent white cheek patch, and black and white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter et al. 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (Pinus taeda), longleaf (P. palustris), slash (P. elliotii), and pond (P. serotina) pines. Nest cavities are constructed in the heartwood of living pines, generally older than 60 years that have been infected with red-heart disease. Nest cavity trees typically occur in clusters, which are referred to as colonies. The

woodpecker drills holes into the bark around the cavity entrance, which results in a shiny, resinous buildup around the entrance. This allows for easy detection of active nest trees due to the high visibility of the resin deposit at the cavity entrance. Pine flatwoods or pine savannas that are fire maintained serve as ideal nesting and foraging sites for this species.

Development of a thick understory within a given area usually deters nesting and foraging. Potential nest sites for RCW's include pine and pine/hardwood stands greater than 60 years of age. Hardwood/pine stands (<50% pine) greater than 60 years of age may also be considered potential nesting habitat if adjacent to potential foraging habitat (Henry 1989). Foraging habitat is typically comprised of open pine/mixed hardwood stands over 30 years of age (Henry 1989). Pines must comprise at least 60 percent of the canopy in order to provide suitable foraging for RCW's. Somewhat younger pine stands may be utilized if the trees have an average diameter at breast height (DBH) greater than or equal to 9 inches (0.2 meters). Foraging stands must be connected to other foraging areas or nesting areas in order to be deemed a viable foraging site. Open spaces or unsuitable habitat wider than approximately 330 feet (100 meters) are considered a barrier to RCW foraging.

BIOLOGICAL CONCLUSION: No Effect

No habitat that would support nesting or foraging populations of the red-cockaded woodpecker was identified within the project study area nor directly adjacent to the project study area. NHP does not document the occurrence of the red cockaded woodpecker within 3.0 miles (4.8 kilometers) of the project study area as of December 20, 2001.

Seabeach amaranth - This species is an annual herb that grows on barrier island beaches. It is a succulent annual that is sprawling or trailing and may reach 2 feet (0.6 meter) or more in length. Inconspicuous flowers and fruits are produced in the leaf axils, typically beginning in July and continuing until frost. Primary habitat for seabeach amaranth consists of bare sand, especially on over wash flats at accreting ends of islands, and lower foredunes and upper strands of non-eroding beaches. The only remaining large populations are in coastal North Carolina (FWS 1996b).

BIOLOGICAL CONCLUSION: No Effect

This project will not affect seabeach amaranth because there is no suitable habitat (barrier beaches) within the project study area. NHP records do not show that seabeach amaranth has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

Golden sedge – Golden sedge is a member of the sedge family and is endemic to North Carolina. The fertile culm (stem) can reach over 3 feet (1 meter) in height. This perennial sedge has yellowish green leaves that are grasslike with those of the culm mostly basal and up to 10 inches (0.3 meter) long. The leaves of the vegetative shoots reach a length of 25 inches (0.6 meter). Fertile culms produce two to four flowering spikes in early and mid April. Fruits mature by mid- May, with most or all fruit fallen by late June.

Golden sedge occurs on sites where subterranean coquina limestone influences an otherwise acidic sandy-peaty soil, typically Grifton fine sandy loam. Soils are typically wet to saturated during spring maturation. Golden sedge typically occupies the partially wooded ecotone between longleaf pine savanna and nonriverine swamp forest. This sedge appears to be dependent on occasional-to-frequent fire associated with the adjacent savanna to suppress the shrub understory. It is known from only Pender and Onslow counties in North Carolina and all populations are in one four-mile wide area (LaBlond 1996).

BIOLOGICAL CONCLUSION: No effect

Typical habitat, consisting of fire-maintained moist bogs and savannas, is lacking within the project study area. Golden sedge is currently known from sites occurring on Grifton fine sandy loam. This soils series does not occur in the project study area. No savanna habitat was identified within the project study area. No golden sedge, or associated typical savanna plant species, were observed during field investigations along utility corridors and other disturbed areas. NHP records do not show that golden sedge has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

Rough-leaved loosestrife - The rough-leaved loosestrife is a rhizomatous perennial that flowers from late May to June with seed forming by August and capsules dehiscing in October. This species can grow up to 2 feet (0.6 meter) tall and has yellow flowers that typically bloom in late May through June. Rough-leaved loosestrife typically occurs along the ecotone between long-leaf savannas and wetter, shrubby areas where lack of canopy vegetation allows abundant sunlight into the herb layer (i.e., pocosins). This species is endemic to the Coastal Plain and Sandhills region of North Carolina. This species is fire maintained, and suppression of naturally occurring fires has contributed to the loss of habitat in our state (FWS 1994a).

BIOLOGICAL CONCLUSION: No effect

Typical habitat, consisting of longleaf pine savanna/pocosin ecotones, is lacking within the project study area. No rough-leaved loosestrife was observed during field investigations along utility corridors and other disturbed areas. NHP records do not show that rough-leaved loosestrife has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

Cooley's meadowrue - Cooley's meadowrue is a rhizomatous, perennial herb with a smooth stem; the 3.0 feet (0.9 meter) high plant is normally erect in full sun but lax in the shade. Leaves are ternately divided; the leaflets, less than 1.0 inch (<2.5 centimeters) long, are narrow, with untoothed margins. The small, petal-less, unisexual flowers appear on an open panicle in June and the fruits, small ellipsoidal achenes, mature in August and September.

Cooley's meadowrue is endemic to the southeastern Coastal Plain, but presently is thought to survive only at 11 sites in North Carolina and 1 site in Florida (FWS 1994b). Cooley's meadowrue historically occurred in moist bogs and savannas where fire maintained the habitat at early secondary successional stages. Some form of disturbance is usually needed to sustain the open quality of the meadowrue's

habitat. Consequently, Cooley's meadowrue is sometimes found along utility corridors, roadside margins, maintained areas, or other savanna-like maintained habitats containing suitable hydrology and circumneutral soils. Typical associates in savanna habitats and habitats mimicking savannas (i.e., utility corridors) are white-topped sedges (Dichromena spp.), toothache grass (Ctenium aromaticum), and Carolina grass-of-parnassus (Parnassia caroliniana). Cooley's meadowrue is threatened by fire suppression and land disturbing practices such as silviculture or agriculture (FWS 1994b).

BIOLOGICAL CONCLUSION: No Effect

Typical habitat, consisting of fire-maintained moist bogs and savannas, is lacking within the project study area. No savanna habitat was identified within the project study area. No Cooley's meadowrue or associated typical savanna plant species were observed during field investigations along utility corridors and other disturbed areas. NHP records do not show that Cooley's meadowrue has been documented within 2.0 miles (3.2 kilometers) of the project study area as of December 20, 2001.

2. Federal species of concern

The FWS list also includes a category of species designated as "Federal Species of Concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat (Amoroso 1999, LeGrand et al. 2001) within the project study area has been evaluated for the following FSC species listed for Onslow County (Table 6). Information for this table was obtained from the FWS website on October 2, 2003 (last updated February 25, 2003), and the North Carolina Natural Heritage Program website last updated in May 2003, search performed on Thursday, October 2, 2003.

Table 6. Federal Species of Concern (FSC) Listed for Onslow County, North Carolina.

Common Name	Scientific Name	State Status	Potential Habitat
Bachman's sparrow	*Aimophila aestivalis*	SC	No
Henslow's sparrow	*Ammodramus henslowii*	SR	No
Southern hognose snake	*Heterodon simus*	SC	No
Black Rail	*Laterallus jamaicensis*	SR	No
Mimic glass lizard	*Ophisaurus mimicus*	SC	No
Eastern painted bunting	*Passerina ciris ciris*	SR	No
Carolina gopher frog	*Rana capito capito*	T	No
Croatan crayfish	*Procambarus plumimanus*	NL	No
Carolina spleenwort	*Asplenium heteroresiliens*	E	No
Chapman's sedge	*Carex chapmanii*	NL	No
Hirsts panic grass	*Panicum hirstii* (= *Dicanthelium* sp. 1)	E	No
Venus flytrap	*Dionaea muscipula*	SR-L, SC	No
Pondspice	*Litsea aestivalis*	SR-T	No
Boykin's lobelia	*Lobelia boykinii*	SR-T	No
Loose watermilfoil	*Myriophllum laxum*	T	No
Carolina grass-of-parnassus	*Parnassia caroliniana*	E	No
Awned meadowbeauty	*Rhexia aristosa*	T	No
Thorne's beaksedge	*Rhynchospora thornei*	E	No
Carolina goldenrod	*Solidago pulchra*	E	No
Spring-flowering goldenrod	*Solidago verna*	SR-L	No
Carolina asphodel	*Tofieldia glabra*	NL	No
A quillwort	*Isoetes microvela*	SR-L	No
Coastal beaksedge	*Rhynchospora pleiantha*	SR-T	No
Coastal goldenrod	*Solidago villosicarpa*	SR-L	No
Many-flowered grass-pink	*Calopogon multiflorus*	E	No

E-Endangered, -T-Throughout, T-Threatened, SC-Special Concern, SR–Significantly Rare, L-Limited, NL-Not listed by NHP, P-Peripheral

3. Summary of Anticipated Impacts

No potential habitat for any FSC was identified within the project study area due primarily to the urbanized landscape. No FSCs were observed during the field investigation and NHP files do not document occurrence of any FSC within 1.0 mile (1.6 kilometer) of the project study area as of May 9, 2003.

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, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance Section 106, codified at 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 to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on May 2, 2002. All structures over 50 years of age within the APE were photographed, and later reviewed by the North Carolina State Historic Preservation Office (HPO). In a concurrence form dated October 10, 2002 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed on or eligible for listing in the National Register of Historic Places within the APE. In a memorandum dated December 20, 2002 the HPO stated, "We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project: Pelletier House and Wantland Spring (NR-listed property)." The Pelletier House and Wantland Spring (NR-listed property) is not located within the APE. A copy of the concurrence form and memorandum is included in the Appendix.

C. Archaeology

The HPO, in a memorandum dated December 20, 2002 stated, "There are no known archaeological sites within the proposed project 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." A copy of the HPO memorandum is included in the Appendix.

VII. 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 a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

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

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

No adverse impact on families or communities is anticipated. Right of way acquisition will be limited. No relocations of residents or businesses are expected with implementation of the proposed alternative. In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low-income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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

There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since the proposed bridge will be replaced at the existing location the Farmland Protection Policy does not apply.

The project is located in Onslow County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Parts 51 and 93 are not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

This project is an air quality "neutral" project, so it is not required to be included the regional emission analysis (if applicable) and a project level CO analysis is not required.

The traffic volumes will not increase or decrease because of this project. Furthermore, no additional through traffic lanes or change in speed limit is planned. Also, the noise transmission reduction provided to the interior of the structures within the project limits should be sufficient to moderate any intrusive traffic noise. Based on past project experience, the project's impact on noise and air quality will be insignificant.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Division of Solid Waste Management revealed no hazardous waste sites in the project area. A field reconnaissance survey was performed and found one (1) underground storage tank (UST) site within the project area. The former Ivey's Marina located on the north side of US 17 and west of the bridge has a Facility I.D. No. 0-0002141 where three tanks were removed from the site in 1986. This project is not anticipated to impact

this site. If any unregulated USTs or any potential source of contamination is discovered during right-of-way initial contacts with impacted property owners, then an assessment will be conducted to determine the extent of any contamination at that time.

Onslow County and the City of Jacksonville are participating in the National Flood Insurance Regular Program. This project site on the New River is within a detailed study area (Figure 5) with an established floodway. However, it is not anticipated that a floodway modification will be required since the bridge will be an "in kind" replacement. Since the proposed bridge will be a structure similar in length and waterway opening size, it is not anticipated that this project will have any substantial impact on the existing floodplain or floodway. Attached is a copy of the Flood Insurance Rate Map, Figure 5, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project.

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

VIII. Public Involvement

Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with scoping letters. Scoping letters were also sent to various agencies including the United States Marine Corps.

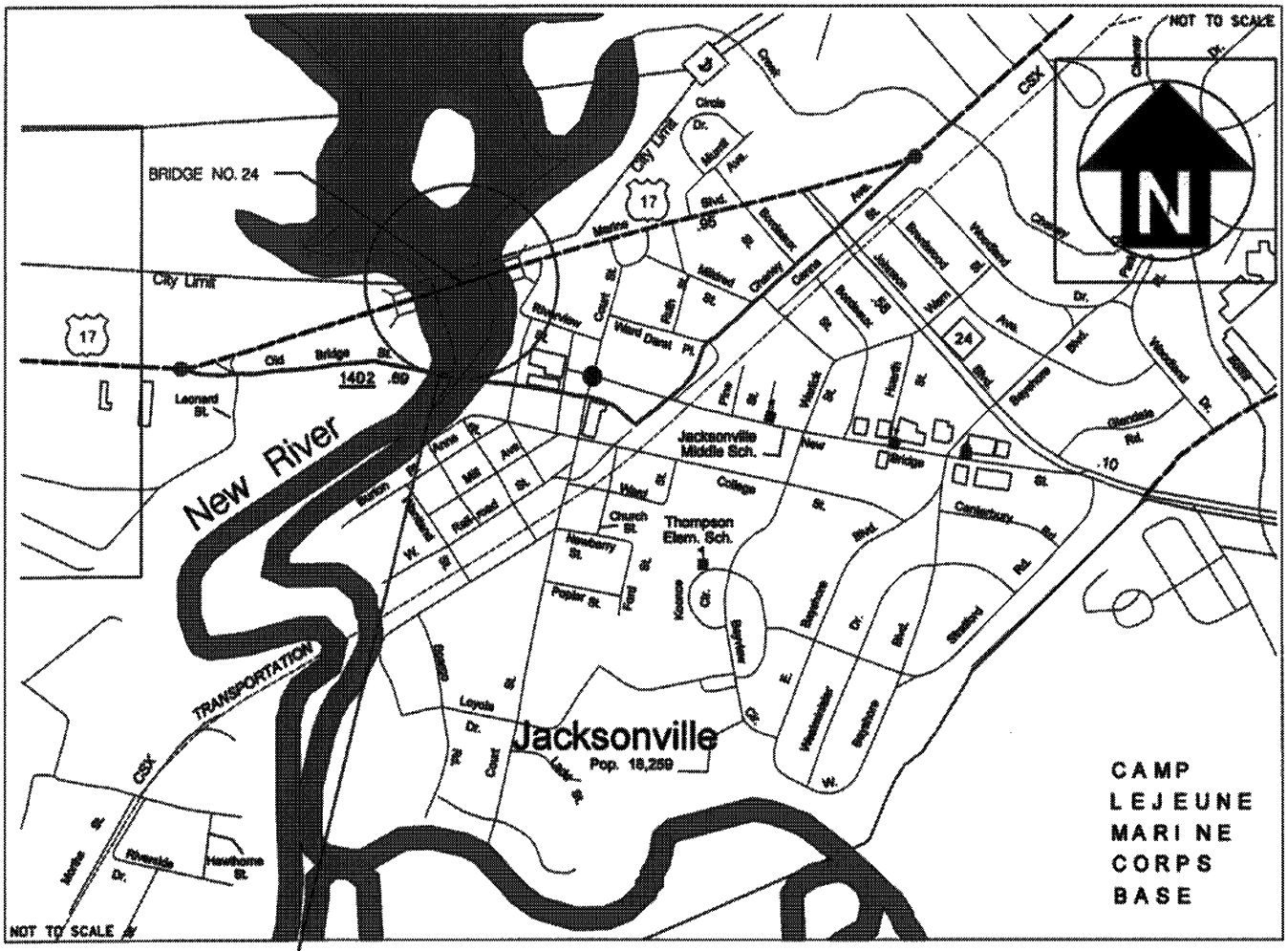
A meeting with local officials was held on May 14, 2003 at the City of Jacksonville Council Chambers. Two alternatives (Alternative A and B) were presented to the local officials for questions and comments.

A public informational workshop as held on May 21, 2003 at the City of Jacksonville Council Chambers. This workshop was an open house format; citizens dropped in to ask questions and voice their concerns. Most citizens were concerned about how traffic would be handled during construction and if the bridge could be raised to accommodate larger boats.

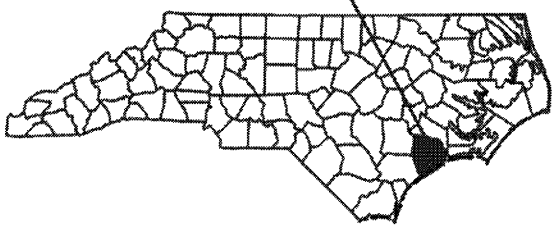
As a result of public involvement, Alternative C which provides additional navigational clearance was evaluated and selected as the preferred alternative.

IX. AGENCY COMMENTS

All comments from the agencies, state and local officials have been addressed previously in the document.



PROPOSED DETOUR ROUTE
WITH STAGED CONSTRUCTION



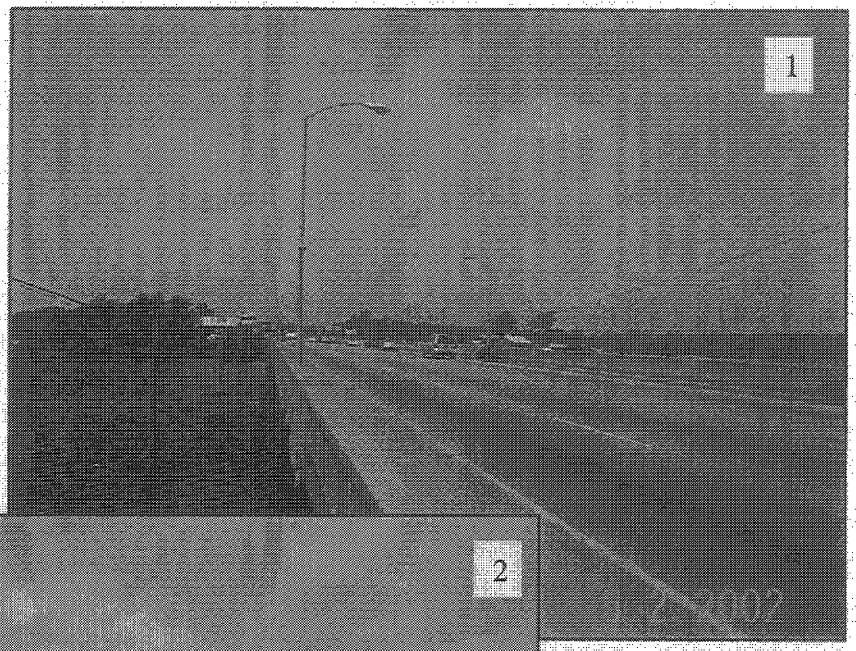
North Carolina Department of Transportation
Project Development & Environmental Analysis

ONSLOW COUNTY
BRIDGE NO 24 ON US 17 (MARINE BLVD.)
OVER THE NEW RIVER
B-4214

FIGURE 1

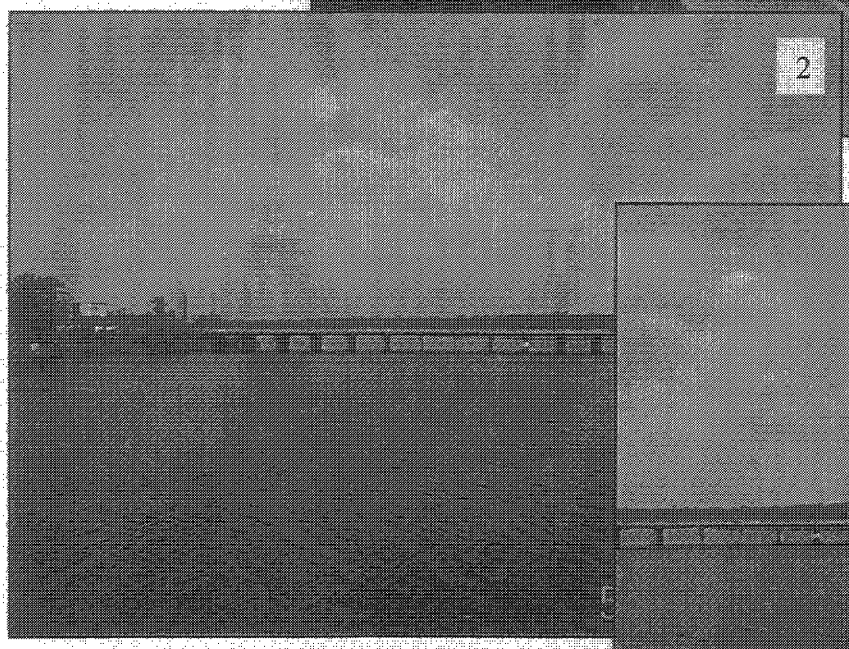
T.I.P. No. B-4214, Federal-Aid Project No. BRSTP-0017(34), State Project No. 8.1262001,
Onslow County, US 17 (Marine Boulevard), Bridge No. 24 over New River

Photo 1, looking Southbound across



Bridge No. 24.

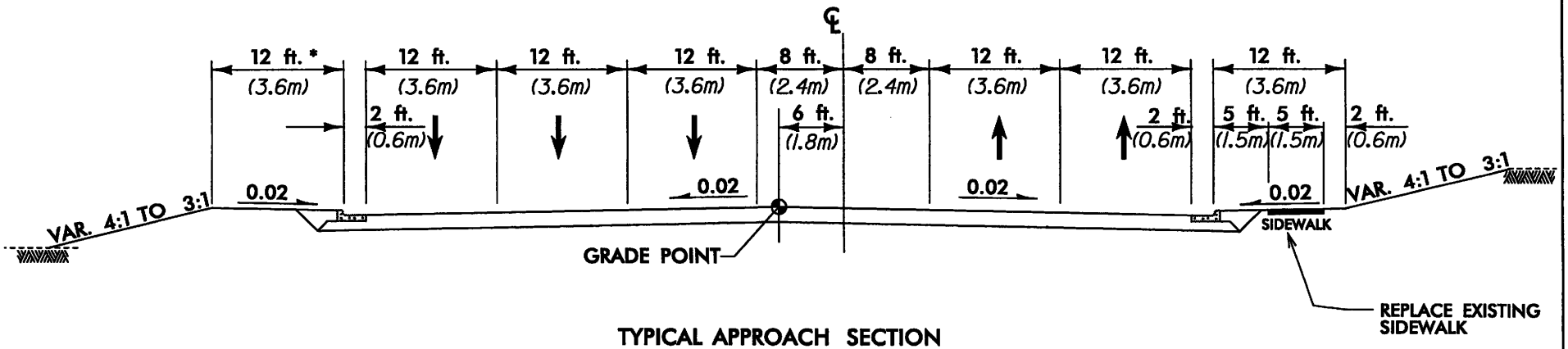
Photo 2 and 3,



side view of Bridge No. 24

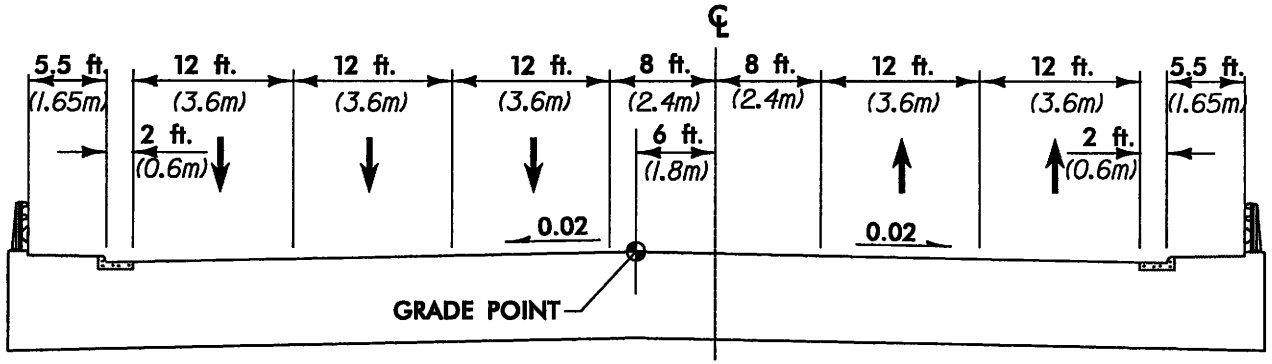
Photo 4, looking Northbound across Bridge No. 24

FIGURE 2



TYPICAL APPROACH SECTION
(PROPOSED)

* 15 ft. (4.6m) WHEN GUARDRAIL IS WARRANTED



TYPICAL BRIDGE SECTION
(PROPOSED)
STAGE CONSTRUCT BRIDGE

TRAFFIC DATA

(EXISTING YR.)	2003 ADT =	52,700	LOS F
(CONST. YR.)	2005 ADT =	54,000	LOS F
(DESIGN YR.)	2030 ADT =	71,000	LOS F
DUAL	6%		
TTST	5%		

FUNCTIONAL CLASSIFICATION :
ARTERIAL – URBAN OTHER PRINCIPAL

North Carolina Department Of Transportation
Project Development & Environmental Analysis

ONSLOW COUNTY
BRIDGE NO. 24 ON US 17
OVER NEW RIVER
TIP NO: B-4214

FIGURE 3

10/14/02, 2/25/03

North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

ALTERNATIVE A

B-4214
ONSLOW COUNTY
US 17 BRIDGE NO. 24
OVER NEW RIVER

NEW RIVER

US 17 MARINE BLVD

Old Bridge Street

PALMAN ST

0' 200' 400'
SCALE

B--4214

FIGURE 4A

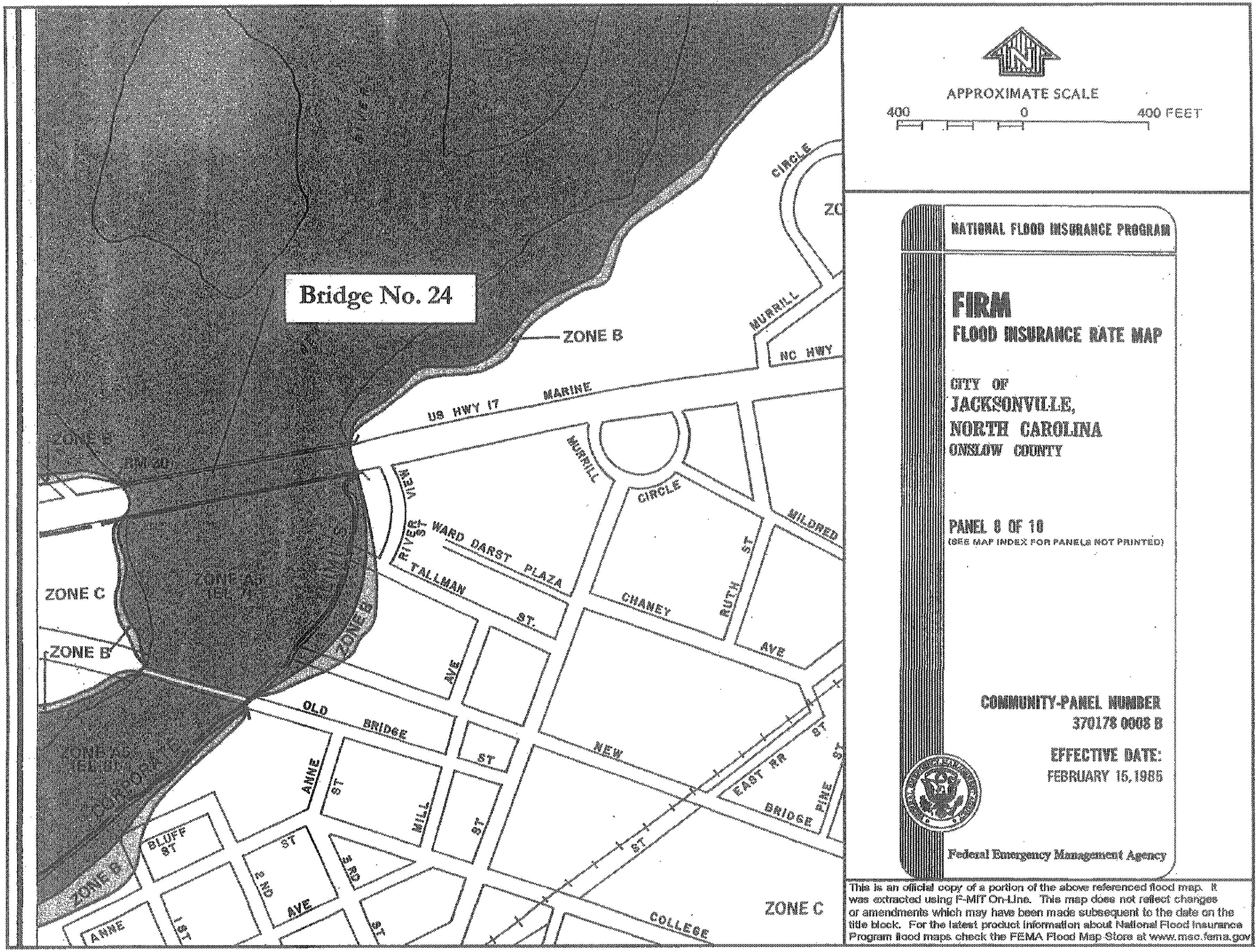
North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

ALTERNATIVE C
(PREFERRED)

B–4214
ONSLOW COUNTY
US 17 BRIDGE NO. 24
OVER NEW RIVER

B–4214

FIGURE 4B



Bridge No. 24
ZONE B
ZONE C
ZONE B
ZONE C
US HWY 17
MARINE
NC HWY
MURRILL
CIRCLE
MURRILL
CIRCLE
MILDRED
RIVER ST
VIEW
WARD DARST PLAZA
TALLMAN
ST.
CHANEY
RUTH
ST
AVE
AVE
OLD
BRIDGE
ST
NEW
EAST RR
ST
BRIDGE
PINE
ST
ANNE
ST
MILL
ST
ST
BLUFF ST
ST
2 ND
3 RD
AVE
ST
ANNE
1 ST
COLLEGE
APPROXIMATE SCALE
400
0
400 FEET
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
JACKSONVILLE,
NORTH CAROLINA
ONSLOW COUNTY
PANEL 8 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY-PANEL NUMBER
370178 0008 B
EFFECTIVE DATE:
FEBRUARY 15, 1985
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Figure 5

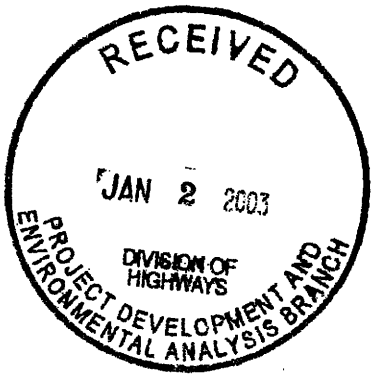
APPENDIX

DEPARTMENT OF THE ARMY
MILITARY TRAFFIC MANAGEMENT COMMAND
TRANSPORTATION ENGINEERING AGENCY
720 THIMBLE SHOALS BOULEVARD, SUITE 130
NEWPORT NEWS, VIRGINIA 23606-2574

December 20, 2002

REPLY TO
ATTENTION OF:

Office of Special Assistant
for Transportation Engineering



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

Dear Dr. Thorpe:

We appreciate the opportunity to provide comments regarding plans to replace Bridges No. 24 and 19 in Onslow County, North Carolina, in the vicinity of Camp Lejeune. These comments are commensurate with our responsibility for administering the Highways for National Defense (HND) Program for the Department of Defense's (DOD) U.S. Transportation Command.

As you are aware, Bridge 24 over the New River on US 17 is part of the Strategic Highway Network (STRAHNET) and the National Highway System (NHS). Improvement of this bridge will be beneficial by enhancing access/egress to Camp Lejuene. Although Bridge 19 over the Stone Creek on NC 210 is not part of STRAHNET, the replacement of the bridge to higher standards will also enhance access/egress to Camp Lejeune.

The Federal Highway Administration has provided guidance encouraging the States to consider military requirements in the development of NHS projects. Specifically, it is important that the volume and characteristics of military vehicles be considered in project development. In the case of Camp Lejeune, the largest anticipated load is the Heavy Equipment Transporter System (HETS) carrying an M1A2 Abrams Battle Tank. To safely accommodate this and other military vehicles it is desired to have 12-foot wide lanes and a minimum HS-20 loading (preferably HS-20 Mod or HS-25). Enclosed is an engineering study (without appendices) on the loaded HETS that concludes most HS-20 structures will support a loaded HETS. DOD policy requires that M1A2 tanks be transported by rail; however, highway movement may be necessary in an emergency.

We compliment your efforts to replace these two bridges. Your interest in National Defense public highway needs is appreciated.

Sincerely,

Robert D. Franz
Senior Engineer for Highway Systems

Enclosure

Copies Furnished:

Mr. Dave Adkins, Camp Lejeune
USTRANSCOM, J5, Mr. Al Colvin

May 9, 2002

Regulatory Division

Action ID No. 200101169, 200101170, 200101171, 200101172, 200101174, 200101175, and 200200726.

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Dear Mr. Gilmore:

Reference your letters February 18, 2002, March 1, 2002, March 18, 2002, and April 24, 2002 regarding our scoping comments on the following proposed bridge replacement projects:

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County, Action ID 200101170.
3. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.
4. TIP Project No. B-4223, Bridge No. 21 on NC 210 over NE Cape Fear River, Pender County, Action ID 200101172.
5. TIP Project No. B-4214, Bridge No. 24 on US 17 over New River, Onslow County, Action ID 200101174.
6. TIP Project No. B- 4215, Bridge No. 19 on NC 210 over Stones Creek, Onslow County, Action ID 200101175.
7. TIP Project No. B-1382, Action ID 200200726, no information provided.

Based on the information provided for each project in the referenced letter (except TIP Project No. B-1382) and jurisdictional delineations conducted on October 9, 2001, it appears that each proposed bridge replacement project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States,

including wetlands, construction methods, and other factors.

Although these projects may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. All activities, including temporary construction, access, and dewatering activities, should be included in the project planning report. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected by the proposed project.

b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided that demonstrates that alternatives with lower wetland impacts are not practicable. On-site detours, unless constructed on a spanning structure or on a previous detour that was used in a past construction activity, can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts. Please note that an onsite detour constructed on a spanning structure can potentially avoid permanent wetland impacts and should be considered whenever an on-site detour is the recommended action. For projects where a spanning structure is not feasible, the NCDOT should investigate the existence of previous onsite detours at the site that were used in previous construction activities. These areas should be utilized for onsite detours whenever possible to minimize wetland impacts.

For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration and monitoring plan will be required prior to issuance of a DA nationwide or Regional general permit. For proposed projects and associated on-site detours that cause significant wetland losses, an individual DA permit and a compensatory mitigation proposal for the unavoidable wetland impacts may be required.

In view of our concerns related to onsite detours constructed in wetlands, a cursory determination was made on the potential for sediment consolidation due to an onsite

detour at each of the proposed project sites. Based on these inspections, potential for sediment consolidation in wetlands exists at several of the proposed projects. Therefore, it is recommended that geotechnical evaluations be conducted at each project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the amount of undercutting that may be necessary. The results of this evaluation should be provided in the project planning report. Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at each of referenced proposed project sites. The following projects are considered as "red " projects as described in your letter of February 18, 2002.

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission. In addition, if undercutting is necessary for temporary detours, the undercut material should be stockpiled on an upland site and later used to restore the site.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate. For projects proposing a temporary onsite detour in wetlands, the entire detour area, including any previous detour from past construction activities, should be removed in its entirety.

e. The report should provide an estimate of the linear feet of new impacts to streams resulting from construction of the project.

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. The work must also not alter the stream hydraulics and create flooding of adjacent properties or result in unstable stream banks. In addition, the report should address the impacts that the culvert would have on recreational navigation.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

h. Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. Most bridge approaches are connected to earthen causeways that were built over wetlands and streams. Replacing these causeways with longer bridges would allow previously impacted wetlands to be restored. In an effort to encourage this type of work, mitigation credit for wetland restoration activities can be provided to offset the added costs of lengthening an existing bridge. Of the referenced project sites, TIP Project No. 4031 connects to a 170 foot long causeway through coastal wetlands. It is recommended that this causeway be replaced with a bridge and associated wetland areas be restored.

i. Based on the information provided and the recent field investigations of the referenced project sites, the apparent level of wetland impacts and scope of the following projects warrant coordination pursuant to the integrated NEPA/Section 404-merger agreement:

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.

j. You have requested that the referenced projects be given a designation of "Red", "Green" or "Yellow" as explained in your letters. Projects designated as "Red" by our office are specified above. The remaining projects will be considered "yellow" projects. We believe that the "green" designation is misleading and should not be used.

Should you have any questions please call Mr. David L. Timpy at the Wilmington Field Office at 910-251-4634.

Sincerely,

E. David Franklin
NCDOT Team Leader ger

Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island

Beaufort, North Carolina 28516

Mr. John Dorney
NCDENR-DWQ
Wetlands Section
1621 Mail Service Center
Raleigh, NC 27699-1621

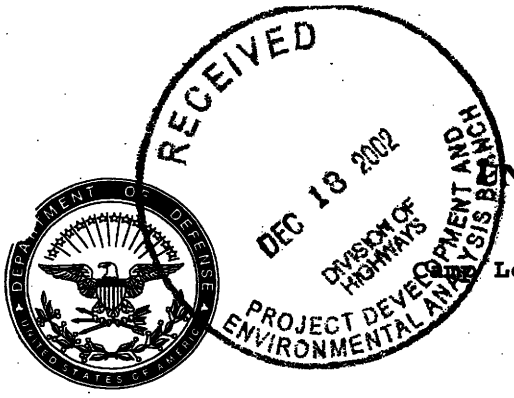
Mr. Doug Huggett
North Carolina Division of
Coastal Management
1638 Mail Service Center
Raleigh, North Carolina 27699-1638

Mr. David Cox
Highway Coordinator
North Carolina Wildlife Resources Commission
1141 I-85 Service Road
Creedmoor, North Carolina 27522

Mr. Howard Hall
United States Fish & Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Allen Pope, PE
North Carolina Department of Transportation
Division 3
124 Division Drive
Wilmington, North Carolina 28401

Ms. Kathy Matthews
Wetlands Regulatory Section
USEPA/EAB
980 College Station Road
Athens, GA 30605



UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC Box 20004
Camp Lejeune, North Carolina 28542-0004

IN REPLY
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IDD
12 DEC 2002

Dr. Gregory J. Thorpe, PhD.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dr. Thorpe:

This letter is in response to your request for input concerning the Department's proposed bridge replacement projects identified as B-4214 (US Highway 17 and New River) and B-4215 (NC Highway 210 and Stones Creek).

- Routing military vehicles through Jacksonville on Old Bridge Street is not an acceptable alternative due to current parking arrangements, volume of pedestrian traffic, and the width of certain portions of the route.

- Completion of the US Highway 17 Bypass Project prior to replacement of the bridges over the New River would significantly reduce the impact to the military community. Removal of both existing bridges over the New River on US Highway 17 prior to the completion of the US Highway 17 Bypass will result in significant delays for ambulance, law enforcement, and fire department personnel due to congestion on the Old Bridge Street alternate routing.

- The closing of NC Highway 210 during construction increases the response time for emergency services. This would include response time by: emergency services, fire department, and Base Forestry responses for wildfire suppression.

- Bridge replacement for NC Highway 210 should be designed to possess, at a minimum, a load class MLC-90 (90-ton capacity), and allow safe passage of vehicles twelve (12) feet in width.

- Any encroachment on Federal lands associated with the NC Highway 210 replacement will trigger a NEPA review.

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- New evacuation routes must be identified to manage traffic flows during evacuations due to dangerous weather situations.

If you have any questions or require additional information, please contact Mr. Dave Adkins, Installation Development Division, Installations and Environment Department, at telephone (910) 451-9448.

Sincerely,

K. R. SLATES
Captain, U. S. Navy
By direction of the
Commanding General

1000
IDD

cc: II MEF, G-4
AC/S T&O
AC/S TMO
AC/S ISS

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: Oan-b
Phone: (757) 398-6587
Fax: (757) 398-6334
Email: tknowles@lantd5.uscg.mil

16593
24 Dec 03

Ms. Pamela R. Williams
Mulkey Engineers and Consultants
6750 Tryon Rd.
Cary, North Carolina 27511

Dear Ms. Williams:

This is in response to your request for Coast Guard review of a project to replace the bridge (#24) over the New River, in Onslow County, North Carolina.

Since this waterway is subject to tidal influence, it is considered legally navigable for Bridge Administration purposes. This waterway also meets the criteria for advanced approval waterways outlined in Title 33, Code of Federal Regulations, Section 115.70. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. The Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways. Therefore, an individual permit will not be required for this project.

If you have any questions regarding this matter, please contact Mr. Terrance Knowles, at the phone number or address shown above.

Sincerely,

WAVERLY GREGORY, JR.
Chief, Bridge Administration Section
By direction of the Commander
Fifth Coast Guard District

Bill Goodwin

U.S. Department of Transportation
United States Coast Guard

Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (Aowb)
Phone: (757)398-6587

D-4214

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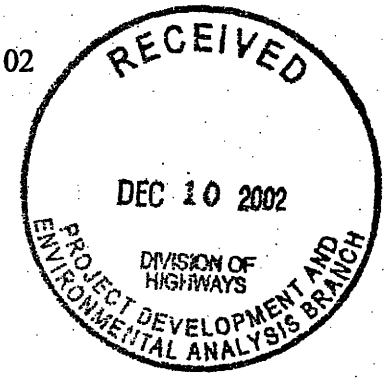


Mr. Gregory J. Thorpe, Ph. D.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Thorpe:

This is in response to your letter dated October 24, 2002 requesting the Coast Guard to review the proposed projects to replace the following nine bridges: Black River Over Flow, Black River, Jenny's Branch, Beaver Dam Creek, New River, Stone Creek, N.E. Cape Fear River, Withrow Creek and Pinch Gut Creek all located throughout North Carolina.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Such conditions for some of these waterways were confirmed in a telephone conversation on November 27, 2002. Due to this, the bridge projects on Beaver Dam, Withrow, and Pinch Gut Creeks and Black River Over Flow are exempt, and will not require Coast Guard Bridge Permits.

Black River, Jenny's Branch, and Stone Creek are subject to tidal influence and thus considered legally navigable for Bridge Administration purposes. But these waterways also meet the criteria for advance approval waterways outlined in Title 33, Code of Federal Regulations, Section 115.70. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. The Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways; therefore, an individual permit will not be required for these projects either.

Further information is required to assess the bridge replacement projects over the New River and the North East Cape Fear River. Such information as, is the waterway affected by lunar tides? Is there any commercial navigation? What types and sizes of boats operate on the waterway? Bridge Permits may be required based on the answers to these questions. If a permit is required, a higher level of environmental review will also be required.

The fact that Coast Guard permits are not required for some of these projects does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or

local agency who may have jurisdiction over any aspect of the project. If you have any questions, please contact Terrance Knowles at the phone number or address show above.

Sincerely,

ANN B. DEATON
Chief, Bridge Administration Section
By direction of the Commander
Fifth Coast Guard District

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

December 6, 2002

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

Attention: John Wadsworth, P.E.

Dear Dr. Thorpe:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed your October 24, 2002, letter requesting comments on eight bridge replacement projects included in the North Carolina Department of Transportation 2002-2008 Transportation Improvement Plan. We understand that the NCDOT is preparing the planning and environmental studies necessary to process these projects as Categorical Exclusions and offers the following comments for your consideration.

The environmental documents for these projects should address measures designed to avoid and minimize loss of open water and wetlands that support fishery resources. In addition, we support findings contained in the May 9, 2002, letter from the Wilmington District, U.S. Army Corps of Engineers, which identified the following issues and concerns as being relevant to the proposed bridge replacement projects:

- Replacing bridges with culverts
- Permanent and temporary wetland losses
- Offsite versus onsite detours
- Time of year restrictions on instream work
- Treatment of wetland restoration areas
- Existing bridge demolition and removal
- Lengthening existing bridges as a wetland restoration measure

Group I - The following projects will have no impact on resources for which NOAA Fisheries has stewardship responsibility; therefore, we have no comments:

Bridge Number	Project Number	County
No. 416	B - 4103	Davidson County
No. 28	B - 4255	Rowan County
No. 54	B - 4282	Stokes County

Group II - These projects have the potential to affect fishery resources and their associated habitat for which NOAA Fisheries has stewardship responsibility:

Bridge Number	Project Number	County
No. 12	B - 1382	Sampson County
No. 26	B - 1382	Sampson County
No. 72	B - 4031	Brunswick County
No. 24	B - 4214	Onslow County
No. 21	B - 4223	Pender County

Bridges 12, 26, 21 and 24 are located in the Cape Fear and New River basins and in areas which provide habitat for anadromous fishery resources including American shad and river herring. Bridges 72 and 24 are located in areas with brackish to saline waters that also support estuarine dependent fishery resources such as spot, Atlantic croaker, and blue crab. In addition, these projects may affect **Essential Fish Habitat** for Federally managed species such as red drum and shrimp which are managed by the South Atlantic Fishery Management Council, and summer flounder which is managed by the Mid-Atlantic Fishery Management Council. Accordingly, we recommend that an Essential Fish Habitat Assessment be included in any environmental document for these projects.

Spawning and nursery habitat for anadromous and estuarine 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, NOAA Fisheries may recommend against Department of the Army authorization of these projects under Nationwide Permit 23 unless the following recommendations are incorporated:

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 and in consultation with NOAA Fisheries.

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

Although the stated purpose of the project is to improve timber production, no information is provided regarding any ongoing silviculture operation. Furthermore, there is no indication of existence of a forest management plan for the site which might indicate that the existing excavation and filling of wetlands is in compliance with the Clean Water Act (CWA), Section 404 (f)(1)(A) exemptions for silviculture.

NOAA Fisheries concludes that the loss of wetlands at this site is highly detrimental to commercially, recreationally, and ecologically important fishery resources that utilize the Newport River. Therefore, we recommend that Department of the Army authorization not be granted in this case. We further recommend that if authorization is denied, the applicant should be required to restore pre-project elevations and contours and restore, through planting and other measures, all impacted wetlands.

Thank you for the opportunity to provide these comments. Related questions or comments should be directed to the attention of Mr. Ronald S. Sechler at our Beaufort Office, 101 Pivers Island Road, Beaufort, North Carolina, or at (252) 728-5090.

Sincerely,

Ron Sechler

for Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

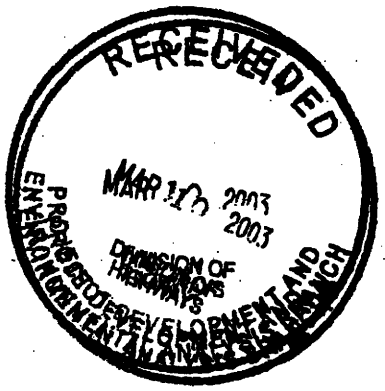
BG 38
B-4214

Vance

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

June 7, 2002



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

Dear Mr. Goodwin:

The National Marine Fisheries Service (NMFS) has reviewed the Natural Systems Technical Reports (NSTR) - Group 2, for 22 bridge replacement projects identified in your March 1, 2002, letter. These projects are scheduled for construction in fiscal year 2005.

By letter dated May 9, 2002 (copy enclosed), the Wilmington District, U.S. Army Corps of Engineers identified the following issues and concerns as being relevant to the proposed bridge replacement projects:

- Replacing bridges with culverts
- Permanent and temporary wetland losses
- Offsite versus onsite detours
- Time of year restrictions on instream work
- Treatment of wetland restoration areas
- Existing bridge demolition and removal
- Lengthening existing bridges as a wetland restoration measure

The NMFS agrees that these issues should be fully addressed with regard to impacts and mitigation. We also agree with the Corps' determination that identifying projects involving these activities as Green Light Projects is misleading and should not be used. Therefore, the following Group 2 projects should be identified as either Yellow or Red Light Projects.

Section I - Yellow Light Projects (YLPs)

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, therefore, are identified as YLPs.

Bridge Number	Project Number	Location
Bridge No.136	B - 4025	Beaufort County
Bridge No. 108	B - 4154	Hyde County
Bridge No. 118	B - 4235	Pitt County
Bridge No. 191	B - 4272	Sampson County

Section II - Yellow Light Projects (YLPs)

The bridge replacement projects listed below are located in the Roanoke River, Neuse River, Tar River, Chowan River, Trent River, Cape Fear River basins which are likely to support NMFS trust anadromous fishery resources and are, therefore, classified as YLPs.

Bridge Number	Project Number	Location
Bridge No. 45	B - 4026	Bertie County
Bridge No. 29	B - 4314	Washington County
Bridge No. 10	B - 4086	Craven County
Bridge No. 46	B - 4125	Greene County
Bridge No. 49	B - 4126	Greene and Lenoir Counties
Bridge No. 43	B - 4127	Green County
Bridge No. 67	B - 4150	Hertford County
Bridge No. 7	B - 4169	Jones County
Bridge No. 5	B - 4187	Martin County
Bridge No. 21	B - 4223	Pender County
Bridge No. 69	B - 4227	Perquimans County
Bridge No. 98	B - 4234	Pitt 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. Accordingly, the NMFS may recommend against Department of the Army authorization of these projects under Nationwide Permit 23,unless the following recommendations are incorporated:

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 and 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 in the waters of the creek 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.

Section III - Red Light Projects (RLPs)

Red Light Projects are those that include extraordinary resources or concerns that will require close coordination to complete successfully. These projects involve high quality wetlands, extremely valuable or rare endangered species habitats, or other limited or unusual resources.

The bridge replacement projects listed below may effect estuarine waters, intertidal salt marshes, and tidal freshwater marshes and may be located in areas designated as primary nurseries by the North Carolina Division of Marine Fisheries or the North Carolina Wildlife Resources Commission. In view of the fact that work in these locations could adversely effect NMFS trust fishery resources, they are classified as RLPs. In addition, some of these project areas include Essential Fish Habitat (EFH) for species managed under authority of the Magnuson Stevens Fisheries Conservation and Management Act(P.L. 104-297) and other statutory and regulatory provisions. If these projects are processed under Nationwide 23, they will be carefully reviewed for incorporation of the recommendations listed above and we may elect to provide additional comments and recommendations that are intended to avoid, minimize, and offset impacts to living marine resources. Our recommendations, if any, will be sent to the Wilmington District, U. S. Army Corps of Engineers, and a copy will be forwarded to you.

Bridge Number	**Project Number**	**Location**
Bridge No. 77	B - 3611	Beaufort County
Bridge No. 72	B - 4031	Brunswick County
Bridge No. 19	B - 4215	Onslow County
Bridge No. 24	[redacted]	Onslow County
Bridge No. 65	B - 4219	Pamlico County
Bridge No. 4	B - 4221	Pamlico County

Finally, the shortnose sturgeon, a Federally protected species under the purview of the NMFS is found in the Cape Fear and Roanoke Rivers. These comments do not satisfy Federal agency consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity "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 for early participation in the review of these bridge replacement projects. If I can be of further assistance, please contact me at the letterhead address or at 252-728-5090.

Sincerely,

Ron Sechler

Ron Sechler
Fishery Biologist

United States Department of the Interior

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

November 14, 2002

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

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of several bridges in multiple counties of North Carolina. Please note that the projects listed for Davidson, Rowan and Stokes Counties in your October 24, 2002 letter were forwarded to the Service's Asheville Ecological Services Office for review. The following projects were reviewed by the Raleigh Ecological Services Office:

- B-1382, Sampson County, Replace Bridge No. 26 over the Black River Overflow and Bridge No. 12 over the Black River on NC 41;
- B-4031, Brunswick County, Replace Bridge No. 72 over Jinnys Branch (tributary to Saucepan Creek) on NC 179 (Beach Drive);
- B-4214, Onslow County, Replace Bridge No. 24 over the New River on US 17 (Marine Boulevard);
- B-4215, Onslow County, Replace Bridge No. 19 over Stone Creek on NC 210; and,
- B-4223, Pender County, Replace Bridge No. 21 over the North East Cape Fear River on NC 210.

These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;

2. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by other means should be explored at the outset;

3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be planted with appropriate vegetation, including trees if necessary;

4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. 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 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;

6. Best Management Practices (BMP) for Protection of Surface Waters should be implemented;

7. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;

8. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream;

9. Bridges and approaches should be designed to avoid any fill that will result in damming or constriction of the channel or floodplain. If spanning the floodplain is not feasible, culverts should be installed in the floodplain portion of the approach to restore some of the hydrological functions of the floodplain and reduce high velocities of floodwaters within the affected area.

Enclosed are lists of species from Sampson, Brunswick, Onslow and Pender Counties that are on the *Federal List of Endangered and Threatened Wildlife and Plants*, as well as federal species of concern. Federal species of concern are not legally protected under the ESA and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as

endangered or threatened. We are including these species in our response to give you advance notification and to request your assistance in protecting them if any are found in the vicinity of your project. Information about the habitats in which these endangered and threatened species are often found is provided on our web site, **http://endangered.fws.gov.** If suitable habitat for any of the listed species exists in the project areas, biological surveys for the listed species should be conducted. All survey documentation must include survey methodologies and results.

We reserve the right to review any federal permits that may be required for these projects, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for these projects include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;

2. A description of the proposed action with an analysis of all alternatives being considered, including the "no action" alternative;

3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;

4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;

5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat and waters of the US;

7. If unavoidable wetland impacts are proposed, project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts.

The Service appreciates the opportunity to comment on these projects. Please continue to advise us during the progression of the planning processes, including your official determination of the impacts of this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

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

Enclosure

cc: Dave Timpy, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
David Cox, NCWRC, Northside, NC
Chris Militscher, USEPA, Raleigh, NC

United States Department of the Interior

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

June 12, 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 letters of March 1 and March 18, 2002, providing the U. S. Fish and Wildlife Service (Service) with Natural Resources Technical Reports (NRTR) on 26 bridges proposed for replacement in Construction Fiscal Year (CFY) 2005. Your letters requested the Service to review these reports and determine the level of concerns we might have for trust resources under our jurisdiction. This report provides scoping information in accordance with provisions of the Fish and Wildlife, Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The bridges scheduled for replacement are:

1. B-3611, Bridge No. 77 on NC 99 over Pantego Creek, Beaufort County;
2. B-4024, Bridge No. 136 on SR 1626 over Pantego Creek [Canal?], Beaufort County
3. B-4026, Bridge 45 on SR 1110 over Choowatic Creek, Bertie County;
4. B-4028, Bridges Nos. 12 and 18 over the Cape Fear River, Bladen County;
5. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County;
6. B-4077, Bridge No. 25 on NC 130 over Waccamaw River outflow, Columbus County
7. B-4082, Bridge 280 on SR 1843 over Dan's Creek, Columbus County;
8. B-4086, Bridge No. 10 on SR 1111 over Brices Creek, Craven County;
9. B-4090 - Bridge No. 125 on NC 24 over Cross Creek, Cumberland County;
10. B-4125, Bridge No. 46 on SR 1091 over Wheat Swamp Creek, Greene County;
11. B-4126, Bridge No. 49 on SR 1434 over Wheat Swamp Creek, Greene and Lenoir Counties;
12. B-4127, Bridge No. 43 on SR 1438 over Rainbow Creek, Green County;
13. B-4150, Bridge No. 67 on SR 1118 over Ahoskie Creek, Herford County;
14. B-4154, Bridge No. 108 on SR 1340 over Old State Canal, Hyde County;
15. B-4169, Bridge No. 7 on SR 1129 (Free Bridge Road) over Big Chinquapin Branch Jones County;

16. B-4187, Bridge No. 5 on SR 1417 over Conoho Creek, Martin County;
17. B-4214, Bridge No. 24 on US 17 over the New River, Onslow County;
18. B-4215, Bridge No. 19 on NC 210 over Stones Creek, Onslow County;
19. B-4219, Bridge No. 65 on SR 1304 over an unnamed tributary to the Neuse River, Pamlico County;
20. B- 4221 , Bridge No. 4 on SR 1344 over South Prong Bay River, Pamlico County;
21. B- 4223, Bridge No. 21 on NC 210 over the Northeast Cape Fear River, Pender County;
22. B-4227, Bridge No. 69 on SR 1222 over Unnamed tributary to Mill Creek, Perquimans County;
23. B-4234, Bridge No. 98 on SR 1407 over Conetoe Creek, Pitt County;
24. B-4235, Bridge No. 118 on SR 1538 over Grindel Creek, Pitt County;
25. B-4248, Bridge No. 170 on SR 1101 over Shoe Heel Creek (Gaddy Mill Road), Robeson County;
26. B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County; and,

General Scoping Comments

Some NRTRs contained only maps of the immediate project site and a verbal description of the project location. In reviewing our records of known locations for Federally listed species, it would be beneficial to the Service to have a map showing the location of the project. Each location map should include at least one municipality or sizable community to facilitate locating the project area.

The title page for B-4024 (Beaufort County) states that Bridge No. 136 on SR 1626 is over "Canal." The body of the report states that this bridge crosses Pantego Creek which appears to be the correct designation. Title pages should reflect the correct location of the project.

General Fish and Wildlife Habitat and Wetlands

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

1. Wetland impacts should be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

2. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along or adjacent to existing, roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. At the completion of construction, the entire detour area, including any previous detour from past construction

activities, should be entirely removed and the impacted areas should be planted with appropriate, endemic vegetation, including trees if necessary;

3. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity, preferably via conservation easement, should be explored at the outset;

4. 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;

5. Best Management Practices (BMP) for Protection of Surface Waters should be implemented; and,

6. Activities within designated riparian buffers should be avoided or minimized.

Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSCs receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

Federally Protected Species

Several NRTRs make determinations that a project will not affect a particular species, primarily plants based on surveys in the recent past. The Service believes such determinations are premature and that additional surveys will be required prior to construction in approximately 2004-2005. It would be more appropriate to note that the species was not found during preliminary surveys and that results provide early indications that the project is not likely to adversely affect the species.

Effect determinations for plants based on surveys within the project area may require work at a particular time of year for accurate identification. The biological conclusions of the NCDOT for plants should include the time of year that a survey was conducted, the person hours of surveying, and the approximate size of the area surveyed. Surveys should be done within two or three years of actual construction for those species inhabiting stable and/or climax communities. Plant species that utilize disturbed communities, e.g., Michaux sumac (*Rhus michauxii*) and Cooley's meadowrue (*Thalictrum cooleyi*), should be done within two years of actual

construction if vegetation disturbing activities, e.g., regular mowing or timber harvesting, occur at the project site.

The NCDOT should carefully consider potential impacts to the West Indian manatee (*Trichechus manatus*) of bridge replacement projects in coastal counties. Several NRTRs, e.g., B-4235 (Pitt County), state that manatees require at least five feet of water. Manatees are able to use shallow channels that may not seem suited for such a large mammal. O'Shea and Ludlow (1992) wrote that the primary habitat requirements for the species are access to vascular aquatic plants, freshwater source, and proximity to channel 1-2 meters deep (3.3 -6.6 feet). Therefore, the NCDOT should only consider reaching a "no effect" determination for the manatee when water depths at the project site do not rise above one meter. Manatees may become entangled in erosion control and siltation fences placed in shallow water. Measures to prevent these devices from harming manatees are addressed in our 1996 guidelines to NCDOT (USFWS 1996). The biological conclusion of the NCDOT on impacts to manatees cannot be based on negative visual surveys of the project area. These mobile animals may not inhabit a given area for extended periods, and manatees may move into a given project site where the species has never been reported previously. The best procedure for ensuring the safety of these endangered mammals is to follow the Service's precautions if the area is suitable manatee habitat.

Surveys for mussels should extend 100 meters (328 feet) upstream and 300 meters (984 feet) downstream from the project site. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

If surveys for a 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 that may occur in the project area. Please include survey methodologies and an analysis of the effects of the action, including consideration of direct, indirect, and cumulative effects.

Project Specific Comments

In addition to the general comments applicable to all bridge replacement project, we offer the following project-specific comments:

B-3611, Bridge No. 77 on NC 99 over Pantego Creek, Beaufort County - The NRTR states (p. 16) that habitat for the manatee exists in the project area, but that no manatees were seen during natural resources investigations. The report concludes that the project would have "no effect" on the manatee. The Service does not concur with this determination. Manatees are seasonal transients in North Carolina from (primarily June through October). As noted, potential impacts on this species cannot be based on limited field inspections. The Service recommends that future project documentation include

commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina" that the Service provided the NCDOT in 1996. A copy is provided with this letter.

Intertidal zones and marsh edges preferred by Federally threatened sensitive jointvetch (*Aeschynomene virginica*) are present in the project area, but the species was not observed during natural resources investigation. The NRTR provided a biological conclusion of "no effect." The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the species.

The NRTR states that "marginal habitat exists for rough-leaved loosestrife [*Lysimachia asperulaefolia*] in the form of shallow organic soils adjacent to a forest community" in the project area. While the NRTR states that no plants were seen, the Service requires greater details of survey methodology before we can concur with the determination that the project will have no effect on rough-leaved loosestrife.

B-4024, Bridge No. 136 on SR 1626 over Pantego Creek, Beaufort County - The NRTR states (p. 3) that the average depth of Pantego Creek is 4.5 feet, but concludes (p. 14) that the necessary water depth for the manatee is not present. The Service disagrees and recommends that project plans should incorporates measures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina" that the Service provided the NCDOT in 1996. Suitable habitat for sensitive jointvetch exists in the project area (p. 17), but the NRTR concludes that the project would have "no effect" on the species based, in part, on the fact that no plant were "found in the project area." The Service cannot concur with this determination. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch.

B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County - The NRTR states (p. 4) that water depths range from two to six feet, and concludes (p. 21) that "vagrant manatees visiting the lower Lumber river system would not be expected within the project area." The Service does concur with the biological conclusion of "no effect" on the manatee and requests that the project utilize the standard precautions for general construction in areas which may be used by manatees. The NRTR states that the biological conclusions for the bald eagle (*Haliaeetus leucocephalus*) and Federally endangered wood stork (*Mycteria americana*) are "unresolved." Wood storks may undertake post-breeding season dispersals from June through early autumn in search of food in swamps, marshes, and mudflats. The NCDOT should seek to determine whether the project area is used, if even on a temporary basis, by these species. If wood storks do feed in the project area during a limited portion of the year, the Service would recommend that this project be scheduled outside this particular period.

B-4086, Bridge No. 10 on SR 1111 over Brices Creek, Craven County - With an average depth of three feet, Brices Creek is not likely to used by manatees. The Service cannot concur with the determination that the project would have "no effect" on the sensitive jointvetch based the lack of observation during site survey in 2001 and an absence of historical occurrence in the project area. The NRTR notes that suitable habitat for this species is present in the project area. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch..

B-4154, Bridge No. 108 on SR 1340 over Old State Canal, Hyde County - The NRTR notes that habitat for the sensitive jointvetch is present in the project area, but concludes that the project will have no impacts on the species, based in part, on a failure to find the species during surveys. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch..

B-4219, Bridge No. 65 on SR 1304 over an unnamed tributary to the Neuse River, Pamlico County - The tributary to be crossed has an average depth of approximately four feet and the NRTR notes (p. 15) that "marginal" habitat for the manatee exists in the project area. The Service does not concur with the biological conclusion of "no effect" for the manatee and recommends that future project documentation include commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina."

B- 4221 , Bridge No. 4 on SR 1344 over South Prong Bay River, Pamlico County - The NRTR (p. 3) notes that the average depth of the water to be bridged is approximately 3.5 feet and later concludes (p. 15) that the waterway is not deep enough or contain sufficient vegetation to provide habitat for the manatee. The Service cannot concur with the stated conclusion that "no impact to the West Indian manatee will result from project construction." We recommend that future project documentation include commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina."

B- 4223, Bridge No. 21 on NC 210 over the Northeast Cape Fear River, Pender County - The NRTR notes (p. 20) that manatees could occur in the project area and states that impacts to the species are "unresolved." The NRTR also recommends that a "follow-up survey" be conducted. A one time survey will not determine the presence of this species at a particular construction site. The species moves through North Carolina coastal waters on a seasonal basis. If there is any chance that the species could occur at a construction site, the Service's guidelines (USFWS 1996) should be incorporated into project plans.

B-4234, Bridge No. 98 on SR 1407 over Conetoe Creek, Pitt County - As noted in the NRTR, surveys should be conducted for the Tar River spinymussel (*Elliptio steinstansana*). The area surveyed should extend from 100 meters (328 feet) upstream to 300 meters (984 feet) downstream.

B-4235, Bridge No. 118 on SR 1538 over Grindel Creek, Pitt County - Survey for the Tar River spinymussel will be required from 100 meters (328 feet) upstream to 300 meters (984 feet) downstream.

B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County - The NRTR concludes that the project would have "no effect" on pondberry (*Lindera melissifolia*) due to a lack of habitat in the project area. The two habitats mentioned are shallow ponds with sandy substrate and Carolina bays. This species is associated with wetland habitats such as bottomland and hardwoods in the interior areas, and the margins of sinks, ponds and other depressions in the more coastal sites. The plants generally grow in shaded areas but may also be found in full sun. Since the project area includes 0.5 acre of coastal plain bottomland hardwood forest, the Service requests that this area be survey for pondberry.

The Service appreciates the opportunity to comment on these project. Please continue to advise us of the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Howard Hall at 919-856-4520, ext. 27.

Sincerely,

John E. Ellis

for Dr. Garland B. Pardue
Ecological Services Super-visor

Attachment

Literature cited

O'Shea, T. J. and M. E. Ludlow. 1992. Florida manatee. pp. 190-200. In S. R. Humphrey (ed.). Rare and Endangered Biota of Florida, Volume I. Mammals. University of Florida Press. Gainesville. 392 pp.

U. S. Fish and Wildlife Service. 1996. Communication to the North Carolina Department of Transportation. USFWS, Raleigh Field Office. Raleigh, NC. 4 pp.

cc:
Ted Bisterfeld, U. S. Environmental Protection Agency, Atlanta, GA
Ron Sechler, NMFS, Beaufort, NC
Michael Bell. U. S. Army Corps of Engineers, Washington Regulatory Field Office, Washington, NC
Eric Alsmeyer, U. S. Army Corps of Engineers, Raleigh Regulatory Field Office, Raleigh NC
David Timpy, U. S. Army Corps of Engineers, Wilmington Regulatory Field Office, Wilmington NC
John Hennessy, NC Division of Water Quality, Raleigh, NC
David Cox, NC Wildlife Resources Commission, Northside, NC

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

September 6, 2002

Memorandum

To: Mike Penney, NCDOT, Project Development & Environmental Analysis

From: John Hennessy

Subject: Scoping comments on the proposed bridge replacement of Bridge Number 24 on US Highway 17 over the New River in Onslow County, TIP B-4214.

Reference your correspondence dated May 10, 2002 in which you requested comments for TIP project B-4214. Preliminary analysis of the project reveals the potential for impacts to an unnamed tributary to the New River (DWQ Index No. 03-05-02, SB HQW NSW) and potential associated wetlands. Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality (DWQ) requests that NCDOT consider the following environmental issues for the proposed project:

A. The project may have sufficient impacts to necessitate issuance of an Individual Permit and corresponding Individual Certification from the Corps of Engineers and the NCDWQ, respectively. In addition, the NCDWQ recommends that the project be placed in the 404/NEPA Merger Process.

B. DWQ would prefer the new bridge design to minimize the number of bridge deck drains that discharge directly into surface waters. Please consider a stormwater collection that drains all stormwater to a stormwater treatment device. If such a design is not practical, then a design that minimizes direct discharge to surface waters through collection of some of the stormwater and discharging into a stormwater treatment device is preferred.

C. If the old bridge is removed, no discharge of bridge material into surface waters is preferred. Strict adherence the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.

D. The number of bridge bents placed in surface waters should be minimized.

E. Use of jetting to install bridge bents is not preferred. Use of jetting for installation will need to be authorized in the 401 Water Quality Certification.

F. The post-construction removal of any temporary bridge structures will need to return the project site to its preconstruction contours and elevations. The revegetation of the impacted areas with appropriate native species may also be necessary.

G. The NCDOT will need to adhere to all appropriate in-water work moratoriums (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission, the US Fish and Wildlife Service, and National Marine Fisheries Service.

H. Any onsite detour will need to be constructed with a temporary bridge that spans all wetlands and surface waters. No fill into the adjacent surface waters or wetlands is preferred for the referenced project. Issuance of the 401 Water Quality Certification will likely be contingent on that condition being met.

I. The NCDOT shall strictly adhere to sediment and erosion control Best Management Practices as described for High Quality Waters entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project.

J. The project may require a State Stormwater permit issued by the NC Division of Water Quality. Please contact the appropriate regional office to ascertain its potential applicability.

K. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

L. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. 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.

M. Review of the project reveals that no hazardous spill catch basins will likely be required for this project.

N. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

O. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

P. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

Q. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

R. Sediment and erosion control measures should not be placed in wetlands.

S. While the use of National Wetland Inventory (NWI) maps, soil surveys, and other landscape scale analysis techniques are useful office tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E. Director

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. If you have any questions or require additional information, please contact John Hennessy at (919) 733-5694.

cc: US Army Corps of Engineers Wilmington Field Office
Howard Hall, USFWS
David Cox, NCWRC
Cathy Brittingham, NC Division of Coastal Management
Personal Files
File Copy

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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

Division of Historical Resources
David J. Olson, Director

December 20, 2002

MEMORANDUM

TO: Greg Thorpe, Manager
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook

SUBJECT: Replacement of Bridge No. 24 over New River on US 17 (Marine Blvd.), B-4214, Onslow County, ER02-8583

Thank you for your letter of October 24, 2002, concerning the above project.

We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project:

Bridge No. 24
Pelletier House and Wantland Spring (NR-listed property)

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no known archaeological sites within the proposed 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.

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:doc
cc: Mary Pope Furr
Matt Wilkerson

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

May 2, 2002

MEMORANDUM

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

FROM: David Brook RSF for David Brook

SUBJECT: Replace Bridge 24 on US 17 over New River, B-4214, Onslow County, ER 02-8583

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

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.

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

cc: Mary Pope Furr, NCDOT

Federal Aid # BRSTP-0017(34) *TIP* # B-4214 *County*: Onslow

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 24 on US 17 over New River

On 10/01/2002, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (HPO)
- [ ] Other

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as Bridge #24 is considered not eligible for the National Register and no further evaluation of it is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [x] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — 10·01·2002
Representative, NCDOT — Date

RWHA — 10/1/02
FHWA, for the Division Administrator, or other Federal Agency — Date

Laura Davis McKee — 10-01-2002
Representative, HPO — Date

David Brook BJS — 10/1/02
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

CAMA

Subject: Bridge Replacement Projects CFY 2005
Date: Tue, 28 May 2002 13:05:27 -0400
From: Bill Arrington <Bill.Arrington@ncmail.net>
Organization: NC DENR DCM
To: "William T. Goodwin" <bgoodwin@dot.state.nc.us>
CC: Cathy Brittingham <Cathy.Brittingham@ncmail.net>

Mr. Goodwin,

I have visited each of the 14 bridge replacement sites included in your March 1, 2002 letter, located in the 20 Coastal counties under the jurisdiction of the Division of Coastal Management.

General comments regarding bridge replacement projects would include:

1. Existing access to coastal waters and land adjacent to coastal waters should be preserved. This would include trails, driveways, roads, boat ramps, clear channels, vertical clearance under bridges, parking spaces, etc.

2. The design of storm water diversion should add treatment prior to discharging. No storm water should be discharged to the waters and wetlands in coastal areas. Deck drains discharging to waters or wetlands should be eliminated from bridge replacements. Storm water collected from bridges and approaches should be disposed of by infiltration as far from the waters and wetlands as possible. The planning and design of these replacements is crucial to protecting the surrounding water quality. Bridges within one half mile of SA waters or ORW waters will need special attention dedicated to storm water collection, treatment and disposal.

3. Without specific proposals including accurate details of the proposed bridge replacement structures and associated impacts, comments included herein are general in nature and give no assurance of the ability to permit any bridge replacement proposal in these locations. Specific comments below are based on the assumption that the bridge replacements would be of the same general width, length and on the current alignment with no on site detour. Bridge replacements that vary from this would usually cause greater environmental impacts and require additional coordination with the resource agencies.

4. Any structure required to be built in wetlands or over the water to facilitate the construction of the bridge replacement or a detour around construction should be a temporary bridge.

Specific comments on the above referenced projects would include:

1. B-3611 in Beaufort County - RED LIGHT PROJECT - AEC's in the project area include CW, CS, PTW, and PTS. The potential for significant environmental impacts exists. Any project in this area will require a high level of coordination with all resource agencies. The existing bridge and causeway impacted the AEC's significantly and the potential for mitigation involving restoration and enhancement credits is great. (including the abandoned roadbed to the west of the existing road)

2. B-4024 in Beaufort County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. This project has the potential for minimal impacts.

3. B-4026 in Bertie County - DCM has no jurisdiction

4.B-4031 in Brunswick County - RED LIGHT PROJECT - AEC's in the

project area include CW, CS and PTW. Construction of the existing bridge has significantly impacted the AEC's. Restoration and enhancement mitigation potential is as great as the potential to adversely effect the AEC's.

5. B-4086 in Craven County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. Parking area as in the northwest corner should be maintained.

6. B-4150 in Hertford County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW and PTS. Parking and access to the road along the creek should be preserved.

7. B-4154 in Hyde County - DCM has no jurisdiction.

[redacted]n Onslow County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW, PTS, CW, ES, EW. Wetlands surrounding this bridge should be protected as much as possible. Tidal wetlands in the northeast quadrant and wetlands in the Coastal Shoreline Buffer have the greatest significance. There exists a moderate potential for mitigation.

9. B-4215 in Onslow County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. A moderate potential for mitigation may be possible with the lengthening of the bridge.

10. B-4219 in Pamlico County - RED LIGHT PROJECT - AEC's in project area include CW, CS, PTW, PTS and EW. The existing bridge has impacted the surrounding waters and wetlands. The inlet for this creek has closed in and only has water exchange at high tide. The bridge needs to be extended and the fill causeway removed. Great mitigation potential. Should preserve parking spaces for public access.

11. B-4221 in Pamlico County - GREEN LIGHT PROJECT - AEC's in project area include PTS and PTW. Access to farm roads in NW and SE quadrants should be preserved. A moderate potential for mitigation may exist with lengthening the bridge and removing causeway.

12. B-4223 in Pender County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW and PTS. Any realignment or expansion of fill slopes should move to the south to avoid impacts to the access and business and residence on the north side of the bridge.

13. B-4227 in Perquimans County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. Access adjacent to the bridge should be maintained.

14. B-4314 in Washington County- GREEN LIGHT PROJECT - AEC's in project area include PTW and PTS.

Thank you for providing DCM with the opportunity to comment on these projects in advance of their planning. Advance notification of environmental concerns should allow the design and permitting process to work more smoothly.

Thank you,

Bill

B-4214

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, [redacted]
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
Telephone: (919) 733-3633 ext. 281 • **Fax:** (919) 715-7643

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 avoide 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.

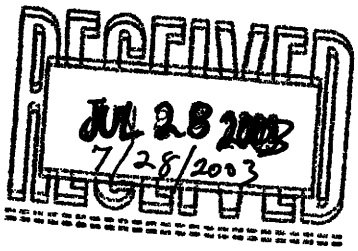
If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 769-9453. Thank you for the opportunity to review and comment on these projects.

cc: USFWS, Raleigh

City of Jacksonville

City Manager's Office

July 22, 2003



Mr. Gregory Thorpe, Ph. D.
North Carolina Department of Transportation
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Subject: **T.I.P. No. B-4214, Replace Bridge No. 24 over the New River on US 17 (Marine Boulevard), Onslow County**

Dear Mr. Thorpe:

Thank you for allowing the City of Jacksonville to comment on the proposed replacement of Bridge No. 24 (locally known as the Buddy Phillips Bridge) over the New River on US Highway 17 (Marine Boulevard). The City appreciates the opportunity to continue to be involved in the project and was very honored to host the May 21, 2003 Citizen Involvement Workshop. It is anticipated that this workshop provided valuable input from the community. Per your request dated April 15, 2003, this letter provides additional information for evaluating the impacts of the proposed bridge replacement.

1. The NCDOT and City have identified potential turning movement conflicts at the intersection of Riverview Street and US Highway 17. The City could support a right-in/ right-out or full closure of Riverview Street. At the May 21, 2003 Citizen Information Workshop, several citizens requested that the bridge be raised to accommodate commercial and recreation boat traffic. If the bridge is raised, the approaches will need to be lengthened to provide sufficient construction. The lengthening of the approaches would most likely cause the closure of this facility.

2. As referenced in the January 22, 2003 letter, the City is planning to construct a Civic Center and Marine Corps Museum just north of the Buddy Phillips Bridge on US Highway 17. The City has requested that the bridge be designed to accommodate a pedestrian walkway under the new bridge linking these facilities to restaurants, shopping, public open space and parking in the downtown area. The City of Jacksonville Pedestrian Circulation Plan identifies a sufficient clearance of 8-feet in height to accommodate pedestrian and bicycle traffic. The existing bridge provides adequate clearance for the proposed boardwalk. This 10 foot wide boardwalk will be constructed in accordance with the pavement cross-section detail outlined in North Carolina Bicycle Facilities Planning and Design Guidelines.

3. The existing streetlights attached to the bridge are in a staggered formation. The City is working to become a more aesthetically pleasing community, and is requesting that the lights be replaced with ones with more decorative characteristics. Attached please find a photo of the Cooper's Bridge on Route 35 over the Navesink River in New Jersey. These aesthetic improvements would be in harmony with Riverwalk Crossing Park (E-3407), the proposed Civic Center and other downtown developments, and provide a smooth transition over the New River.

4. This section of waterway provides a nautical route from the proposed Civic Center to downtown and the Intercoastal Waterway. At the Citizen Involvement Workshop on May 21, 2003, it was demonstrated that the river is an important recreational and commercial route for the residents of Jacksonville. In order to provide the

safe movement of marine traffic, the City would request that the pilings be removed and NCDOT consider raising the bridge to a height that would accommodate safe boating.

The City has engaged in an innovative program to help restore water quality in the New River. Much success has already been made in the Wilson Bay area and the City will soon begin work in the Chaney Creek watershed. By the midlife of this bridge, we anticipate water quality will be improved, that recreational and commercial interests will be returned to the area of this bridge and the need for additional height will be clearly seen at that time.

In addition, the City will work to provide for the same height advantage for the Popkin Bridge when it is replaced. One must come before the other, and the opportunity to react to the increasing boat traffic and water quality restoration efforts is before us now.

The additional height would also accommodate these aforementioned items:

- Providing more space for the under bridge pedestrian walkway,
- The additional right-of-way would eliminate the Riverview Street and US 17 intersection problem,
- The additional height would also provide a more pleasing view for the tourism related businesses in the area, and those that are likely with the construction of a civic center.

The consideration of height improvements now will demonstrate a forward thinking design.

5. The City concurs that due to the heavy traffic volumes on US Highway 17, bicycle lanes should not be placed on the Buddy Phillips Bridge. The City's adopted Pedestrian Circulation Plan identifies a multi-purpose pedestrian facility that would utilize the proposed boardwalk and meander along the river to intersect with Old Bridge Street. This route will provide for a safer movement of traffic in the vicinity of Bridge No. 24.

6. The project has actually been delayed in the 2004-2010 State Transportation Improvement Program to begin right-of-way acquisition in 2007 and construction in 2008. The Jacksonville Bypass is anticipated to be complete in 2006. Based on the age and deterioration of the bridge, the City would recommend that if the Bypass is completed on schedule, construction for Bridge No. 24 be accelerated in the 2006-2012 State Transportation Improvement Program.

Thank you again for the opportunity to provide comments regarding this future project. The City recognizes the importance of coordination to ensure the project is completed in a timely manner. If you should have any questions, please contact Transportation Planner Mike Kozlosky at (910) 938-5299 or mkozlosky@ci.jacksonville.nc.us.

Sincerely,

Ken Hagan
City Manager

Attachment

cc: Louis Sewell, NC Board of Transportation Member
John Wadsworth, PD&EA, NCDOT
Tom Cassell, Development Services Director, City of Jacksonville
Rhonda Rogers, Planning Administrator, City of Jacksonville
Mike Kozlosky, Transportation Planner, City of Jacksonville

NJ InTouch

e-mail

NJ Jcommuter

Project Overview

Travel Guide

The New Bridge

Traffic Advisory

Construction Activity

Photo Update
Deck
Other

Outreach Program

More Info

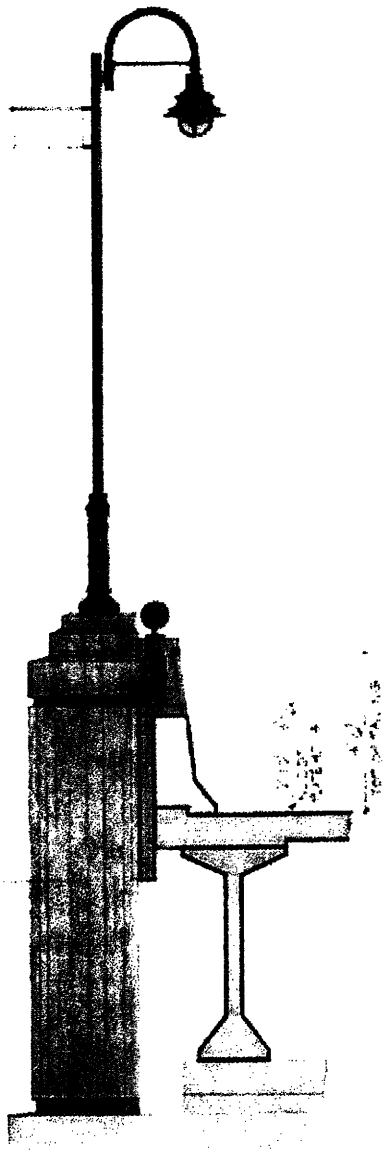
Frequently Asked Questions

updated
11/03/99

NEW JERSEY DEPARTMENT OF TRANSPORTATION

The Route 35
Cooper's Bridge Replacement Project

Linking Technology and Tradition for Two Monmouth County Communities



A Design Review

The new Route 35 Coopers Bridge will safely and effectively accommodate the traffic flow, enhance pedestrian traffic and the distinctive and historic character of the surrounding communities.

Functional improvements

- A vertical clearance of 12 feet
- 4 lanes, 2 northbound and 2 southbound
- 2 shoulders, 1 northbound and 1 southbound
- A striped median
- Sidewalks on both sides
- Other statistics: 9 spans, 1,024 feet long, 89 feet wide, made of pre-stressed, pre-cast concrete
- Replaces a structure with 4 narrow lanes, no shoulders, 1 sidewalk, no median, and a vertical clearance of 8 feet

Aesthetic improvements

- Sand-colored, pre-cast horizontal panels molded in an attractive scalloped pattern
- 8 piers, each adorned with a ribbed, sand-color, pre-cast concrete column
- 20 decorative street lights extending from one end to the other
- Concrete sidewalks resembling brick walkways
- Decorative hand rails
- Embedded stone finish to highlight historic appearance

Call for project updates and commuter information.

1-877-NJROADS

City of Jacksonville

City Manager's Office

January 22, 2003

Mr. Gregory Thorpe
North Carolina Department of Transportation
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Thorpe:

Subject: Replacement of Bridge No. 24 on US 17 over New River, Onslow County, TIP No. B-4214

The City of Jacksonville is appreciative of the opportunity to comment on the proposed detour route and environmental studies (Categorical Exclusion) for the replacement of Bridge No. 24 (the Buddy Phillips Bridge) over the New River. I want to reinforce earlier comments transmitted to the NCDOT in an August 31, 2002 letter by the City (See attachment) urging the NCDOT to coordinate this project with the completion with the Jacksonville Bypass and to consider City plans to redevelop the downtown area.

The City has reviewed the proposed detour planned depicted in your November 8, 2002 letter. Per your letter, northbound US Highway 17 traffic would be routed through downtown Jacksonville on Old Bridge Street, East Railroad Street, and Chaney Avenue to US Highway 17 and/or NC Highway 24 East. Southbound US Highway 17 traffic would continue to utilize the Buddy Phillips Bridge. The City supports the one-way traffic flow option and recommends that NCDOT incorporate the following improvements during the construction period to improve safety along the detour route:

- Remove parallel on-street parking spaces on Old Bridge Street
- Erect signage directing through traffic and trucks onto the Jacksonville Bypass
- Opticom signal controls be installed on the temporary signalization equipment for the bridge replacement project to assist in emergency response, with first priority being given to the southbound traffic lanes

The proposed detour will utilize Chaney Avenue and New Bridge Street, which are city maintained roadways. The City agrees with the proposed detour plan provided that the city is compensated for additional "wear and tear" caused by the increase in traffic volumes on these city streets.

The Jacksonville City Council is currently working on plans for several large-scale developments (See attached map) within the downtown area that may impact the adjacent street system. The first project is the expansion of and interior renovations to Jacksonville City Hall located on New Bridge Street. These improvements will commence in June 2003 and are expected to take two years to complete. As part of the expansion, the City may replace older infrastructure within New Bridge Street and modify New Bridge Street from four lane undivided facility to a two lane divided facility.

The second project is the proposed Civic Center located on US Highway 17 (Former site of Onslow Inn). On January 10, 2003 the Jacksonville City Council voted to proceed with the construction of a Civic Center and Marine Corps Museum. The Civic Center is planned to be an integral part of the City's redevelopment efforts in downtown and completion is anticipated in January 2005. The City respectfully requests that a pedestrian boardwalk under the new bridge be incorporated into your bridge design due to high traffic volumes along US Highway 17.

Per your request, street characteristics have been provided on the attached table. Please direct all questions regarding this project or the information provided to Planning Administrator Rhonda Rogers at (910) 938-5294 or at rrogers@ci.jacksonville.nc.us.

Again, thank you for the opportunity to provide comments on this upcoming project and please continue to keep the City apprised of the progress on this project.

Sincerely,

Ken Hagan
City Manager

Enclosure: City of Jacksonville Letter to NCDOT- August 31, 2002
Map of Proposed Downtown Developments
Table for Street Data

Cc: Louis Sewell, NC Board of Transportation Member
Bill Goodwin, Project Development & Environmental Analysis, NCDOT
Tom Cassell, Development Services Director, City of Jacksonville
Rhonda Rogers, Planning Administrator, City of Jacksonville

City of Jacksonville

City Manager's Office

August 31, 2001

Mr. Davis Moore
North Carolina Department of Transportation
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Moore:

Subject: Replacement of Bridge No. 24 on US 17 over New River, Onslow County, Federal Aid Project No. BRSTP-0017(34), State Project No. 8.1262001, TIP No. B-4214

Thank you for affording the City of Jacksonville the opportunity to comment on the proposed replacement of Bridge No. 24 referred to locally as the Buddy Phillips Bridge. This bridge has been reported as one of the state's most unsafe bridges due to its' deteriorated condition and age. The City of Jacksonville is pleased to learn of the state's efforts to improve the facility.

The Buddy Phillips Bridge is the only multi-lane bridge facility over the New River and handles both US Highway 17 and NC Highway 24 traffic, which are the primary routes through the City of Jacksonville. In 1998, the traffic volumes on the bridge exceeded 60,000 vehicles per day. It is based on these facts that the City strongly urges the state to coordinate the construction of this project with the completion of the US 17/ NC 24 Bypass (U-2107 & U-2107A). This would allow a majority of the traffic, especially through traffic and larger trucks, to be diverted on to the Bypass.

The City is also concerned about the impacts of a full bridge closure during the construction period. There is a second bridge over the New River, which parallels the Buddy Phillips Bridge. However, this bridge leads into downtown Jacksonville and is a two-lane facility with pedestrian access provided on only one side. In the event of a full bridge closure during construction, this will be the City's only means to provide emergency services to the western and southwestern portions of the City. We request that in evaluating construction methods that the City of Jacksonville be given an opportunity to provide further input regarding this issue.

Post Office Box 128 ✦ Jacksonville, North Carolina 28541 ✦ (910) 938-5220 ✦ TDD# (910) 455-8852 ✦ Fax (910) 455-6761

With regards to utilities, the City has a 6-inch sewer force main attached to the bridge, which carries all the sewer from the south side of town to Court Street located in downtown Jacksonville. The City will begin this fiscal year to investigate options and cost estimates to relocate the force main off the Buddy Phillips Bridge.

Also, the City is working with private investors to construct a Civic Center and Marine Corps Museum just north of the bridge on US 17. Due to the high traffic volumes on US 17 and the large number of patrons expected to visit these facilities, we request that the bridge design accommodate a pedestrian walkway under the new bridge linking these facilities to restaurants, shopping, and parking in the downtown area.

Again, thank you for this opportunity to provide comments regarding this future project. The City realizes that progress is often associated with inconveniences and the City of Jacksonville looks forward to working with the NCDOT to minimize any adverse impacts this project may have on the community during construction.

If you should have any questions, please direct all questions to Sr. Transportation Planner Rhonda Rogers at (910) 938-5236 or rrogers@ci.jacksonville.nc.us.

Sincerely,

Ken Hagan
City Manager

Cc: Louis Sewell, NC Board of Transportation Member
Bill Goodwin, Project Development & Environmental Analysis, NCDOT
Tom Cassell, Development Services Director, City of Jacksonville
Rhonda Rogers, Sr. Transportation Planner, City of Jacksonville

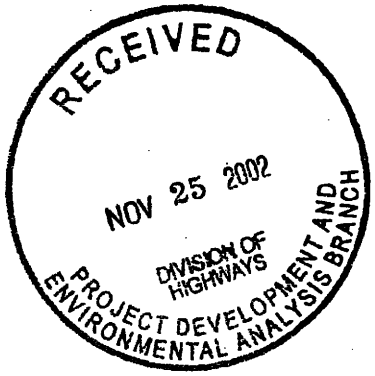
NCDOT Requested Information for the Replacement of Bridge No. 24

Street Name	*Description*	*Pavement Width (Linear feet)*	*# Lanes*	*Traffic Data (City 2002)*	*Parking Spaces*
Old Bridge St.	US Hwy. 17 to Popkins Bridge No. 191 Popkins Bridge No. 191 to Court Street Court Street to East Railroad St.	34	2	NA	None Parallel Parking on both sides None
E. Railroad St.	Court Street to Chaney Avenue	38	2	NA	None
New Bridge St.	E. Railroad St. to Warlick St. Warlick Street to NC Hwy 24	48 80	2 4	7,154	Parallel parking on both sides Angled parking on both sides
Chaney Ave.	Court Street to NC Hwy 24 NC Hwy 24 to US Highway 17	40-51	2-3	5,242	Parallel Parking on one side None

Signal locations:

- Old Bridge Street and US Highway 17
- Old Bridge Street and Railroad Street
- Chaney Avenue and NC 24
- New Bridge Street and Bayshore Avenue
- New Bridge Street and NC 24.

COUNTY OF ONSLOW



November 20, 2002

Dr. Gregory J. Thorpe
Environmental Management Director
Project Development and Environmental Analysis
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Thank you for your letter dated October 24 in which you request our input, by November 29, on certain construction projects pending for Onslow County. It goes without saying that both projects mentioned, B-4214 and B-4215, are needed to improve the quality of our roads.

Project B-4215, the replacement of Bridge No. 19 over Stone Creek on NC 210, is desperately needed. This highway is well traveled daily and the residents are aware of the need for this improvement. It appears this work would produce no obvious adverse impact to the flow of traffic in this area. On the contrary, the replacement of this bridge can only serve to improve travel on Hwy NC 210.

On the other hand, replacing the Hwy 17 Bridge over the New River, one of our highest priorities, will not be accomplished quite so easily. I realize the hardships this will place on our travelers, as the Hwy 17 Bridge provides the primary river crossing between North and South Onslow County. The only apparent course would seem to be to redirect traffic during this replacement, and would involve detouring vehicles to the Old Bridge Street area of downtown Jacksonville.

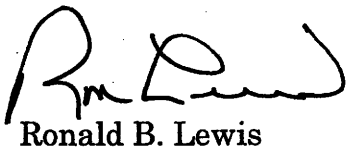
This rerouting would funnel four lanes of 45 mile per hour traffic from Hwy 17 into a two-lane street that has a speed limit of 20 miles per hour, and has a high volume of pedestrian traffic in the area of the courthouses. There have been occasions where an accident on Hwy 17 resulted in the rerouting of traffic to Old Bridge Street for just a short time. My office is on Old Bridge Street and I have viewed first-hand the congestion this creates. It is untenable to think this narrow street could withstand such use on a daily basis.

There does seem to be an alternative to take. The north-bound lane could be closed during replacement and the south-bound lane diverted to two-way traffic. The reverse would be done upon completion of the first phase of the replacement. This type of traffic pattern was accomplished successfully during the replacement of the bridges crossing the White Oak River on Hwy 24 at Swansboro.

The replacement of these bridges is of vital importance and Onslow County fully supports the projects, and urges you to give informed thought to rerouting traffic in the Hwy 17 Bridge area.

I appreciate the opportunity to comment on the impact these projects will have, and trust that you will take the interest of our residents into consideration as you plan for the commencement of these projects.

Sincerely,



Ronald B. Lewis
County Manager

mmr

C: Onslow County Board of Commissioners
Bill Price, Planning Director

Department of Emergency Services
Division of Emergency Medical Services
Thomas E. Thompson, Division Head
Steven M. Conrad, Deputy Division Head
Judith A. Costa, Captain
Beth R. Himes, Captain
Deborah A. Jones, Captain
Roderick R. Williams, II, Captain

COUNTY OF ONSLOW

January 31, 2002

Davis Moore
NC Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Moore,

There are several concerns that our Emergency Medical Service and Fire Service have addressed concerning renovation / restoration / re-construction of bridges in Onslow County. We will try to address all our concerns in such a manner that can be applied to all future bridge construction projects. You or your staff will be able to address these concerns on a perpetual basis concerning Emergency Response considerations for all future bridge construction in Onslow County. Our major concerns are as follow:

1. Highway 210 bridge in Sneads Ferry – B-4215

The bridge will affect four (4) Fire Departments, (1) Rescue Squad, and (2) EMS Stations that cover approximately 100 square miles of Onslow County. In some cases fire, rescue, and EMS units may have to divert nearly fourteen miles around the construction site. Time is critical when a life-threatening emergency arises. It is during these times that road access becomes a major life safety consideration.

a. Will the highway be completely impassible at any given time?
b. What are the expected traffic delays?
c. When known access has been discontinued for more than a reasonable amount of time, will the Department of Transportation notify Emergency 911 Dispatchers of the situation?
d. Construction on highway 210 could involve disruption of emergency access to three schools. Two at highway 17, from the Sneads Ferry side, and another closer to highway 172, which could be affected from the highway 17 direction.
e. Will the bridge construction require disruption of the water system. Water mains travel either side of highway 210. Water pressure is important to providing fire protection at schools, local business', and residential property.

1180 Commons Dr. North ◆ Jacksonville, NC 28546 ◆ (910) 346-6760 ◆ FAX (910) 455-6767 ◆ email: ocemed@co.onslow.nc.us

f. We are already experiencing some delays with bridges under construction in two locations; Piney Green road and the bridge leading from Swansboro; into Carteret County on Highway 24 East. Arrangements have been made to contact the person in charge at Swansboro bridge, (Gary Butters 252-241-1945) to pass along Information relating to traffic control guards, concerning approach of emergency vehicles.

g. Another area of concern with construction of the bridge on Highway 210 involves the school located near the 172 end, at four corners in Sneads Ferry. This school serves as a citizen shelter during hurricane season and construction could cause some unique problems during that time. Relocating a hurricane shelter can have a number of repercussions since shelters must meet specific guidelines, are selected by multi-agency consideration, and are documented as shelters at the State Emergency Management level.

2. New River Bridge on Highway 17S – Downtown Jacksonville – B-4214

   a. If, as you suggest in your letter dated August 7, 2001, the road was closed to traffic...the situation could become life threatening due to the extreme traffic congestion and lack of safe zones available, that would allow traffic to yield emergency vehicles.
   b. In addition, it is questionable if the narrow city streets of downtown Jacksonville, which encompass several traffic lights and sharp turns, could handle a re-route of four lanes of traffic; reduced to one.
   c. Commercial traffic could increase the potential danger of a tanker truck accident with product release in the heart of city / county government.

3. In closing, we are a county organization and have addressed these concerns from a County Emergency Response perspective. We can and have addressed the Medical Response concerns, both City and County. We feel that a similar opportunity should be afforded to the Onslow County Sheriff's Department, Jacksonville Police and Fire Departments. County Fire Department jurisdictions are all located outside the City of Jacksonville.

Thank you for this opportunity. Our Fire and Medical Chief's and Supervisors consider it very important for us to be aware of any situation that could delay or deny a timely response to our citizens during any fire or medical emergency. If you have any further questions, feel free to call this office, the Fire Marshal's Office (910-347-4270), or the Director of Emergency Services, at the same number.

Thomas Thompson
Emergency Medical Service

Donald R. Lanier
County Fire Marshal

1180 Commons Dr. North ◆ Jacksonville, NC 28546 ◆ (910) 346-6760 ◆ FAX (910) 455-6767 ◆ email: ocemed@co.onslow.nc.us

248 Wilmington Hwy
Jacksonville, NC

B-4214

Onslow County Schools Transportation

July 10, 2001

Davis Moore
NC Department of Transportation

Dear Mr. Moore:

In response to your request, there are approximately 190 bus crossings over bridge no.24, over New River, Onslow County, daily. This number will likely increase by 2005. Please advise us as soon as possible of the length of time the bridge will be closed and possible detours and dates.

Sincerely,

Barbara Justice Rooks

Barbara Justice-Rooks
T.I.M.S. Coordinator

WA/HA

Wetland Rating Worksheet

Project name Bridge No. B-4214 Nearest road US 17
County Onslow Name of Evaluator ESI Date 8/27/01

Wetland location
- _ on pond or lake
- X on perennial stream
- _ on intermittent stream
- _ within interstream divide
- _ other

Adjacent land use (within 1/2 mile upstream)
- forested/natural vegetation 10 %
- agriculture, urban/suburban 35 %
- impervious surface 55 %

Soil Series Donavan
- X predominantly organic-humus, muck, or peat_
- _ predominantly mineral- non-sandy
- _ predominantly sandy

Dominant Vegetation
(1) Salix nigra
(2) Typha latifolia
(3) Zizania aquatica

Hydraulic Factors
- _ steep topography
- _ ditched or channelized
- X wetland width >/= 50 feet

Flooding and Wetness
- _ semipermanently to permanently flooded or inundated
- _ seasonally flooded or inundated
- X intermittently flooded or temporary surface water
- _ no evidence of flooding or surface water

Wetland Type (select one)
- _ Bottomland hardwood forest
- _ Headwater forest
- _ Swamp forest
- _ Wet flat
- _ Pocosin
- _ Pine savanna
- X Freshwater marsh
- _ Bog/fen
- _ Ephemeral wetland
- _ Other

*The rating system cannot be applied to salt or brackish marshes

Water storage	3	*	4	=	12	
Bank/Shoreline stabilization	5	*	4	=	20	Total score
Pollutant removal	3	*	5	=	15	70
Wildlife habitat	3	*	2	=	6	
Aquatic life value	4	*	4	=	16	
Recreation/Education	1	*	1	=	1	

Add 1 point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream

WA/HA.
Wet

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Bridge No. 4214 – New River	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Marsh
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WA-14
Is the area a potential Problem Area? Yes (No)	Plot ID: Wet
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Salix nigra	S	OBL	9. Carex spp.	H	—
2. Magnolia virginiana	S	FACW+	10.		
3.			11.		
4. Typha latifolia	H	OBL	12.		
5. Juncus effusus	H	FACW+	13.		
6. Mikania scandens	H	FACW+	14.		
7. Zizania aquatica	H	OBL	15.		
8. Polygonum amphibium	H	OBL	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 7/7 = 100%

Remarks:
Area is a tidal freshwater marsh

HYDROLOGY

__Recorded Data (Describe in Remarks):
- __Stream, Lake or Tide Gauge
- __Aerial Photographs
- __Other
- X No Recorded Data Available

Field Observations:
- Depth of Surface Water: 0 (in.)
- Depth to Free Water in Pit: 13 (in.)
- Depth to Saturated Soil: 6 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- __Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- __Drift Lines
- __Sediment Deposits
- __Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- __Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- __Local Soil Survey Data
- __FAC-Neutral Test
- __Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Dorovan Muck — Drainage Class: Very Poorly

Taxonomy (Subgroup): Typic Medisaprists — Field Observations Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14		10YR 2/1	—	—	Mucky loam
14-18+		10YR 3/1	—	—	Mucky loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Hydric soils present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

Up

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: B-4214	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? Yes (No)	Community ID: Shrub/scrub
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WA44
Is the area a potential Problem Area? Yes (No)	Plot ID: upland
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Ligustrum sinense	S	FAC	9.		
2. Eupatorium capillifolium	H	FACU	10.		
3. Lonicera japonica	H	FAC-	11.		
4. Pteridium aquilinum	H	FACU	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 25%

Remarks: Near road shoulder

HYDROLOGY

___Recorded Data (Describe in Remarks):
- ___Stream, Lake or Tide Gauge
- ___Aerial Photographs
- ___Other
- ✓No Recorded Data Available

Field Observations:
- Depth of Surface Water: — (in.)
- Depth to Free Water in Pit: — (in.)
- Depth to Saturated Soil: 7+12 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___Inundated
- ___Saturated in Upper 12 Inches
- ___Water Marks
- ___Drift Lines
- ___Sediment Deposits
- ___Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___Oxidized Root Channels in Upper 12 Inches
- ___Water-Stained Leaves
- ___Local Soil Survey Data
- ___FAC-Neutral Test
- ___Other (Explain in Remarks)

Remarks: No hydrology

SOILS

Map Unit Name (Series and Phase): Mapped as Udorthents

Drainage Class: NA

Taxonomy (Subgroup): NA

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12+		10YR 4/3			Sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Rocks/gravel indicating old fill material

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HOUSACE 2/92

HJL
8/93

5

U.S. ARMY CORPS OF ENGINEERS
Wilmington District

Action ID: 200101174 **County:** Onslow

Notification of Jurisdictional Determination

Property Owner:
Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Authorized Agent:
Jeff Harbour, PWS
Environmental Services, INC
524 New Hope Road
Raleigh, North Carolina 27610

Size and Location of Property (waterbody, Highway name/number, town, etc.): TIP Project No. B-4214, existing bridge on US 17 over the Little River, Onslow County, North Carolina.

Basis for Determination: Onsite field inspection of selected wetland sites.

Indicate Which of the Following apply:

- ☐ There are wetlands on the above described property which we strongly suggest should be delineated and surveyed. The surveyed wetland lines must be verified by our staff before the Corps will make a final jurisdictional determination on your property.
- ☐ On October 10, 2001, the undersigned inspected the Section 404 jurisdictional line as determined by the NCDOT and/or its representatives for the subject NCDOT project. A select number of wetland sites were inspected for the proposed project and all were found to accurately reflect the limits of Corps jurisdiction. The Corps believes that this jurisdictional delineation can be relied on for planning purposes and impact assessment.
- ☐ The wetlands on your lot have been delineated and the limits of the Corps jurisdiction have been explained to you. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ There are no wetlands present on the above described property which are subject to the permit requirements of section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ The project is located in one of the 20 Coastal Counties. You should contact the nearest State Office of Coastal Management to determine their requirements.

Placement of dredged or fill material in wetlands on this property without a Department of the Army permit is in most cases a violation of Section 301 of the Clean Water Act (33 USC 1311). A permit is not required for work on the property restricted entirely to existing high ground. If you have any questions regarding the Corps of Engineers regulatory program, please contact Mr. Dave Timpy at 910-251-4634.

Project Manager Signature David J. Timpy

Date January 2, 2002 **Expiration Date** January 2, 2007

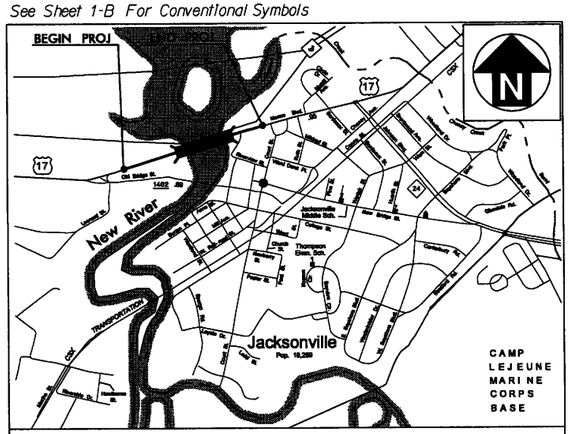
SURVEY PLAT OR FIELD SKETCH OF DESCRIBED PROPERTY AND THE WETLAND DELINEATION FORM MUST BE ATTACHED TO THIS FORM.

05/08/09

TIP PROJECT: B-4214

CONTRACT: C201370

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



VICINITY MAP
(NOT TO SCALE)

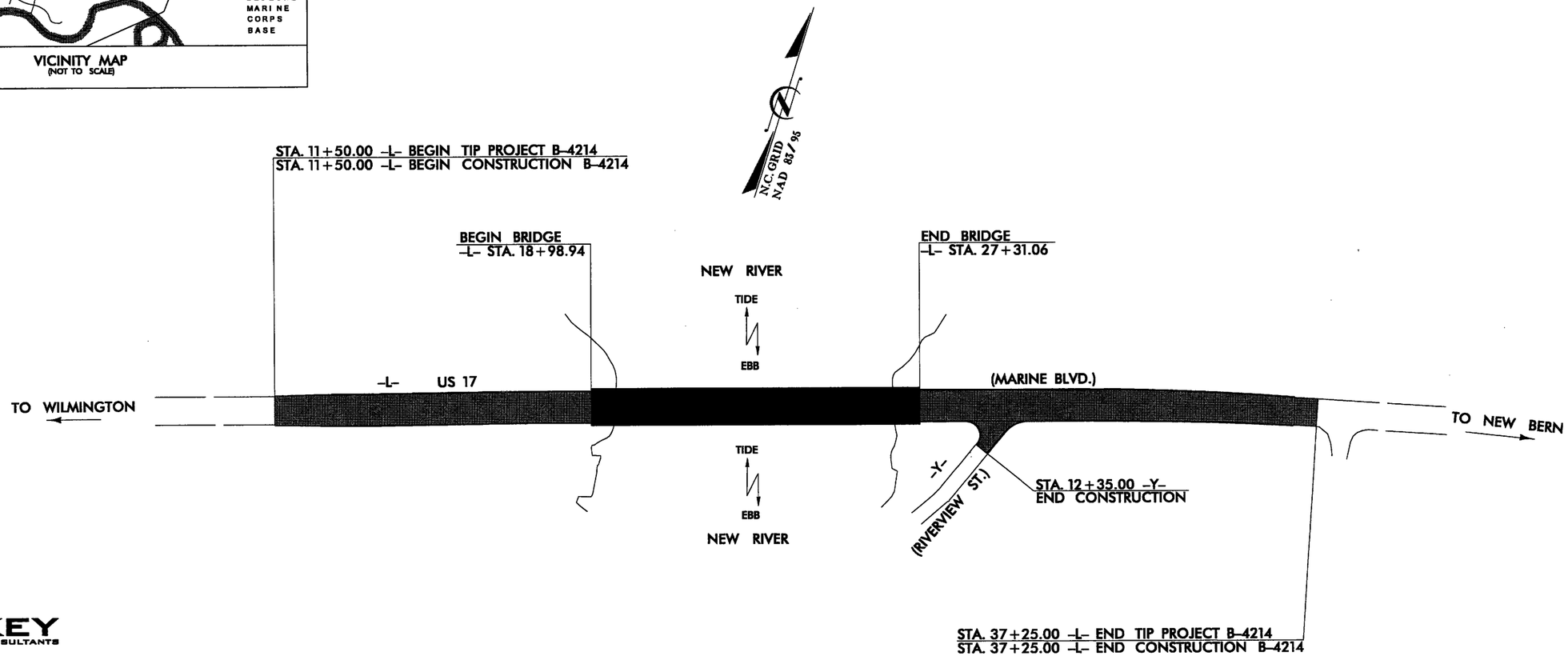
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4214	1	

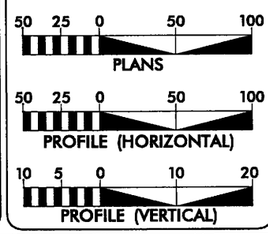
W.B.S. NO.	F. A. PROJ. NO.	DESCRIPTION
33560.1.1	BRSTP-0017(34)	PE
33560.2.1	BRSTP-0017(34)	R/W, UTL.
33560.3.1	BRSTP-17(44)	CONST.

LOCATION: BRIDGE NO. 24 OVER NEW RIVER ON US 17 (MARINE BLVD.) IN JACKSONVILLE
TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNALS AND STRUCTURE



MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1915 (FAX)
WWW.MULKEYINC.COM

GRAPHIC SCALES



DESIGN DATA

ADT 2008	=	56,000
ADT 2028	=	69,600
DHV	=	12 %
D	=	55 %
T	=	11 % *
V	=	45 MPH

* TTST 5 % DUAL 6 %
FUNC CLASS = URBAN ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4214	=	0.330 MILES
LENGTH STRUCTURE TIP PROJECT B-4214	=	0.158 MILES
TOTAL LENGTH STATE TIP PROJECT B-4214	=	0.488 MILES

Prepared In the Office of:
MULKEY
ENGINEERS & CONSULTANTS
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 17, 2006

LETTING DATE: APRIL 21, 2009

TIM JORDAN, PE
MULKEY E & C PROJECT MANAGER

KEVIN ALFORD, PE
MULKEY E & C HYDRAULICS ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Permit Drawing
Sheet 1 of 27

P.E.
STATE HIGHWAY DESIGN ENGINEER

11/3/2008
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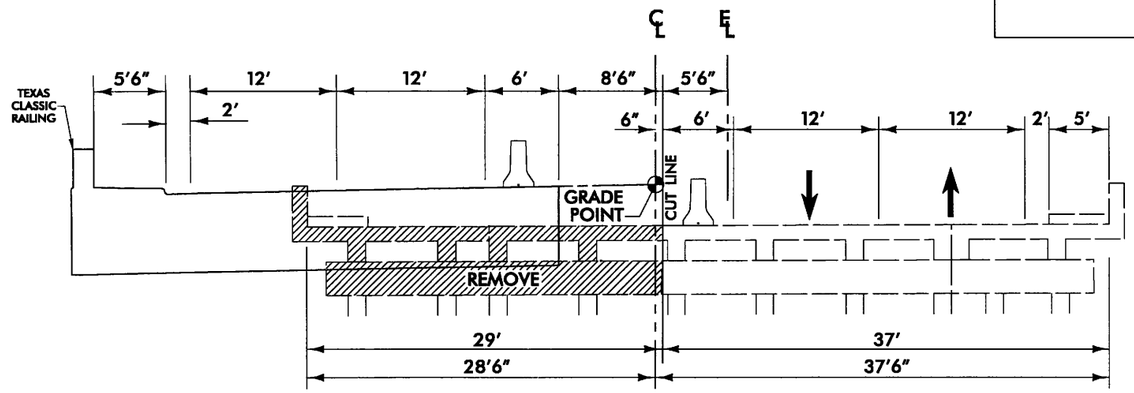
MULKEY ENGINEERS & CONSULTANTS	PROJECT REFERENCE NO.	SHEET NO.
PO Box 83187 Raleigh, N.C. 27676 (919) 851-1912 (919) 851-1918 (FAX) WWW.MULKEYINC.COM	B-4214	2
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

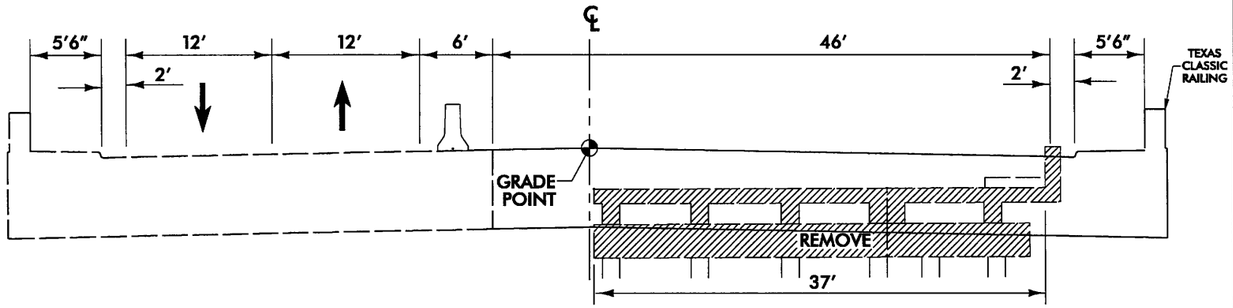
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4 " IN DEPTH.
E1	PROP. APPROX. 6½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	8" x 18" CONCRETE CURB.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE WEDGING DETAIL)

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



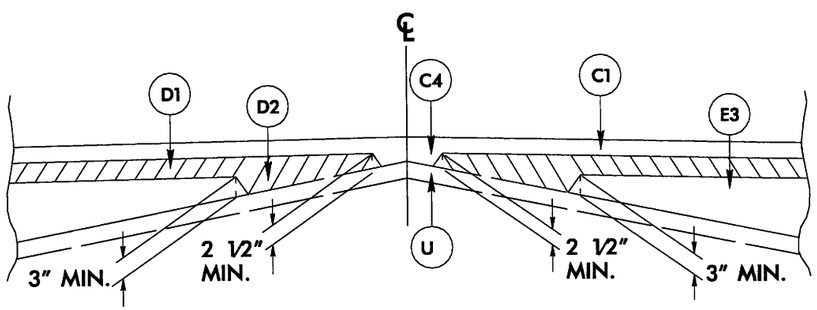
DETAIL FOR STAGE 1 CONSTRUCTION OF BRIDGE

-L- STA 18+98.94 TO STA 27+31.06



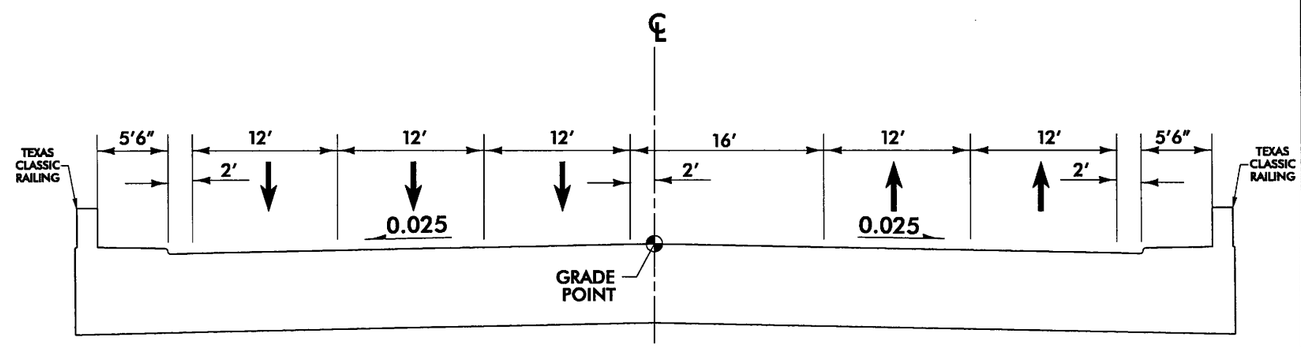
DETAIL FOR STAGE 2 CONSTRUCTION OF BRIDGE

-L- STA 18+98.94 TO STA 27+31.06



DETAIL SHOWING METHOD OF WEDGING

USE IN CONJUCTION WITH TYPICAL SECTION NO. 1



DETAIL OF BRIDGE

-L- STA 18+98.94 TO STA 27+31.06

Permit Drawing
Sheet 2 of 27

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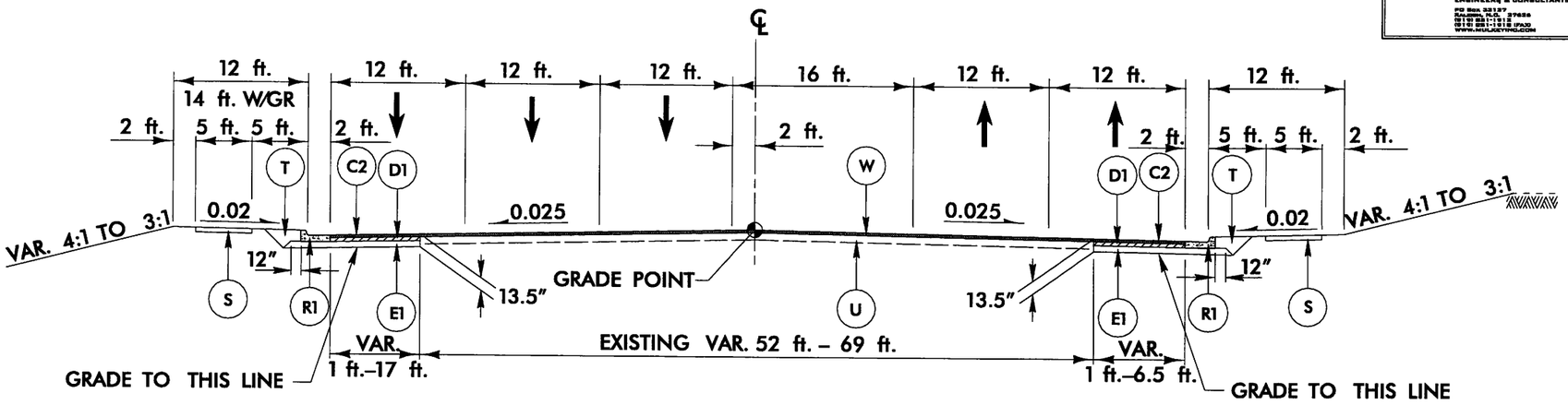
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1213 (FAX)
www.mulkeync.com

PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

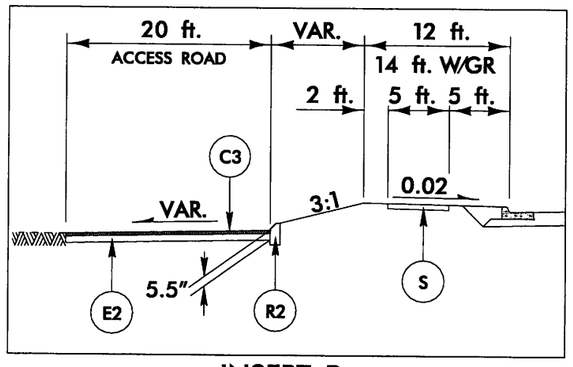


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
AT THE FOLLOWING LOCATIONS

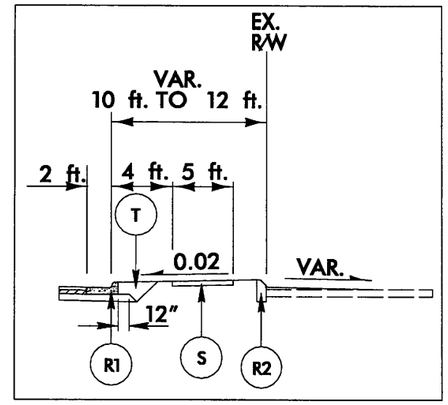
–L– STA. 13+00.00 TO STA. 18+25.00
–L– STA. 28+25.00 TO STA. 32+68.14

TRANSITION FROM EXISTING TO TYPICAL NO. 1 FROM
–L– STA. 11+50.00 TO STA. 13+00.00
TRANSITION FROM TYPICAL NO. 1 TO EXISTING FROM
–L– STA. 32+68.14 TO STA. 37+25.00



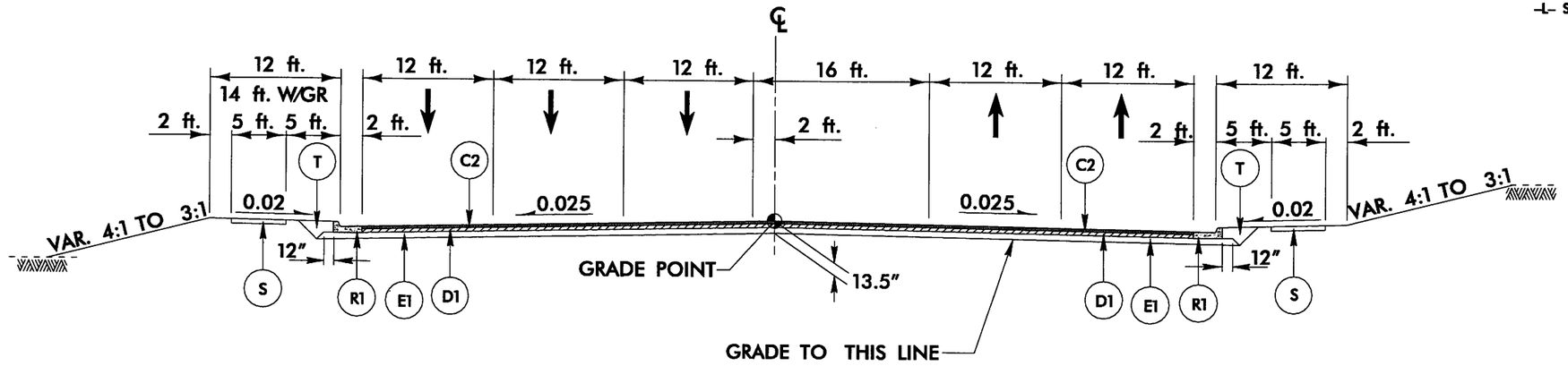
INSERT B

USE WITH TYPICAL SECTION NO. 1 FROM:
–L– STA. 14+64 TO STA. 16+85 LT



INSERT A

USE WITH TYPICAL SECTION NO. 1 FROM:
–L– STA. 11+50.00 TO STA. 15+60.00 RT



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
AT THE FOLLOWING LOCATIONS

–L– STA. 18+25.00 TO STA. 18+98.94 (BEGIN BRIDGE)
–L– STA. 27+31.06 (END BRIDGE) TO STA. 28+25.00

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C2	3" S9.5C
C3	1.5" SF9.5A
D1	4" I19.0C
E1	6 1/2" B25.0C
E2	4" B25.0B
R1	2'-6" CONCRETE CURB & GUTTER
R2	8"x18" CONCRETE CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE WEDGING DETAIL)

Permit Drawing
Sheet 3 of 27

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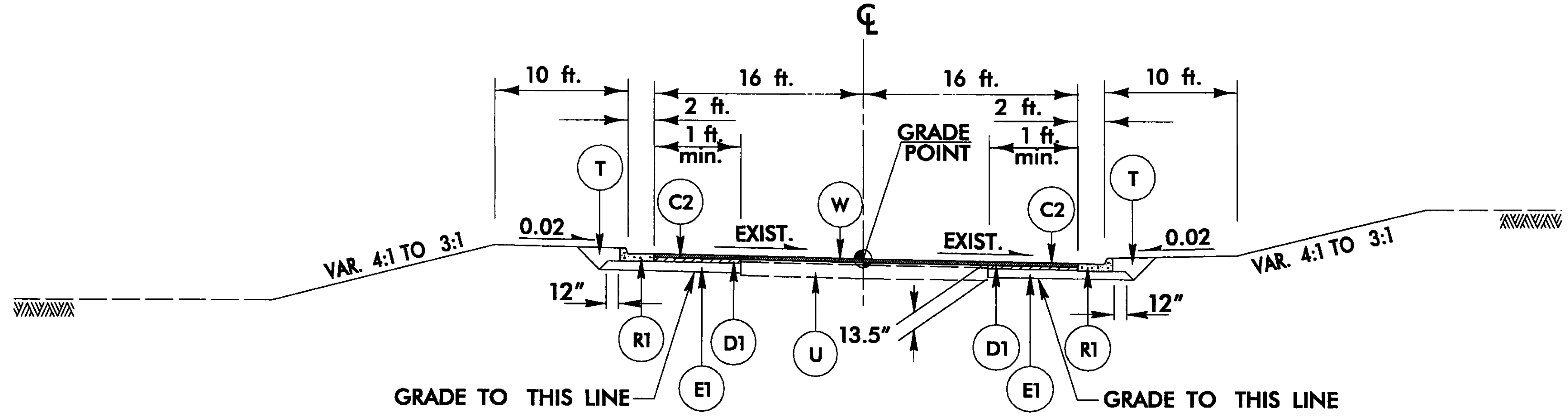
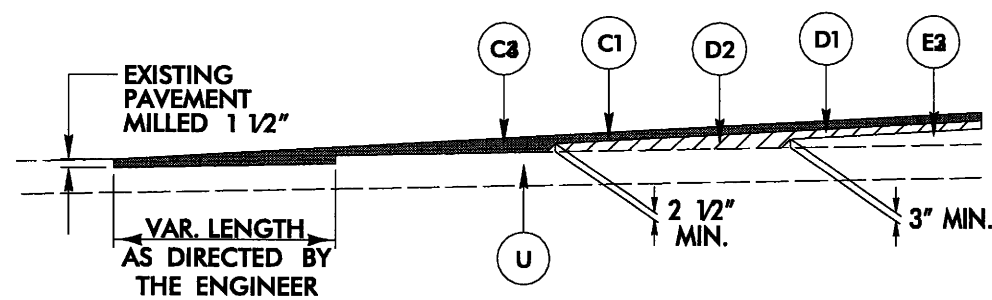
MULKEY ENGINEERS & CONSULTANTS PO BOX 33127 RALEIGH, N.C. 27636 (919) 851-1912 (919) 851-1918 (FAX) WWW.MULKEYINC.COM	PROJECT REFERENCE NO.	SHEET NO.
	B-4214	2-B
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
AT THE FOLLOWING LOCATIONS

-Y- STA. 12+35.00 TO STA. 13+25.26



MILLING DETAIL FOR PROFILE CONNECTIONS

TYING PROPOSED PAVEMENTS TO EXISTING PAVEMENTS

Permit Drawing
Sheet 4 of 22

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1 1/2" S9.5C
C2	3" S9.5C
C4	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	6 1/2" B25.0C
E3	VAR. B25.0C
R1	2' - 6" CONCRETE CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE WEDGING DETAIL)

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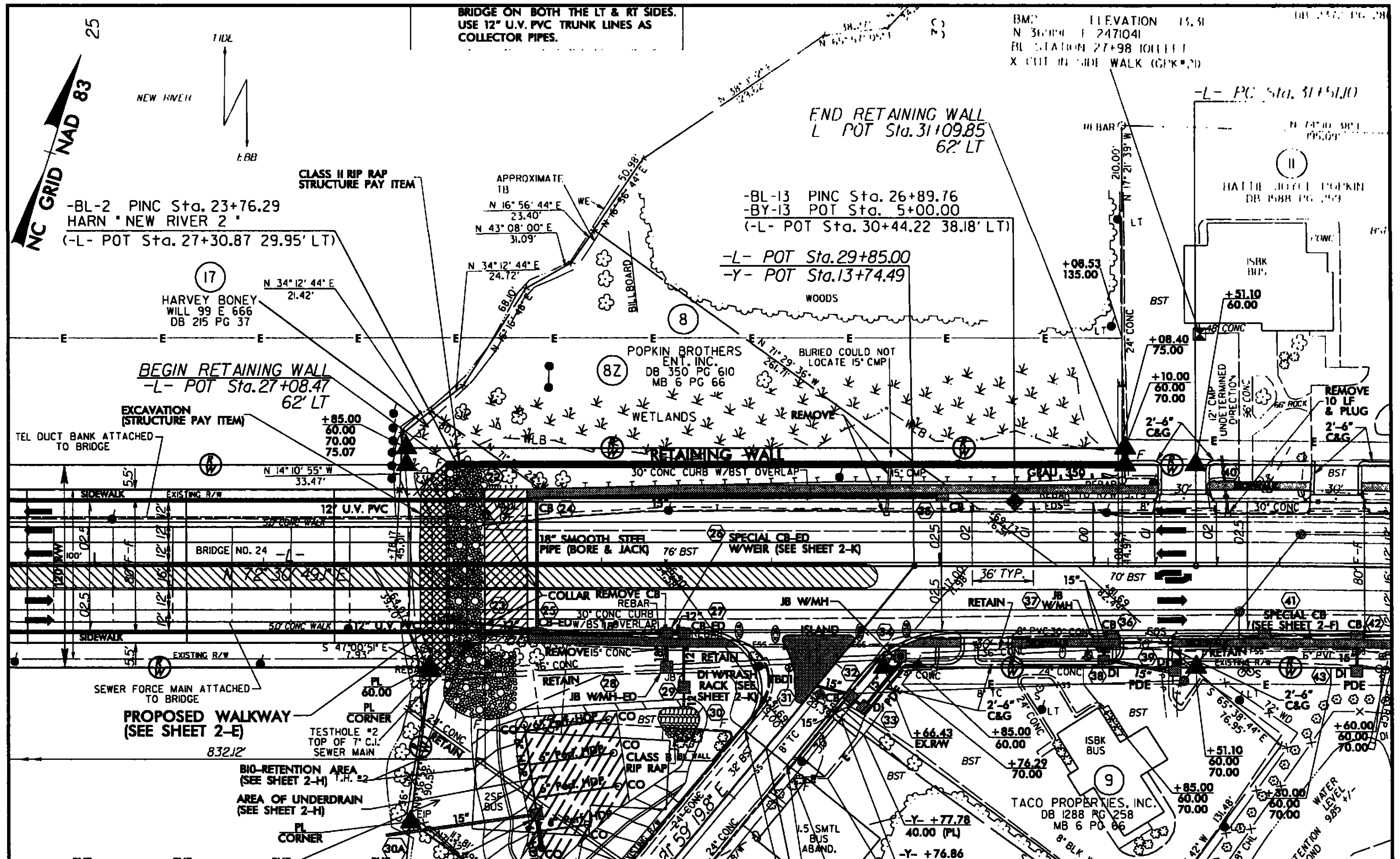
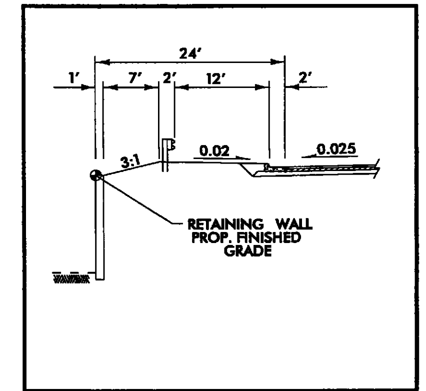
PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-C
	GEOTECHNICAL ENGINEER

MULKEY ENGINEERS & CONSULTANTS



RETAINING WALL LOCATION SKETCH



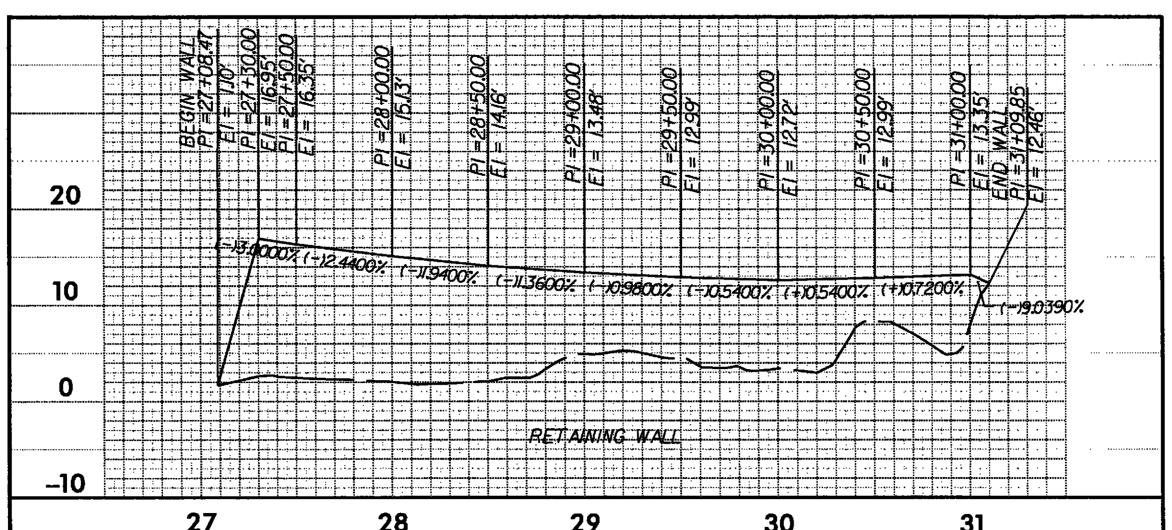
TYPICAL SECTION

SEE WALL PLANS FOR WALL DESIGN

NOTE: NO DRAINAGE BEHIND OR THROUGH WALL SECTION. STORM DRAINAGE AT APPROX. STA.29+75 LT.

OVERHEAD UTILITIES AND LIGHTING IN AREA OF RETAINING WALL.

TOTAL BILL OF MATERIAL	
RETAINING WALL	3870 SQUARE FEET



RETAINING WALL PROFILE

RETAINING WALL CHART

-L- STA.	OFFSET FROM ℄	ELEV. @ TOP OF WALL	ELEV. @ BOTTOM OF WALL	WALL HEIGHT
27+08.47	62' LT	1.10'	1.10'	0.00'
27+30.00	62' LT	16.95'	2.50'	14.45'
27+50.00	62' LT	16.35'	2.48'	13.87'
28+00.00	62' LT	15.13'	2.08'	13.05'
28+50.00	62' LT	14.16'	2.18'	11.98'
29+00.00	62' LT	13.48'	4.99'	8.49'
29+50.00	62' LT	12.99'	4.81'	8.18'
30+00.00	62' LT	12.72'	3.56'	9.16'
30+50.00	62' LT	12.99'	8.50'	4.49'
31+00.00	62' LT	13.35'	8.28'	5.07'
31+09.85	62' LT	12.46'	12.46'	0.00'

Permit Drawing
Sheet 5 of 22

11/3/2008
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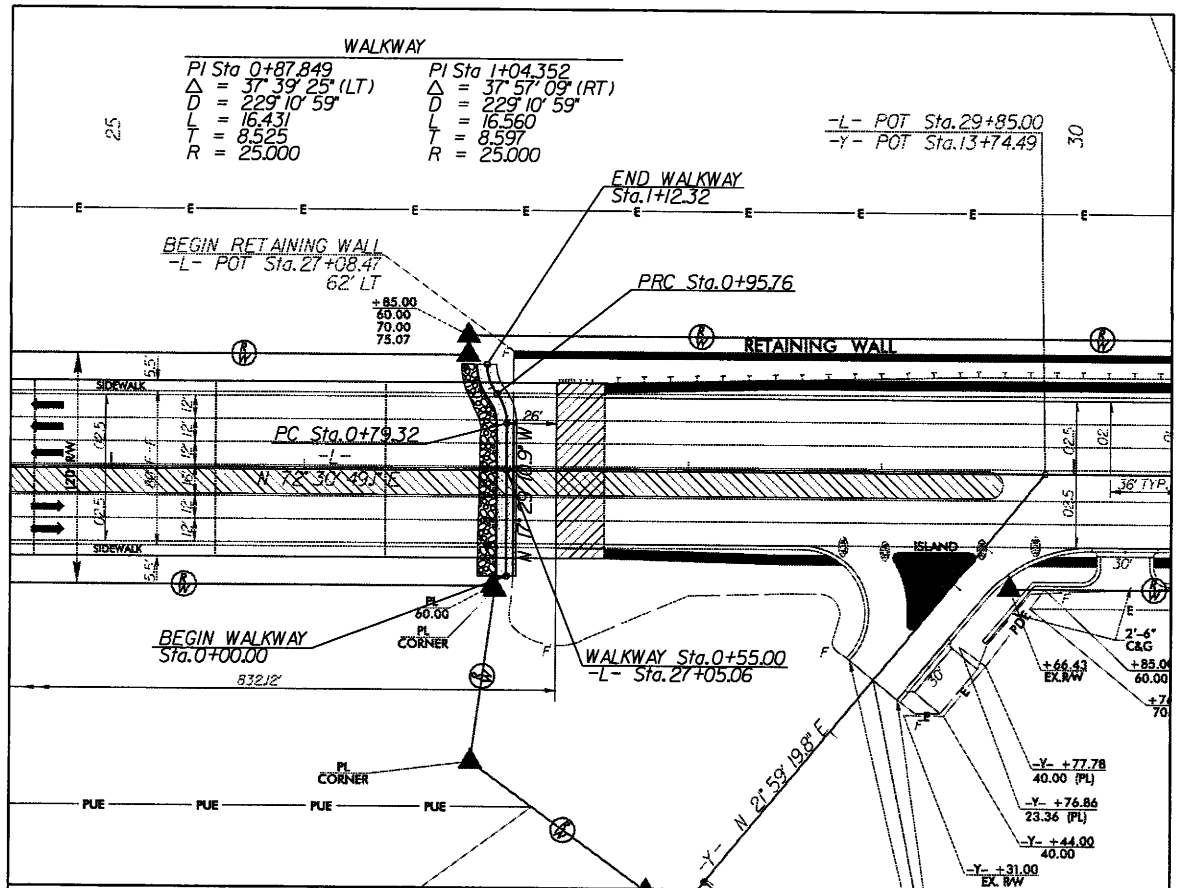
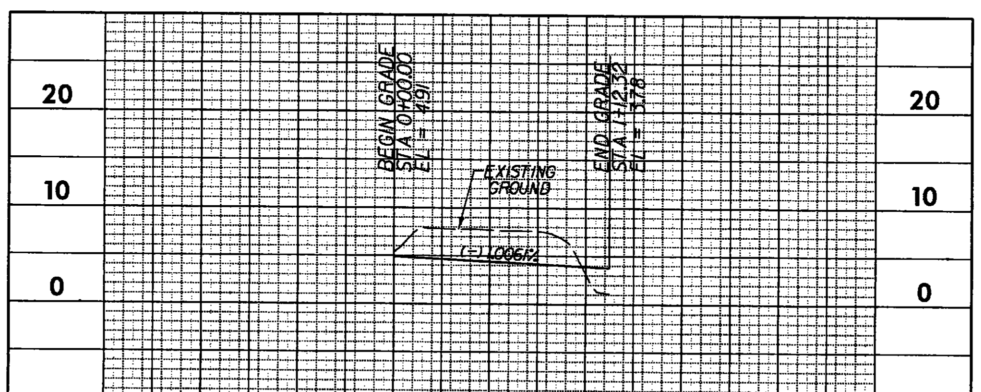
MULKEY ENGINEERS & CONSULTANTS

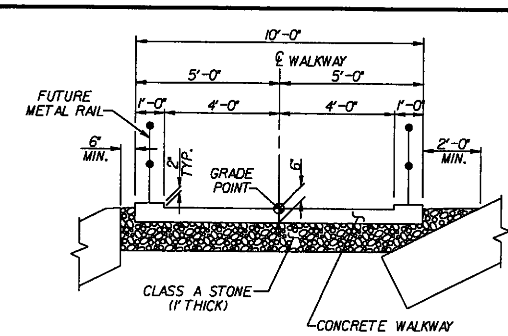
PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



WALKWAY PLAN



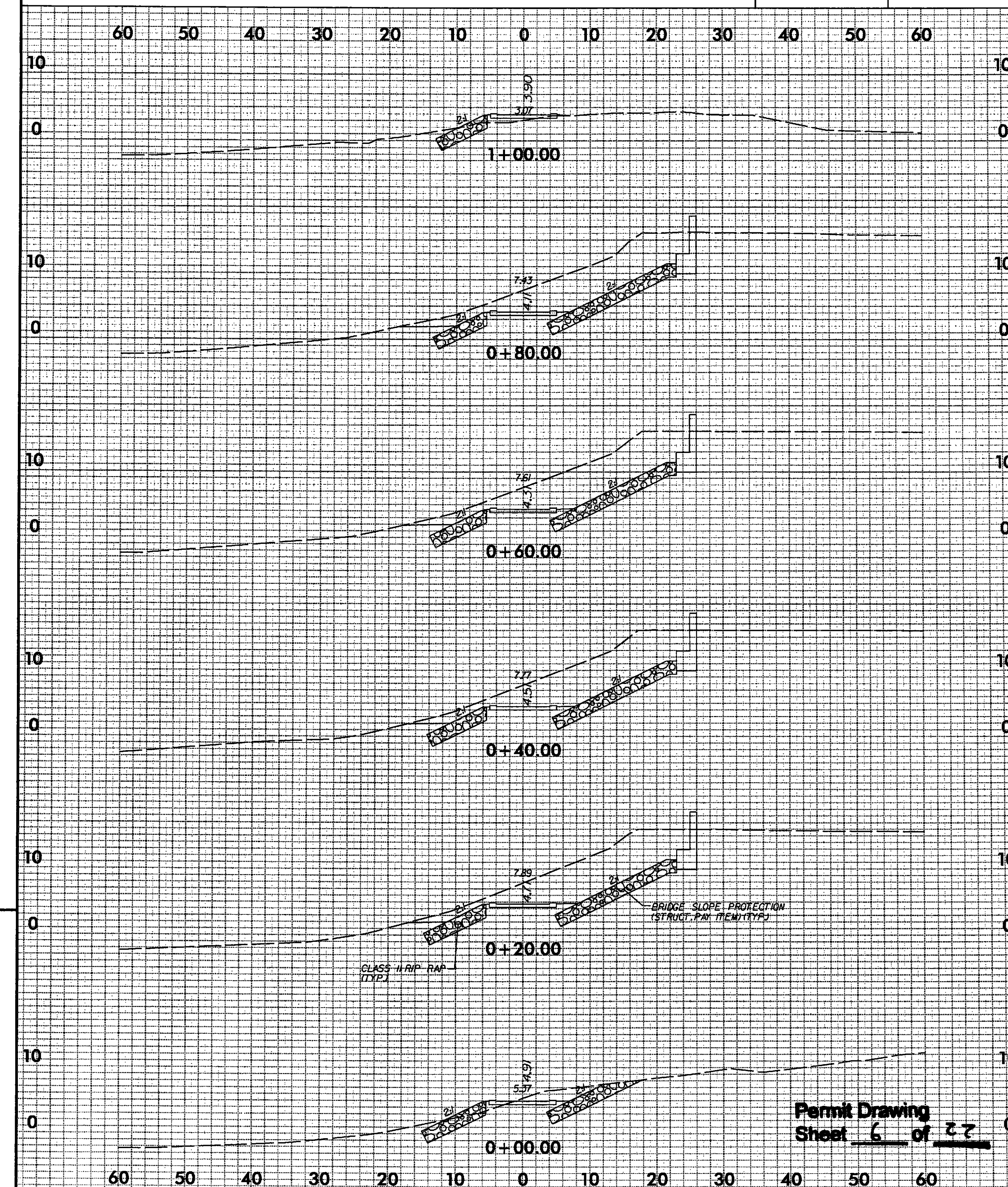
WALKWAY PROFILE



TYPICAL SECTION

USE TYPICAL SECTION AT THE FOLLOWING LOCATION
WALKWAY STA.0+00.00 TO 1+12.32

WALKWAY CROSS SECTIONS



Permit Drawing
Sheet 6 of 27

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-H

MATERIALS

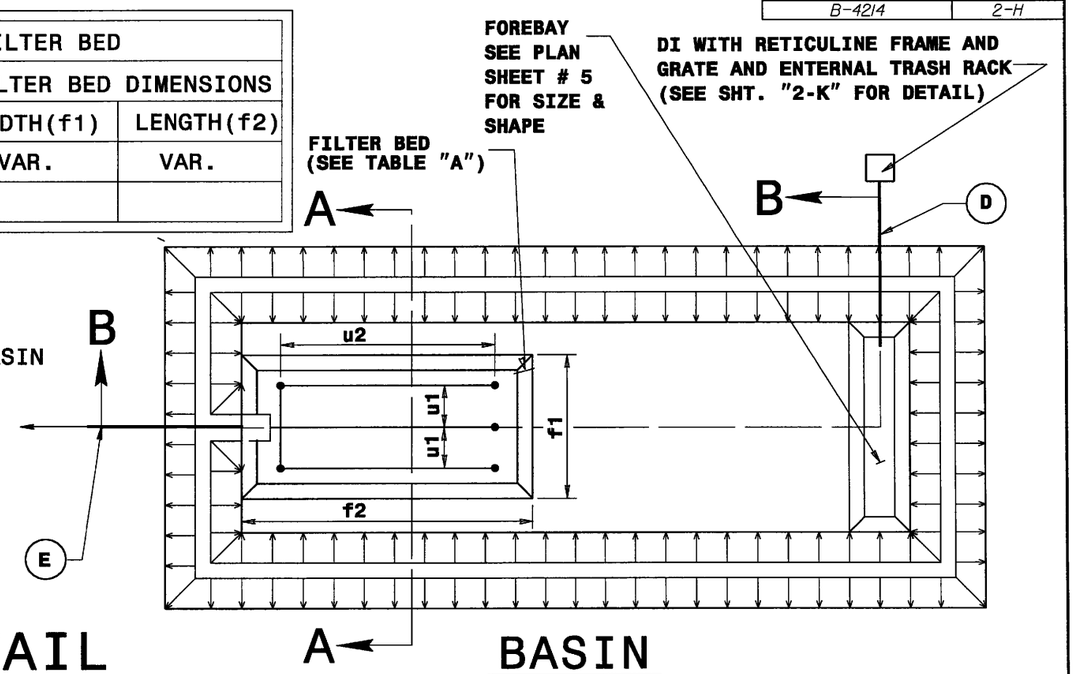
A	GEOTEXTILE FABRIC
B	POLYPROPYLENE WOVEN MONOFILAMENT GEOTEXTILE FABRIC
C	CLAY CORE ZONE
D	12" RCP INLET PIPE
E	15" RCP OUTFALL PIPE
F	6" PERFORATED HDPE D/W
G	6" HDPE D/W SOLID CLEANOUT PIPE
H	PRECAST DI BOX (SEE SHEET "2-I")
I	ENGINEERED SOIL (80%-85% SAND, 8%-12% FINES (SILT & CLAY), 3%-5% ORGANICS) TO BE APPROVED BY ENGINEER
J	12 MONTH AGED TRIPLE SHREDDED HARDWOOD MULCH
K	CLASS "B" RIP RAP
L	WASH STONE NO. 57 AS PER NCDOT SPEC.

DIMENSIONS FOR UNDERDRAIN PIPE & FILTER BED				
BASIN	UNDERDRAIN DIMENSIONS		FILTER BED DIMENSIONS	
	SPACING(u1)	LENGTH(u2)	WIDTH(f1)	LENGTH(f2)
WESTBOUND	20 FT.	Var. 30-50 FT.	VAR.	VAR.

TABLE"A"

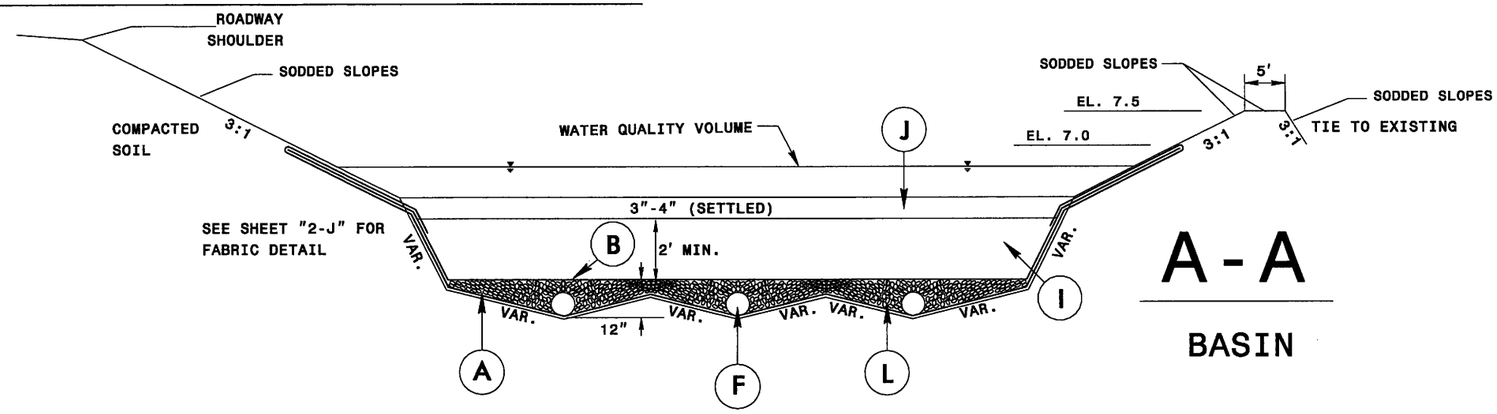
NOTE:

SEE PLAN SHEET #5 FOR SHAPE AND SIZE OF BASIN AND LENGTH OF UNDERDRAIN PIPES.
ENGINEERED SOIL SURFACE AREA AT ELEV. 6.0 = 4520 SF.
BOTTOM OF BASIN SURFACE AREA AT ELEV. 6.0 = 6308 SF.



BIO-RETENTION DETAIL

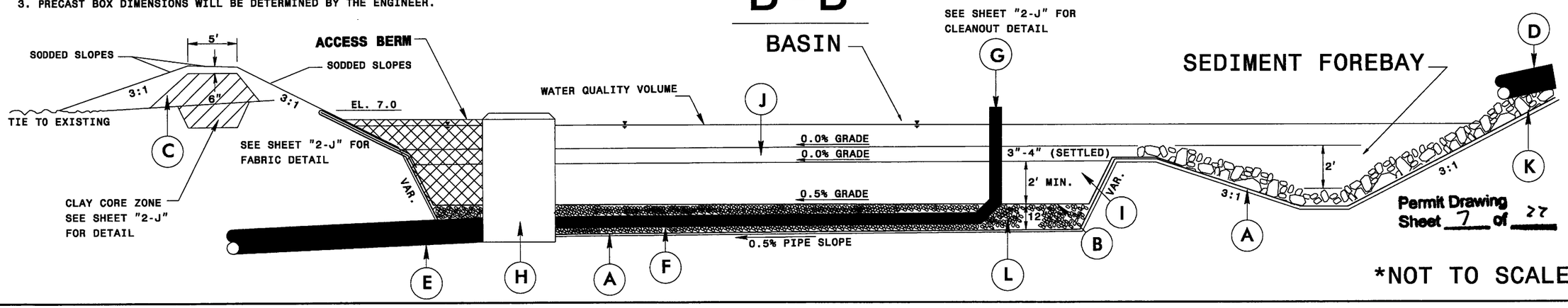
BASIN



A-A

BASIN

NOTES
1. ENTIRE BASIN AND SEDIMENT FOREBAY WILL BE LINED WITH FILTER FABRIC.
2. BASIN AND FOREBAY DIMENSIONS WILL VARY (AS DIRECTED BY THE ENGINEER).
3. PRECAST BOX DIMENSIONS WILL BE DETERMINED BY THE ENGINEER.



B-B

BASIN

Permit Drawing Sheet 7 of 27

*NOT TO SCALE

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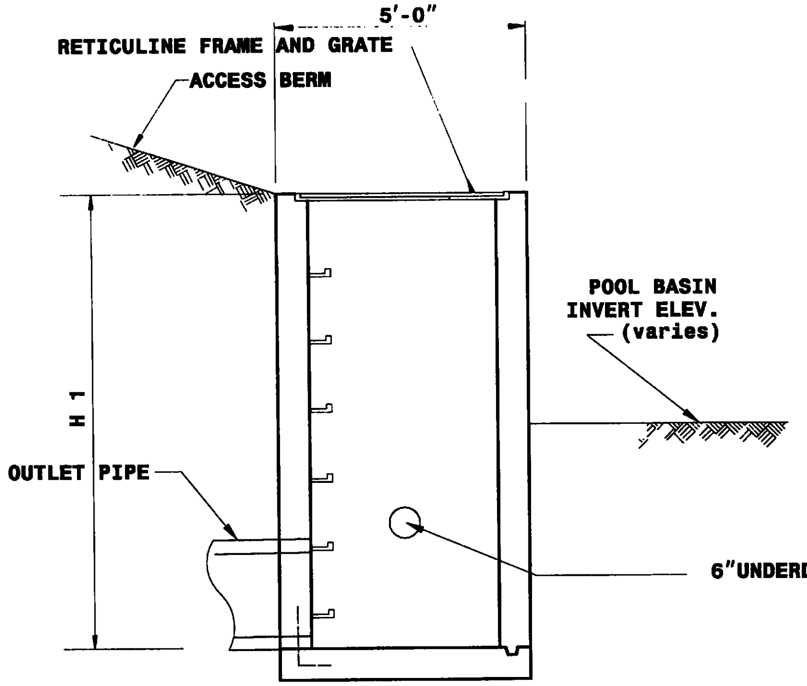
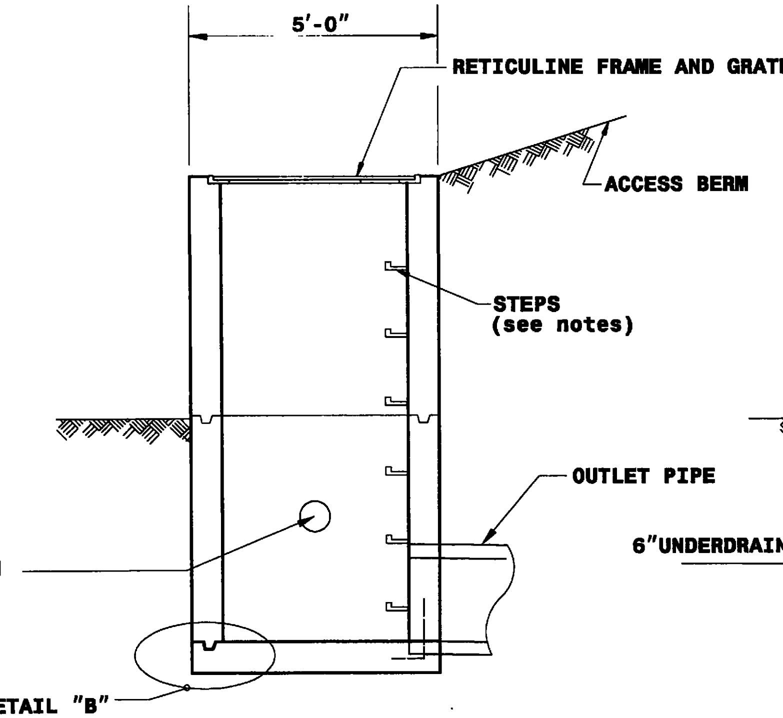
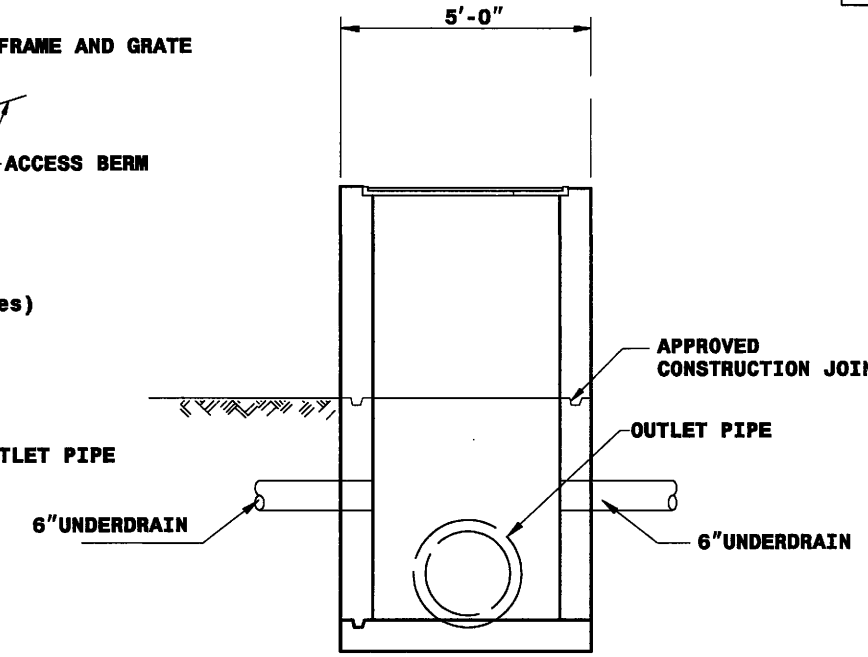


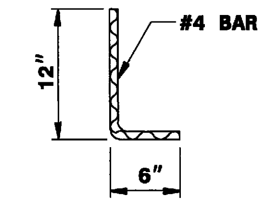
STRUCTURE SIDE 1



STRUCTURE SIDE 2



STRUCTURE FRONT



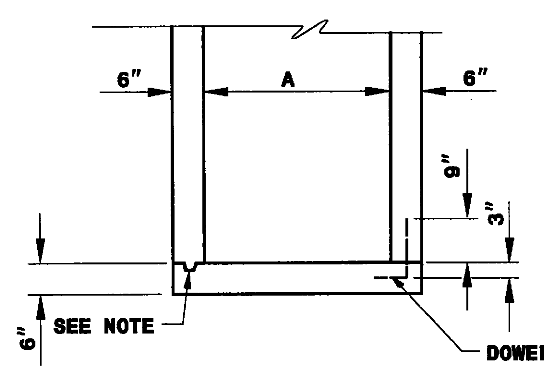
DOWEL

TABLE "A"

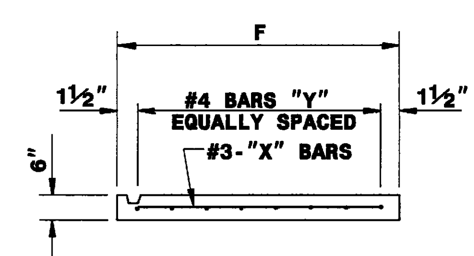
MINIMUM DIMENSIONS FOR OUTLET CONTROL STRUCTURE

BASIN	PIPE DIA.	OUTLET PIPE INVERT	BOX HEIGHT H1	TOP OF GRATE ELEV.	UNDER DRAIN INVERT	ORFICE PLATE OPENING INVERT	POOL BASIN ELEV. @ PAD ELEV.	WEIR DIMENSIONS W1	W2	W3	W4	W1 EL	W2 EL
Sta. 27+61.31-L-	15"	0.7'	6.00'	6.7'	2.17'		6.0'						
(165 Lt)													

GENERAL NOTES:
- * CHANGES IN ELEVATIONS MUST BE APPROVED BY THE ENGINEER.
- * CLASS 'B' CONCRETE TO BE USED THROUGHOUT. PRECAST CONCRETE STRUCTURES TO BE SUBMITTED FOR APPROVAL.
- * OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2 INCH KEYWAY, OR #4 BAR DOWELS AT 12 INCH CENTERS, AS DIRECTED BY THE ENGINEER.
- * FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
- * IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD 840.00.
- * ALL DRAWDOWN STRUCTURES OVER 3 FEET IN DEPTH TO BE PROVIDED WITH STEPS 12 INCH ON CENTERS. STEPS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD 840.66.
- * WALL THICKNESS SHALL BE INACCORDANCE TO STD. # 8400.31 AND # 840.32
- * RETICULINE FRAME AND GRATE TO BE APPROVED BY THE ENGINEER..



DETAIL 'B'



BOTTOM SLAB

Permit Drawing
Sheet 8 of 22

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

DETAIL OF OUTLET CONTROL STRUCTURE FOR BIO-RETENTION BASIN

ORIGINAL BY: DATE:
MODIFIED BY: jwdunnehoo DATE: 6-5-07
CHECKED BY: DATE:
FILE SPEC.: r:\hydraulics\k4703 bio-retention typ.dgn

11/3/2008
...b4214.bio-retention.typ.dgn
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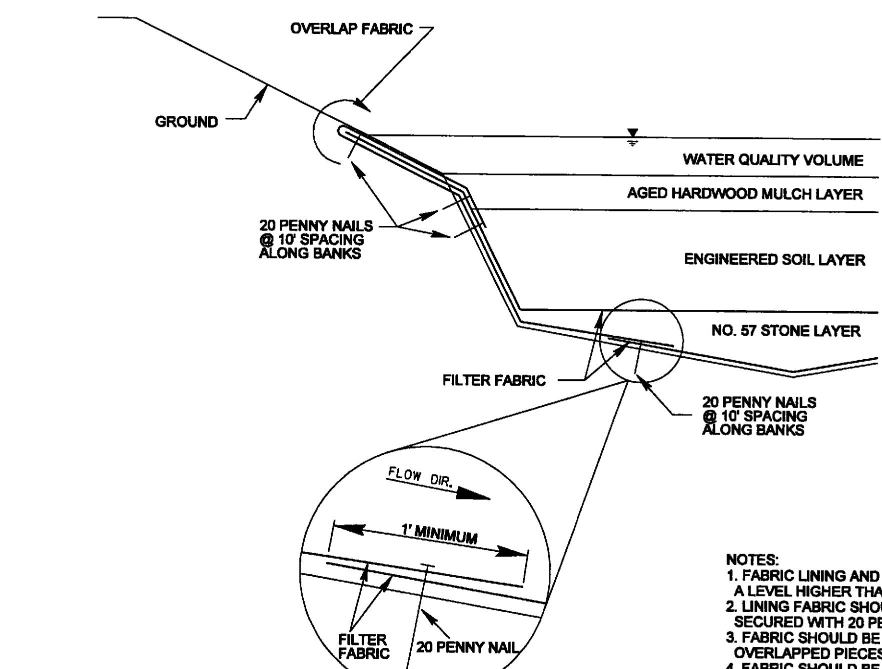
PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-J
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAILS

FABRIC

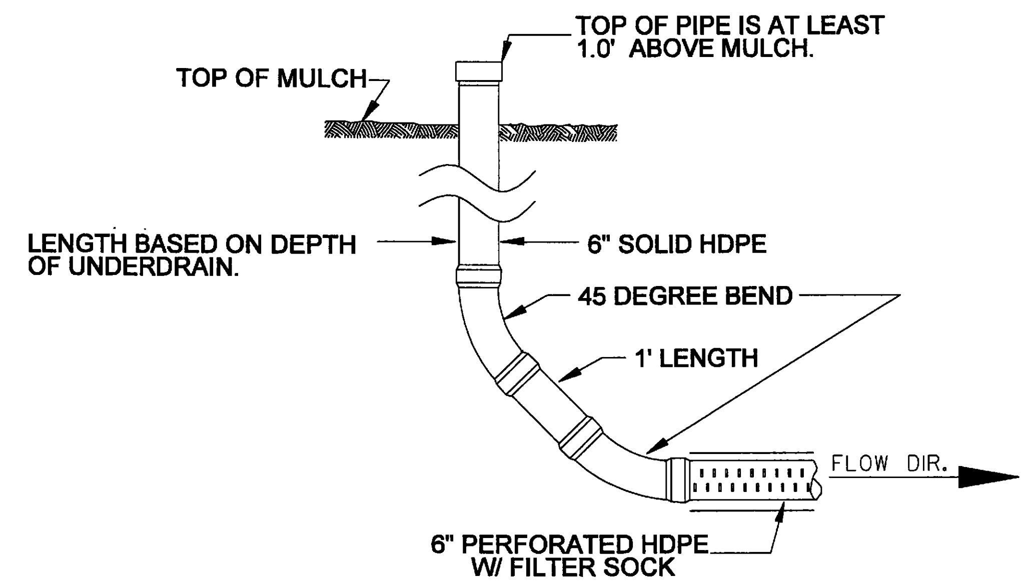
*NOT TO SCALE



NOTES:
1. FABRIC LINING AND DIVIDING FABRIC SHOULD BOTH EXTEND UP THE BANK TO A LEVEL HIGHER THAN THE WATER QUALITY LEVEL.
2. LINING FABRIC SHOULD BE FOLDED BACK TO OVERLAP DIVIDING FABRIC AND SECURED WITH 20 PENNY NAILS TO ENCURE SEALING THE STONE FROM SOIL.
3. FABRIC SHOULD BE LAYED IN A WAY TO PREVENT WATER FROM FLOWING BETWEEN OVERLAPPED PIECES. (SEE BLOWUP)
4. FABRIC SHOULD BE OVERLAPPED BY A MINIMUM OF 12 INCHES AND SECURED WITH NAILS.
5. NO OVERLAPPING SHOULD OCCUR UNDER DRAIN PIPES.

END CLEANOUT

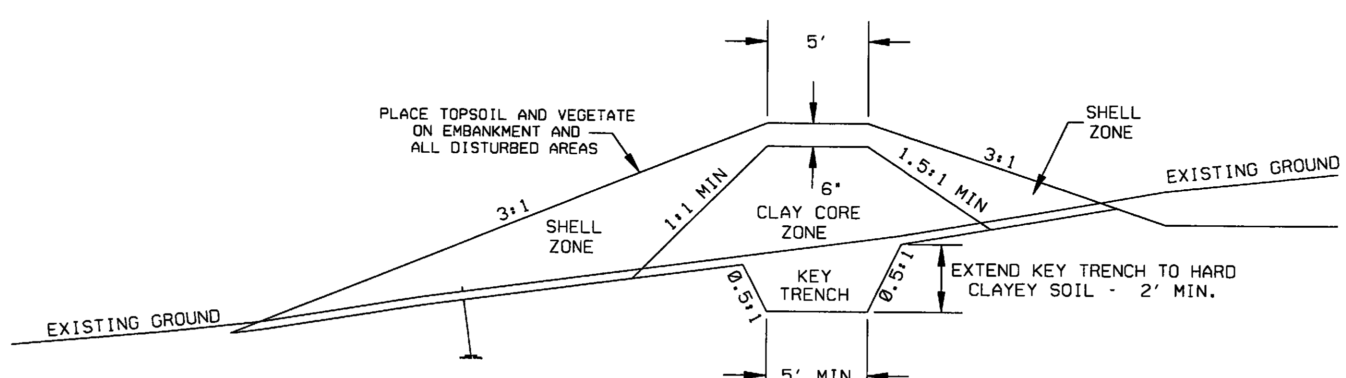
*NOT TO SCALE



NOTE: ONLY UNDERDRAIN PIPE SHOULD BE PERFORATED

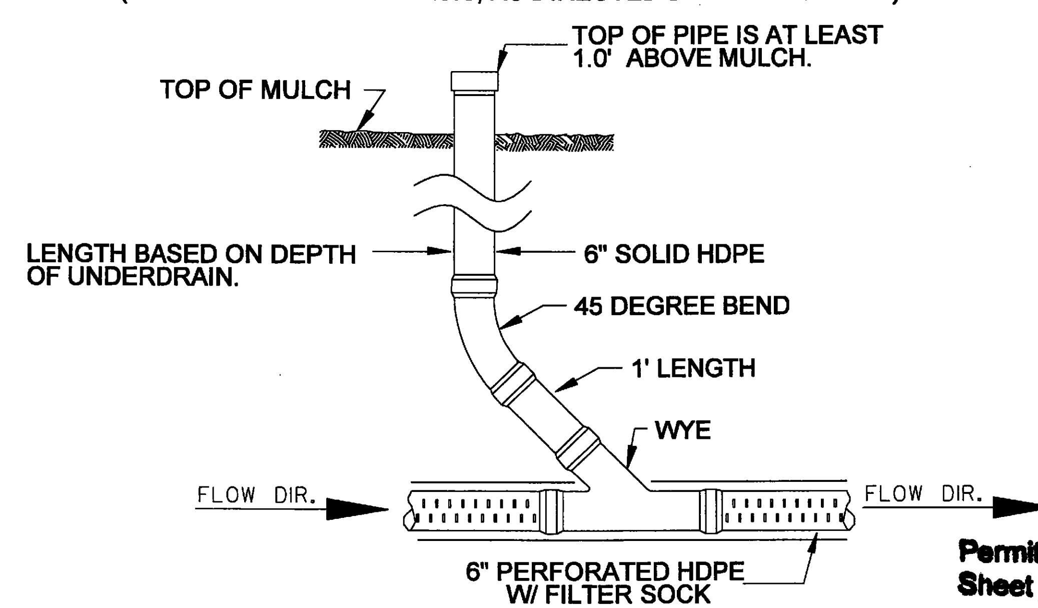
CLAY CORE ZONE

*NOT TO SCALE



MIDWAY CLEANOUT

(USED ON AS NEEDED BASIS, AS DIRECTED BY THE ENGINEER)



NOTE: ONLY UNDERDRAIN PIPE SHOULD BE PERFORATED

*NOT TO SCALE

Permit Drawing
Sheet 7 of 27

5/14/99

11/3/2008
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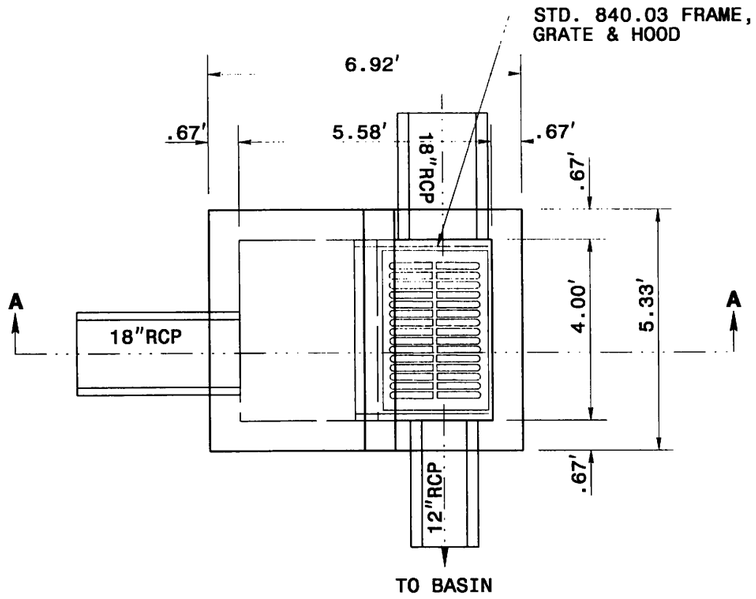
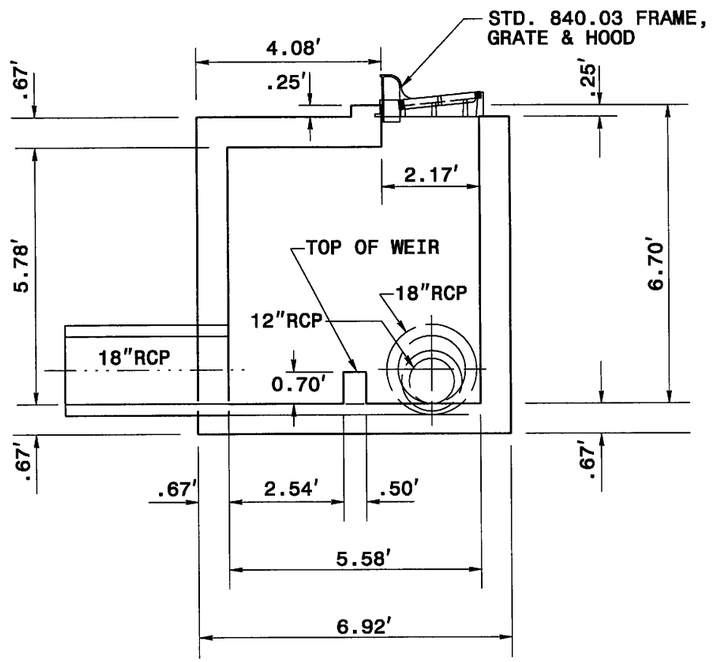
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4214	2-K

CATCH BASIN SPLITTER BOX

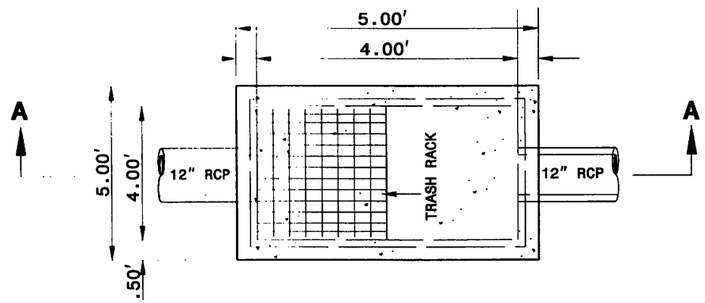


PLAN

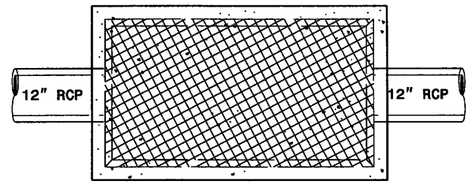


SECTION A-A

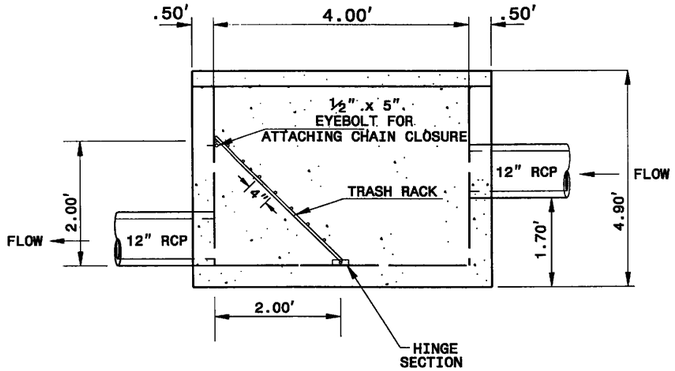
DI W/ INTERNAL TRASH RACK STRUCTURE



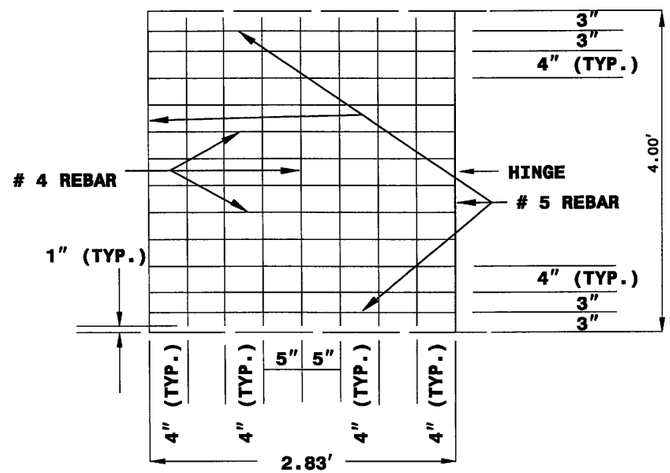
PLAN VIEW



TOP VIEW OF RETICULINE FRAME AND GRATE



VIEW A-A



TRASH RACK DETAIL

Permit Drawing Sheet 10 of 22

TRASH RACK NOTES:

1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF ¼" BEAD.
2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
3. TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE SYSTEM TO BE APPROVED BY THE ENGINEER.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

CATCH BASIN WITH WEIR

ORIGINAL BY:		DATE:	
MODIFIED BY:	nbritt	DATE:	09-11-08
CHECKED BY:		DATE:	
FILE SPEC.:	details\nbritt\english\hydro\splitterbox.dgn		

11/3/2008
R:\Drainage\splitter2 box.dgn
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PROJECT REFERENCE NO.	SHEET NO.
B-4214	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

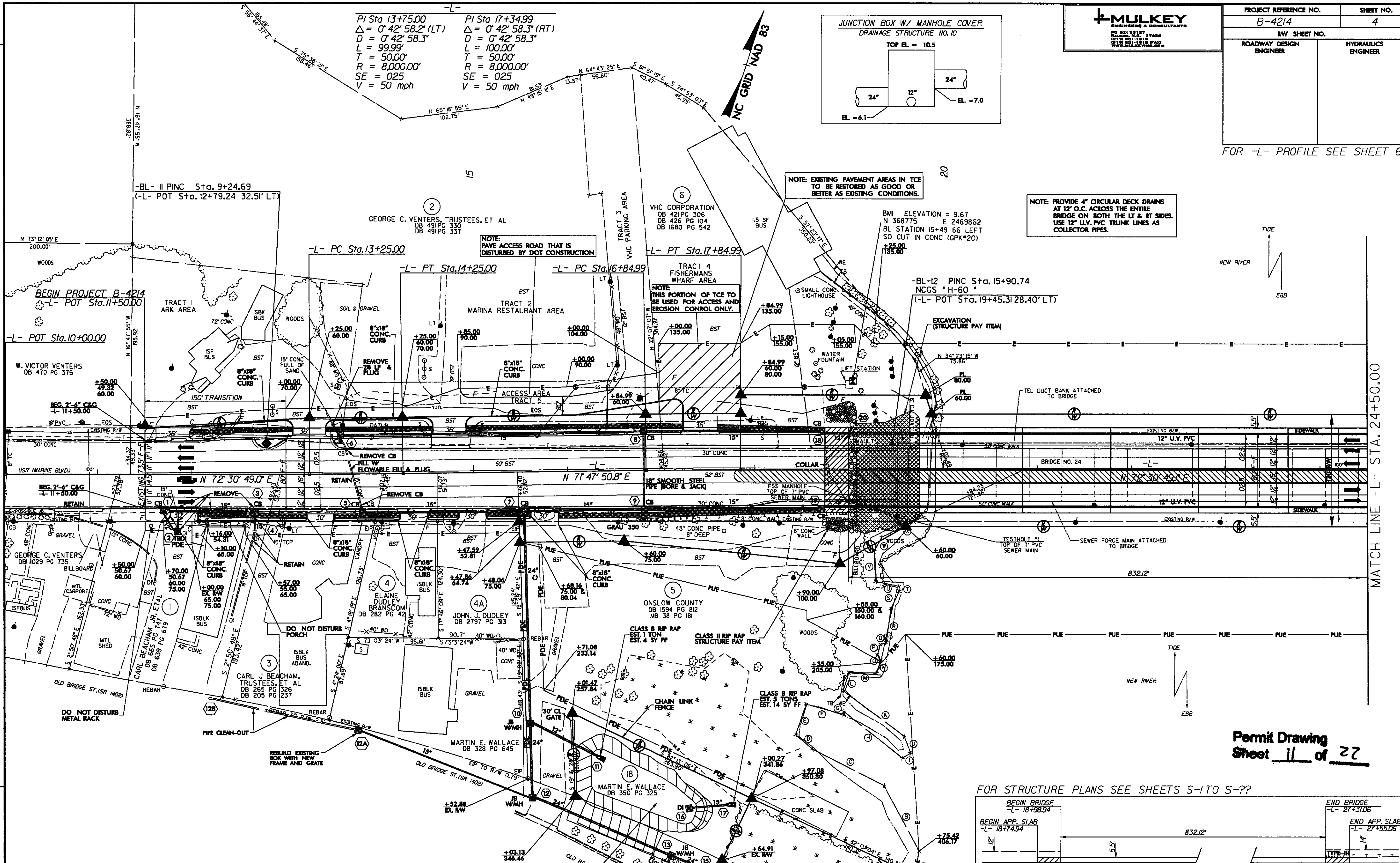
FOR -L- PROFILE SEE SHEET 6

-L-

PI Sta 13+75.00	PI Sta 17+34.99
Δ = 0° 42′ 58.2″ (LT)	Δ = 0° 42′ 58.3″ (RT)
D = 0° 42′ 58.3″	D = 0° 42′ 58.3″
L = 99.99′	L = 100.00′
T = 50.00′	T = 50.00′
R = 8,000.00′	R = 8,000.00′
SE = .025	SE = .025
V = 50 mph	V = 50 mph

JUNCTION BOX W/ MANHOLE COVER
DRAINAGE STRUCTURE NO. 10

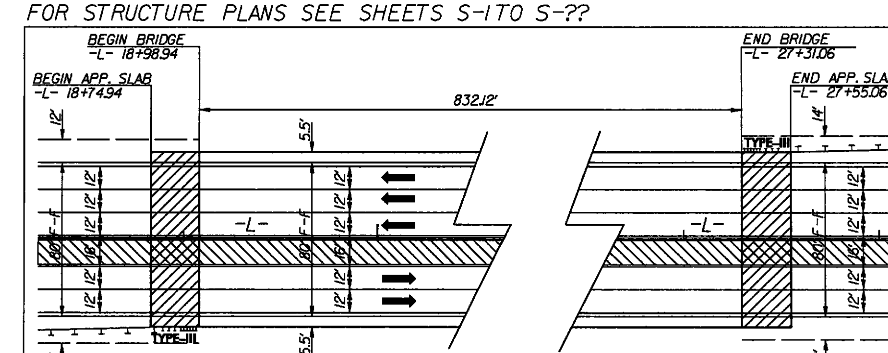
TOP EL. = 10.5
24"
12"
24"
EL. = 7.0
EL. = 6.1



NC GRID NAD 83
BEGIN PROJECT B-4214
-L- POT Sta. 11+50.00
-L- POT Sta. 10+00.00
-BL-11 PINC Sta. 9+24.69
(-L- POT Sta. 12+79.24 32.51′ LT)
-L- PC Sta. 13+25.00
-L- PT Sta. 14+25.00
-L- PC Sta. 16+84.99
-L- PT Sta. 17+84.99
-BL-12 PINC Sta. 15+90.74
NCGS "H-60"
(-L- POT Sta. 19+45.31 28.40′ LT)
BMI ELEVATION = 9.67
N 368775 E 2469862
BL STATION 15+49 66 LEFT
SQ CUT IN CONC (GPK*20)
NOTE: EXISTING PAVEMENT AREAS IN TCE TO BE RESTORED AS GOOD OR BETTER AS EXISTING CONDITIONS.
NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12′ O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.
NOTE: PAVE ACCESS ROAD THAT IS DISTURBED BY DOT CONSTRUCTION
NOTE: THIS PORTION OF TCE TO BE USED FOR ACCESS AND EROSION CONTROL ONLY.
GEORGE C. VENTERS, TRUSTEES, ET AL
DB 491 PG 330
DB 491 PG 337
VHC CORPORATION
DB 421 PG 306
DB 426 PG 104
DB 1680 PG 542
TRACT 1 ARK AREA
TRACT 2 MARINA RESTAURANT AREA
TRACT 3 VHC PARKING AREA
TRACT 4 FISHERMANS WHARF AREA
TRACT 5 ACCESS AREA
W. VICTOR VENTERS
DB 470 PG 375
GEORGE C. VENTERS
DB 1029 PG 735
CARL BEACHAM, JR. ETAL
DB 665 PG 747
DB 639 PG 679
CARL J BEACHAM, TRUSTEES, ET AL
DB 265 PG 326
DB 205 PG 237
ELAINE DUDLEY BRANSCOM
DB 282 PG 42
JOHN J. DUDLEY
DB 2797 PG 313
ONSLOW COUNTY
DB 1594 PG 812
MB 38 PG 181
MARTIN E. WALLACE
DB 328 PG 645
MARTIN E. WALLACE
DB 350 PG 325
N 72° 30′ 49.0″ E
N 71° 47′ 50.8″ E
BRIDGE NO. 24
MATCH LINE -L- STA. 24+50.00
NEW RIVER
TIDE
EBB
OLD BRIDGE ST. (SR 1402)
US17 (MARINE BLVD)
DO NOT DISTURB METAL RACK
DO NOT DISTURB PORCH
PIPE CLEAN-OUT
REBUILD EXISTING BOX WITH NEW FRAME AND GRATE
STORMWATER BASIN NO. 1 SEE DETAIL A EST. 1350 CY DDE EST. 20 CY FILL
CLASS B RIP RAP EST. 1 TON EST. 4 SY FF
CLASS II RIP RAP STRUCTURE PAY ITEM
CLASS B RIP RAP EST. 5 TONS EST. 14 SY FF
CLASS I RIP RAP W/FILTER FABRIC EST. 7 TONS EST. 15 SY FF
EXCAVATION (STRUCTURE PAY ITEM)
TEL DUCT BANK ATTACHED TO BRIDGE
SEWER FORCE MAIN ATTACHED TO BRIDGE
18" SMOOTH STEEL PIPE (BORE & JACK)
CHAIN LINK FENCE
SMALL CONC. LIGHTHOUSE
WATER FOUNTAIN
LIFT STATION
WOODS

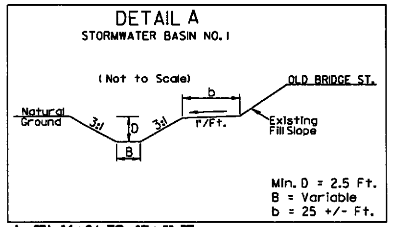
Permit Drawing
Sheet 11 of 27

FOR STRUCTURE PLANS SEE SHEETS S-1 TO S-??



SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

DETAIL A
STORMWATER BASIN NO. 1



-L- STA. 16+04 TO 17+51 RT

(A)	S 6° 08′ 48″ E	26.38′	(I)	S 41° 21′ 37″ W	10.42′	(Q)	S 57° 15′ 39″ W	6.49′
(B)	S 46° 00′ 42″ E	79.60′	(J)	S 39° 05′ 54″ E	19.25′	(R)	S 9° 33′ 05″ E	36.69′
(C)	S 80° 40′ 56″ E	84.71′	(K)	S 70° 48′ 23″ E	80.99′	(S)	S 7° 43′ 38″ W	20.69′
(D)	S 67° 18′ 37″ E	24.19′	(L)	S 0° 35′ 23″ E	20.22′	(T)	S 17° 06′ 54″ E	5.26′
(E)	S 1° 01′ 23″ W	34.45′	(M)	S 73° 03′ 33″ W	29.32′	(U)	N 83° 46′ 19″ E	25.86′
(F)	S 87° 37′ 10″ W	42.16′	(N)	S 0° 27′ 13″ E	14.42′	(V)	S 19° 49′ 02″ E	32.10′
(G)	S 30° 19′ 24″ E	3.64′	(O)	S 49° 29′ 52″ E	6.44′	(W)	S 9° 57′ 48″ W	17.25′
(H)	N 69° 05′ 40″ W	80.42′	(P)	S 2° 44′ 27″ E	11.52′	(X)	S 46° 58′ 42″ W	38.14′

REVISIONS

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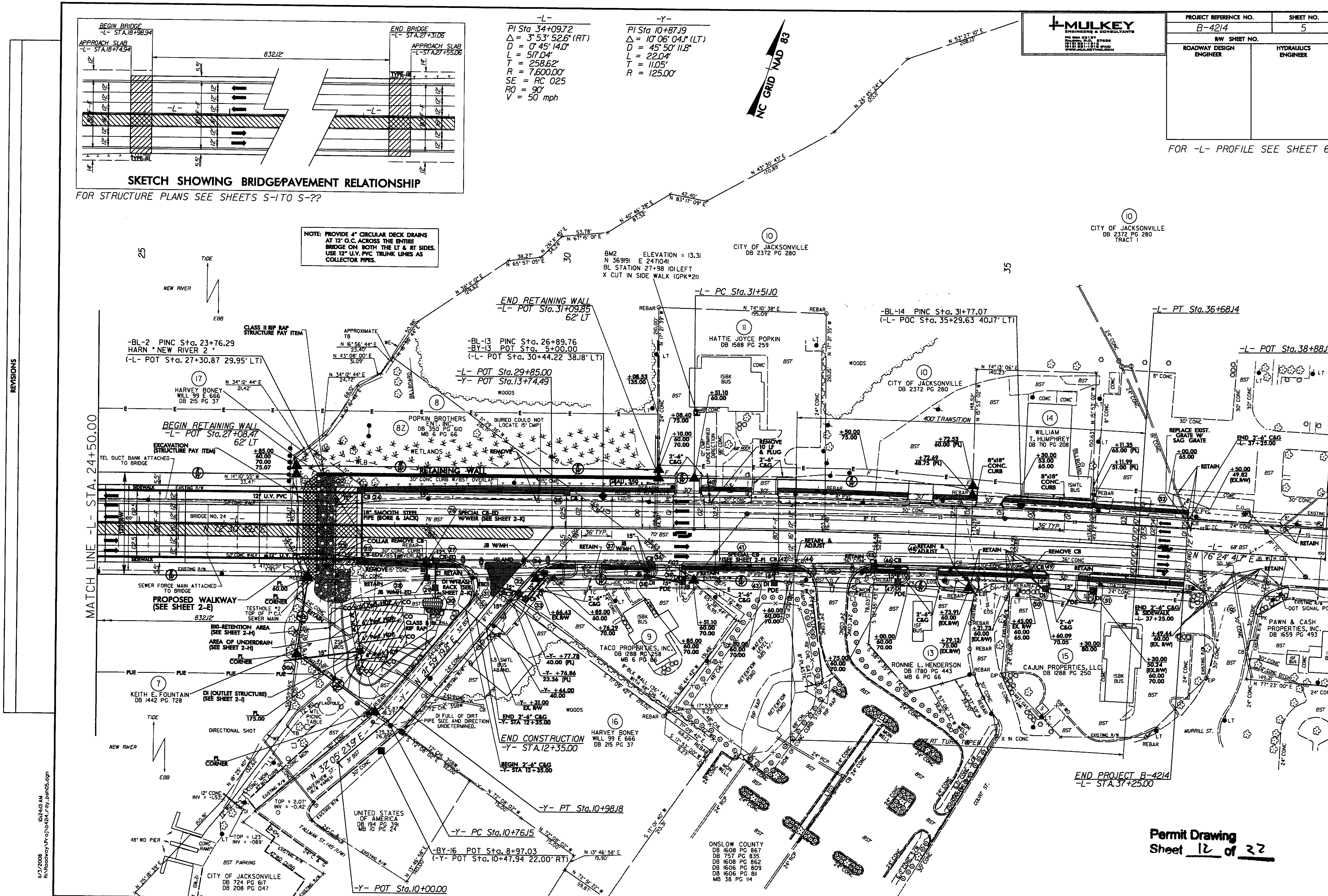
MULKEY ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO. B-4214
SHEET NO. 5
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
FOR -L- PROFILE SEE SHEET 6
-L-
PI Sta 34+09.72
Δ = 3° 53' 52.6" (RT)
D = 0° 45' 14.0"
L = 517.04'
T = 258.62'
R = 7,600.00'
SE = RC 025
RO = 90'
V = 50 mph
-Y-
PI Sta 10+87.19
Δ = 10° 06' 04.1" (LT)
D = 45° 50' 11.8"
L = 22.04'
T = 11.05'
R = 125.00'
NC GRID NAD 83
BEGIN BRIDGE -L- STA.18+98.94
APPROACH SLAB -L- STA.18+74.94
END BRIDGE -L- STA.27+31.06
APPROACH SLAB -L- STA.27+55.06
832.12'
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
FOR STRUCTURE PLANS SEE SHEETS S-1 TO S-??
NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12' O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.
BM2 ELEVATION = 13.31
N 369191 E 2471041
BL STATION 27+98 101 LEFT
X CUT IN SIDE WALK (GPK#21)
CITY OF JACKSONVILLE DB 2372 PG 280
CITY OF JACKSONVILLE DB 2372 PG 280 TRACT 1
END RETAINING WALL -L- POT Sta. 31+09.85 62' LT
-L- PC Sta. 31+51.10
-BL-14 PINC Sta. 31+77.07 (-L- POC Sta. 35+29.63 40.17' LT)
-L- PT Sta. 36+68.14
-L- POT Sta. 38+88.14
-BL-2 PINC Sta. 23+76.29 HARN "NEW RIVER 2" (-L- POT Sta. 27+30.87 29.95' LT)
-BL-13 PINC Sta. 26+89.76 -BY-13 POT Sta. 5+00.00 (-L- POT Sta. 30+44.22 38.18' LT)
-L- POT Sta. 29+85.00 -Y- POT Sta. 13+74.49
HATTIE JOYCE POPKIN DB 1588 PG 259
HARVEY BONEY WILL 99 E 666 DB 215 PG 37
POPKIN BROTHERS ENT. INC. DB 350 PG 610 MB 6 PG 66
WETLANDS
RETAINING WALL
BEGIN RETAINING WALL -L- POT Sta. 27+08.47 62' LT
CITY OF JACKSONVILLE DB 2372 PG 280
400' TRANSITION
WILLIAM T. HUMPHREY DB 710 PG 208
REPLACE EXIST. GRATE W/ SAG GRATE
END 2'-6" C&G -L- 37+25.00
MATCH LINE -L- STA. 24+50.00
BRIDGE NO. 24
N 72° 30' 49.1" E
N 76° 24' 41.7" E
PROPOSED WALKWAY (SEE SHEET 2-E)
BIO-RETENTION AREA (SEE SHEET 2-H)
AREA OF UNDERDRAIN (SEE SHEET 2-H)
DI (OUTLET STRUCTURE) (SEE SHEET 2-I)
KEITH E. FOUNTAIN DB 1442 PG 728
TACO PROPERTIES, INC. DB 1288 PG 258 MB 6 PG 66
RONNIE L. HENDERSON DB 1780 PG 443 MB 6 PG 66
CAJUN PROPERTIES, LLC DB 1288 PG 250
PAWN & CASH PROPERTIES, INC. DB 1659 PG 493
END SIDEWALK -L- 37+25.00
END CONSTRUCTION -Y- STA.12+35.00
HARVEY BONEY WILL 99 E 666 DB 215 PG 37
BEGIN 2'-6" C&G -Y- STA 12+35.00
-Y- PT Sta.10+98.18
-Y- PC Sta.10+76.15
-BY-16 POT Sta. 8+97.03 (-Y- POT Sta. 10+47.94 22.00' RT)
-Y- POT Sta.10+00.00
N 32° 05' 23.9" E
UNITED STATES OF AMERICA DB 194 PG 391 MB 10 PG 24
RIVERVIEW ST.
TALLMAN ST. (45' R/W)
CITY OF JACKSONVILLE DB 724 PG 617 DB 208 PG 047
ONSLOW COUNTY DB 1608 PG 867 DB 757 PG 835 DB 1608 PG 862 DB 1606 PG 809 DB 1606 PG 811 MB 38 PG 114
COURT ST.
MURRILL ST.
END PROJECT B-4214 -L- STA.37+25.00
NEW RIVER
TIDE
EBB
REVISIONS
11/3/2008
Permit Drawing Sheet 12 of 22

PROJECT REFERENCE NO.	SHEET NO.
B-4214	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1512
(919) 851-1518 (FAX)
WWW.MULKEYINC.COM

-BL- 11
EL = 12.11'
18" REBAR WITH CAP

BM-1 EL = 9.67'
N=368715.2420 E=2469861.5780
-BL- STA 15+49.00 66.46' LT
-L- STA 19+03.54 94.83' LT
SQUARE CUT IN CONCRETE

-BL- 12
EL = 16.99'
NCGS "H 60"

-L-

BEGIN GRADE
-L- STA 11+50.00
EL = 11.11'

PI = 13+25.00
EL = 13.33'
VC = 150'
K = 211
V = 65 mph

(+)11.2686%
(+)0.5593%

BEGIN BRIDGE
-L- STA 18+98.94

PI = 18+90.00
EL = 16.49'
VC = 250'
K = 102
V = 50 mph

(+)0.5593%

EXCAVATION
(STRUCTURE PAY ITEM)

(-)12.0000%
(-)16.0000%
(-)12.0000%

BEGIN DITCH GRADE
-L- STA 18+82 RT
EL = 7.86'

-L- STA 18+00 RT
EL = 5.56'

END DITCH GRADE
-L- STA 18+46 RT
EL = 3.10'

END DITCH GRADE
-L- STA 18+95 RT
EL = 2.00'

GLASS II RIP RAP
W/ FILTER FABRIC
TO SHOULDER
(2 FT. THICK)
(SLOPE NORMAL
TO END BENT)

PI = 23+50.00
EL = 30.35'
VC = 500'
K = 85
V = 50 mph

(+)3.0130%
(-)12.8460%

20 10 0 -10 -20

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

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 9120	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 4.7	FT
BASE DISCHARGE	= 11500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 6.1	FT
OVERTOPPING DISCHARGE	= 18400+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 15.0+	FT
DATE OF SURVEY	= 7-08-04	
W.S. ELEVATION AT DATE OF SURVEY	= 0.34	FT

-BL- 2
EL = 16.17'
NCGS "NEW RIVER 2"

-BL- 13
EL = 13.36'
18" REBAR WITH CAP

BM-2 EL = 13.31'
N=369191.2970 E=2471041.1650
-BL- STA 27+97.63 100.71' LT
-L- STA 31+53.58 137.22' LT
SQUARE CUT IN CONCRETE

-L-

-BL- 14
EL = 15.48'
18" REBAR WITH CAP

END BRIDGE
-L- STA 27+31.06

PI = 28+50.00
EL = 16.12'
VC = 230'
K = 98
V = 50 mph

(-)12.8460%
(-)12.8460%
(-)10.5086%

EXCAVATION
(STRUCTURE PAY ITEM)

PROPOSED
WALKWAY
(SEE SHEET 2-B)

MINIMUM DEPTH
OF RIP RAP = 3.5'

PI = 32+00.00
EL = 14.34'
VC = 350'
K = 326
V = 80 mph

(-)10.5086%
(+)0.5640%

PI = 34+50.00
EL = 15.75'
VC = 150'
K = 187
V = 60 mph

(+)0.5640%
(-)0.2364%

END GRADE
-L- STA 37+25.00
EL = 15.10'

20 10 0 -10 -20

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

Permit Drawing
Sheet 13 of 22

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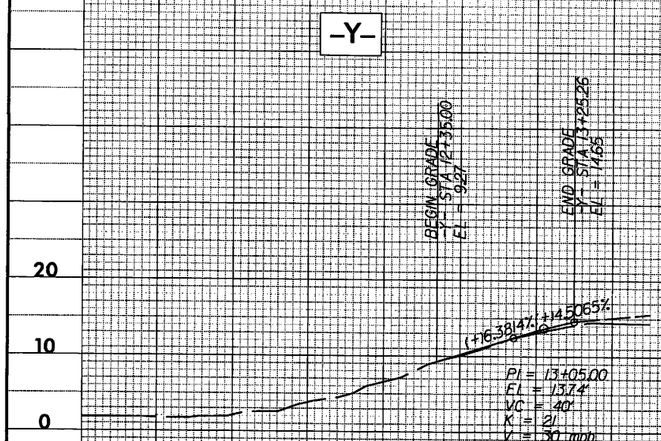
MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1312
(919) 851-1918 (FAX)
www.mulkeync.com

PROJECT REFERENCE NO.	SHEET NO.
B-4214	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Permit Drawing
Sheet 11 of 22

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-2

14+50.00

14+00.00

13+50.00

13+00.00

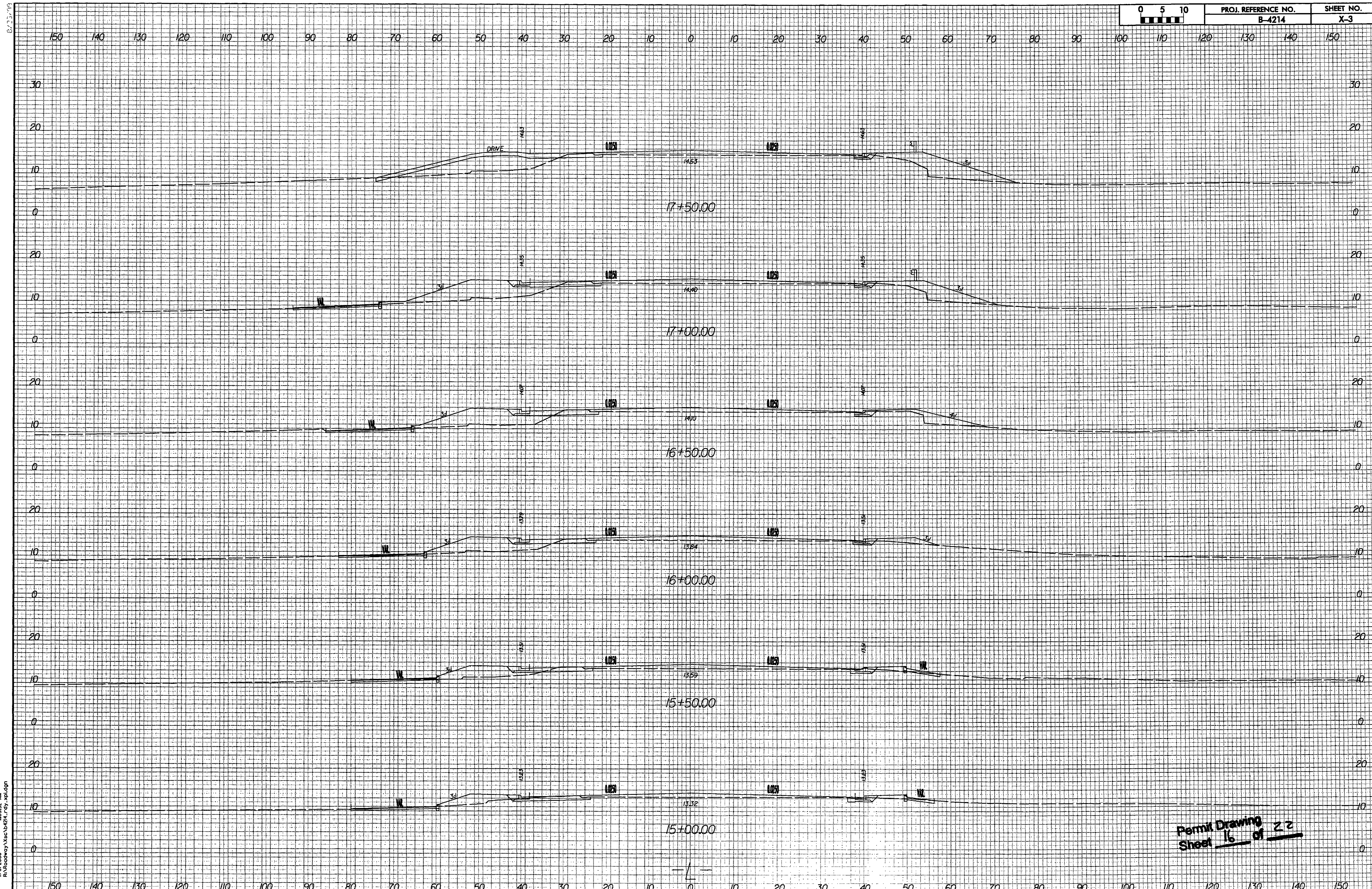
12+50.00

12+00.00

11+50.00

11+00.00

Permit Drawing
Sheet 15 of 22



0 5 10
PROJ. REFERENCE NO.
B-4214
SHEET NO.
X-3
DRIVE
17+50.00
17+00.00
16+50.00
16+00.00
15+50.00
15+00.00
Permit Drawing
Sheet 16 of 22
11/3/2008
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-4

EXCAVATION (STRUCTURE PAY ITEM)

20+00.00

19+50.00

19+00.00

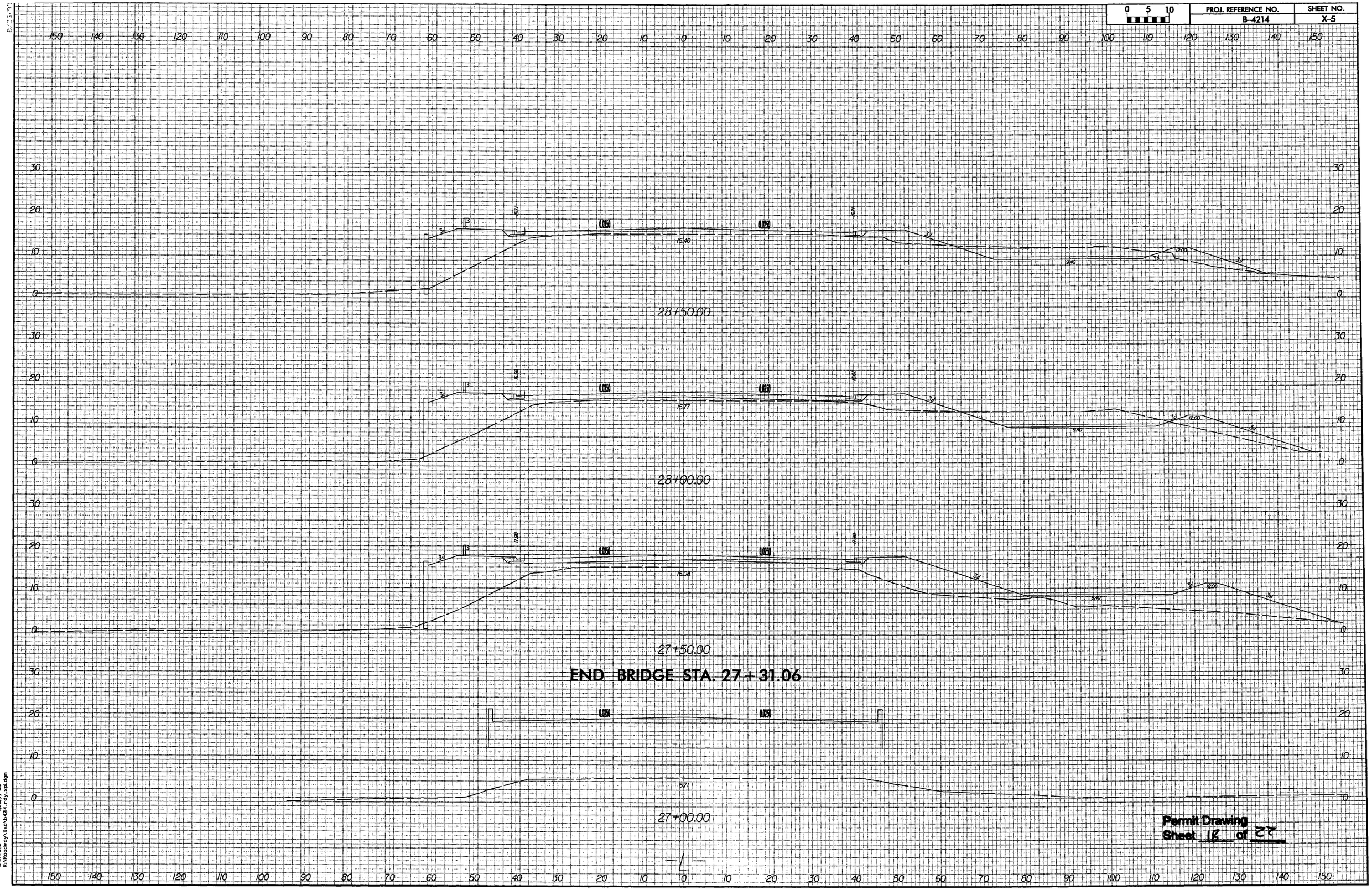
BEGIN BRIDGE STA. 18+98.94

18+50.00

18+00.00

Permit Drawing
Sheet 11 of 22

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-5



Permit Drawing
Sheet 12 of 22

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-6

31+00.00

30+50.00

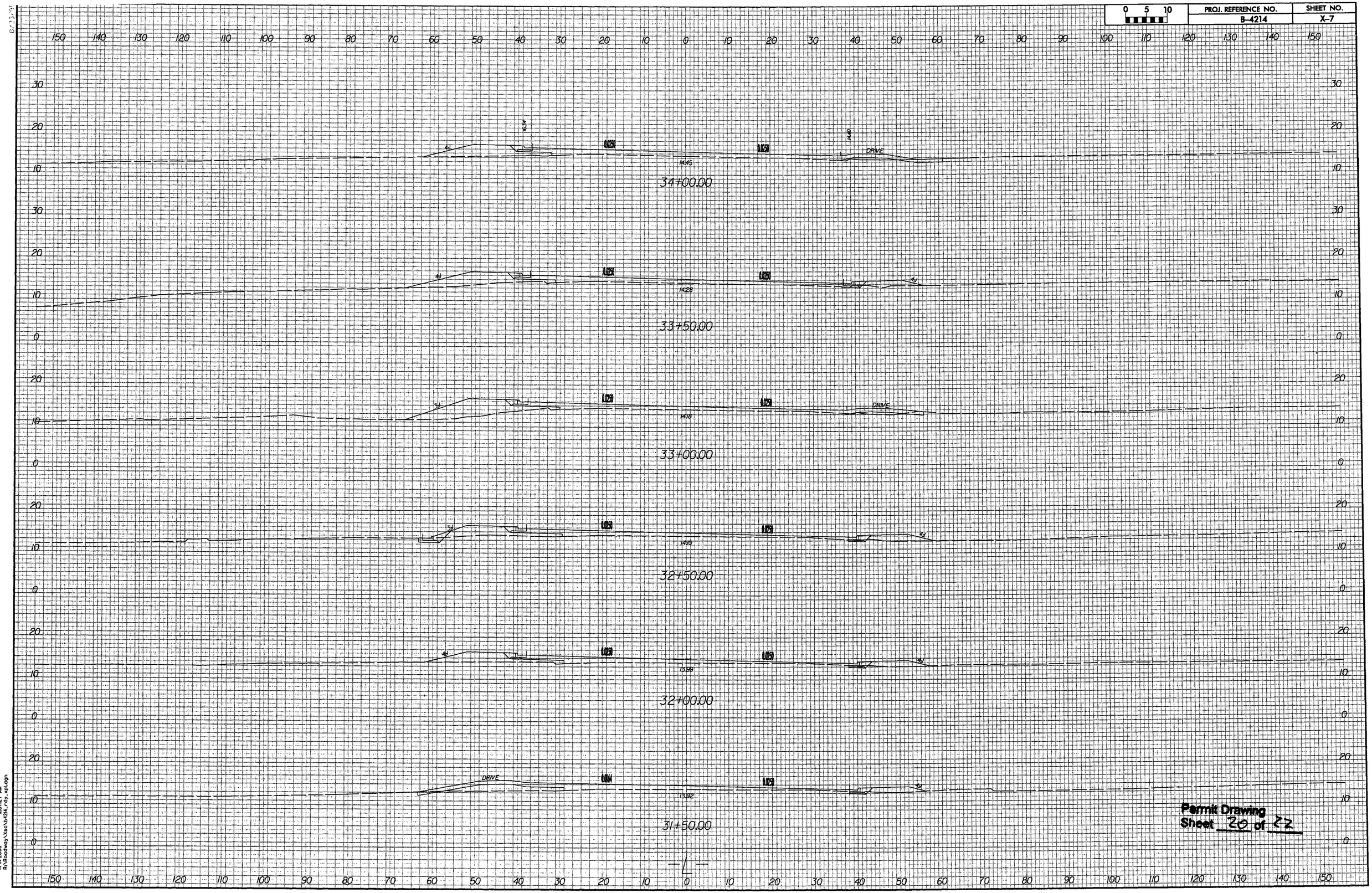
30+00.00

29+50.00

29+00.00

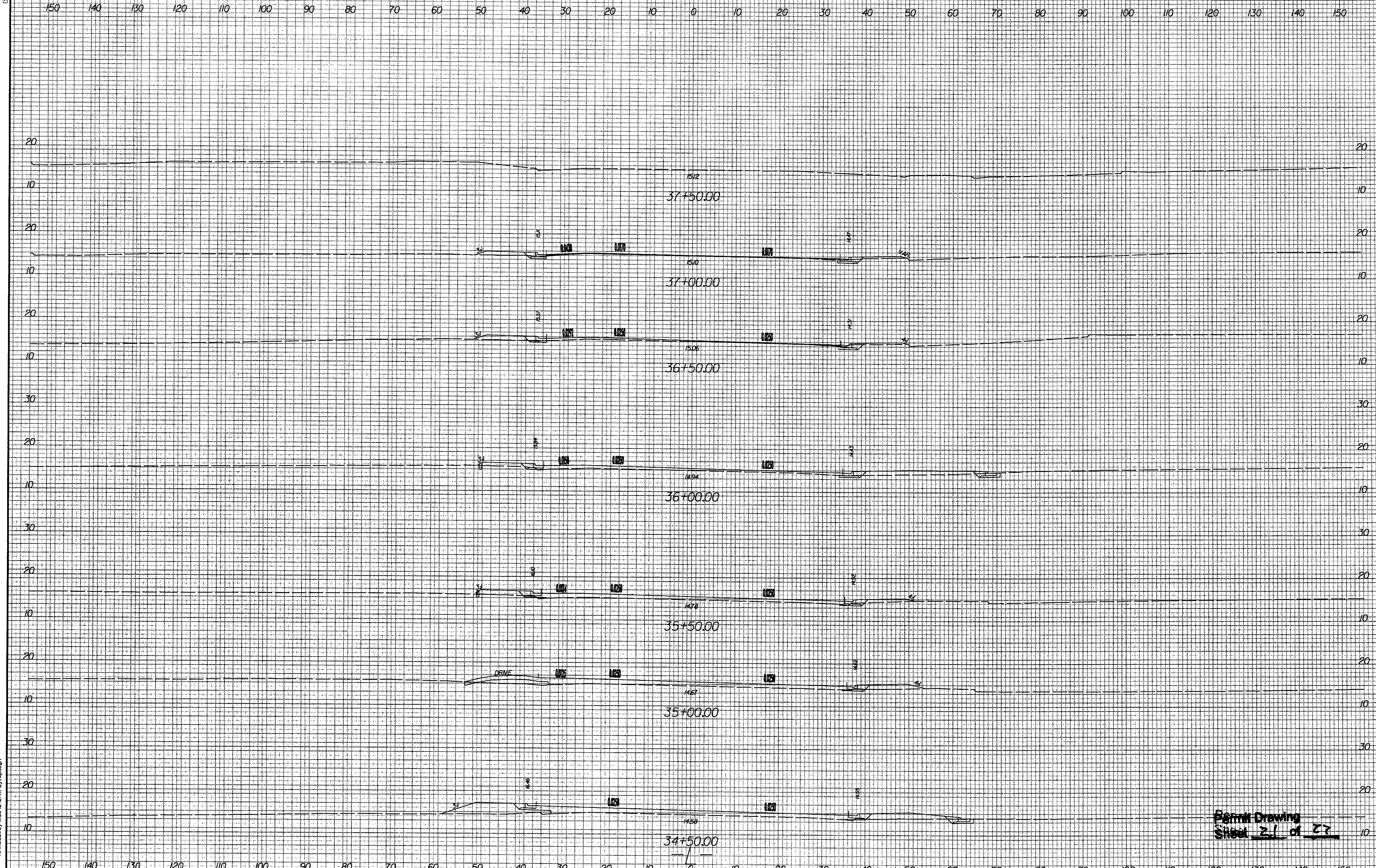
Permit Drawing
Sheet 16 of 22

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-7



Permit Drawing
Sheet 20 of 22

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-8



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Sheet 21 of 27

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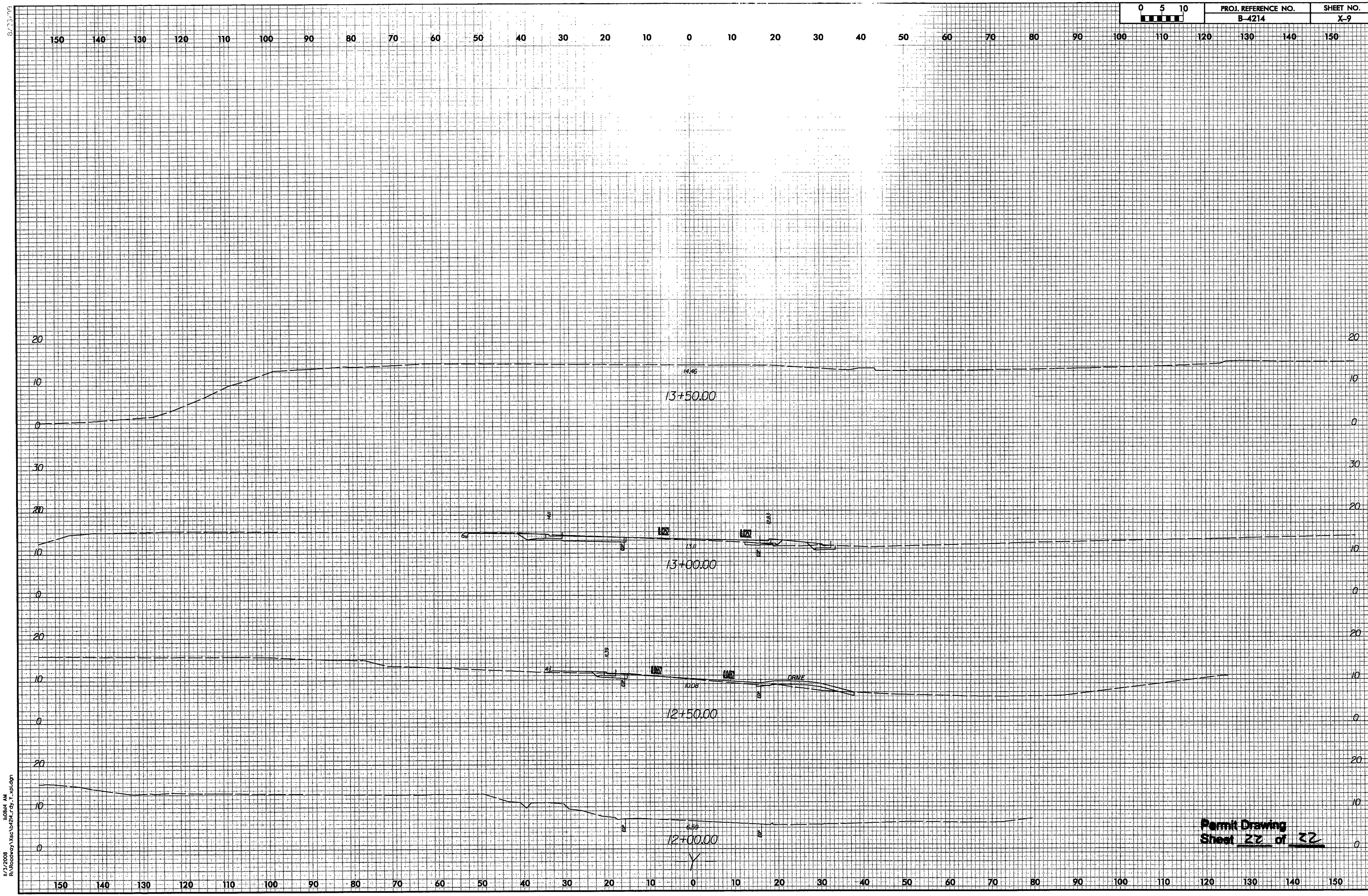
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B-4214
SHEET NO.
X-9
0 5 10
14.46
13+50.00
14.11
0.0252
0.0252
12.83
13.11
EOP
13+00.00
11.39
0.0652
0.0652
DRIVE
10.08
EOP
12+50.00
6.59
EOP
12+00.00
-Y-
Permit Drawing
Sheet 22 of 22
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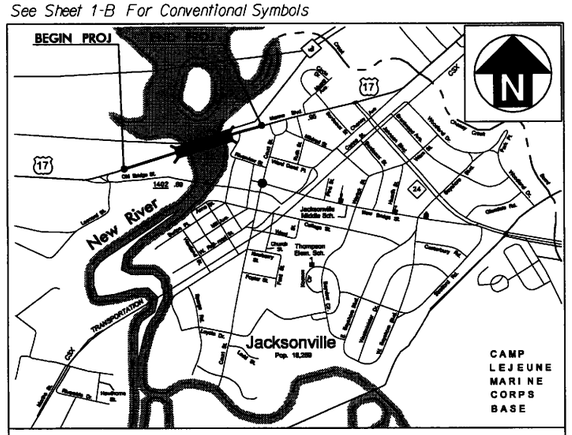
09/08/95

TIP PROJECT: B-4214

CONTRACT: C201370

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

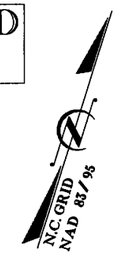
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4214	1	

W.B.S. NO.	F. A. PROJ. NO.	DESCRIPTION
33560.1.1	BRSTP-0017(34)	PE
33560.2.1	BRSTP-0017(34)	R/W, UTL.
33560.3.1	BRSTP-17(44)	CONST.

LOCATION: BRIDGE NO. 24 OVER NEW RIVER ON US 17 (MARINE BLVD.) IN JACKSONVILLE
TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNALS AND STRUCTURE

STREAM & WETLAND IMPACTS



STA. 11+50.00 -L- BEGIN TIP PROJECT B-4214
STA. 11+50.00 -L- BEGIN CONSTRUCTION B-4214

BEGIN BRIDGE
-L- STA. 18+98.94

END BRIDGE
-L- STA. 27+31.06

NEW RIVER

SITE 2

TIDE
EBB

SITE 3

SITE 4

-L- US 17

(MARINE BLVD.)

TO WILMINGTON

TO NEW BERN

TIDE
EBB

NEW RIVER

-Y-

(RIVERVIEW ST.)

STA. 12+35.00 -Y-
END CONSTRUCTION

SITE 1

STA. 37+25.00 -L- END TIP PROJECT B-4214
STA. 37+25.00 -L- END CONSTRUCTION B-4214

MULKEY
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PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 56,000
ADT 2028 = 69,600
DHV = 12 %
D = 55 %
T = 11 % *
V = 45 MPH

* TTST 5 % DUAL 6 %
FUNC CLASS = URBAN ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4214 = 0.330 MILES
LENGTH STRUCTURE TIP PROJECT B-4214 = 0.158 MILES
TOTAL LENGTH STATE TIP PROJECT B-4214 = 0.488 MILES

Prepared In the Office of:
MULKEY
ENGINEERS & CONSULTANTS
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 17, 2006

LETTING DATE: APRIL 21, 2009

TIM JORDAN, PE
MULKEY E & C PROJECT MANAGER

KEVIN ALFORD, PE
MULKEY E & C HYDRAULICS ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Permit Drawing
Sheet 1 of 18

P.E.
STATE HIGHWAY DESIGN ENGINEER

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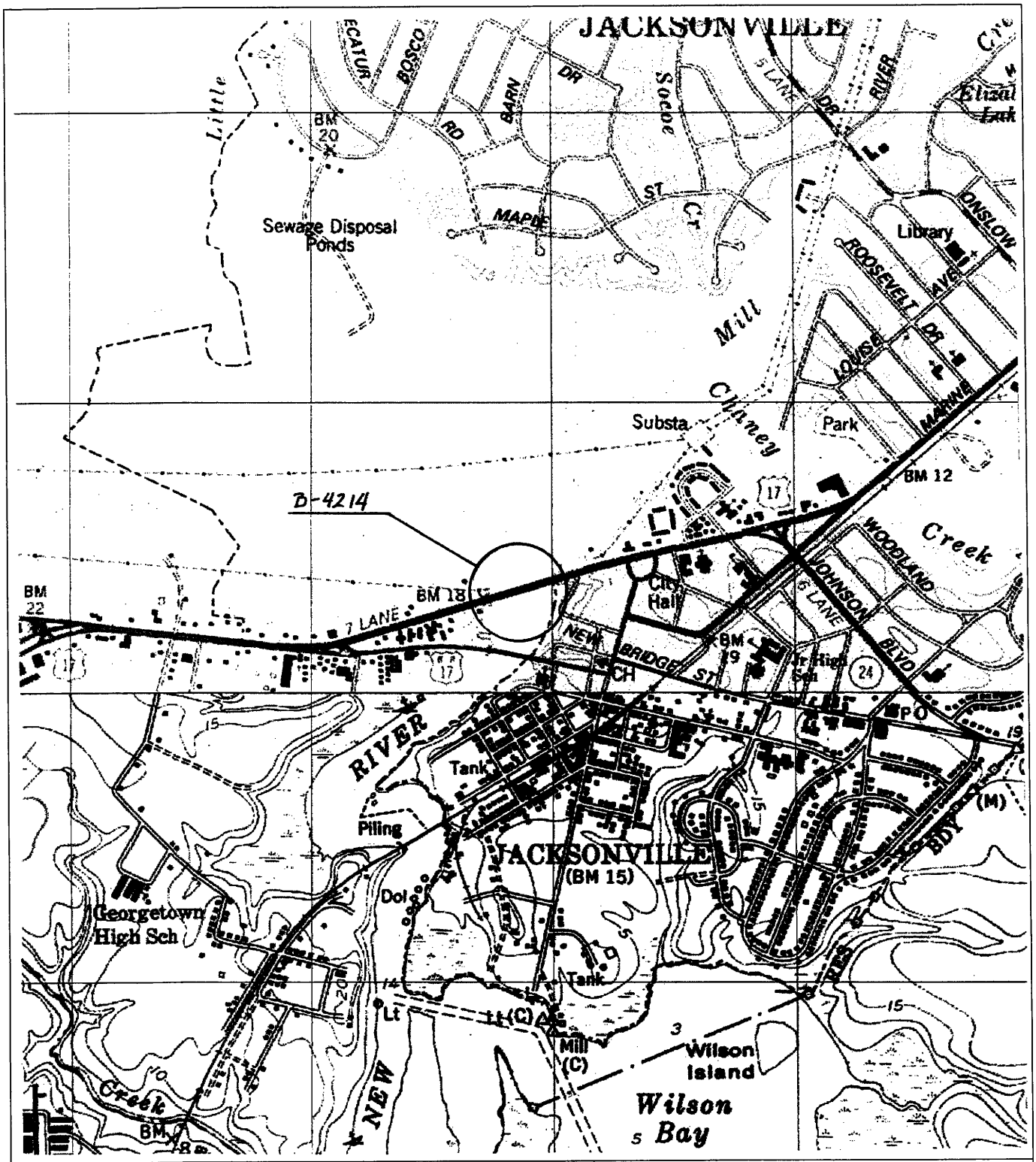


TOPO MAP

SCALE: 1" : 1500'

NCDOT

DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: B-4214
BRIDGE NO. 24 OVER
NEW RIVER
ON US 17
(MARINE BLVD.)

Permit Drawing
Sheet 2 of 18

SHEET OF 1/87 2008

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	17+28 TO 17+96 -L- RT	PROPOSED STORMWATER POND				0.02						
2	19+35 TO 26+94 -L- LT/RT	PROPOSED BRIDGE BENTS & WORK BRIDGE						0.09	0.14			
3	26+81 TO 27+10 -L- LT	PROPOSED WALKWAY	<0.01									
4	26+94 TO 30+99 -L- LT	TIMBER MAT		0.09								
TOTALS:			<0.01	0.09		0.02		0.09	0.14			

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Onslow County
Project: B-4214 (Bridge #24)

SHEET 11/3/2008

Permit Drawing Sheet 3 of 19

Permit Drawing Sheet of

PROPERTY OWNERS

NAMES AND ADDRESSES

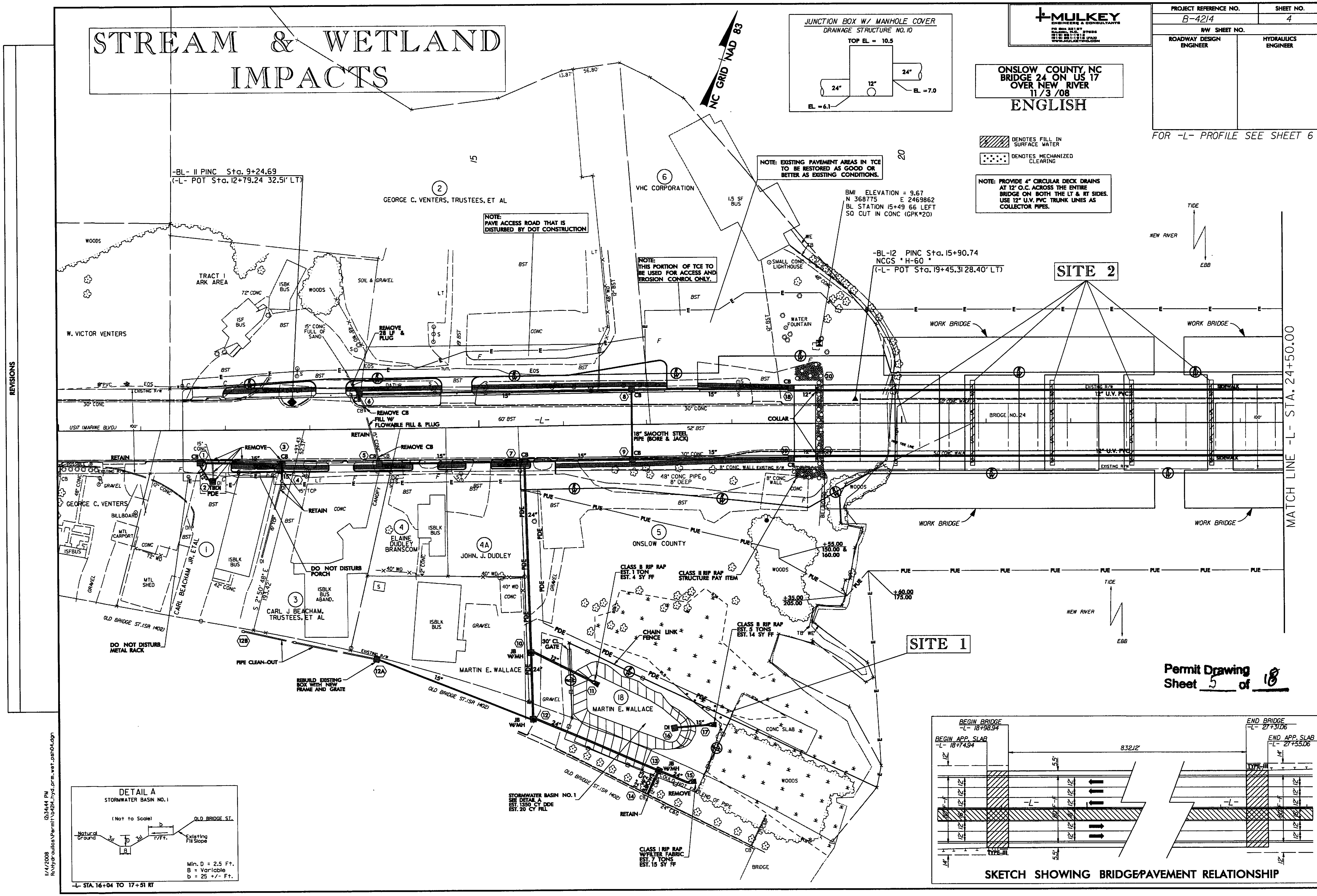
	NAMES	ADDRESSES
5	Onslow County	118 Old Bridge St. Jacksonville, NC 28540
6	VHC Corporation	PO Box 335 Richlands,NC 28574
7	Keith E. Fountain	145 Aldersgate Drive Jacksonville, NC 28540
8	Popkins Brothers Ent. Inc.	625 New Bridge St. Jacksonville, NC 28540
10	City Of Jacksonville	P.O. Box 128 Jacksonville, NC 28540
17	Harvey Boney	P.O. Box 141 Jacksonville, NC 28540
18	Martin E. Wallace	1659 Pony Farm Road Jacksonville, NC 28540

NCDOT

DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: B-4214 (BRIDGE #24)
BRIDGE NO. 24 OVER
NEW RIVER
ON US 17 BUS.
(MARINE BLVD.)

SHEET OF

Permit Drawing 3/2008
Sheet 4 of 18



STREAM & WETLAND IMPACTS
MULKEY ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO. B-4214
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ONSLOW COUNTY, NC
BRIDGE 24 ON US 17
OVER NEW RIVER
11/3/08
ENGLISH
FOR -L- PROFILE SEE SHEET 6
JUNCTION BOX W/ MANHOLE COVER
DRAINAGE STRUCTURE NO. 10
TOP EL = 10.5
EL = 7.0
EL = 6.1
NC GRID NAD 83
DENOTES FILL IN SURFACE WATER
DENOTES MECHANIZED CLEARING
NOTE: EXISTING PAVEMENT AREAS IN TCE TO BE RESTORED AS GOOD OR BETTER AS EXISTING CONDITIONS.
NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12' O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.
NOTE: PAVE ACCESS ROAD THAT IS DISTURBED BY DOT CONSTRUCTION
NOTE: THIS PORTION OF TCE TO BE USED FOR ACCESS AND EROSION CONTROL ONLY.
-BL- 11 PINC Sta. 9+24.69
(-L- POT Sta. 12+79.24 32.51' LT)
-BL-12 PINC Sta. 15+90.74
NCGS "H-60"
(-L- POT Sta. 19+45.31 28.40' LT)
BMI ELEVATION = 9.67
N 368775 E 2469862
BL STATION 15+49 66 LEFT
SQ CUT IN CONC (GPK#20)
GEORGE C. VENTERS, TRUSTEES, ET AL
VHC CORPORATION
W. VICTOR VENTERS
GEORGE C. VENTERS
CARL BEACHAM JR, ET AL
CARL J BEACHAM, TRUSTEES, ET AL
ELAINE DUDLEY BRANSCOM
JOHN J. DUDLEY
ONSLOW COUNTY
MARTIN E. WALLACE
SITE 1
SITE 2
WORK BRIDGE
BRIDGE NO. 24
NEW RIVER
TIDE
EBB
MATCH LINE -L- STA. 24+50.00
US17 (MARINE BLVD)
OLD BRIDGE ST. (SR 1402)
18" SMOOTH STEEL PIPE (BORE & JACK)
REMOVE 28 LF & PLUG
REMOVE CB FILL W/ FLOWABLE FILL & PLUG
DO NOT DISTURB PORCH
DO NOT DISTURB METAL RACK
PIPE CLEAN-OUT
REBUILD EXISTING BOX WITH NEW FRAME AND GRATE
CLASS B RIP RAP EST. 1 TON EST. 4 SY FF
CLASS II RIP RAP STRUCTURE PAY ITEM
CLASS B RIP RAP EST. 5 TONS EST. 14 SY FF
CLASS I RIP RAP W/FILTER FABRIC EST. 7 TONS EST. 15 SY FF
STORMWATER BASIN NO. 1 SEE DETAIL A EST. 1350 CY DDE EST. 20 CY FILL
CHAIN LINK FENCE
30' CL GATE
END OF PIPE
DETAIL A
STORMWATER BASIN NO. 1
(Not to Scale)
OLD BRIDGE ST.
Natural Ground
Existing Fill Slope
Min. D = 2.5 Ft.
B = Variable
b = 25 +/- Ft.
-L- STA. 16+04 TO 17+51 RT
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
BEGIN BRIDGE -L- 18+98.94
BEGIN APP. SLAB -L- 18+74.94
END BRIDGE -L- 27+31.06
END APP. SLAB -L- 27+55.06
832.12'
Permit Drawing Sheet 5 of 18
REVISIONS
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STREAM & WETLAND IMPACTS

MULKEY ENGINEERS & CONSULTANTS
PO BOX 32187
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1915 (FAX)
WWW.MULKEYINC.COM

PROJECT REFERENCE NO.	SHEET NO.
B-4214	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSLOW COUNTY, NC
BRIDGE 24 ON US 17
OVER NEW RIVER
11/3/08

ENGLISH

FOR -L- PROFILE SEE SHEET 6

NC GRID NAD 83

JUNCTION BOX MANHOLE COVER
(TRANSPORTATION NO. 8)
TOP EL. = 10.5
24"
12"
24"
EL. = 7.0
EL. = 6.1

DENOTES FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

NOTE: EXISTING PAVEMENT AREAS IN TCE TO BE RESTORED AS GOOD OR BETTER AS EXISTING CONDITIONS.

NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12' O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.

BM ELEVATION = 9.67
N 368775 E 2469862
BL STATION 15+49.66 LEFT
SQ CUT IN CONC (GPK*20)

-BL- 11 PINC Sta. 9+24.69
(-L- POT Sta. 12+79.24 32.51' LT)

-BL-12 PINC Sta. 15+90.74
NCGS "H-60"
(-L- POT Sta. 19+45.31 28.40' LT)

TIDE
NEW RIVER
EBB

SITE 2

SITE 1

MATCH LINE -L- STA. 24+50.00

Permit Drawing
Sheet 6 of 18

DETAIL A
STORMWATER BASIN NO. 1
(Not to Scale)
Natural Ground
3:1
D
3:1
b
B
17'Ft.
OLD BRIDGE ST.
Existing Fill Slope
Min. D = 2.5 Ft.
B = Variable
b = 25 +/- Ft.

-L- STA. 16+04 TO 17+51 RT

BEGIN BRIDGE
-L- 18+98.94
BEGIN APP. SLAB
-L- 18+74.94
832.12'
END BRIDGE
-L- 27+31.06
END APP. SLAB
-L- 27+55.06
TYPE III
TYPE III

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

REVISIONS

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(919) 851-1912
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PROJECT REFERENCE NO.	SHEET NO.
B-4214	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

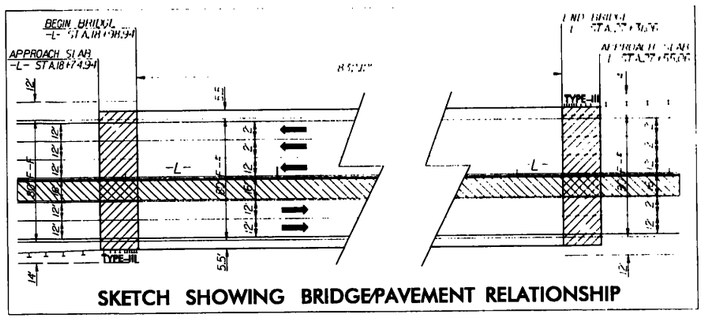
NC GRID NAD 83

ONSLOW COUNTY, NC
BRIDGE 24 ON US 17
OVER NEW RIVER
11/3/08

ENGLISH

STREAM & WETLAND IMPACTS

FOR -L- PROFILE SEE SHEET 6



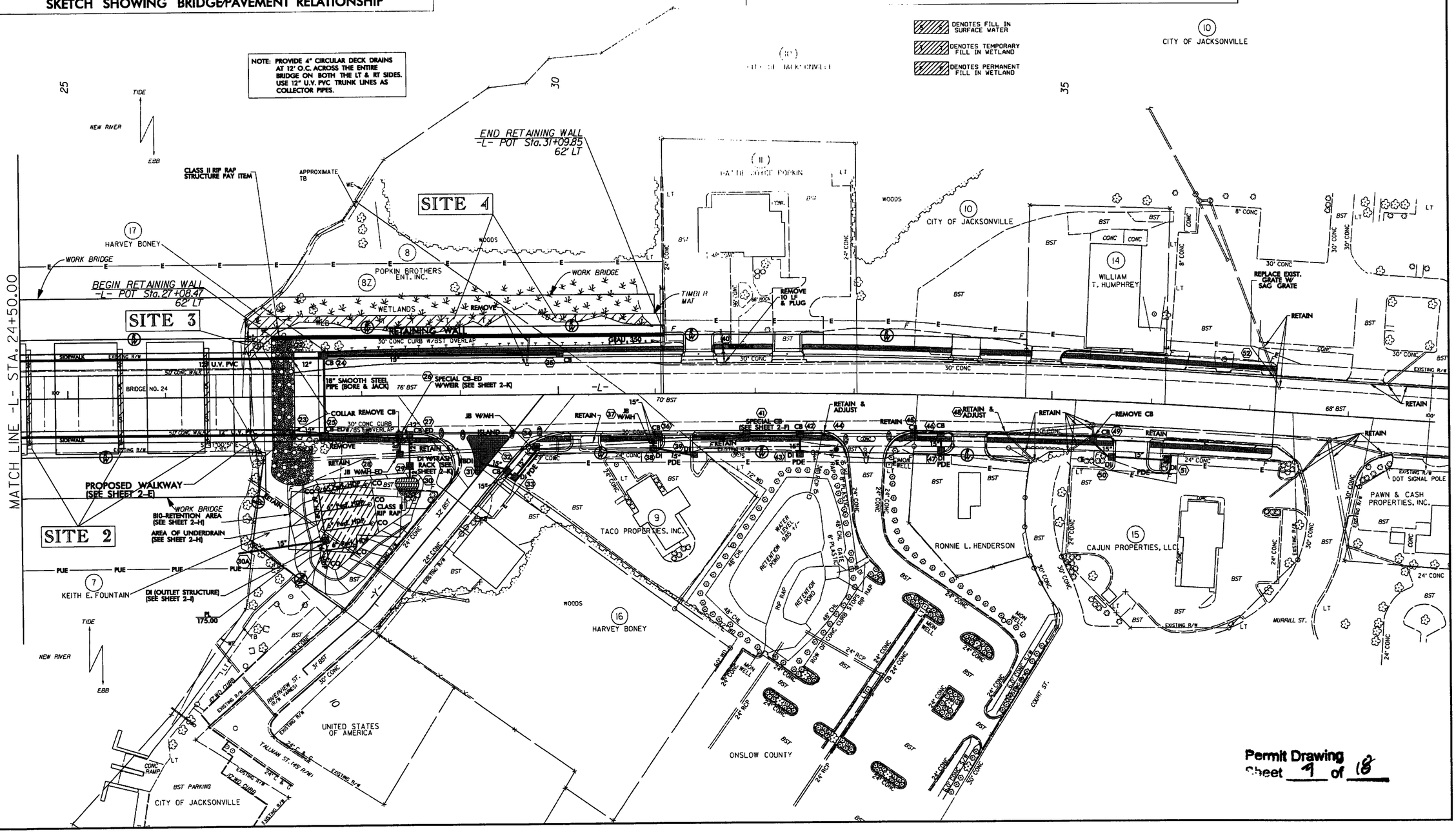
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12' O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY FILL IN WETLAND

DENOTES PERMANENT FILL IN WETLAND



Permit Drawing
Sheet 9 of 18

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
B-4214	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

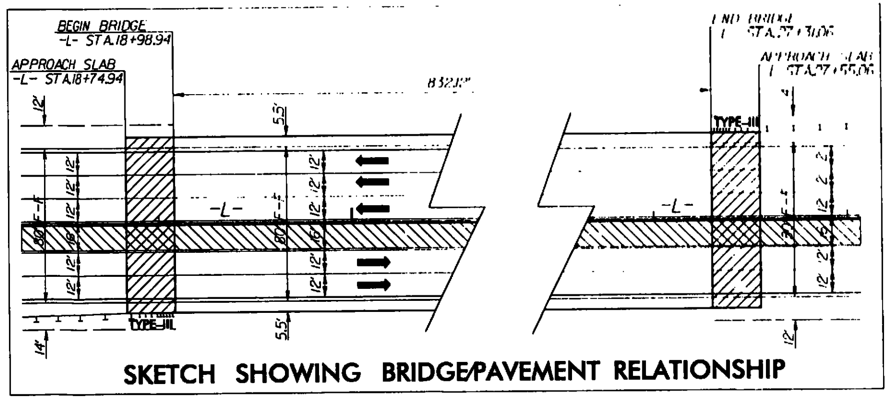
MULKEY ENGINEERS & CONSULTANTS

ONSLOW COUNTY, NC
BRIDGE 24 ON US 17
OVER NEW RIVER
11/3/08

ENGLISH

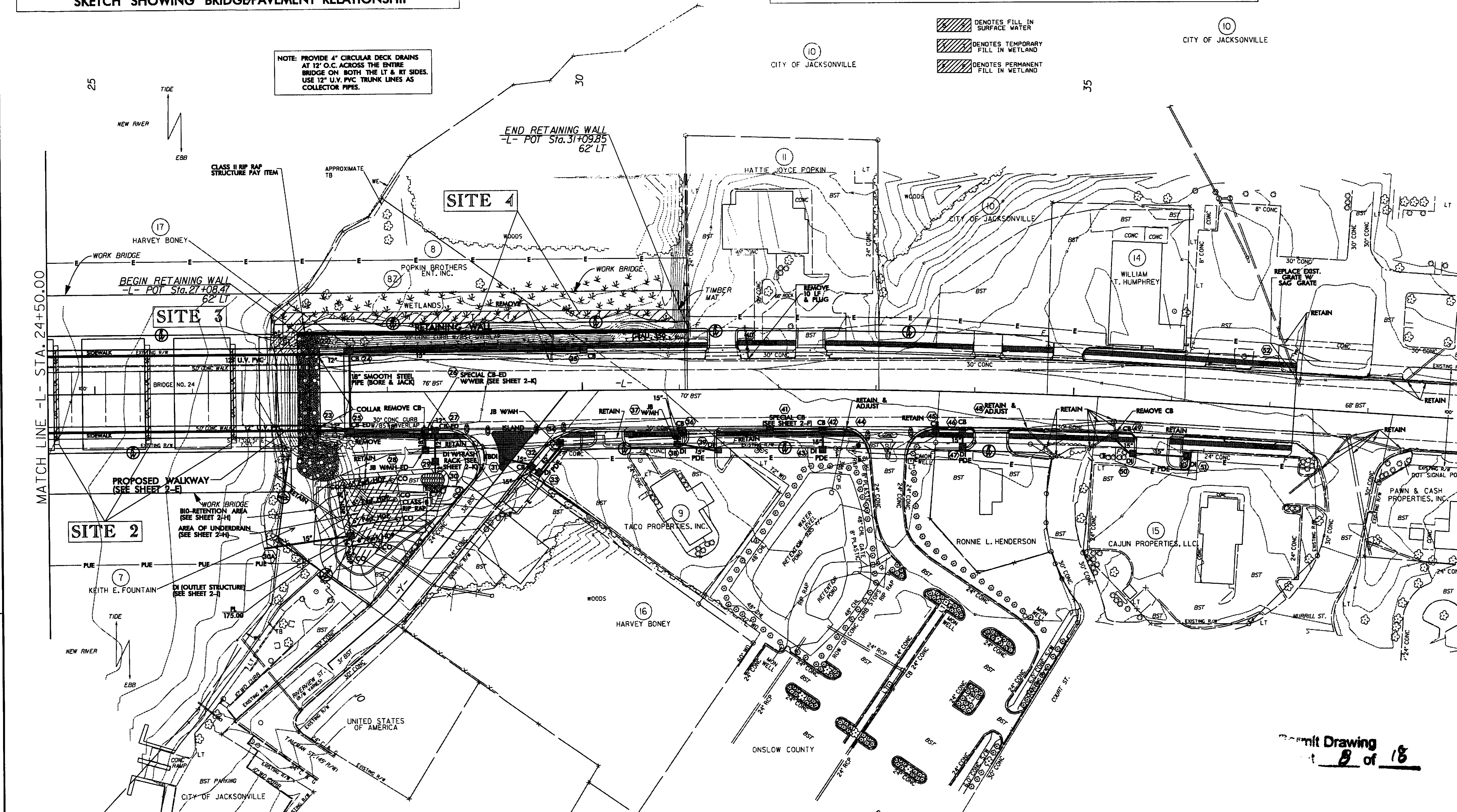
STREAM & WETLAND IMPACTS

FOR -L- PROFILE SEE SHEET 6



NOTE: PROVIDE 4" CIRCULAR DECK DRAINS AT 12' O.C. ACROSS THE ENTIRE BRIDGE ON BOTH THE LT & RT SIDES. USE 12" U.V. PVC TRUNK LINES AS COLLECTOR PIPES.

DENOTES FILL IN SURFACE WATER
DENOTES TEMPORARY FILL IN WETLAND
DENOTES PERMANENT FILL IN WETLAND



NC GRID NAD 83
CITY OF JACKSONVILLE
END RETAINING WALL
-L- POT Sta.31+09.85
62' LT
BEGIN RETAINING WALL
-L- POT Sta.27+08.47
62' LT
SITE 4
SITE 3
SITE 2
HARVEY BONEY
POPKIN BROTHERS ENT. INC.
HATTIE JOYCE POPKIN
WILLIAM T. HUMPHREY
WETLANDS
RETAINING WALL
WORK BRIDGE
BRIDGE NO. 24
MATCH LINE -L- STA. 24+50.00
PROPOSED WALKWAY (SEE SHEET 2-E)
BIO-RETENTION AREA (SEE SHEET 2-H)
AREA OF UNDERDRAIN (SEE SHEET 2-H)
DI (OUTLET STRUCTURE) (SEE SHEET 2-I)
KEITH E. FOUNTAIN
TACO PROPERTIES, INC.
RONNIE L. HENDERSON
CAJUN PROPERTIES, LLC
PAWN & CASH PROPERTIES, INC.
UNITED STATES OF AMERICA
ONSLOW COUNTY
NEW RIVER
TIDE
EBB

Permit Drawing
Sheet 8 of 18

REVISIONS

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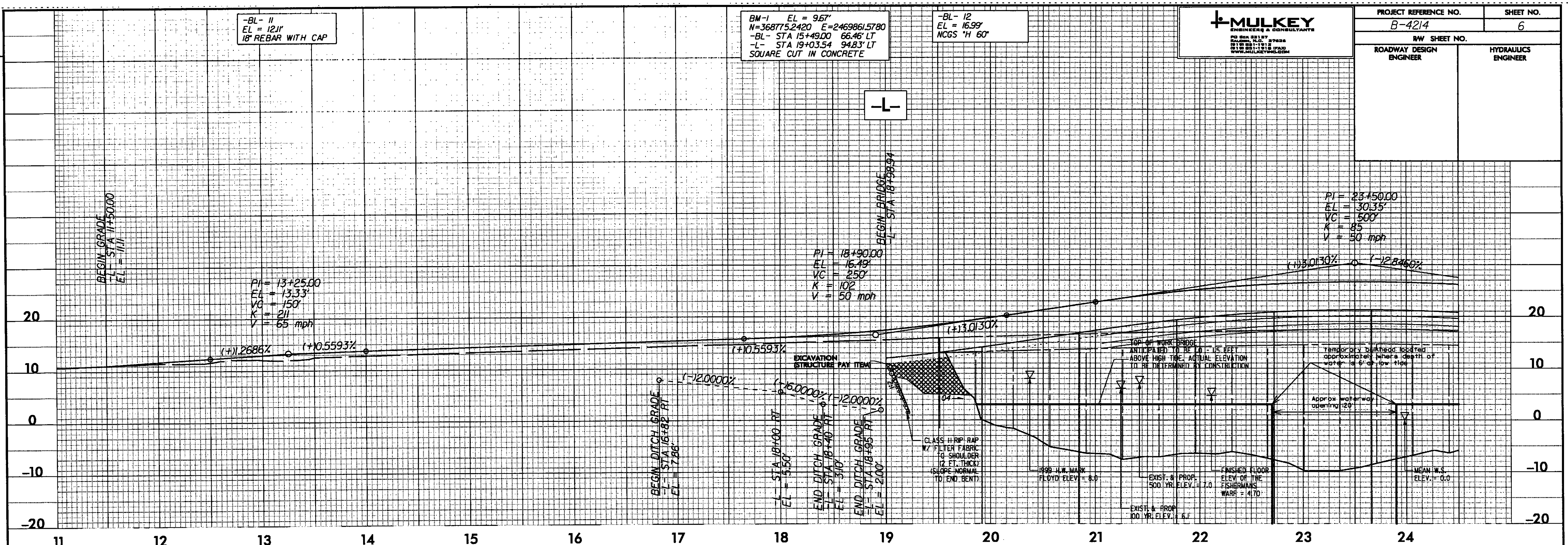
PROJECT REFERENCE NO.	SHEET NO.
B-4214	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

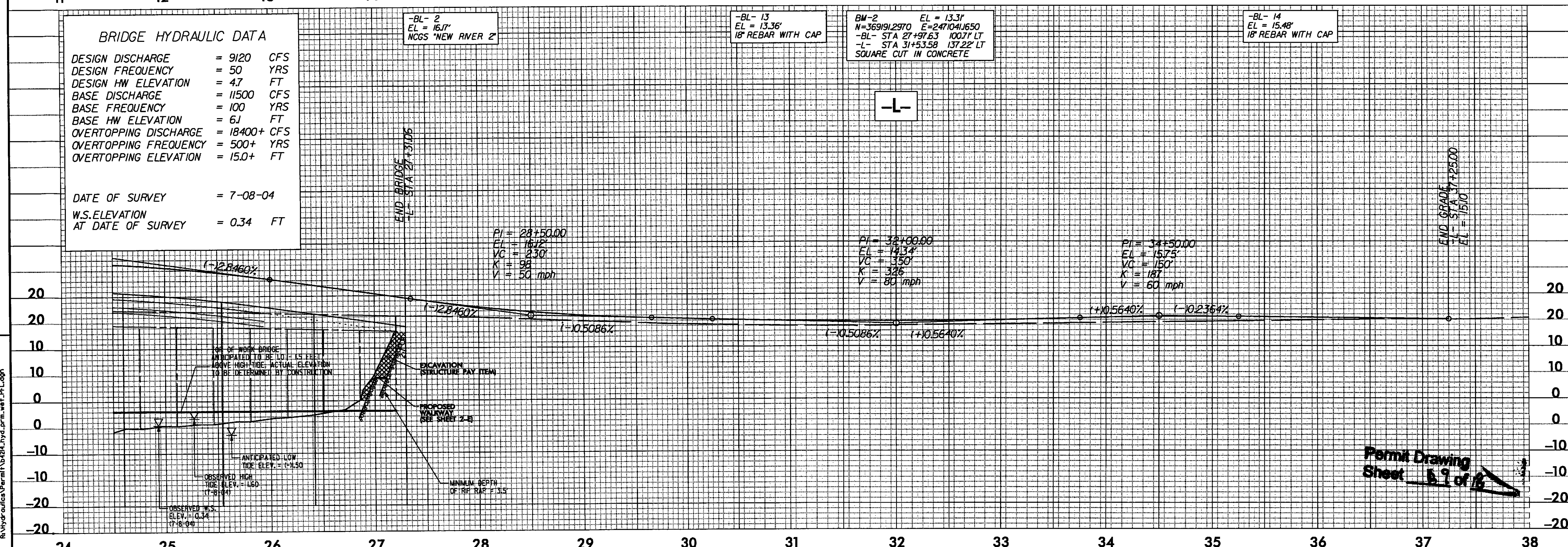
MULKEY ENGINEERS & CONSULTANTS

REVISIONS



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	9120	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	4.7	FT
BASE DISCHARGE	=	11500	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	6.1	FT
OVERTOPPING DISCHARGE	=	18400+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	15.0+	FT
DATE OF SURVEY	=	7-08-04	
W.S. ELEVATION AT DATE OF SURVEY	=	0.34	FT



Permit Drawing Sheet 9 of 18

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(919) 851-1912 (FAX)
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PROJECT REFERENCE NO.	SHEET NO.
B-4214	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

-Y-

BEGIN GRADE
-Y- STA 12+35.00
EL = 9.27'

END GRADE
-Y- STA 13+25.26
EL = 14.65'

(+)6.38147%

+14.50657%

PI = 13+05.00
EL = 13.74'
VC = 40'
K = 21
V = 30 mph

20
10
0
-10
-20

10 11 12 13

Permit Drawing
Sheet 10 of 18

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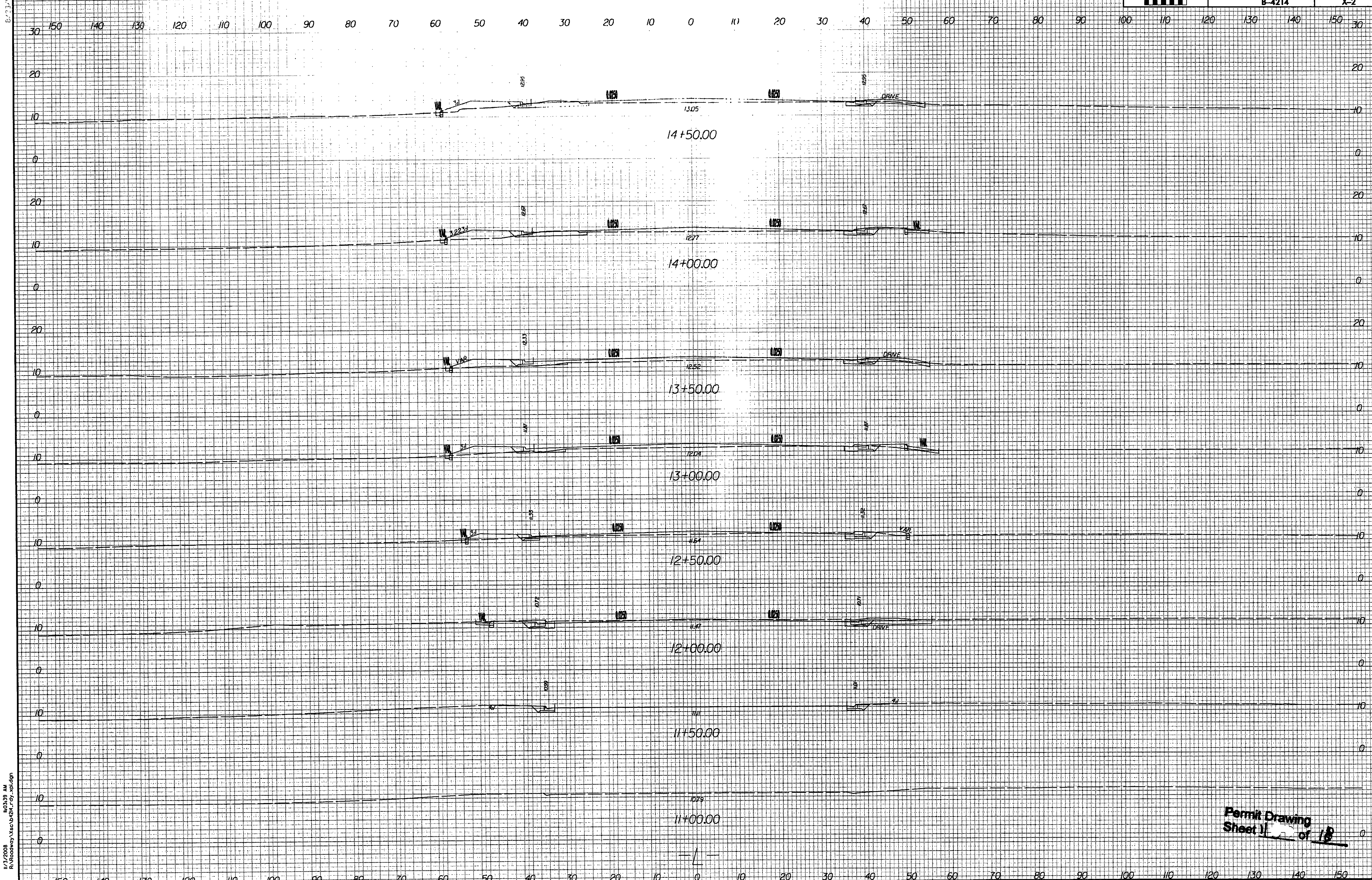

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	B-4214	X-3

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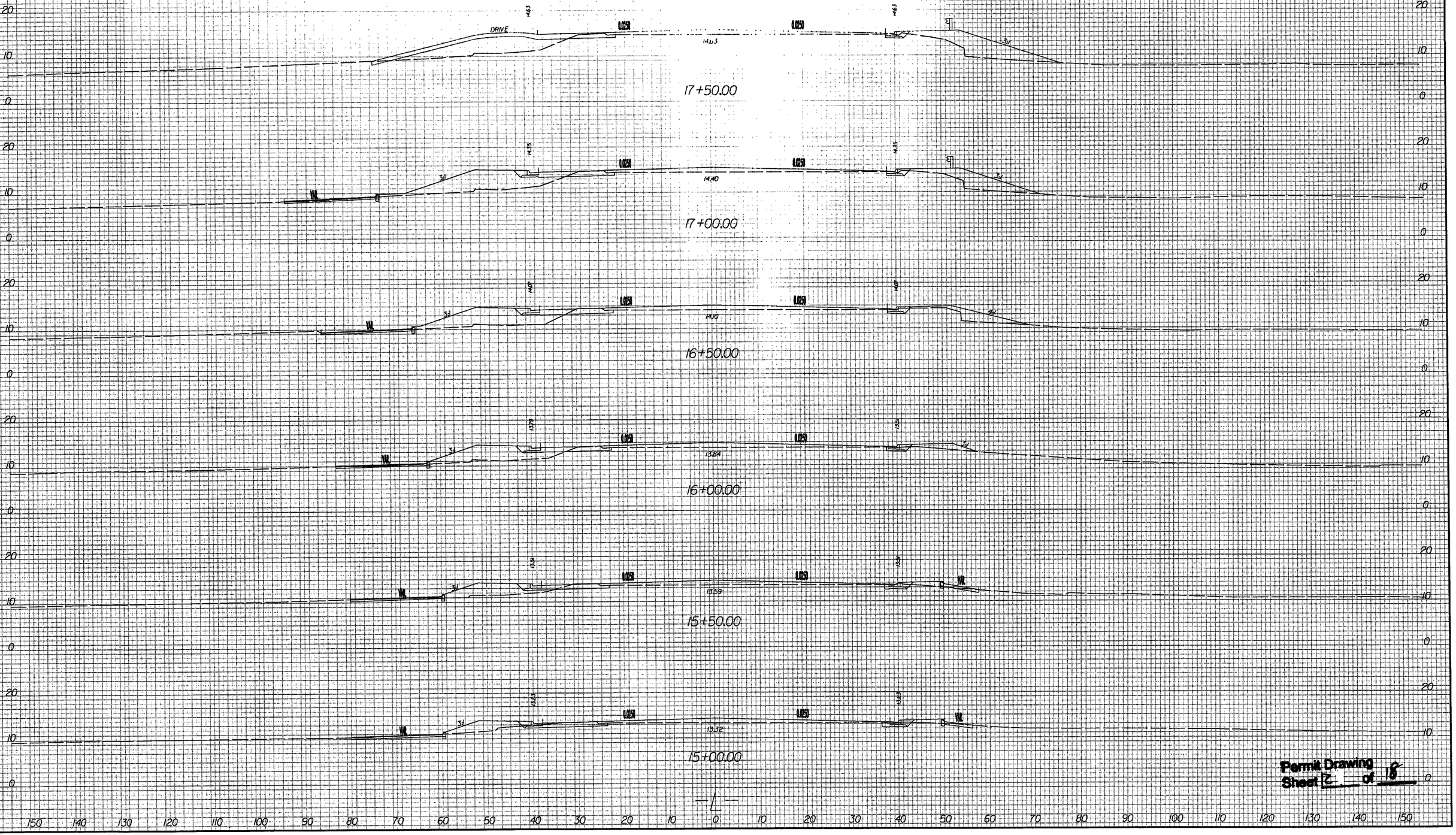
30 20 10 0 20 10 0 20 10 0 20 10 0



Permit Drawing
Sheet 12 of 18

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-4

EXCAVATION (STRUCTURE PAY ITEM)

20+00.00

19+50.00

19+00.00

BEGIN BRIDGE STA. 18+98.94

18+50.00

18+00.00

Permit Drawing Sheet 13 of 16

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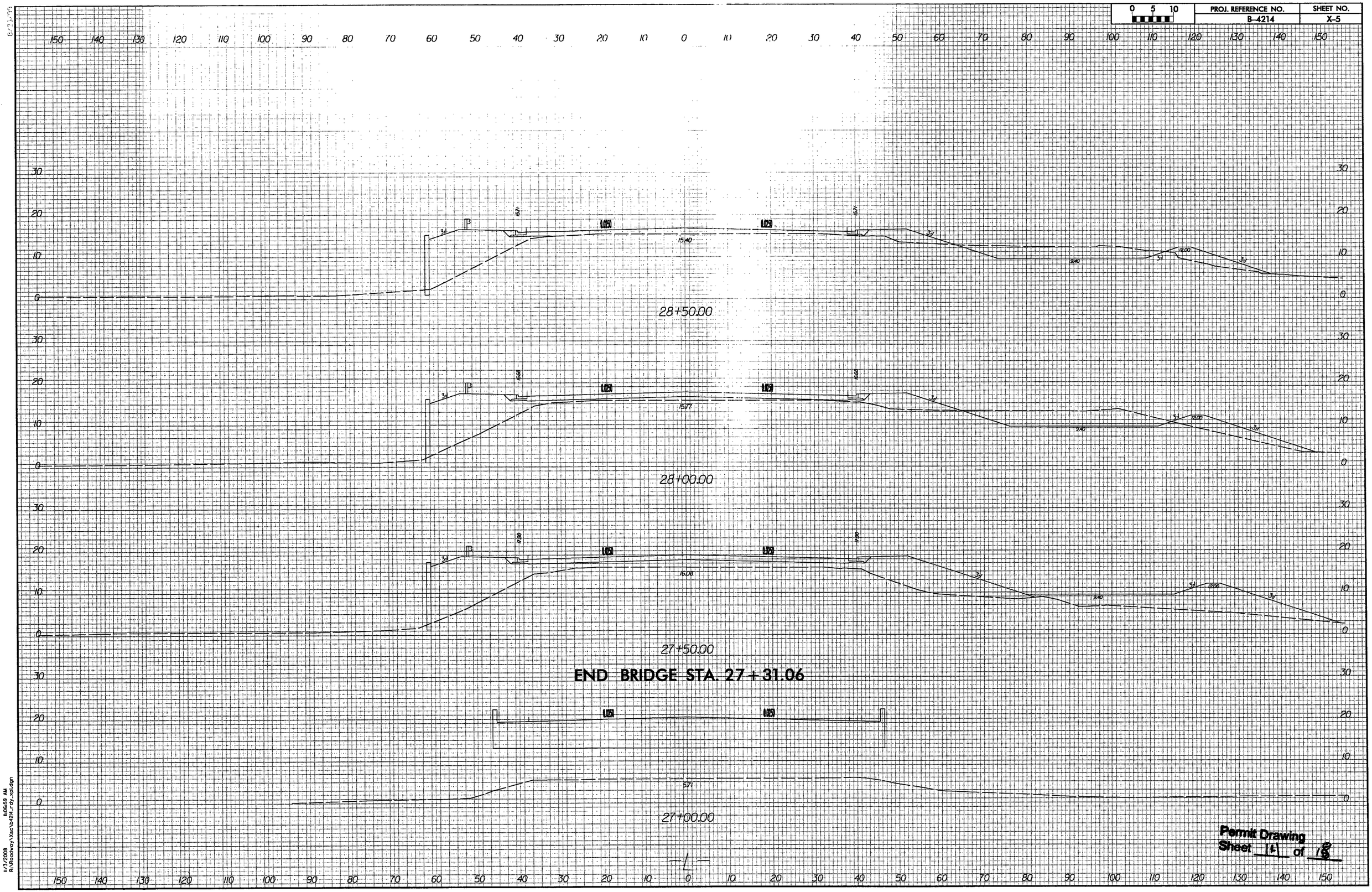
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-5



Permit Drawing
Sheet 14 of 18

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-6

31+00.00

30+50.00

30+00.00

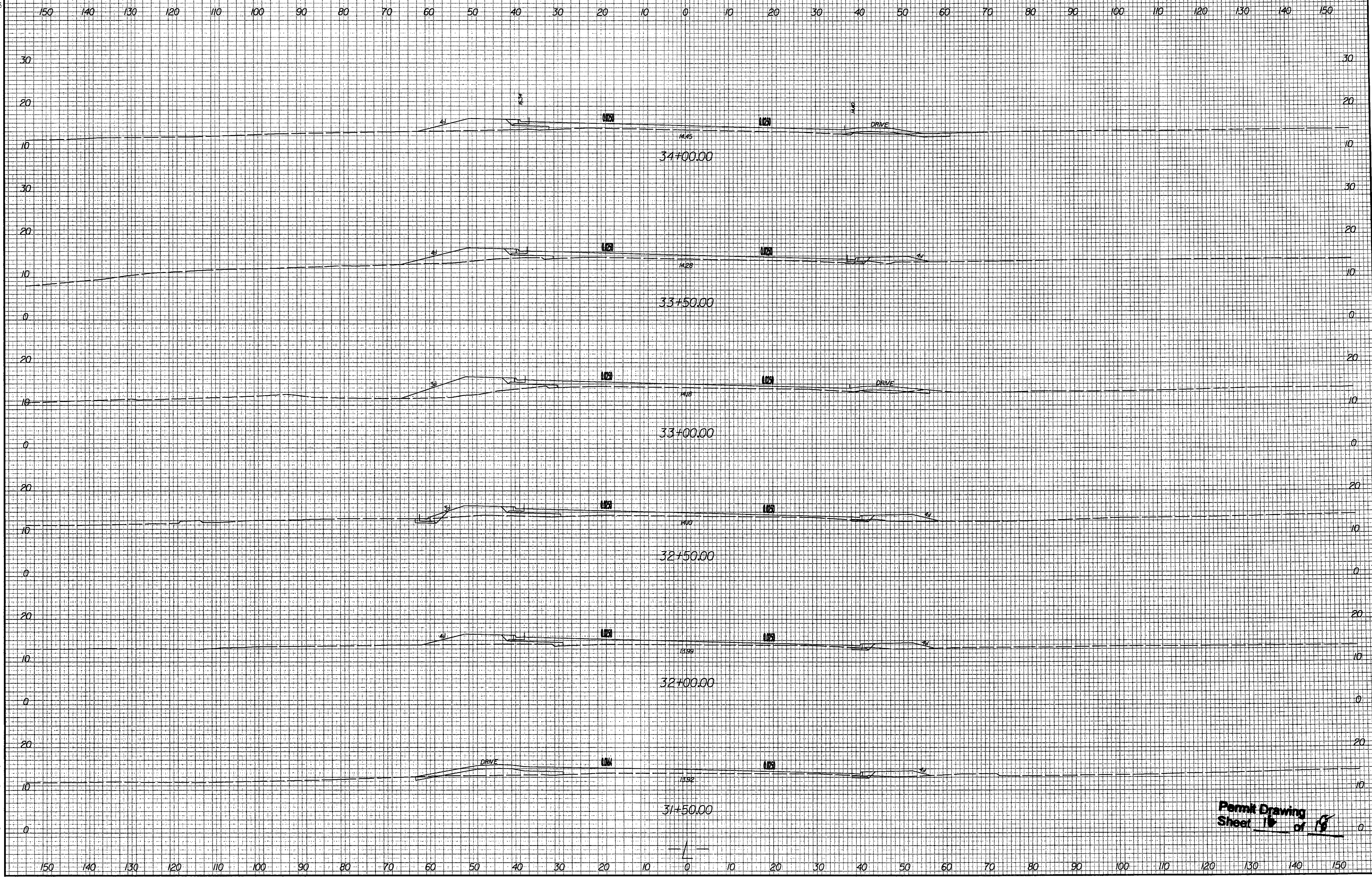
29+50.00

29+00.00

Permit Drawing
Sheet 12 of 18

11/3/2008
N:\Roadway\Xsec\B4214_rdy_xpl.dgn

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-7



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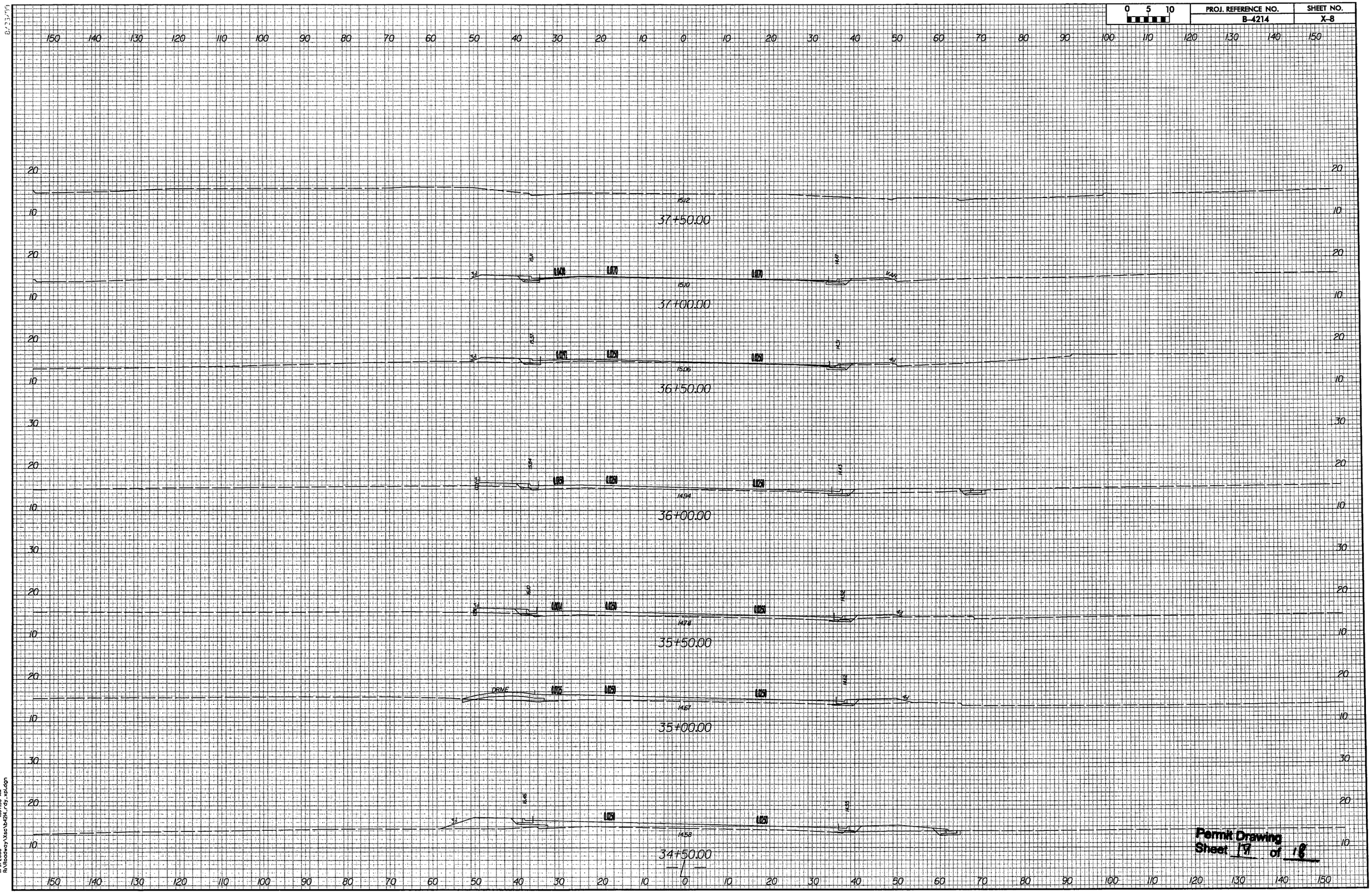
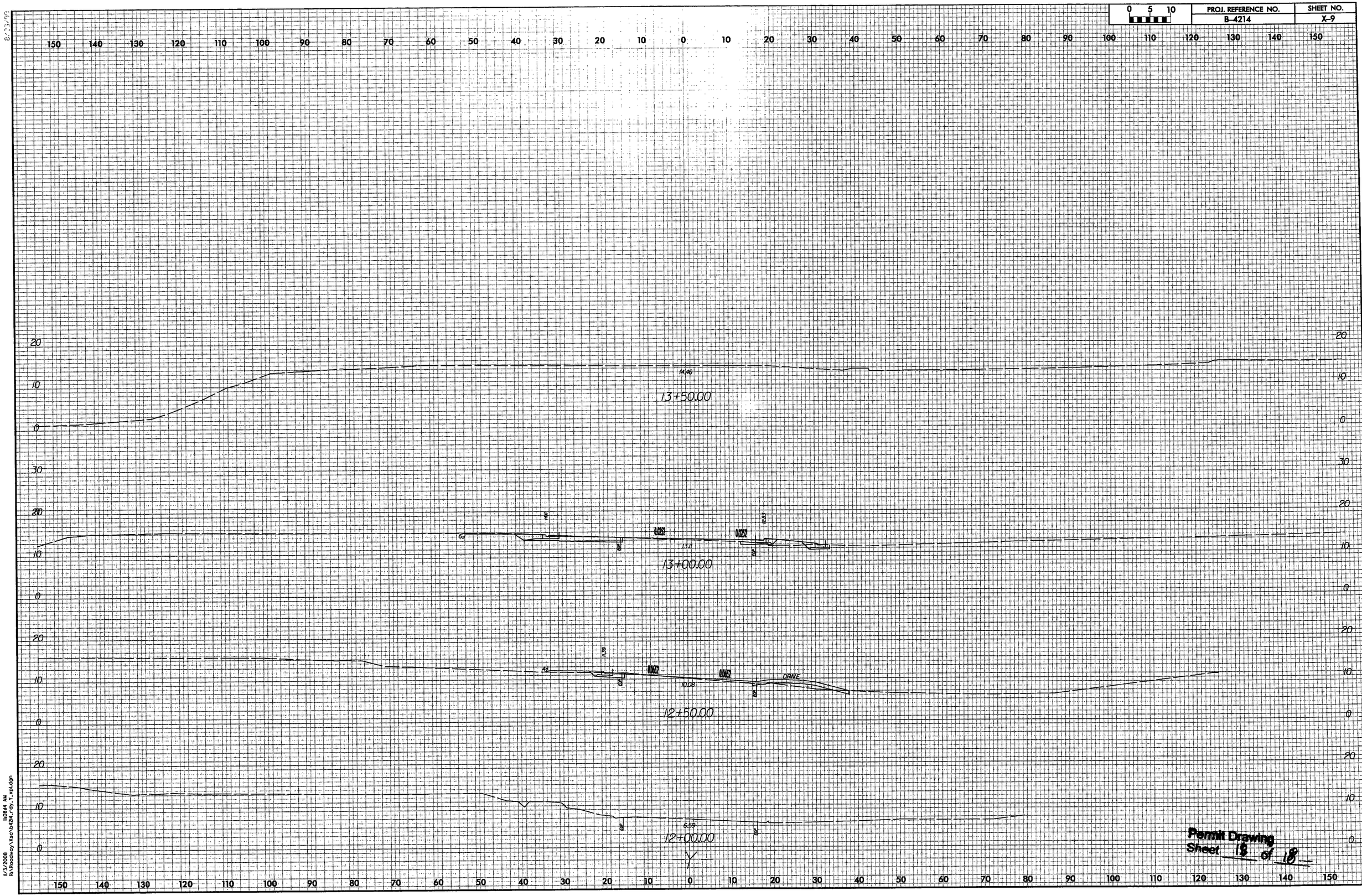
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-8



Permit Drawing
Sheet 19 of 19

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4214	X-9



Permit Drawing
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