STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 31, 2004

US Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

ATTENTION: Mr. John Thomas
NCDOT Coordinator

Dear Mr. Thomas:

Subject: **Nationwide 23 and 33 applications,** for the replacement of Bridge No. 13 over Yadkin River, Yadkin Valley Railroad and NC 268 on I-77, Yadkin and Surry County. Federal Aid Project No. IMS-77-1(141)83, State Project No. 8.174101, Division 11, TIP Project No. I-4025A, WBS Element 34209.1.1.

Please find enclosed three copies of the PCE and NRTR, PCN Form, permit drawings, and ½ size plan sheets for the above referenced project. The document states that Bridge No. 13 will be replaced with a new 760-foot long bridge with a clear deck width of 72 foot on the existing alignment. Traffic will be maintained on site with the use of staged construction methods. There are no permanent impacts to Waters of the U.S. associated with this project. The only surface water impacted by this project is the Yadkin River. All impacts will be temporary consisting of 0.45 ac of temporary fill in surface waters. The Yadkin River is classified by the Division of Water Quality as Class C.

Bridge Demolition: The superstructure of Bridge No. 14 is composed of a reinforced concrete floor on I-beams. The substructure consists of reinforced concrete caps on concrete piles. Approximately 185 feet of the bridge is over water and bents 3, 4, and 5 are located in the stream. NCDOT is committed to avoid dropping bridge demolition debris into waters of the United States. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters and BMP's for Bridge Demolition and Removal.

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

Temporary Causeways

There will be 149 feet of temporary impacts to the Yadkin River from the construction of two rock causeways in 0.45 acres of the Yadkin River (see permit drawing Sheets 4 and 9 of 9). The causeways will consist of Class I riprap topped with a layer of Class A stone. Temporary rock causeway will be required to remove the existing interior bents from the existing bridge and to place the new bents. The contractor will be allowed to determine if the northern causeway or the southern causeway will be constructed first. The first causeway will be removed prior to construction of the second causeway.

Restoration Plan: No permanent fill will result from the subject activity. The materials used as temporary fill in the construction of the causeways will be removed. The temporary fill areas will be graded back to the original contours. Elevations and contours in the vicinity of the proposed causeways are available from the field survey notes.

Schedule for Restoration of Temporary Fill Area: It is assumed that the Contractor will begin construction of the proposed causeways shortly after the date of availability for the project. The Let date is October 19, 2004 with a date of availability of November 30, 2004.

Removal and Disposal: The causeways will be removed within 90 days of the placement of the interior bents. The temporary rock causeways will be removed by the Contractor using excavating equipment. All materials placed in the stream by the Contractor will be removed. All other materials removed by the Contractor will be disposed of at an off site upland location.

Avoidance, Minimization, and Mitigation

The NCDOT is commited to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts, and to provide full compensatory mitigation of all remaining wetland impacts. Avoidance and minimization measures were taken during the planning and NEPA phases; minimization measures were incorporated as part of the project design and include:

- Temporary rock causeways will not be in the Yadkin River simultaneously.
- In order to avoid crossing Fall Creek with construction equipment, the height of the existing retaining wall west of the road will be increased. This will allow enough room for equipment between the stream and the road.

Because all jurisdictional impacts are temporary no mitigation is proposed.

Federally-Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists two federally protected species for Surry County, Schweinitz's sunflower and small whorled pagonia, and no species for Yadkin County.

Biological conclusions of "May effect, not likely to adversely effect" were reached for all listed species as reflected in the attached CE dated March 2004. NCDOT received concurrence from the USFWS for Schweinitz's sunflower on February 19, 2004. An updated survey for small whorled pogonia will be conducted prior to the Let Date to ensure that the original Biological Conclusion remains valid. If applicable, concurrence will be requested from the USFWS after surveys are conducted.

Regulatory Approvals

Section 404 Permit: It is anticipated that the construction of the causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications numbers 3361 and 3366 will apply to this project. All general conditions of the WQCs will be met. Therefore, in accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

If you have any questions or need additional information, please contact Brett Feulner at (919) 715-1488.

Sincerely,

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

w/ attachment:
Mr. John Hennessy, NC Division of Water Quality (2 copies)
Mr. Marla Chambers, NCWRC
Mr. Marella Buncick, USFWS
Mr. Greg Perfetti, P.E., Structure Design

w/o attachment
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, PE, Highway Design
Ms. Mark Staley, Roadside Env.
Mr. Heath Slaughter, DEO
Mr. David Chang, P.E., Hydraulics
Ms. Missy Dickens, PDEA
Mr. Michael Pettyjohn, P.E., Division 11 Engineer

Office Use Only: Form Version May 2002

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

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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: NCDOT
   Mailing Address: Project Development and Environmental Analysis
   1548 Mail Service Center
   Raleigh, NC 27966-1548

   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: gthorpe@dot.state.nc.us

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: Replacement of Bridge 14 over Yadkin River, Yadkin Valley Railroad and NC 268

2. T.I.P. Project Number or State Project Number (NCDOT Only): I-4025A

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Yadkin/ Surry Nearest Town: Jonesville
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): The site is located on I-77 on the Yadkin/Surry County Line.

5. Site coordinates, if available (UTM or Lat/Long): 17 516059E 4011727N
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

5. Property size (acres): _____

6. Nearest body of water (stream/river/sound/ocean/lake): Yadkin River

7. River Basin: Yadkin River
   (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/.)

8. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The area surronding the bridge is forestland.

9. Describe the overall project in detail, including the type of equipment to be used: Plans for replacing the bridge include replacing the current bridge in the same location. Equipment used will include regular equipment utilized on bridge replacement projects.

10. Explain the purpose of the proposed work: The purpose is to replace the old bridge that is functionally obsolete and structurally deficient.

IV. Prior Project History

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

N/A

V. Future Project Plans

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

N/A

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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: The proposed project will temporary fill .49 acres of Yadkin River. The fill is composed of Class I Riprap and is necessary to facilitate the removal of the interior bents from the existing bridge and place the new bents.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***

* List each impact separately and identify temporary impacts. 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.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property:_____
Total area of wetland impact proposed:___

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Temporary fill in surface waters	149 ft	Yadkin River	75 ft	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, 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.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 149 ft (temporary)

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

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

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____
   _____
   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
   _____
   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.
The No-Build or "do nothing" alternative was considered but would eventually necessitate closure of the bridge. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices for the Protection of Surface Waters and BMP's for Bridge Demolition and Removal
_____

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 March 9, 2000, 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 NCWRP 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.
   N/A

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

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

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

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 ☐

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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

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

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both 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.

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.

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 ☒

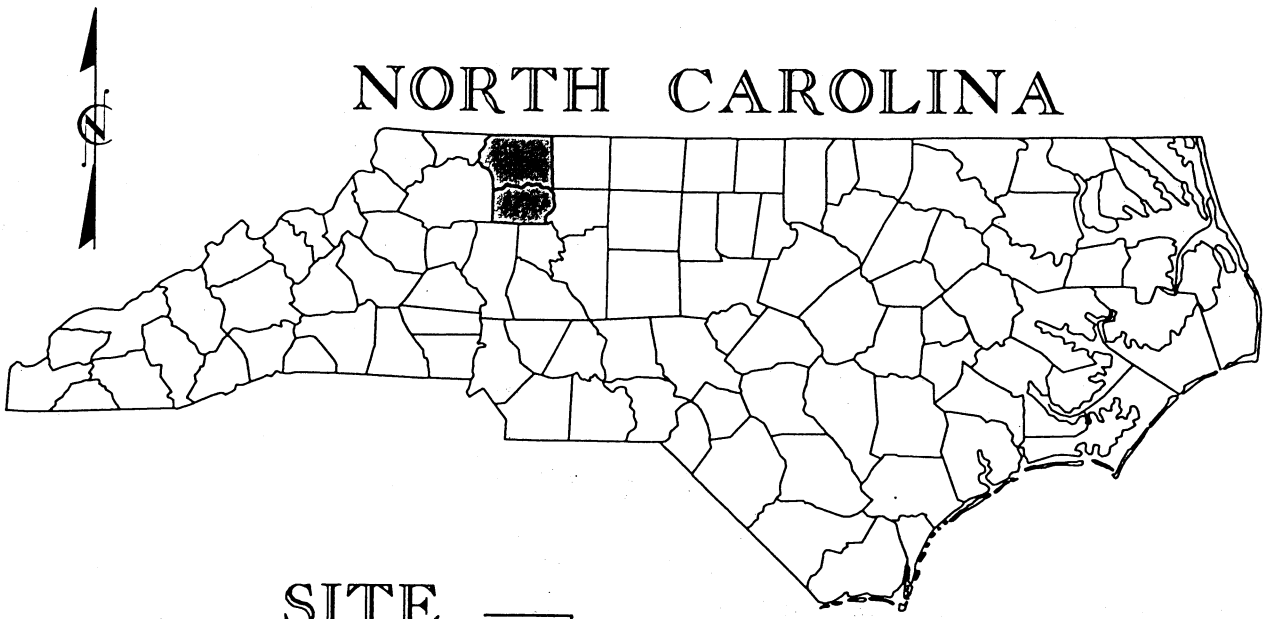
XIV. Other Circumstances (Optional):

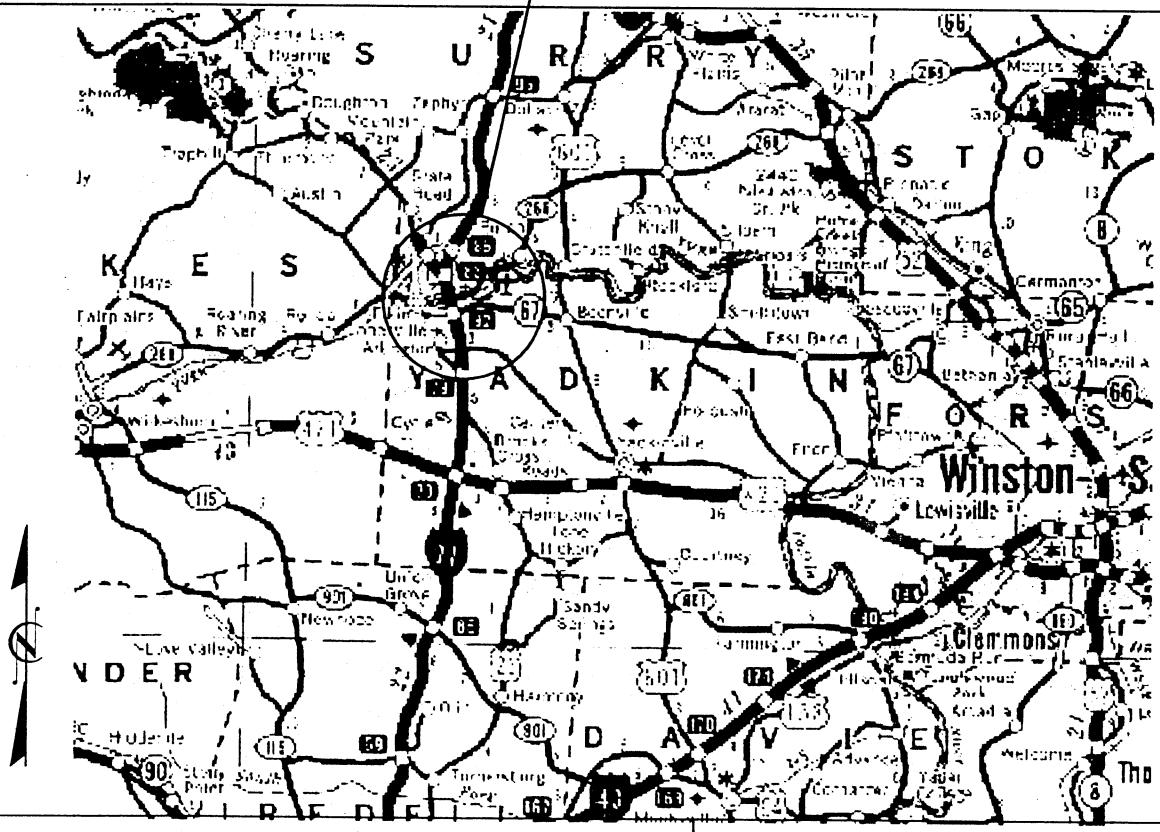
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

5/21/04

Applicant/Agent's Signature **Date**

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





VICINITY MAP

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

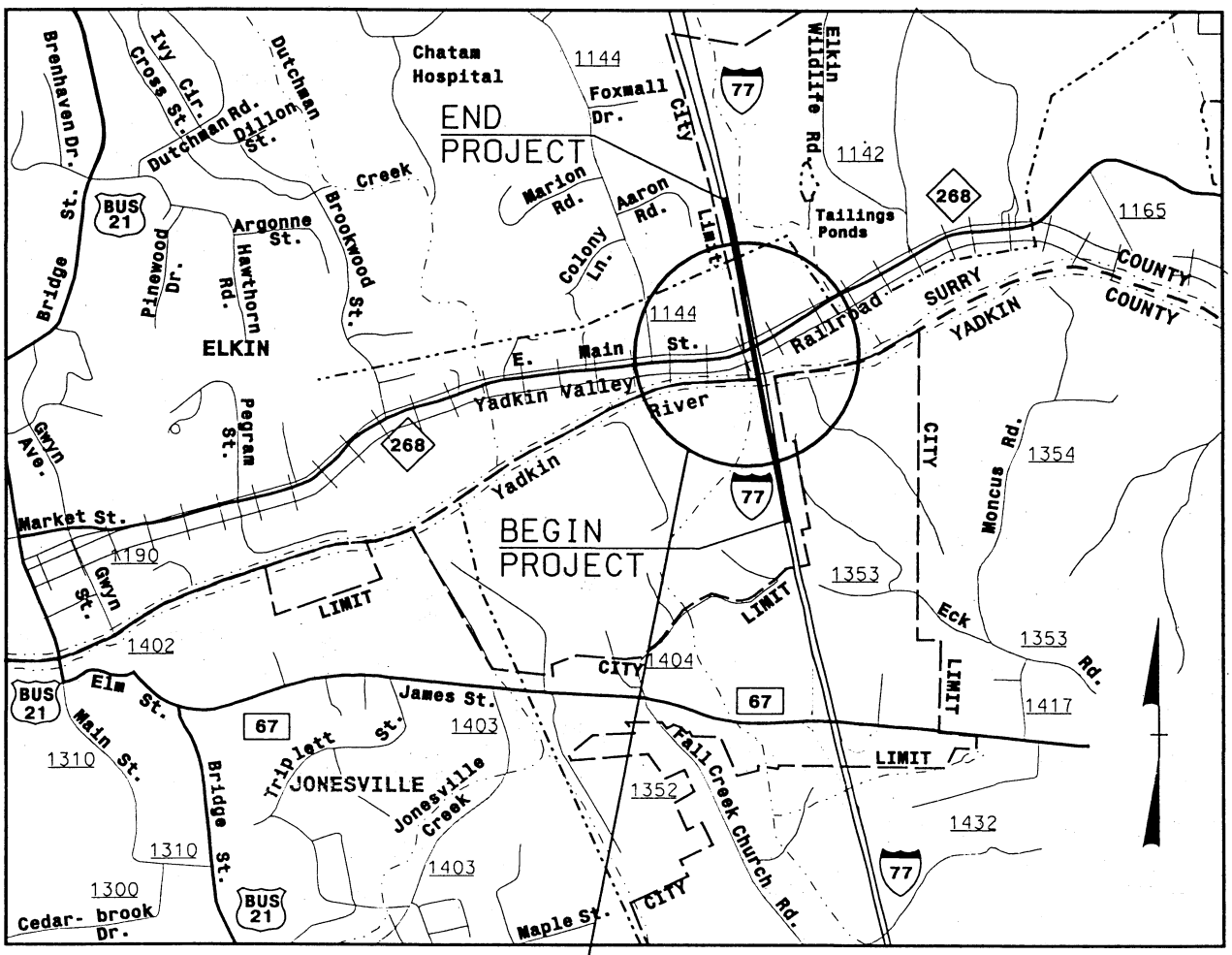
BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

NOT TO SCALE

DATE: 04-28-04

SHEET 1 OF 9

SITE MAP



N

SITE

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

NOT TO SCALE

DATE: 04-28-04

SHEET 2 OF 9

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WETLAND LEGEND

WLB — WETLAND BOUNDARY

WLB / WLB — WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT
12"-48" PIPES
54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER (IF AVAILABLE)

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

NOT TO SCALE

DATE: 04-28-04

SHEET 3 OF 9

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-4025A	1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83 / NC GRID

I-4025 -BL- 43 POT 5+00.00

-MATCHLINE- STA. 23+00 SEE SHEET NO. 4

-MATCHLINE- STA. 36+50 SEE SHEET NO. 6

25+00

30+00

35+00

(1) ROBERT MAYBERRY

(2) WILLIAM T. MARSH

YADKIN COUNTY / SURRY COUNTY

PROPERTY LINE = CENTERLINE OF RIVER

100' RAILROAD RIGHT OF WAY

VAUGHN BASSETT FURNITURE DBA ELKIN FURNITURE

BEG C/A AND PROP WW FENCE STA 33+25.07 97.78' LT -SBL- TIE TO EXIST

VARIABLE WIDTH EXISTING RIGHT OF WAY

+45 -SBL- 95.00

+50 -SBL- 95.00

+00 -SBL- 105.64

+50 -SBL- 130

+50 -SBL- 125

GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 84 TONS

TEMPORARY WORK BRIDGE (STAGE 1) ~ 105 LF

REMOVAL OF EXISTING BENT #4

GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 72 TONS

EXISTING R/W

SLOPE STAKE LINE

PROP WW FENCE

INFLOW UNKNOWN

15" CONC

24" CONC

24" CSP FS-2

FS-2 2GI

18" CONC

CPD

MTL GUARD RL & MTL POSTS

18" CSP

2GI

TB2GI

RETAIN

72" CONC

18" SLOPE STAKE LINE

TEMPORARY WORK BRIDGE (STAGE 2) ~ 105 LF

GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 84 TONS

TEMPORARY ROCK CAUSEWAY EST. 2695 TONS CL "1" RIPRAP EST. 325 TONS CL "A" STONE (SOUTH BANK)

TEMPORARY ROCK CAUSEWAY AND (4) 60" CMP @ 56 LF FOR REMOVAL OF EX. BENT #4 EST. 898 TONS CL "1" RIPRAP EST. 99 TONS CL "A" STONE

TEMPORARY ROCK CAUSEWAY EST. 1625 TONS CL "1" RIPRAP EST. 169 TONS CL "A" STONE (NORTH BANK)

GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 72 TONS

I-4025 -BL- 1 PINC 19+24.40 = I-2807A BL-1 5+00.00 -SBL- STA 25+17.56, 61.91' RT.

I-4025 -BL- 44 PINC 9+44.37

I-2807A -BL- 46 POT 25+90.44 = I-4025 -BL268- 9+79.93 (POINT NOT SET) -SBL- STA 31+83.61, 62.09' RT.

I-4025 -BL- 2 PINC 27+14.49 = I-2807A BL-2 12+90.09 -SBL- STA 33+07.65, 62.12' RT.

I-4025 -BL- 45 POT 13+09.42

I-10

LEGEND

TS TS DENOTES SURFACE WATER LOSS

NOTE:

1. BOTH, SOUTH BANK AND NORTH BANK, CAUSEWAYS MAY BE CONSTRUCTED IN THE SURFACE WATERS AT A GIVEN TIME.

2. REMOVAL OF EXISTING BENT #4 SHOULD BE PERFORMED IN A CONTINUOUS OPERATION WITH THIS CAUSEWAY REMOVED IMMEDIATELY FOLLOWING THIS OPERATION.

3. DURING OHW WITH ALL THREE CAUSEWAYS CONSTRUCTED, THE ESTIMATED BACKWATER IS 2.2 FT. CHANNEL VELOCITY IS ESTIMATED TO INCREASE FROM 2.4 TO 8.6 FPS THROUGH THE WORK SITE.

LEGEND

- PAVED SHOULDER
- PAVEMENT REMOVAL
- DENOTES APPROACH SLAB
- DENOTES FUTURE

FOR DETOUR PLANS, SEE SHEETS 2-C THRU 2-E
FOR RETAINING WALL DETAIL, SEE SHEET 2-F

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606

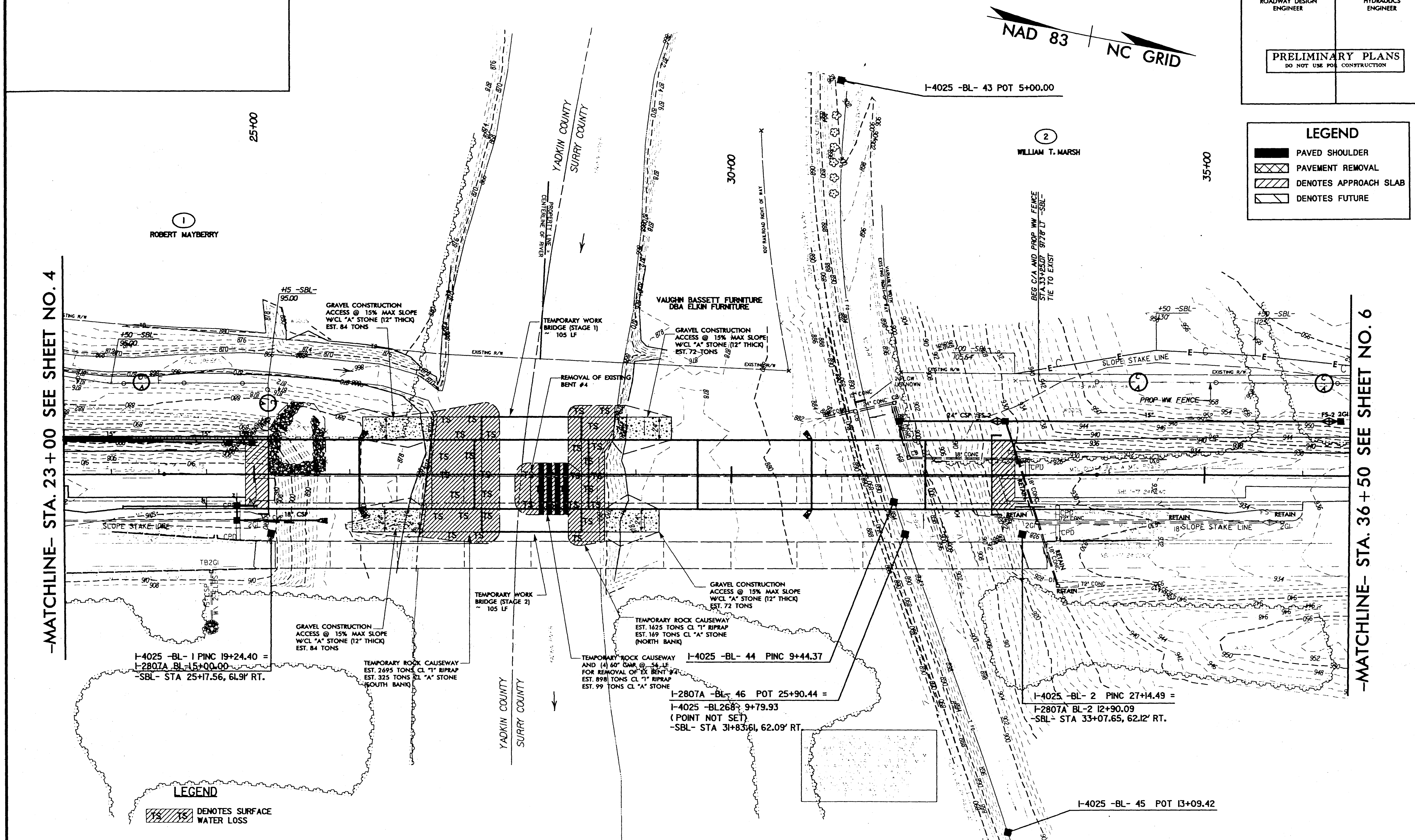
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-4025A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LEGEND

- PAVED SHOULDER
- PAVEMENT REMOVAL
- DENOTES APPROACH SLAB
- DENOTES FUTURE



NAD 83
NC GRID
I-4025 -BL- 43 POT 5+00.00
WILLIAM T. MARSH
ROBERT MAYBERRY
YADKIN COUNTY
SURRY COUNTY
VAUGHN BASSETT FURNITURE DBA ELKIN FURNITURE
-MATCHLINE- STA. 23+00 SEE SHEET NO. 4
-MATCHLINE- STA. 36+50 SEE SHEET NO. 6
GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 84 TONS
TEMPORARY WORK BRIDGE (STAGE 1) ~ 105 LF
REMOVAL OF EXISTING BENT #4
GRAVEL CONSTRUCTION ACCESS @ 15% MAX SLOPE W/CL "A" STONE (12" THICK) EST. 72 TONS
SLOPE STAKE LINE
PROP WW FENCE
BEG C/A AND PROP WW FENCE STA 33+25.07 97.78' LT -SBL- TIE TO EXIST
TEMPORARY WORK BRIDGE (STAGE 2) ~ 105 LF
TEMPORARY ROCK CAUSEWAY EST. 2695 TONS CL "I" RIPRAP EST. 325 TONS CL "A" STONE (SOUTH BANK)
TEMPORARY ROCK CAUSEWAY AND (4) 60" CMP @ 54 LF FOR REMOVAL OF EX BENT #4 EST. 898 TONS CL "I" RIPRAP EST. 99 TONS CL "A" STONE
TEMPORARY ROCK CAUSEWAY EST. 1625 TONS CL "I" RIPRAP EST. 169 TONS CL "A" STONE (NORTH BANK)
I-4025 -BL- 1 PINC 19+24.40 = I-2807A -BL- 15+00.00 -SBL- STA 25+17.56, 61.91' RT.
I-4025 -BL- 44 PINC 9+44.37
I-2807A -BL- 46 POT 25+90.44 = I-4025 -BL268- 9+79.93 (POINT NOT SET) -SBL- STA 31+83.61, 62.09' RT.
I-4025 -BL- 2 PINC 27+14.49 = I-2807A BL-2 12+90.09 -SBL- STA 33+07.65, 62.12' RT.
I-4025 -BL- 45 POT 13+09.42
LEGEND
DENOTES SURFACE WATER LOSS

NOTE:

1. BOTH, SOUTH BANK AND NORTH BANK, CAUSEWAYS MAY BE CONSTRUCTED IN THE SURFACE WATERS AT A GIVEN TIME.

2. REMOVAL OF EXISTING BENT #4 SHOULD BE PERFORMED IN A CONTINUOUS OPERATION WITH THIS CAUSEWAY REMOVED IMMEDIATELY FOLLOWING THIS OPERATION.

3. DURING OHW WITH ALL THREE CAUSEWAYS CONSTRUCTED, THE ESTIMATED BACKWATER IS 2.2 FT. CHANNEL VELOCITY IS ESTIMATED TO INCREASE FROM 2.4 TO 8.6 FPS THROUGH THE WORK SITE.

FOR DETOUR PLANS, SEE SHEETS 2-C THRU 2-E
FOR RETAINING WALL DETAIL, SEE SHEET 2-F

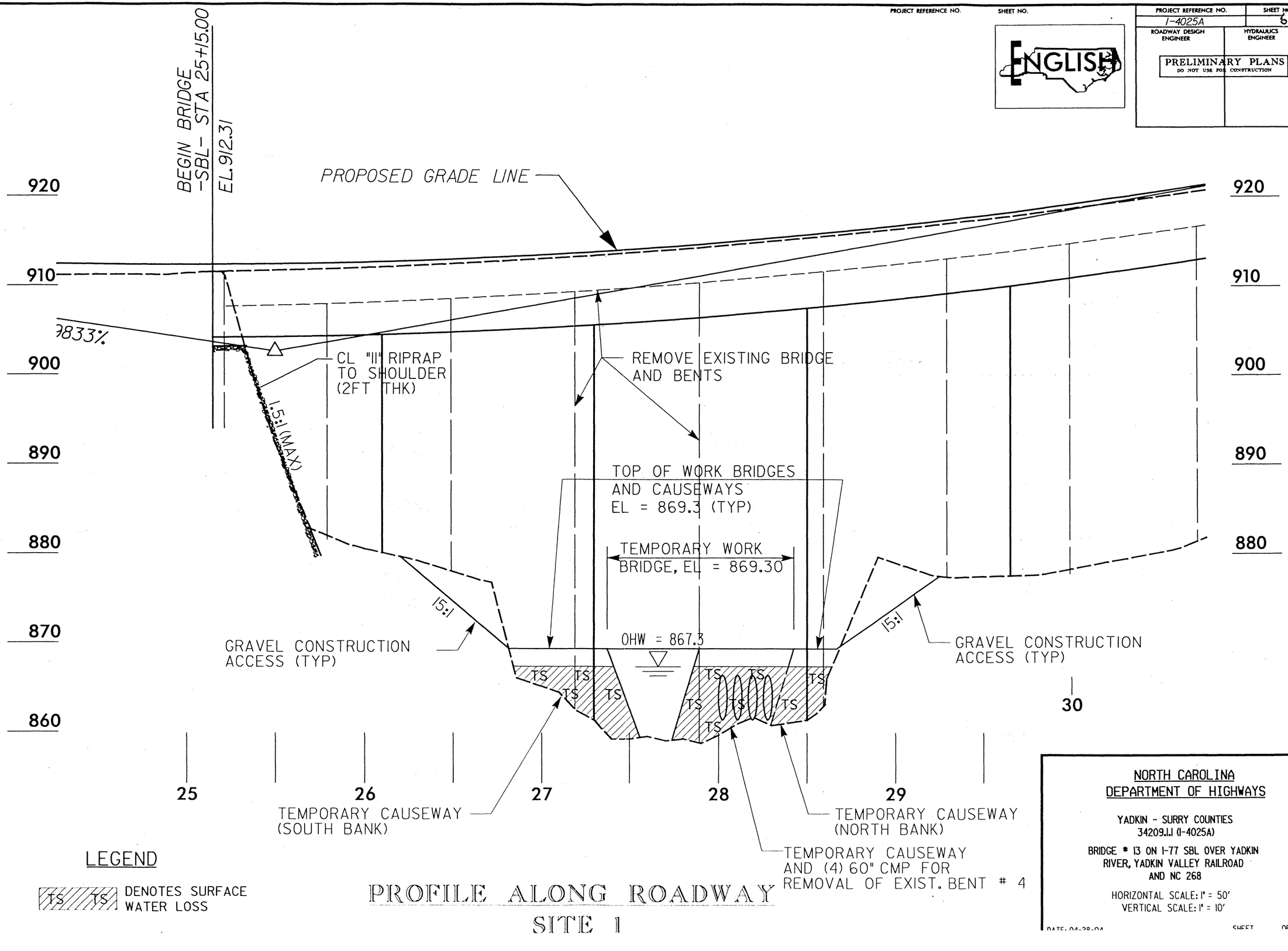
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606

PROJECT REFERENCE NO. | SHEET NO.

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
I-4025A	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



LEGEND

TS TS DENOTES SURFACE WATER LOSS

PROFILE ALONG ROADWAY

SITE 1

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

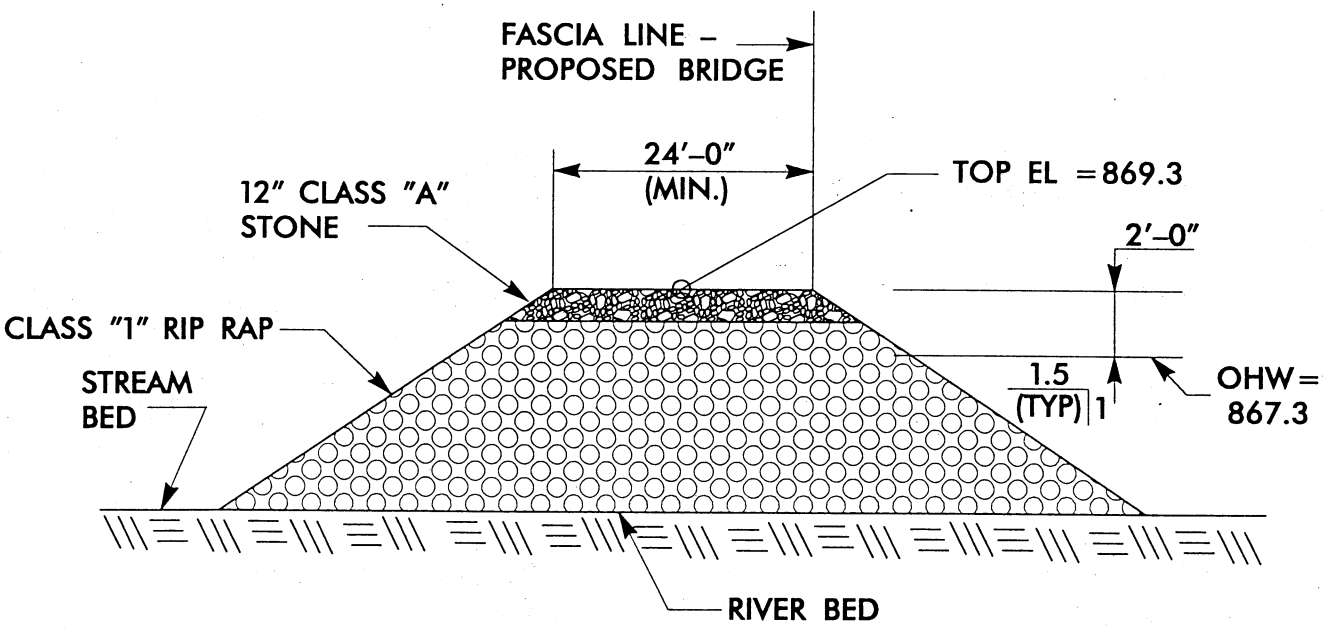
YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 10'

DATE: 04-28-04 SHEET OF

DETAIL OF CAUSEWAY FOR PROPOSED BRIDGE



CAUSEWAY LOCATION	VOLUME AND AREA OF TEMPORARY FILL (CLASS "1" RIP RAP) BELOW OHW	
BENT #2 (SOUTH BANK)	AREA =	0.251 Ac
	VOLUME =	1627 CY
EX BENT #4	AREA =	0.067 Ac
	VOLUME =	546 CY
	PIPE (60") =	224 LF
BENT #3 (NORTH BANK)	AREA =	0.135 Ac
	VOLUME =	1011 CY

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

NOT TO SCALE

DATE: 04-28-04

SHEET 7 OF 9

04/28/2004
10:15:39 AM
P:\Hydro\I-4025A\dgn\Permits_042604\I4025a_permit_tch.dgn

SUMMARY OF AFFECTED PROPERTY OWNERS

TRACT NO.	PROPERTY OWNER	ADDRESS	SITE NO.
	NCDOT *		

* WORK WITHIN EXISTING R/W

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

YADKIN - SURRY COUNTIES
34209.1.1 (I-4025A)

BRIDGE # 13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

NOT TO SCALE

DATE: 04-28-04

SHEET 8 OF 9

04/28/2004
09:24:32 AM
P:\Hydro\I-4025a\dgn\Permits_042604\I4025a_permit_tsh.dgn

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	26+50 - 29+00	BRIDGE							0.4528	14	
TOTALS:			0	0	0	0	0	0	0.4528	0	0

NOTE: BOTH, SOUTH BANK AND NORTH BANK, CAUSEWAYS MAY BE CONSTRUCTED IN THE SURFACE WATERS AT A GIVEN TIME. THE TEMPORARY IMPACTS FOR THE SOUTH BANK AND NORTH BANK CAUSEWAYS ARE 0.251 AC AND 0.135 AC, RESPECTIVELY. REMOVAL OF EXISTING BENT #4 SHOULD BE PERFORMED IN A CONTINUOUS OPERATION WITH THE CAUSEWAY REMOVED IMMEDIATELY FOLLOWING THIS OPERATION. THE TEMPORARY IMPACT FOR THIS CAUSEWAY IS 0.067 AC.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

YADKIN - SURRY COUNTIES
PROJECT: 34209.1.1 (I-4025A)

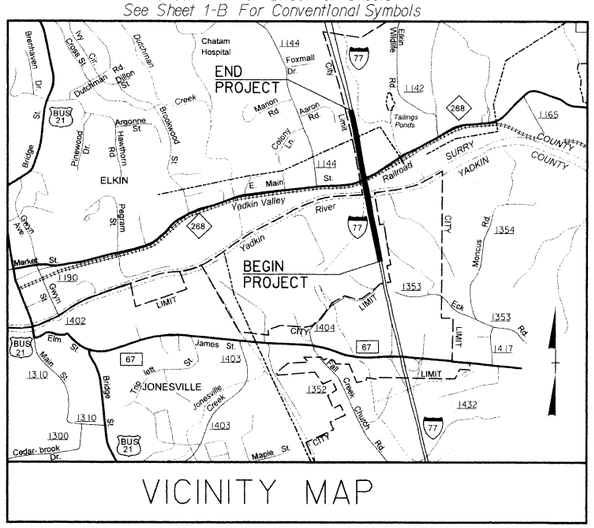
SHEET 9 OF 9 4/28/2004

Form Revised 3/22/01

TIP PROJECT: I-4025A

CONTRACT:

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



NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL CITY LIMITS.

PRE-RIGHT OF WAY PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

YADKIN – SURRY COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4025A	1	

WBS PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34209.1.1	IMS-77-1 (141) 83	P.E.
		R /W, UTIL

LOCATION: BRIDGE #13 ON I-77 SBL OVER YADKIN RIVER, YADKIN VALLEY RAILROAD AND NC 268

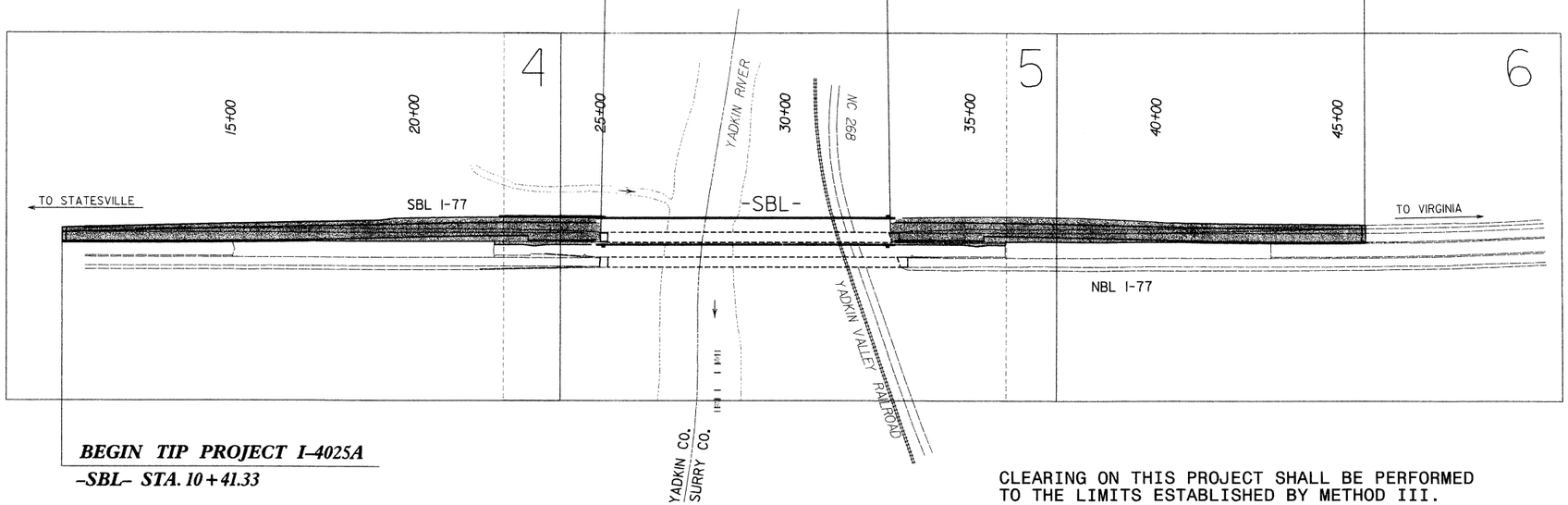
TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL AND STRUCTURE

NC GRID NAD 83

BEGIN BRIDGE
–SBL– POT 25+15.00

END BRIDGE
–SBL– POT 32+75.00

END TIP PROJECT I-4025A
–SBL– STA. 45+75.00



BEGIN TIP PROJECT I-4025A
–SBL– STA. 10+41.33

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED - ACCESS PROJECT.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NCDOT CONTACT: TERESA BRUTON, P.E.
DESIGN SERVICES - ENGINEERING COORDINATION

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 (2005) = 43100
ADT (2025) = 59400
DHV = 10 %
D = 60 %
T = 23 % *
V = 70 MPH
* (TTST 18% + DUALS 5%)
FUNC CLASS = INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-4025A	= *0.525 MI.*
LENGTH STRUCTURE TIP PROJECT I-4025A	= *0.144 MI.*
TOTAL LENGTH OF TIP PROJECT I-4025A	= *0.669 MI.*

Prepared In the Office of:
KO & ASSOCIATES, P.C.
1011 Schaub Dr. Suite 202 , Raleigh, NC 27606 919-851-6066
for
North Carolina Department of Transportation

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
March 19, 2004

LETTING DATE:
March 15, 2005

Warren F. Lamb, P.E.
PROJECT ENGINEER

Stephen R. Whitley, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut — C
Prop. Slope Stakes Fill — F
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp — WCR
Curb Cut for Future Wheelchair Ramp — WCC
Exist. Guardrail
Prop. Guardrail
Prop. Double Faced Cable Guiderail
Equality Symbol
Pavement Removal

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
Exist. Control of Access Line — CA
Prop. Control of Access Line — CA
Exist. Easement Line — E
Prop. Temp. Construction Easement Line — E
Prop. Temp. Drainage Easement Line — TDE
Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

Stream or Body of Water
River Basin Buffer — BZ
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR

Bridge, Tunnel, or Box Culvert — CONC

Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR

Head & End Wall — CONC HW
Pipe Culvert
Footbridge
Drainage Boxes — CB
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal — T
U/G Telephone Cable Hand Hold — HH
Cable TV Pedestal — C
U/G TV Cable Hand Hold — HH
U/G Power Cable Hand Hold — HH
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole
Telephone Booth — P
Cellular Telephone Tower
Water Manhole — W
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole — T
Power Transformer
Sanitary Sewer Manhole — S
Storm Sewer Manhole
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box — S
Fiber Optic Splice Box — F
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

Recorded Water Line — W W
Designated Water Line (S.U.E.*) — W W
Sanitary Sewer — SS SS
Recorded Sanitary Sewer Force Main — FSS FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
Recorded Gas Line — G G
Designated Gas Line (S.U.E.*) — G G
Storm Sewer — S S
Recorded Power Line — P P
Designated Power Line (S.U.E.*) — P P
Recorded Telephone Cable — T T
Designated Telephone Cable (S.U.E.*) — T T
Recorded U/G Telephone Conduit — TC TC
Designated U/G Telephone Conduit (S.U.E.*) — TC TC
Unknown Utility (S.U.E.*) — ?UTL ?UTL
Recorded Television Cable — TV TV
Designated Television Cable (S.U.E.*) — TV TV
Recorded Fiber Optics Cable — FO FO
Designated Fiber Optics Cable (S.U.E.*) — FO FO
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record — ATTUR
End of Information — E.O.I.

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol — PL
Exist. Iron Pin — EIP
Property Corner
Property Monument — ECM
Property Number — 123
Parcel Number — 6
Fence Line — WW & ISBW
Existing Wetland Boundaries — WLB
High Quality Wetland Boundary — HQ WLB
Medium Quality Wetland Boundaries — MQ WLB
Low Quality Wetland Boundaries — LQ WLB
Proposed Wetland Boundaries — WLB
Existing Endangered Animal Boundaries — EAB
Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery — t
Dam
Sign
Well — W
Small Mine
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol — R/W
Guard Post — GP
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard — VINEYARD

RAILROADS

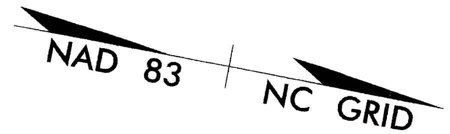
Standard Gauge — CSX TRANSPORTATION
RR Signal Milepost — MILEPOST 35
Switch — SWITCH

revised 08/16/02

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-4025A	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

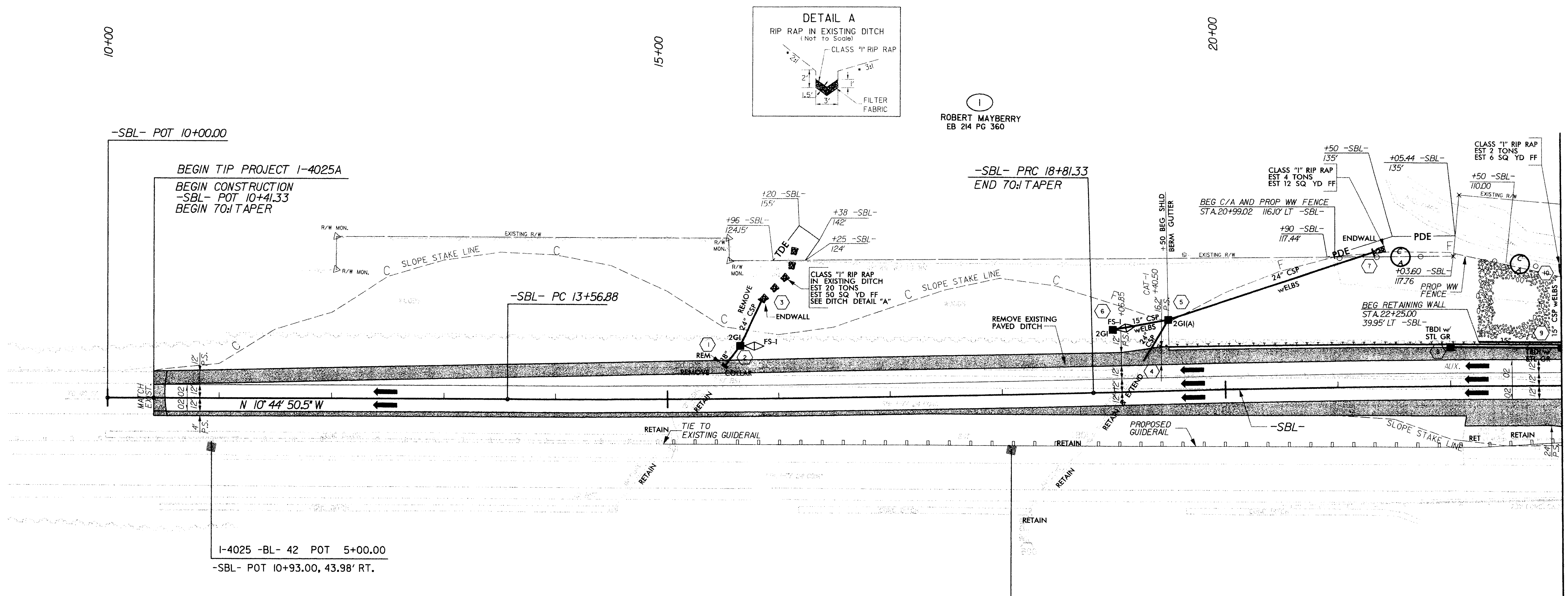


-SBL-

PI Sta 16+19.12	PI Sta 21+43.58
△ = 1° 44′ 53.4″ (LT)	△ = 1° 44′ 53.4″ (RT)
D = 0° 20′ 00.0″	D = 0° 20′ 00.0″
L = 524.45′	L = 524.46′
T = 262.24′	T = 262.25′
R = 17,188.73′	R = 17,188.73′
SE = NC	SE = NC
DS = 70 MPH	DS = 70 MPH

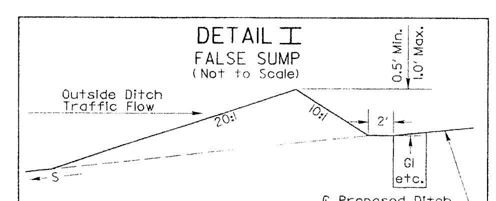
LEGEND

- PAVED SHOULDER
- PAVEMENT REMOVAL



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "MEDIAN"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 916839.7542(ft) EASTING: 1462727.2025(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999883
THE N.C. LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "MEDIAN" TO -SBL- STATION 10+41.33 IS
S 10°06′17.1″ E , 3632.52′
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



ROADWAY	STATION	SIDE
-SBL-	15+65	LT
-SBL-	19+00	LT

FOR DETOUR PLANS, SEE SHEETS 2-C THRU 2-E
FOR RETAINING WALL DETAIL, SEE SHEET 2-B
FOR -SBL- PROFILE, SEE SHEET 7

Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
For Division of Highways

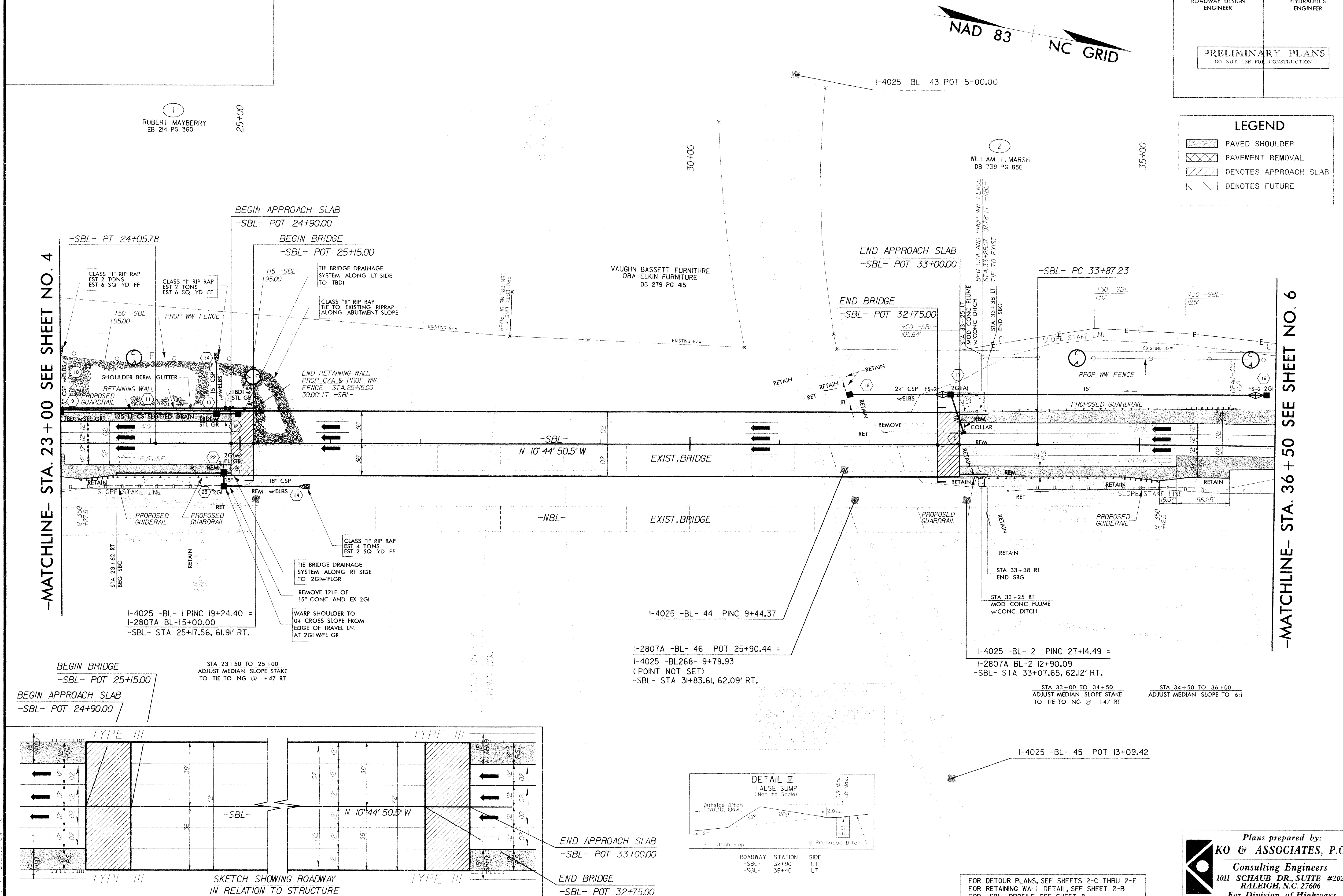
REVISIONS

I-4025A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LEGEND

- PAVED SHOULDER
- PAVEMENT REMOVAL
- DENOTES APPROACH SLAB
- DENOTES FUTURE



NAD 83
NC GRID
I-4025 -BL- 43 POT 5+00.00
ROBERT MAYBERRY
EB 214 PG 360
25+00
30+00
35+00
WILLIAM T. MARSH
DB 739 PG 856
VAUGHN BASSETT FURNITURE
DBA ELKIN FURNITURE
DB 279 PG 415
BEGIN APPROACH SLAB
-SBL- POT 24+90.00
BEGIN BRIDGE
-SBL- POT 25+15.00
-SBL- PT 24+05.78
END APPROACH SLAB
-SBL- POT 33+00.00
END BRIDGE
-SBL- POT 32+75.00
-SBL- PC 33+87.23
CLASS "I" RIP RAP
EST 2 TONS
EST 6 SQ YD FF
TIE BRIDGE DRAINAGE SYSTEM ALONG LT SIDE TO TBDI
CLASS "II" RIP RAP TIE TO EXISTING RIPRAP ALONG ABUTMENT SLOPE
PROP WW FENCE
SHOULDER BERM GUTTER
RETAINING WALL
PROPOSED GUARDRAIL
125 LF CS SLOTTED DRAIN
END RETAINING WALL, PROP C/A & PROP WW FENCE STA 25+15.00 39.00' LT -SBL-
-SBL-
N 10° 44' 50.5" W
EXIST. BRIDGE
-NBL-
EXIST. BRIDGE
EXISTING R/W
SLOPE STAKE LINE
PROPOSED GUIDERAIL
PROPOSED GUARDRAIL
18" CSP
24" CSP
REMOVE
COLLAR
RETAIN
BEG C/A AND PROP WW FENCE STA 33+25.01 97.78' LT -SBL- TIE TO EXIST
STA 33+25 LT MOD CONC FLUME w/CONC DITCH
STA 33+38 LT END SBG
STA 23+62 RT BEG SBG
-MATCHLINE- STA. 23+00 SEE SHEET NO. 4
-MATCHLINE- STA. 36+50 SEE SHEET NO. 6
CLASS "I" RIP RAP
EST 4 TONS
EST 2 SQ YD FF
TIE BRIDGE DRAINAGE SYSTEM ALONG RT SIDE TO 2GI w/FLGR
REMOVE 12LF OF 15" CONC AND EX 2GI
WARP SHOULDER TO 04 CROSS SLOPE FROM EDGE OF TRAVEL LN AT 2GI W/FL GR
I-4025 -BL- 1 PINC 19+24.40 =
I-2807A BL-15+00.00
-SBL- STA 25+17.56, 61.91' RT.
I-4025 -BL- 44 PINC 9+44.37
I-2807A -BL- 46 POT 25+90.44 =
I-4025 -BL268- 9+79.93
(POINT NOT SET)
-SBL- STA 31+83.61, 62.09' RT.
STA 33+38 RT END SBG
STA 33+25 RT MOD CONC FLUME w/CONC DITCH
I-4025 -BL- 2 PINC 27+14.49 =
I-2807A BL-2 12+90.09
-SBL- STA 33+07.65, 62.12' RT.
STA 23+50 TO 25+00 ADJUST MEDIAN SLOPE STAKE TO TIE TO NG @ +47 RT
STA 33+00 TO 34+50 ADJUST MEDIAN SLOPE STAKE TO TIE TO NG @ +47 RT
STA 34+50 TO 36+00 ADJUST MEDIAN SLOPE TO 6:1
I-4025 -BL- 45 POT 13+09.42
TYPE III
N 10°44' 50.5" W
SKETCH SHOWING ROADWAY IN RELATION TO STRUCTURE
END APPROACH SLAB
-SBL- POT 33+00.00
END BRIDGE
-SBL- POT 32+75.00
DETAIL II
FALSE SUMP
(Not to Scale)

ROADWAY	STATION	SIDE
-SBL-	32+90	LT
-SBL-	36+40	LT

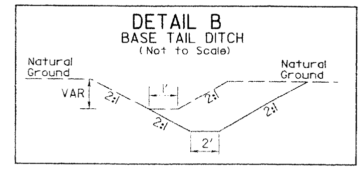
FOR DETOUR PLANS, SEE SHEETS 2-C THRU 2-E
FOR RETAINING WALL DETAIL, SEE SHEET 2-B
FOR -SBL- PROFILE, SEE SHEET 8

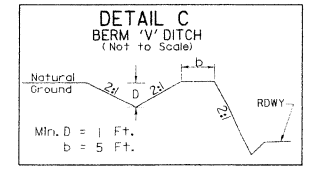
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE #202
RALEIGH, N.C. 27606
For Division of Highways

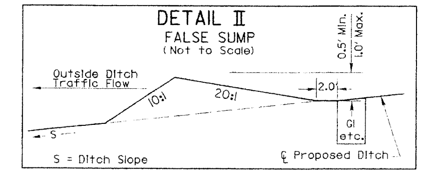
PROJECT REFERENCE NO.	SHEET NO.
I-4025A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS







NAD 83 NC GRID

-SBL-

PI Sta 36+49.47	PI Sta 41+73.92	PI Sta 47+66.79
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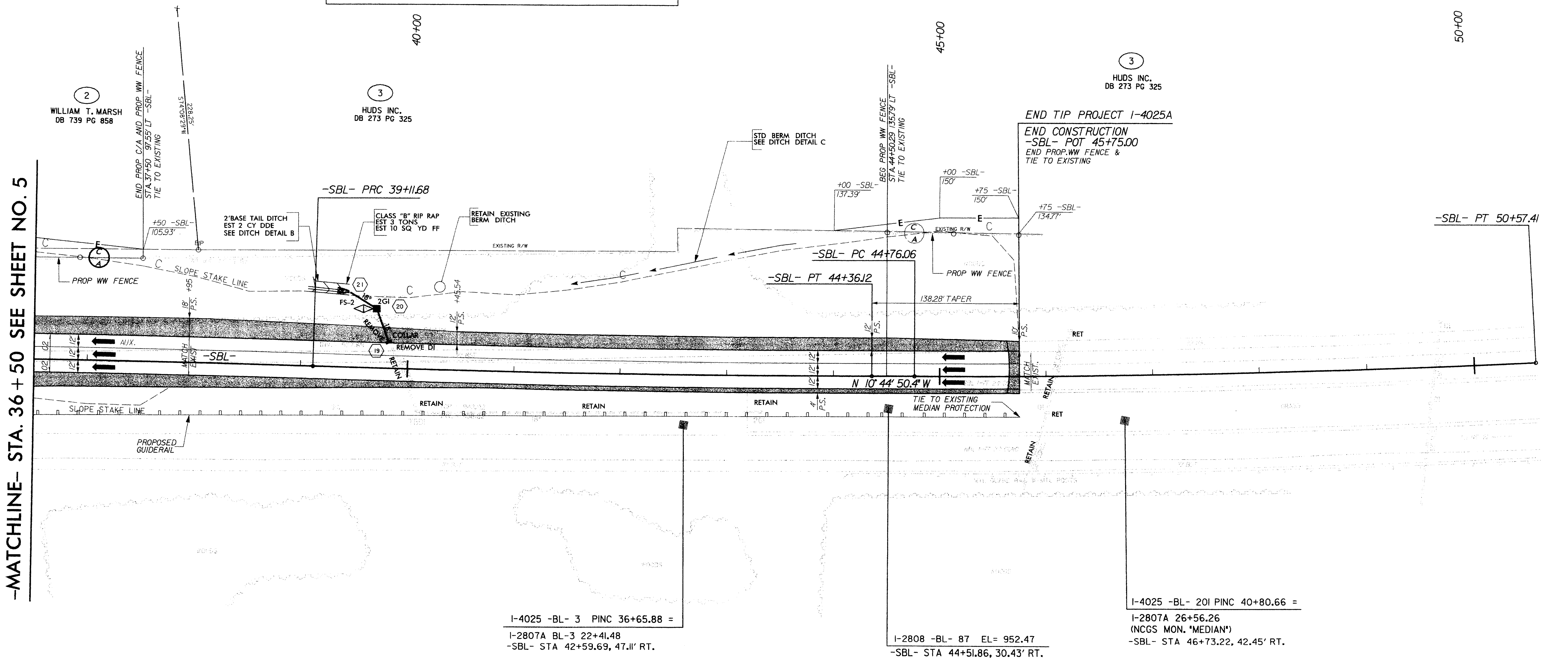
D = 0° 20′ 00.0″	D = 0° 20′ 00.0″	D = 0° 30′ 05.4″
L = 524.44′	L = 524.44′	L = 581.35′
T = 262.24′	T = 262.24′	T = 290.74′
R = 17,188.73′	R = 17,188.73′	R = 11,425.16′
SE = NC	SE = NC	SE = EXISTING
DS = 70 MPH	DS = 70 MPH	DS = 70 MPH

LEGEND

- PAVED SHOULDER
- PAVEMENT REMOVAL



FOR DETOUR PLANS, SEE SHEETS 2-C THRU 2-E
FOR -SBL- PROFILE, SEE SHEET 9

Plans prepared by:
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For Division of Highways

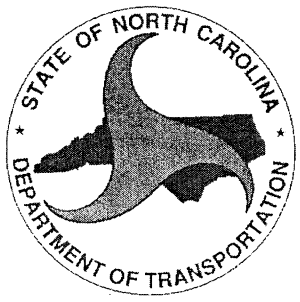
NATURAL SYSTEMS REPORT

Replacement of Bridge No. 13
I-77 over Yadkin River

Yadkin and Surry Counties, North Carolina
(I-4025)
(State Project No. 8.174101)
(Federal Aid No. IMS-77-1(141)83)

Prepared for:

Ko and Associates and



The North Carolina Department of Transportation
Raleigh, North Carolina

November 2003

NATURAL SYSTEMS REPORT

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Prepared for:

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The North Carolina Department of Transportation
Raleigh, North Carolina

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November 2003

EXECUTIVE SUMMARY

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 13 located on the south-bound portion of Interstate Highway 77 (I-77) over the Yadkin River in Yadkin and Surry Counties, North Carolina, TIP No. I-4025.

INTRODUCTION

The objectives of this Natural Resource Technical Report are 1) an assessment of biological features within the project area including descriptions of vegetation, wildlife, protected species, jurisdictional wetlands, and water quality; 2) a delineation of Section 404 jurisdictional areas and subsequent survey of jurisdictional boundaries (utilizing Trimble XRS Differential Global Positioning System (GPS) technology); 3) an evaluation of plant communities and their extent within the project area; and 4) a preliminary determination of permit needs. These tasks were accomplished using established data sources and a field visit on December 30, 2002 to delineate jurisdictional areas, collect flora and fauna data, and verify established data sources. Field investigators were Kendrick Weeks, M.S. and David O'Laughlin, M.S. The project boundary was determined by NCDOT and is approximately 10.1 acres (4.1 hectares).

PHYSICAL CHARACTERISTICS

Water Resources

The project area is located within sub-basin 03-07-02 of the Yadkin-Pee Dee River Basin (DWQ 2003b). Two perennial streams, the Yadkin River and Falls Creek, were identified in the project study area.

A best usage classification of **C** has been assigned to the Yadkin River and its tributaries, including Falls Creek, in the project study area. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within 1.0 mile (1.6 kilometers) of the project study area (DWQ 2003b). No waters identified on the North Carolina 303(d) list, are located in the project study area.

Biotic Resources

Three distinct plant communities were identified within the project study area: Piedmont Levee Forest, disturbed/maintained land, and Dry-Mesic Oak Pine Forest (Table 1). The Levee Forest is disturbed with invasive exotic species, particularly Chinese privet (*Ligustrum sinense*), forming most of the shrub layer. No Significant Aquatic Endangered Species Habitat exists within or near the project study area. Because there are no anadromous fish that breed in the Yadkin River, the replacement of Bridge No. 13 can be classified as Case 3; therefore, there are no special restrictions beyond those outlined in *Best Management Practices for Protection of Surface Waters*.

Table 1. Project Area Plant Communities

Plant Community	Area
Disturbed/Maintained Land	3.1 (1.3)
Dry-Mesic Oak Pine Forest	4.6 (1.9)
Piedmont Levee Forest	2.4 (1.0)
Total	10.1 (4.2)

Areas are given in acres (hectares).

Bird species identified during the field survey are American crow (*Corvus brachyrhyncos*), blue jay (*Cyanocitta cristata*), indigo bunting (*Passerina cyanea*), northern cardinal (*Cardinalis cardinalis*), Carolina wren (*Thryothorus ludovicianus*), Carolina chickadee (*Poecile carolinensis*), tufted titmouse (*Baeolophus bicolor*), mourning dove (*Zenaida macroura*), red-shouldered hawk (*Buteo lineatus*), eastern towhee (*Pipilo erythrophthalmus*), and Kentucky warbler (*Oporornis formosus*). No amphibians were observed during the field visit, a black rat snake (*Elaphe obsoleta*) was the only reptile observed, and deer tracks were the only sign of mammals. .

JURISDICTIONAL TOPICS

Surface Waters and Wetlands

Surface waters within the embankments of the Yadkin River and Falls Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR Section 328.3). Two stream systems and no wetlands occur within the project study area (Table 2). The NWI classification of the Yadkin River is riverine, lower perennial with an unconsolidated bottom and permanently flooded (R2UBH). During the field visit, Falls Creek was determined to be riverine, upper perennial with an unconsolidated bottom primarily of mud that is permanently flooded (R3UBH).

Table 2. Jurisdictional Areas within the Project Study Area

Cowardin Classification	Linear Distance	Area	DWQ Rating
R2UBH (Yadkin River)	255.0 (77.6)	1.2 (0.5)	N/A
R3UBH (Falls Creek)	590.0 (180)	0.3 (0.1)	N/A

Linear distance is expressed in feet (meters), and area is expressed in acres (hectares).

Permits

This project is being processed as a Programmatic Categorical Exclusion (PCE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (67 FR 2082; January 15, 2002) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP No. 23 (GC 3403). If temporary structures are necessary for construction activities, access fills, or dewatering of the site, then a NWP 33 (67 FR 2020, 2087; January 15, 2002) permit and associated General 401 Water Quality Certification (GC 3366) will be required. 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 and its associated General 401 Water Quality Certification (GC 3375) issued by the Wilmington COE District.

Avoidance, Minimization, and Mitigation

Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). The three aspects of avoidance, minimization, and compensatory mitigation must be considered sequentially. 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. Compensatory mitigation for Section 404 jurisdictional areas may not need to be proposed for this project due to the potentially limited nature of the project impacts.

Enhancement of Falls Creek is needed because approximately 50 percent of its watershed is cultivated, cattle pasture, or developed. The lower 4000 feet (1219 meters) of Falls Creek is subject to cattle and is characterized by very little vegetated buffer allowing normal rain events to erode the banks and discharge high sediment loads into the Yadkin River. In addition, construction of the retaining wall will require hydrologic consideration to avoid further degradation of the Falls Creek channel.

Federally Protected Species

Species with the federal classification of Endangered (E), 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.). Three federally protected species, the bog turtle (*Clemmys muhlenbergii*) (T [S/A]), Schweinitz's sunflower (*Helianthus schweinitzii*), and small-whorled pogonia (*Isotria medeoloides*), are listed as occurring in Surry County (February 25, 2003 FWS list), and no species are listed for Yadkin County (January 29, 2003 FWS list).

Table 3. Federally Protected Species

Common Name	Scientific Name	Status	Biological Conclusion
Bog Turtle	*Clemmys muhlenbergii*	T S/A	N/A
Schweinitz's Sunflower	*Helianthus schweinitzii*	E	May Affect, Not Likely to Adversely Affect
Small Whorled Pogonia	*Isotria medeoloides*	T	May Affect, Not Likely to Adversely Affect

E--Endangered; A taxon "in danger of extinction throughout all or a significant portion of its range.
T S/A—Threatened by similarity of appearance
*--Historic record; The species was last observed in the county more than 50 years ago.

Clemmys muhlenbergii (Bog turtle)
Threatened due to similarity of appearance
Family: Emydidae
Date Listed: November 4, 1997

NHP records (June 2003) document the nearest occurrence of the bog turtle in Surry County approximately 8.5 miles (13.6 kilometers) north northwest of the project study area. The project study area has no habitat for *Clemmy muhlenbergii*. T (S/A) species are not subject to Section 7 consultation, and a biological conclusion for this species is not required.

*Helianthus schweinitzii (*Schweinitz's sunflower*)*
Endangered
Family: Asteraceae
Date Listed: May 7, 1991

BIOLOGICAL CONCLUSION: MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

NHP records (June 2003) document the nearest occurrence of Schweinitz's sunflower in Surry County approximately 10.6 miles (17.0 kilometers) northeast of the project study area. The project study area supports suitable habitat for Schweinitz's sunflower in portions of the disturbed/maintained areas such as beneath the bridges and along the corridor's maintained right-of-way. A detailed survey Schweinitz's sunflower was conducted on September 17, 2003. The biologists conducting the survey (Ben Brazell and David O'Loughlin) were experienced with location of suitable habitat and identification of this species. The plant-by-plant survey was conducted in all suitable habitat (roadside shoulders, a power line corridor, other regularly maintained areas, and woodland edges) within the project study area. This survey resulted in a determination that Schweinitz's sunflower does not occur within the project study area.

Isotria medeoloides (small whorled pogonia)
Threatened
Family: Orchidaceae
Date Listed: September 9, 1982

BIOLOGICAL CONCLUSION: MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

NHP records (June 2003) document the nearest occurrence of the small whorled pogonia in Surry County, approximately 25 miles (40 kilometers) northeast of the project study area. The project study area contains suitable habitat for small whorled pogonia in the Dry-Mesic Oak Pine Forest and along stream banks of Falls Creek and the Yadkin River. Since the site visit was conducted during the blooming season for this species, biologists conducted systematic surveys during the site visit. These surveys involved walking through identified suitable habitat and carefully observing all plants. This survey found no evidence of small whorled pogonia within the project study corridor.

CONCLUSIONS

The project study area contains 845 feet (257.6 meters) of jurisdictional streams that could potentially be impacted by the proposed project. No wetlands occur within the project study area. Permits likely to be required for this project area a Section 404 NWP No. 23 and No. 33 along with their corresponding Section 401 Water Quality Certifications.

Impacts to biotic communities will be minimal. Impacts to streams are likely to be associated with sedimentation and all efforts should be taken to minimize it. Falls Creek will require special attention in this regard because of the proposed retaining wall. Enhancement of Falls Creek is an on-site mitigation option. Protected species were not found within the project study area during surveys for them.

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Replacement of Bridge No. 13
I-77 over Yadkin River
Yadkin and Surry Counties, North Carolina
(I-4025)

1.0 INTRODUCTION

1.1 Project Description

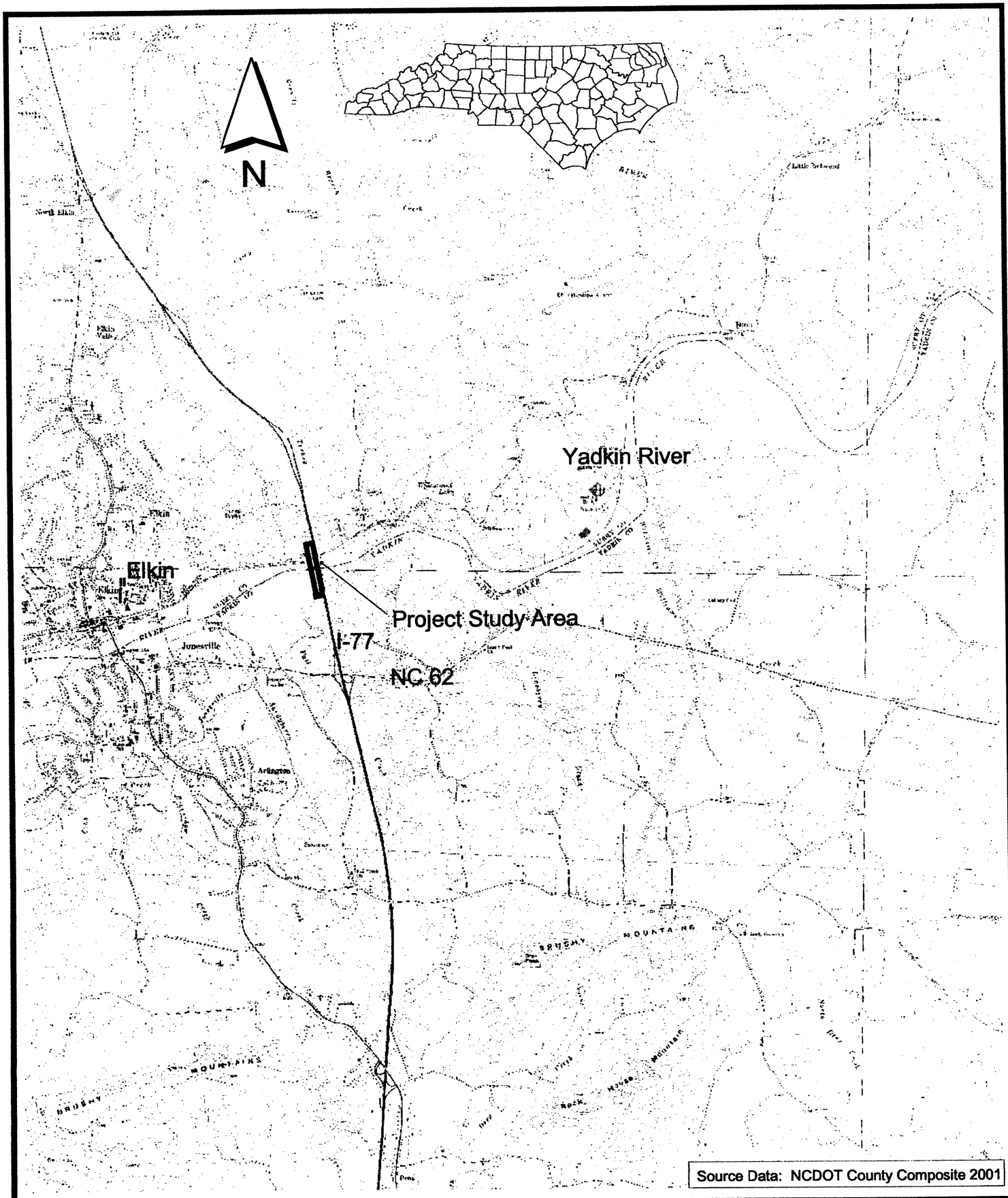
The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 13 located on the south-bound portion of Interstate Highway 77 (I-77) over the Yadkin River in Yadkin and Surry Counties, North Carolina (Figure 1). Bridge No. 13 is located on the boundary of Yadkin and Surry Counties approximately 0.25 mile (0.4 kilometer) north of the intersection of I-77 and NC 62 and approximately 0.25 mile (0.4 kilometer) east of Elkin, NC (Figure 1). Bridge No. 13 spans the Yadkin River and adjacent banks for a distance of approximately 240.0 feet (73.2 meters). The existing roadway is approximately 30.0 feet (9.1 meters) wide with a total, maintained right-of-way width of approximately 60.0 feet (18.2 meters).

Bridge No. 13 will be replaced in place with an on-site detour to the east on the north-bound bridge of I-77 over the Yadkin River. Bridge No. 13 is a two-lane structure with 12 spans totaling 766 feet (233.5 meters) and a deck width of 28 feet (8.5 meters). The bridge was constructed in 1960 and currently has a sufficiency rating of 44.9. The superstructure of the bridge is a reinforced concrete floor on steel beams. The substructure end bents consist of reinforced concrete caps on H-piles. The interior bents consist of reinforced concrete post and beams on concrete footings (bent no. 10 is on pile footings). NCDOT is committed to avoid dropping bridge demolition debris into "waters of the United States." The use of NCDOT's Best Management Practices for Bridge Demolition and Removal is recommended. Temporary fill for a construction platform may be necessary for construction of the new bridge; however, any fill required should be minimized in the design of the new bridge.

As this reach of the Yadkin River has no potential as a travel corridor for migratory fish (Division of Marine Fisheries Anadromous Fish Spawning Areas; NCCGIA 1998), this project can be classified as Case 3, where in-water work will not be restricted by fish moratorium periods associated with fish migration, spawning, and nursery areas. NCDOT will coordinate with various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

1.2 Purpose

The purpose of this study is to provide an evaluation of biological resources in the immediate area of potential project impact (project study area). Specifically, the tasks performed for this study include 1) an assessment of biological features within the project study area including descriptions of vegetation, wildlife, protected species, wetlands, and water quality and 2) a delineation of Section 404 jurisdictional areas and subsequent survey of jurisdictional



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Project Location

Replacement of Bridge No. 13
I-77 over the Yadkin River
I-4025A
Yadkin and Surry Counties, North Carolina

Dwn by:	KCW
Scale:	1:60,000
Date:	June 2003
Project:	03-146

Figure 1

boundaries utilizing Trimble XRS Differential Global Positioning System (DGPS) technology with reported sub-meter accuracy.

1.3 Methods

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Elkin North and Elkin South, NC 7.5-minute quadrangles, 1994 and 1971), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (FWS NWI 1994), and and North Carolina Center for Geographic Information and Analysis (NCCGIA) recent aerial photography (NCCGIA 1998). Plant community descriptions are based on a classification system utilized by the N.C. Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names generally follow nomenclature found in Radford *et al.* (1968), with adjustments made to reflect more current nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979) and *A Field Guide to North Carolina Wetlands* (DEM 1996). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Water quality information for area streams and tributaries was derived from available sources (DWQ 2002, 2003). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges which extend into Yadkin and Surry Counties (January 29, 2003 and February 25, 2003, respectively) was obtained prior to initiation of the field investigation. In addition, NHP records documenting the presence of federally or state listed species were consulted before commencing the field investigation.

Bridge No. 13 was visited on June 3, 2003. The project study area was walked and visually surveyed for significant features. For purposes of field surveys, the project study area has been delineated by EcoScience. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in the Yadkin River.

1.4 Qualifications

The field work for this investigation was conducted by EcoScience Corporation (ESC) biologists Kendrick Weeks and David O'Loughlin.

Mr. O'Loughlin is a project scientist working toward a M.S. in forestry from North Carolina State University, with minors in botany and statistics. He has taken pertinent courses including dendrology, botany, ecology, and wetland soils. His professional expertise includes natural

resources assessment, stream and wetlands delineations, protected species surveys, and environmental document preparation.

Mr. Weeks is a Project Scientist with five years of experience in the environmental field. He earned a B.S. in biology from Appalachian State University and worked as a seasonal wildlife research biologist for five years before continuing his formal education. He earned an M.S. in zoology from North Carolina State University, with a minor in statistics. His research focused on the nesting ecology of two species of breeding Neotropical migratory landbirds in the southern Appalachians. Professional expertise includes ecological relationships, plant and wildlife identification, protected species surveys, wetland and jurisdictional area delineations, indirect and cumulative impact assessments, and environmental document preparation.

1.5 Definitions

Definitions for descriptions used in this report are as follows: project study area generally denotes the area bounded by proposed construction limits; however, since a specific alternative has not yet been selected, the **Project study area** (Figure 2) describes the area approximately 250.0 feet (76.2 meters) by 2000.0 feet (609.6 meters), encompassing approximately 10.1 acres (4.1 hectares); **Project Vicinity** describes an area extending 0.5 mile (0.8 kilometer) on all sides of the project study area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS topographic quadrangle map with the project occupying the central position.

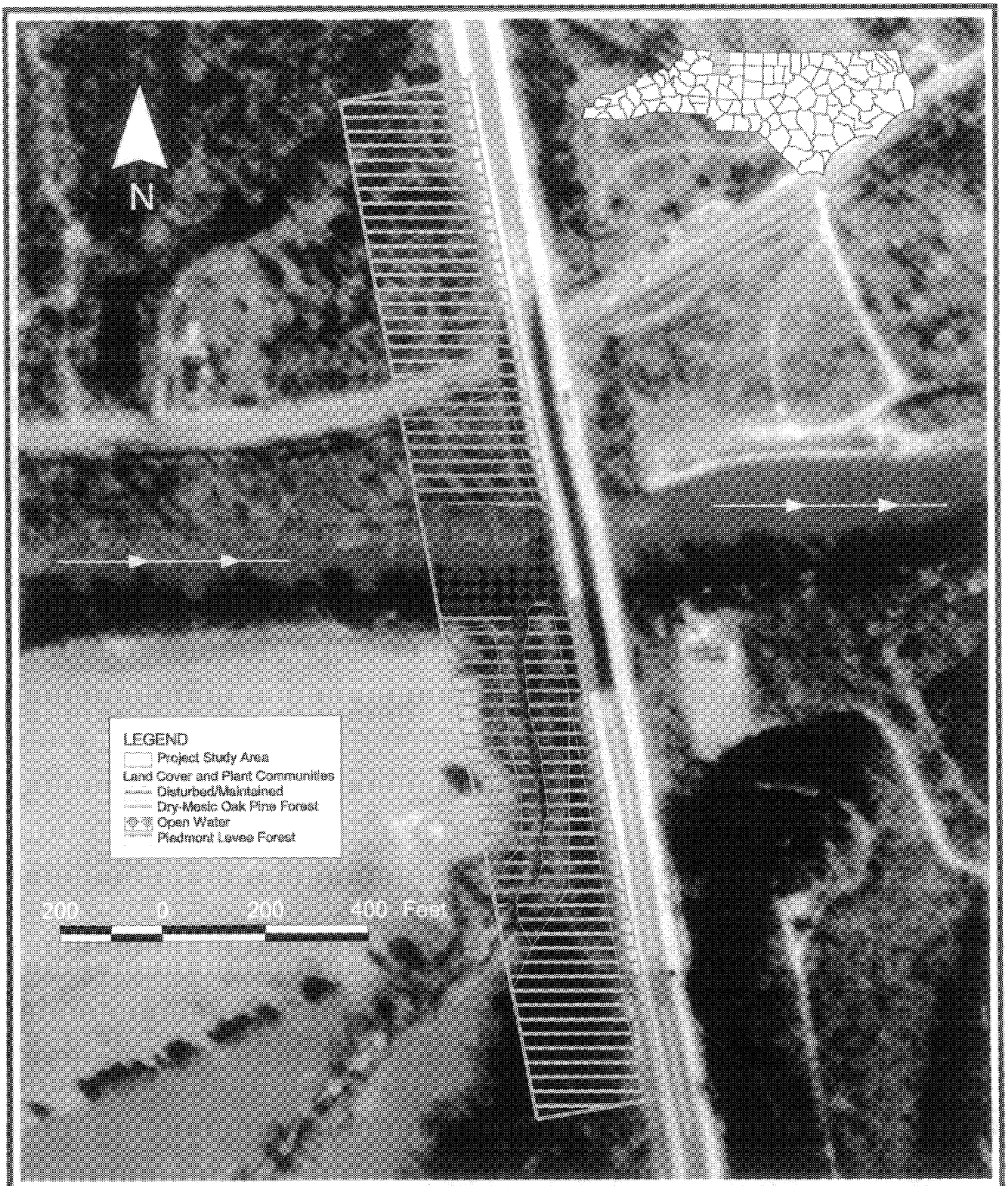
2.0 PHYSICAL RESOURCES

2.1 Physiography

The project study area occurs within the Inner Piedmont Belt geologic formation within the Inner Piedmont physiographic province of North Carolina, and is underlain by metamorphic fine-grained biotite gneiss. The project vicinity is characterized by a large river valley with approximately 1000 feet (304.8 meters) of total floodplain. The surrounding upland terrain consists of moderately sloping foothills that rise 100 feet (30.5 meters) or more above the floodplain of the Yadkin River. The project study area is centered on the river floodplain and extends to adjacent uplands at the northern and southern boundaries (Figure 1). Elevations in the project study area are approximately 870 to 940 feet (265 to 286 meters) National Geodetic Vertical Datum (NGVD) (USGS Elkin North and Elkin South, NC 7.5-minute quadrangles, 1994 and 1971).

2.2 Water Resources

The project study area is located within sub-basin 03-07-02 of the Yadkin-Pee Dee River Basin (DWQ 2003b). This area is part of USGS accounting unit 03040101 of the South Atlantic-Gulf Coast Region. The section of the Yadkin River within the project study area has been assigned Stream Index Number 12-(53) by the N.C. Division of Water Quality (DWQ) (DWQ 2003a).



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Plant Communities within the Project Study Area

Replacement of Bridge No. 13
I-77 over the Yadkin River
I-4025A
Yadkin and Surry Counties, North Carolina

Dwn by:	KCW
Scale:	1:3,000
Date:	June 2003
Project:	03-146

Figure 2

Falls Creek has been assigned Stream Index Number 12-57. Neither the Yadkin River or Falls Creek is listed on the DWQ 303d list of impaired streams in the Yadkin River Basin (April 3, 2000 DWQ list).

Within the project study area, the Yadkin River is a fifth-order perennial stream exhibiting moderate sinuosity, moderate velocity, and a well-developed riffle-pool sequence. The width of the stream is approximately 190.0 feet (57.9 meters) at the point of the bridge crossing. During the field survey, water clarity was poor. The substrate is composed of sand and mud. The stream banks are steep and range from 8.0 to 15.0 feet (2.4 to 4.6 meters) in height. The floodplain is most expansive in the southwest quadrant of the project study area. Falls Creek is a first-order perennial stream exhibiting moderate sinuosity, moderate velocity, and well-developed riffle-pool sequence. The width of the stream is approximately 12.0 feet (3.7 meters) within the project boundary. The water depth was approximately 6 inches (14 centimeters) and water clarity was turbid. The substrate is composed of sand and silt. The stream banks range from 6 to 8 feet (1.8 to 2.4 meters). This stream is heavily incised with sloughing banks where a cattle pasture occurs on the floodplain at the edge of the project study area.

2.3 Best Usage Classifications and Water Quality

Classifications are 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. A best usage classification of **C** has been assigned to the Yadkin River and its tributaries, including Falls Creek, in the project study area. These waters are protected for Class **C** uses which include aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within 1.0 mile (1.6 kilometers) of the project study area (DWQ 2003b).

The DWQ (previously known as the Division of Environmental Management, Water Quality Section) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. The Yadkin River and Falls Creek have a use support rating of **Fully Supporting** in the vicinity of the project study area (DWQ 2002) and are not designated as impaired waters regulated under the provisions of the federal Clean Water Act, Section 303(d). No benthic macroinvertebrate monitoring stations occur within 1.0 mile (1.6 kilometers) of the project study area (DWQ 2003b). The nearest benthic macroinvertebrate monitoring station is located approximately 1.8 miles (2.9 kilometers) upstream at the US 21 bridge and the 1996-2000 sampling data classified the site as "Good" (DWQ 2003b).

The Yadkin-Pee Dee River subbasin 03-07-02 supports three major and 28 minor point source dischargers. Permitted flow is 8.3 million gallons per day (31.4 million liters per day) for the major dischargers and 2.1 million gallons per day (7.9 million liters per day) for the minor dischargers. Major non-point sources of pollution within the Yadkin-Pee Dee River Basin include runoff from construction activities, agriculture, timber harvesting, and hydrologic

modification. Sedimentation is the major problem associated with non-point source discharges (DWQ 2003b).

2.4 Anticipated Impacts to Water Resources

No support bents are located in open water. Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled *Control of Erosion, Siltation, and Pollution* (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation. In addition, tall fescue is not suitable for erosion controls along stream banks.

The proposed bridge replacement will allow for continuation of pre-project stream flows in the Yadkin River, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

NCDOT will coordinate with various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved. The replacement of Bridge No. 13 can be classified as Case 3; therefore, there are no special restrictions beyond those outlined in *Best Management Practices for Protection of Surface Waters.*

3.0 BIOTIC RESOURCES

3.1 Terrestrial Communities

Three distinct plant communities were identified within the project study area: Piedmont Levee Forest, disturbed/maintained land, and Dry-Mesic Oak Pine Forest (Figure 2). These plant communities are described below.

Piedmont Levee Forest - Piedmont Levee Forest covers approximately 2.4 acres (1.0 hectare). Representative canopy trees of this plant community within the project study area range from 20 to 40 years old. The canopy consists of riparian tree species including box elder (*Acer negundo*), river birch (*Betula nigra*), and sycamore (*Platanus occidentalis*). There are isolated individuals of green ash (*Fraxinus pennsylvanica*) and sugar berry (*Celtis laevigata*). Subcanopy trees and shrubs include Chinese privet (*Ligustrum sinense*), multiflora rose (*Rosa multiflora*), and flowering dogwood (*Cornus florida*). The shrub layer is dominated by Chinese

privet, especially in the northwest quadrant. Vines present include Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), greenbriar (*Smilax rotundifolia*), and muscadine grape (*Vitis rotundifolia*). The herbaceous layer is replaced by Chinese privet seedlings. Animals that commonly utilize this habitat include northern parulas (*Parula americana*), yellow-throated warblers (*Dendroica dominica*), and Acadian flycatchers (*Empidonax virescens*), which breed and forage in deciduous trees growing on banks or on floodplains of streams and rivers. Belted kingfishers (*Ceryle alcyon*) also nest in burrows on high banks and feed on fish in streams and rivers.

Disturbed/Maintained Land – Disturbed/maintained land covers approximately 3.1 acres (1.3 hectare), and occurs as maintained right-of-ways and cattle pasture. The maintained roadside area is approximately 25 feet (8 meters) wide. No trees and very few shrubs contribute to the composition of this community. Plant species on the roadside margins include fescue (*Festuca* spp.), wing stem (*Verbesina occidentalis*), wild strawberry (*Duchesnea indica*), clover (*Trifolium* spp.), nightshade (*Solanum carolinense*), henbit (*Lamium amplexicaule*), golden rod (*Solidago* spp.), smooth sumac (*Rhus glabra*), trumpet creeper (*Campsis radicans*), Japanese honeysuckle, dock (*Rumex crispus*), and Indian hemp (*Apocynum cannabinum*). The pasture land (southwestern quadrant) contained mostly fescue and other disturbance (grazing) adapted species. Wildlife species that utilize disturbed/maintained land include eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), and woodchucks (*Marmota monax*). Eastern cottontail, white-tailed deer, and woodchucks consume many of the herbaceous species and some crops. Red-tailed hawks (*Buteo jamaicensis*), eastern screech owls (*Otus asio*), and foxes hunt in large areas of disturbed/maintained habitats for rabbits, rodents, and insects that also utilize the open habitat.

Dry-Mesic Oak Pine Forest – Dry-Mesic Oak Pine Forest occurs on upland sites in the project study area and encompasses a total of 4.6 acres (1.9 hectare). This is a modified natural plant community based upon the Dry-Mesic Oak Hickory Forest as described by Schafale and Weakly (1990). Canopy trees are approximately 20 years old and may lack hickories because of limited dispersal abilities. Hickories produce large, heavy seeds that do not disperse well without help from small mammals (Webb 1986). The canopy is dominated by tulip poplar (*Liriodendron tulipifera*), Virginia pine (*Pinus virginiana*), and white oak (*Quercus alba*). Less dominant canopy trees present are red maple (*Acer rubrum*) and black cherry (*Prunus serotina*). Understory trees/shrubs observed were red cedar (*Juniperus virginiana*), sassafras (*Sassafras albidum*), and canopy species. Vines present include greenbriar, muscadine grape, and Japanese honeysuckle. Herbaceous species were sparse. Many wildlife species use this habitat for food and cover. Eastern gray squirrels (*Sciurus carolinensis*), blue jays (*Cyanocitta cristata*), wild turkey (*Meleagris gallopavo*), and white-tailed deer consume acorns from the oaks. Virginia pine is an important forage tree for wintering birds such as golden-crowned kinglets (*Regulus satrapa*) and red-breasted nuthatches (*Sitta canadensis*). Some bird species that breed and forage in Dry-Mesic Oak Pine forests include brown-headed nuthatches (*Sitta pusilla*), blue-gray gnatcatchers (*Polioptila caerulea*), great crested flycatchers (*Myiarchus crinitus*), and pine warblers (*Dendroica pinus*).

During the field survey there were signs of white-tailed deer. Characteristic mammals expected to frequent wooded and brushy river corridors in the western Piedmont include Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), eastern gray squirrel, eastern cottontail, southeastern shrew (*Sorex longirostris*), least shrew (*Cryptotis parva*), meadow vole (*Microtus pennsylvanicus*), eastern mole (*Scalopus aquaticus*), red bat (*Lasiurus borealis*), southern flying squirrel (*Glaucomys volans*), gray fox (*Urocyon cinereoargenteus*), and mink (*Mustela vision*).

Bird species identified during the field survey are American crow (*Corvus brachyrhyncos*), blue jay (*Cyanocitta cristata*), indigo bunting (*Passerina cyanea*), northern cardinal (*Cardinalis cardinalis*), Carolina wren (*Thryothorus ludovicianus*), Carolina chickadee (*Poecile carolinensis*), tufted titmouse (*Baeolophus bicolor*), mourning dove (*Zenaida macroura*), red-shouldered hawk (*Buteo lineatus*), eastern towhee (*Pipilo erythrophthalmus*), and Kentucky warbler (*Oporornis formosus*). The project study area's wooded and open habitat is expected to support other species such as red-tailed hawk, American kestrel (*Falco sparverius*), belted kingfisher, common flicker (*Colaptes auratus*), red-bellied woodpecker (*Melanerpes carolinus*), brown thrasher (*Toxostoma rufum*), eastern bluebird (*Sialia sialis*), and American robin (*Turdus migratorius*). Breeding Neotropical migrants that may inhabit the project study area during the breeding season (April through July) include blue-gray gnatcatcher, great crested flycatcher, red-eyed vireo (*Vireo olivaceous*), northern parula, Louisiana waterthrush (*Seiurus motacilla*), Acadian flycatcher, and hooded warbler (*Wilsonia citrina*). These species capitalize on the abundant riparian insects and nesting substrates (canopy trees, subcanopy trees, undercut banks, and shrubs).

No amphibians were observed, and a black rat snake (*Elaphe obsoleta*) was the only reptile observed during the site visit. Reptile and amphibian species expected in habitats within the project study area are American toad (*Bufo americana*), northern cricket frog (*Acris crepitans*), gray treefrog (*Hyla versicolor*), slimy salamander (*Plethodon glutinosus*), Carolina anole (*Anolis carolinensis*), eastern box turtle (*Terrapene carolina*), eastern hognose snake (*Heterodon platyrhinos*), and eastern garter snake (*Thamnophis sirtalis*).

3.2 Aquatic Communities

No aquatic amphibians or reptiles were observed during the site visit. Typical amphibian species found in river, stream, and associated floodplain habitats include spring peeper (*Pseudacris crucifer*), eastern newt (*Notophthalmus viridescens*), and green frog (*Rana melanota*). No reptiles were observed during the site visit. The Yadkin River and Falls Creek provide suitable habitat for aquatic and semi-aquatic reptiles including painted turtle (*Chrysemys picta*), northern water snake (*Nerodia sipedon*), queen snake (*Regina septemvitatta*), and snapping turtle (*Chelydra serpentina*). No benthic invertebrates were observed during the field visit.

No sampling was undertaken in the Yadkin River or Falls Creek to determine fishery potential. No fish were noted during the field visit. Species which may be present within the Yadkin River or Falls Creek include thicklip chub (*Hybopsis labrosa*), bluehead chub (*Nocomis*

leptocephalus), whitefin shiner (*Notropis lutrensis*), spottail shiner (*Notropis hudsonius*), redlip shiner (*Notropis chiliticus*), creek chub (*Semotilus atromaculatus*), white sucker (*Catostomus commersoni*), brown bullhead (*Ictalurus nebulosus*), margined madtom (*Noturus insignis*), redbreast sunfish (*Lepomis auritus*), largemouth bass (*Micropterus salmoides*), tessellated darter (*Etheostoma olmstedi*), piedmont darter (*Percina crassa*), and rosyside dace (*Clinostomus funduloides*).

3.3 Summary of Anticipated Impacts

Plant community areas are estimated based on the amount of each plant community present within the project study area (Table 1).

Table 1. Project Study Area Plant Communities.

Plant Community	Area
Disturbed/Maintained Land	3.1 (1.3)
Dry-Mesic Oak Pine Forest	4.6 (1.9)
Piedmont Levee Forest	2.4 (1.0)
Total	10.1 (4.2)

Areas are given in acres (hectares).

No significant habitat fragmentation will be expected as a result of project activities if potential improvements are restricted to adjoining roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns.

Potential on-site and downstream impacts to aquatic habitat are to be avoided by bridging the stream system to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments may affect benthic populations. Benthic invertebrates form the basis of the food-chain in stream systems. Impacts to downstream habitats associated with turbidity and suspended sediments resulting from bridge replacement will be minimized through the use of silt curtains and the implementation of stringent erosion control measures.

No Significant Aquatic Endangered Species Habitat exists within or near the project study area. Because there are no anadromous fish that breed in the Yadkin River, the replacement of Bridge No. 13 can be classified as Case 3; therefore, there are no special restrictions beyond those outlined in *Best Management Practices for Protection of Surface Waters.*

4.0 JURISDICTIONAL TOPICS

4.1 Waters of the United States

Surface waters within the embankments of the Yadkin River and Falls Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United

States" (33 CFR Section 328.3). The Yadkin River, within the project study area, has been characterized on NWI mapping (NWI Elkin North, NC 7.5 minute quadrangle) as riverine that is lower perennial with an unconsolidated bottom and permanently flooded (R2UBH). During the field visit, the NWI classification was determined to be accurate. Falls Creek has not been characterized on NWI mapping. During the field visit, Falls Creek was determined to be riverine, upper perennial with an unconsolidated bottom primarily of mud that is permanently flooded (R3UBH). The project study area contains a total of 845.0 linear feet (257.6 linear meters) and 1.5 acre (0.6 hectare) of perennial streams (Table 2 and Figure 3). Project planning for bridge replacement calls for the removal of three existing bridge support bents from the Yadkin River and construction of one new bridge support bent within the Yadkin River. Project planning for bridge replacement indicates no direct impact to Falls Creek. A narrowing of the floodplain of Falls Creek by the proposed retaining wall may cause bank erosion during high water periods.

Vegetated wetlands are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR Section 328.3). These areas 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). During the field visit, it was determined that no vegetated wetlands occur within the project study area.

Table 2. Jurisdictional Areas within the Project Study Area

Cowardin Classification	Linear Distance	Area	DWQ Rating
R2UBH (Yadkin River)	255.0 (77.6)	1.2 (0.5)	N/A
R3UBH (Falls Creek)	590.0 (180)	0.3 (0.1)	N/A

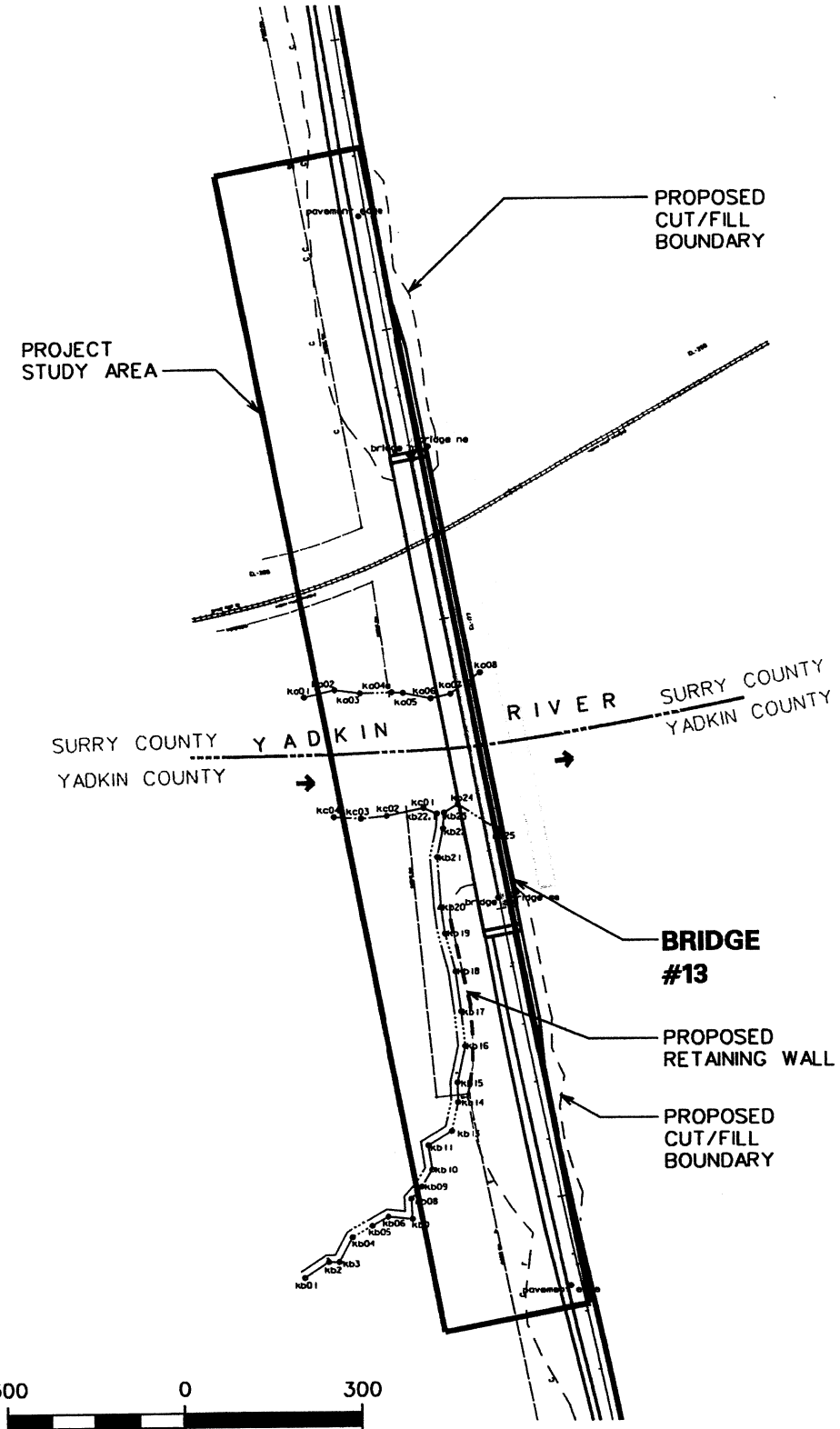
Linear distance is expressed in feet (meters), and area is expressed in acres (hectares).

4.2 Permit Issues

4.2.1 Permits

This project is being processed as a Programmatic Categorical Exclusion (PCE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (67 FR 2082; January 15, 2002) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP No. 23 (GC 3403). If temporary structures are necessary for construction activities, access fills, or dewatering of the site, then a NWP 33 (67 FR 2020, 2087; January 15, 2002) permit and associated General 401 Water Quality Certification (GC 3366) will be required. 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 and its associated General 401 Water Quality Certification (GC 3375) issued by the Wilmington COE District.

As this reach of the Yadkin River has no potential as a travel corridor for migratory fish (Division of Marine Fisheries Anadromous Fish Spawning Areas; NCCGIA 1998), this project can be



LEGEND

STREAM BOUNDARIES

PROPOSED BRIDGE

EcoScience Corporation
Raleigh, North Carolina

Client:
KO AND ASSOCIATES
NCDOT

Project:
REPLACEMENT OF BRIDGE #13 (I-4025A) I-77 OVER YADKIN RIVER
Yadkin and Surry Counties, North Carolina

Dwn By:	Ckd By:
MAF	KW

Date: JUL 2003

Scale: 1"=300'

ESC Project No.: 03-146

FIGURE
3

classified as Case 3, where in-water work will not be restricted by fish moratorium periods associated with fish migration, spawning, and nursery areas.

4.2.2 Mitigation

The COE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the United States, and specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). The three aspects of avoidance, minimization, and compensatory mitigation must be considered sequentially.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes. Impacts to streams are expected due to the nature of the project. Not all sediment can be prevented from entering waters of the United States.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. All efforts will be made to decrease impacts to surface waters.

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. In accordance with 15A NCAC 2H .0506(h), DWQ may require compensatory mitigation for projects with greater to or equal than 1.0 acre (0.4 hectare) of impacts to jurisdictional wetlands or greater than or equal to 150.0 linear feet (45.7 linear meters) of total perennial stream impacts. Furthermore, in accordance with 67 FR 2020, 2092; January 15, 2002, the COE requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of the proposed project impact and the function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. 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, preservation and enhancement, and creation of

waters of the United States. Such actions should be undertaken first in areas adjacent to or contiguous to the discharge site.

Mitigation for Section 404 jurisdictional area impacts may not need to be proposed for this project due to the potentially limited nature of the project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native riparian species and removal of temporary fill material upon project completion. Fill or alteration of more than 150.0 linear feet (45.8 linear meters) of stream may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE and DWQ.

Opportunities for mitigation are limited within the project study area. Enhancement of Falls Creek is needed because approximately 50 percent of its watershed is cultivated, cattle pasture, or developed. The lower 4000 feet (1219 meters) of Falls Creek is subject to cattle and is characterized by very little vegetated buffer allowing normal rain events to erode the banks and discharge high sediment loads into the Yadkin River.

4.3 Protected Species

Species with the federal classification of Endangered, Threatened, Threatened due to Similarity of Appearance (T [S/A]), or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range," and the term "Threatened Species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). The term "Threatened due to Similarity of Appearance" is defined as a species which is not "Endangered" or "Threatened," but "closely resembles an Endangered or Threatened species" (16 U.S.C. 1532). Three federally protected species, the bog turtle (*Clemmys muhlenbergii*) (T [S/A]), Schweinitz's sunflower (*Helianthus schweinitzii*), and small-whorled pogonia (*Isotria medeoloides*), are listed as occurring in Surry County (February 25, 2003 FWS list), and no species are listed for Yadkin County (January 29, 2003 FWS list).

Clemmys muhlenbergii (Bog turtle)
Threatened due to similarity of appearance
Family: Emydidae
Date Listed: November 4, 1997

The bog turtle is a small turtle reaching an adult size of approximately 3 to 4 inches (8 to 10 centimeters) in carapace length. This otherwise dark-colored species is readily identifiable by the presence of bright orange or yellow blotches on the sides of the head and neck (Martof *et al.* 1980). The bog turtle is typically found in bogs, marshes, and wet pastures, usually in association with aquatic or semi-aquatic vegetation and small, shallow streams over soft bottoms (Palmer and Braswell 1995). In North Carolina, bog turtles have a discontinuous

distribution in the mountains and western Piedmont. The bog turtle has declined drastically within the northern portion of its range due to over-collection and habitat alteration. As a result, the FWS officially proposed to list bog turtle as threatened within the northern portion of its range in the January 29, 1997 Federal Register (62 FR 4229). Within the southern portion of its range, which includes North Carolina, the bog turtle is listed as T (S/A) because of similarity in appearance to individuals of the northern population.

NHP records (June 2003) document the nearest occurrence of the bog turtle in Surry County approximately 8.5 miles (13.6 kilometers) north northwest of the project study area. The project study area has no habitat for *Clemmy muhlenbergii.* T (S/A) species are not subject to Section 7 consultation, and **a biological conclusion for this species is not required.**

Helianthus schweinitzii (Schweinitz's sunflower)
Endangered
Family: Asteraceae
Date Listed: May 7, 1991

Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately 6.0 feet (1.8 meters) in height. The stem may be purple, usually pubescent, but sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above; in shape they are lanceolate and average 5 to 10 times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from September to frost; the yellow flower heads are about 0.6 inches (1.5 centimeters) in diameter. The current range of this species is within 60 miles of Charlotte, North Carolina, occurring on upland interstream flats or gentle slopes, in soils that are thin or clayey in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (FWS 1994).

BIOLOGICAL CONCLUSION: MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT

NHP records (June 2003) document the nearest occurrence of Schweinitz's sunflower in Surry County approximately 10.6 miles (17.0 kilometers) northeast of the project study area. The project study area supports suitable habitat for Schweinitz's sunflower in portions of the disturbed/maintained areas such as beneath the bridges and along the corridor's maintained right-of-way. A detailed survey Schweinitz's sunflower was conducted on September 17, 2003. The biologists conducting the survey (Ben Brazell and David O'Loughlin) were experienced with location of suitable habitat and identification of this species. The plant-by-plant survey was conducted in all suitable habitat (roadside shoulders, a power line corridor, other regularly maintained areas, and woodland edges) within the project study area. This survey resulted in a determination that Schweinitz's sunflower does not occur within the project study area.

Isotria medeoloides (small whorled pogonia)
Threatened
Family: Orchidaceae
Date Listed: September 9, 1982
Small whorled pogonia is a terrestrial orchid growing to about 10 inches (25 centimeters) high. Five or six drooping, pale dusty green, widely rounded leaves with pointed tips are arranged in a whorl at the apex of the greenish or purplish, hollow stem. Typically a single, yellowish green, nearly stalkless flower is produced just above the leaves; a second flower rarely may be present. Flowers consist of three petals, 0.7 inch (1.7 centimeters) in length, surrounded by three narrow sepals up to 1.0 inch (2.5 centimeters) in length. Flower production, (May to July) is followed by the formation of an erect ellipsoidal capsule 0.7 to 1.2 inches (1.7 to 3.0 centimeters) in length (Massey *et al.* 1983). This species may remain dormant for periods up to 10 years between blooming periods (Newcomb 1977).

The small whorled pogonia is widespread, occurring from southern Maine to northern Georgia, but is very local in distribution. In North Carolina, this species is found scattered locations in the Mountains, Piedmont and Sandhills (Amoroso 2002). Small whorled pogonia is found in open, dry deciduous or mixed pine-deciduous forest, or along stream banks. Examples of areas providing suitable conditions (open canopy and shrub layer with a sparse herb layer) include old fields, pastures, windthrow areas, cutover forests, old orchards, and semi-permanent canopy breaks along roads, streams, lakes, and cliffs (Massey *et al.* 1983). In the Mountains and Piedmont of North Carolina, this species is usually found in association with white pine (*Pinus strobus*) (Weakley 1993).

BIOLOGICAL CONCLUSION: MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT

NHP records (June 2003) document the nearest occurrence of the small whorled pogonia in Surry County, approximately 25 miles (40 kilometers) northeast of the project study area. The project study area contains suitable habitat for small whorled pogonia in the Dry-Mesic Oak Pine Forest and along stream banks of Falls Creek and the Yadkin River. Since the site visit was conducted during the blooming season for this species, biologists conducted systematic surveys during the site visit. These surveys involved walking through identified suitable habitat and carefully observing all plants. This survey found no evidence of small whorled pogonia within the project study corridor.

Federal Species of Concern - The February 25, 2003 FWS list also includes a category of species designated as "Federal species of concern" (FSC) in Surry and Yadkin Counties (Table 3). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).

Table 3. Federal Species of Concern

Common Name	Scientific Name	Potential Habitat	State Status**
Robust Redhorse	*Moxostoma robustum*	Yes	E*
Brook Floater	*Alasmidonta varicosa*	Yes	SR-PE

* Historic record – this species was last observed in Surry and Yadkin County more than 20 years ago

**State Status Codes - E: Endangered; SR-PE: Significantly Rare-Proposed Endangered

The FSC designation provides no federal protection under the ESA for species listed. NHP files document brook floater approximately 4.5 miles from the project study area in the Mitchell River drainage that empties to the Yadkin River. No documented occurrences of robust redhorse are within 100 miles (160 kilometers) of the project study area.

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