



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

March 12, 2012

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Ms. Lori Beckwith
NCDOT Coordinator

Dear Madam:

Subject: Application for a Section 404 Individual Permit and Section 401 Water Quality Certification for Slope Stabilization Measures Adjacent to Interstate 40 Between Mile Post 35 and Mile Post 36 in Haywood County. Federal Aid Project No. IMS-040-1(220)35, Division 14, TIP I-5402. Debit \$570 from WBS 46282.1.1.

The North Carolina Department of Transportation (NCDOT) proposes to address slope instability adjacent to the east-bound lane of Interstate 40 (I-40) between Mile Post 35 and Mile Post 36. No new roadway sections will be constructed except for replacement of existing guard rail and curbing. The project will involve re-routing roadway storm drainage away from eroded gullies and piping an actively eroding stream reach. The stormwater and stream flow from these areas will be directed to a stable outlet at the terminus of the existing piped crossing of an unnamed tributary (UT) to Hominy Creek under the interstate highway. The total project length is 0.229 mile.

Please see the enclosed ENG Form 4345, North Carolina Ecosystem Enhancement Program (NCEEP) mitigation acceptance letter, State Stormwater Management Plan permit drawings, and design plans, for the above-referenced project.

Purpose and Need:

The primary purpose of I-5402 is to address an eroding reach of a UT to Hominy Creek and slope instabilities adjacent to I-40. Erosion has been noted throughout the UT1 to Hominy Creek (UT1). Continued erosion of UT1 is expected to eventually expose and threaten the stability of the 78-inch corrugated metal pipe (CMP) that conveys the UT2 to Hominy Creek (UT2) into the project area. Continued erosion is expected to affect the stability of the I-40

roadway bed and continue to introduce sediment to downstream waters. Repairs to this area are intended to provide a long-term solution to reduce erosion to roadway slopes in the drainage outfalls and streams.

Summary of Jurisdictional Impacts:

The project will permanently impact 392 linear feet of streams. No impacts to wetlands or temporary impacts to streams are anticipated.

Summary of Utility Impacts:

There will be no temporary or permanent impacts to jurisdictional resources due to utility relocations on I-5402.

Summary of Mitigation:

The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the design processes. However, project impacts will necessitate compensatory mitigation for the unavoidable impacts. Detailed descriptions of these actions are presented in the mitigation portion of this application. EEP will provide compensatory mitigation for 392 linear feet of stream impacts at a 1:1 ratio. The stream impacts requiring mitigation for this project are provided in the *Impacts to Waters of the U.S.: Permit Site Description*, and *Mitigation Options: Compensation* sections below.

NEPA DOCUMENT STATUS

The proposed project was evaluated as a Categorical Exclusion (CE). The CE was approved by the Federal Highway Administration (FHWA) in August 2011. Copies of approved documents have been provided to regulatory review agencies involved in the approval process. Additional copies of this document will be provided upon request.

INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of independent utility of a project:

- (1) The project connects logical termini and is of sufficient length to address environmental matters on a broad scope;
- (2) The project is usable and a reasonable expenditure, even if no additional transportation improvements are made in the area;
- (3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

RESOURCE STATUS

TIP Project I-5402 is located within the French Broad River Basin [Hydrologic Unit Code (HUC 06010105)]. All streams within the project area are classified as North Carolina Division of Water Quality (NCDWQ) Class C waters. No designated Water Supply Watersheds (WS-I or WS-II), Outstanding Resource Waters (ORWs), or High Quality Waters (HQWs) occur within 1.0 mile of the project area.

303(d) Impaired Waters:

The North Carolina Department of Environment and Natural Resources' (NCDENR) 2010 Final 303(d) List does not include any streams within 1.0 mile of the project area.

Wetland and stream determinations within I-5402 were conducted using the field delineation method outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and the appropriate regional supplement (Eastern Mountains and Piedmont Region) and the NCDWQ's *Identification Methods for the Origins of Intermittent and Perennial Streams*. Ms. Lori Beckwith of the U.S. Army Corps of Engineers (USACE) visited the site and verified jurisdictional areas on June 7, 2011. This Individual Permit application includes a request for a final Jurisdictional Determination of the resources included in the I-5402 project area.

IMPACTS TO WATERS OF THE U.S.

Table 1 summarizes the impacts to jurisdictional streams. A brief description of the impact site will follow the table.

Table 1. Impacts to jurisdictional streams in the French Broad River Basin

Stream Name	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement
UT1 to Hominy Creek	Permanent Fill/ Piping of stream	392	0	USACE & DWQ

Permit Site Description: The existing 48-inch CMP that conveys UT1 under I-40 will be extended to the existing 78-inch CMP that conveys UT2. This portion of UT1 will be piped because it is currently exhibiting severe erosion. Permanent impacts to UT1 total 392 feet. Impacts to UT1 are comprised of 198 feet of fill from the 48-inch CMP and 194 feet of UT1 that will have flow diverted and thus the channel will be abandoned.

MORATORIUM

The North Carolina Wildlife Resources Commission (NCWRC) has identified Hominy Creek downstream of the project area as trout waters. However, per a letter dated April 26, 2011, the NCWRC will not require the NCDOT to observe a trout moratorium.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 21, 2011 the USFWS listed nine federally protected species for Haywood County.

Table 3. Federally protected species listed for Haywood County.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Clemmys muhlenbergii</i>	Bog turtle	T (S/A)	No	Not Required
<i>Glaucomys sabrinus coloratus</i>	Carolina northern flying squirrel	E	No	No Effect
<i>Myotis grisescens</i>	Gray bat	E	No	No Effect
<i>Myotis sodalis</i>	Indiana bat	E	No	No Effect
<i>Alasmidonta raveneliana</i>	Appalachian elktoe	E	No	No Effect
<i>Microhexura montivaga</i>	Spruce-fir moss spider	E	No	No Effect
<i>Isotria medeoloides</i>	Small-whorled pogonia	T	Yes	No Effect
<i>Gymnoderma lineare</i>	Rock gnome lichen	E	No	No Effect
<i>Geum radiatum</i>	Spreading avens	E	No	No Effect

Federal Status: T (S/A)=Threatened due to Similarity of Appearance; E=Endangered; T=Threatened

The I-5402 project area was surveyed for federally listed species and habitat on January 19, 2011 and June 23, 2011. Habitat for small whorled pogonia is present in the project area; however, no specimens were found during field surveys. Therefore, the biological conclusion for all federally protected species listed for Haywood County is "No Effect."

INDIRECT AND CUMULATIVE IMPACT ANALYSIS

This project has been approved by the FHWA as a Type II (B) programmatic CE. Under regulations implementing the National Environmental Policy Act (NEPA, 23 CFR 771.117), no further documentation is required; therefore, an indirect and cumulative impact analysis is not needed for this project.

CULTURAL RESOURCES

Historical Structures:

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

No properties eligible for the NRHP are present within the project area; therefore, the proposed project will not impact any historic structures.

Archaeology:

Proposed activities are anticipated to be limited to fill slopes and areas previously disturbed by construction activities. The proposed project will have no effect on archaeological resources.

Over the course of construction, all construction inspectors will have the responsibility to monitor the project area for potential archaeological remains throughout the construction process. If potential archaeological remains (such as foundations, fireplaces, bones, stone tools, pottery, etc.) are identified, the inspector will immediately notify the Construction

Supervisor (CS) who will immediately halt work in the vicinity of the potential find. At this point, the CS will notify the NCDOT and the North Carolina Office of State Archaeology (NCOSA) to determine the appropriate course of action, as per the requirements of Section 106 of the National Historic Preservation Act.

SECTION 4(f)

No Section 4(f) resources were identified within the project area; therefore, the proposed project will have no effect on Section 4(f) resources.

FEMA COMPLIANCE

No Federal Emergency Management Agency (FEMA)-designated floodways are located within the project area. The nearest designated floodway is located approximately 0.3 mile south of the project area along Hominy Creek.

WILD AND SCENIC RIVER SYSTEM

The project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning process; minimization measures were incorporated as part of the project design.

Avoidance and Minimization:

The NCDOT has avoided impacts to wetlands and streams to the greatest extent practicable. No wetlands are located within the project area. Minimization measures include the examination of appropriate and practicable steps to reduce adverse impacts. Specific examples of avoidance and minimization measures are listed below.

Avoidance and Minimization Measures used throughout the project:

- NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced.
- The reach of UT2 downstream of the existing confluence with UT1 is expected to benefit from decreased sedimentation from continued erosion of the UT1 stream bed and gullies originating at existing roadside stormwater outlets.
- All mechanized equipment will be inspected and maintained to prevent surface water contamination from fuels, lubricants, fluids, or other toxic materials.
- The dimension, pattern and profile of UT2 will not be modified.
- Structure 0409 is a preformed scour hole designed to dissipate stormwater energy and diffuse water flow.

Compensation:

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. This project will permanently impact 392 linear feet of streams in the French Broad River Basin.

The NCDOT pursued using two streams immediately downstream of the proposed project for onsite mitigation that would consist of stream restoration and stream enhancement. However, the land owner did not agree to sell the property for the appraised value. Therefore, compensatory mitigation for the 392 linear feet of Cool Water Stream credits will be provided by the NCEEP at a 1:1 ratio per phone conversation between NCDOT and Lori Beckwith with the USACE (see attached mitigation acceptance letter).

PROJECT SCHEDULE

I-5402 calls for a let date of November 20, 2012, with a review date of October 2, 2012. This application provides final design and impacts for the project.

REGULATORY APPROVALS

Section 404: Application is hereby made for a USACE Section 404 Individual Permit as required for the above-described activities. An approved Jurisdictional Determination is also being sought at this time.

Section 401: We are hereby requesting a Section 401 Water Quality Certification from the NCDWQ. In compliance with Section 143-215.3D(e) of the North Carolina Administrative Code (NCAC), we will provide \$570.00 as payment for processing the Section 401 permit. We are providing five (5) copies of this application to the NCDWQ for review and approval.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Brett Feulner at bmfeulner@ncdot.gov or (919) 707-6116. A copy of this permit application and its distribution list will be posted on the NCDOT website at <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>.

Sincerely,



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

cc:
NCDOT Permit Application Standard Distribution List

**U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)**

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 AUGUST 2012

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Gregory Middle - J. Last - Thorpe Company - North Carolina Division of Transportation E-mail Address -			8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -		
6. APPLICANT'S ADDRESS: Address- 1598 Mail Service Center City - Raleigh State - NC Zip - 27699 Country - USA			9. AGENT'S ADDRESS: Address- City - State - Zip - Country -		
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax n/a (919) 707-6000 (919) 212-5785			10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax		

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) I-5402, Address Slope Instability Through Repair Adjacent to Interstate 40 from Mile Post 35 to Mile Post 36		
13. NAME OF WATERBODY, IF KNOWN (if applicable) Unnamed tributary to Hominy Creek		14. PROJECT STREET ADDRESS (if applicable) Address n/a
15. LOCATION OF PROJECT Latitude: +N 35.541154 Longitude: +W -82.795278		City - State- Zip-
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID -- Municipality - Canton, NC Section - -- Township - Beaverdam Range - --		

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

- a. Address- Carl E. Jr. and Tammy C. Case 98 Albany Grey Drive (owner address)
 City - Canton State - NC Zip - 28716
- b. Address- Carl E. Jr. and Tammy C. Case 258 Albany Grey Drive (property address)
 City - Canton State - NC Zip - 28716
- c. Address- Jerry B. and Carol J. Davis 235 Holder Branch Road
 City - Canton State - NC Zip - 28716
- d. Address- Phyllis and Danny Price 91 Star Ridge Road (owner address)
 City - Canton State - NC Zip - 28716
- e. Address- Phyllis and Danny Price 662 Holder Branch Road (property address)
 City - Canton State - NC Zip - 28716

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
FHWA	Categorical Exclusion	IMS-040-1(220)35		2011-08-09	
NC EEP	Stream Mitigation		2011-12-05	2011-12-06	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

E. J. Rusk for Gregory J. Thorne, PhD Mar 12, 2012
 SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

17. DIRECTIONS TO THE SITE

From Asheville, NC- Travel west on I-40 approximately 7 miles to Exit 37 (toward East Canton). Turn left at the top of the exit ramp onto Wiggins Road (SR 1148) and travel approximately 0.1 mile. Turn right onto US 19/23 (Smokey Park Highway) and travel west approximately 2.4 miles. Turn right onto Holder Branch Road (SR 1599) and travel north approximately 0.7 mile to the crossing of I-40 over Holder Branch Road. The Site is immediately west.

From Canton, NC- travel east on I-40 for approximately 1.8 miles from Exit 33 (Newfound Road, SR 1004). The Site is adjacent to the south side of I-40 east-bound.

18. Nature of Activity (Description of project, include all features)

Please see attached cover letter.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The primary purpose of I-5402 is to address an eroding reach of an unnamed tributary to Hominy Creek and slope instabilities adjacent to I-40. Erosion has been noted throughout the unnamed tributary to Hominy Creek. Continued erosion of this tributary is expected to eventually expose and threaten the stability of the pipe that conveys a second unnamed tributary to Hominy Creek. The southern side of I-40 (adjacent to the east-bound lanes) experiences severe erosion in several locations at the outfalls of drains that convey stormwater away from the roadway. Continued erosion is expected to affect the stability of the I-40 roadway bed and continue to introduce sediment to downstream waters. Repairs to this area are intended to provide a long-term solution to reduce erosion within the stream and at the stormwater drainage outfalls.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Reduction in roadside and stream erosion. Stormwater runoff and flow from approximately 392 linear feet of the unnamed tributary to Hominy Creek will be enclosed in a 48-inch pipe and directed to a stable outlet. The project is ultimately expected to result in a reduction to downstream sediment introduction.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

Please see attached cover letter.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres approximately 0.05 acre

or

Linear Feet 392

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Please see attached cover letter.



December 6, 2011

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

I-5402, I-40 from Mile Post 35 to Mile Post 36, Haywood County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 5, 2011, the impacts are located in CU 06010105 of the French Broad River basin in the Southern Mountains (SM) Eco-Region, and are as follows:

French Broad 06010105 SM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	392	0	0	0	0	0	0

EEP commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

Michael Ellison
EEP Deputy Director

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: I-5402

Restoring... Enhancing... Protecting Our State



STORMWATER MANAGEMENT PLAN

Project: 46282.1.1

TIP No. I-5402

County: Haywood

Date: 11/28/11

Hydraulics Project Manager: Andrew Nottingham, PE (NCDOT Hydraulics Unit)

ROADWAY DESCRIPTION

Project I-5402 consists of addressing slope stability along the east-bound lane on I-40 between mile post 35 and mile post 36. No new roadway sections will be constructed except for replacement of existing guardrail and curbing. The majority of work will involve re-routing storm drainage away from eroded gullies to a more stable outlet at an existing pipe crossing of the interstate highway. The total project length is 0.229 miles.

ENVIRONMENTAL DESCRIPTION

The project is located within the French Broad River Basin. The stream impacted by the project is a tributary to Holder Branch and has a stream classification of "C". The surrounding land is mountainous and generally wooded. Land uses include rural residential, agricultural practices including livestock and forestry. There are no wetlands in the project vicinity. Stream impacts are from filling and piping.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

- Sources of severe erosion will be eliminated by eliminating overland flow across steep roadway fill.
- Energy from the pipe system will be dissipated before entering the existing stream by constructing a junction box on the existing 78" pipe crossing. The outlet of the 78" pipe is a stable, well defined stream natural stream with a streambed comprised of huge boulders and no additional in-stream energy dissipation is warranted.
- A short enclosed drainage system on the east end of the project will direct storm water away from the receiving waters to allow for attenuation and infiltration.
- Additional right of way will be purchased to exclude livestock grazing.

09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

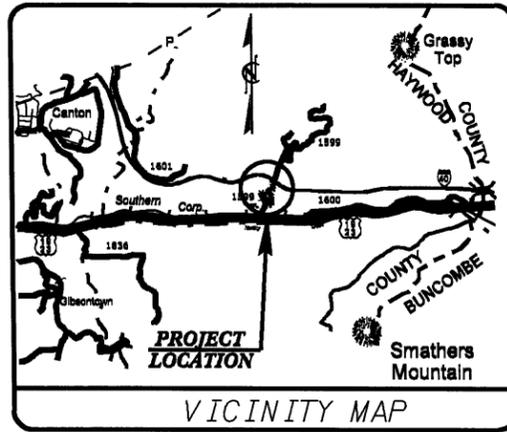
HAYWOOD COUNTY

LOCATION: I-40 EBL FROM MP 35 TO MP 36

TYPE OF WORK: ADDRESS SLOPE INSTABILITY.

**PERMIT DRAWING
SURFACE WATER IMPACTS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5402	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46282.1.1	IMS-040-1 (220)	PE	
46282.2.1	IMS-040-1(220)35	RW & UTILITIES CONSTRUCTION	

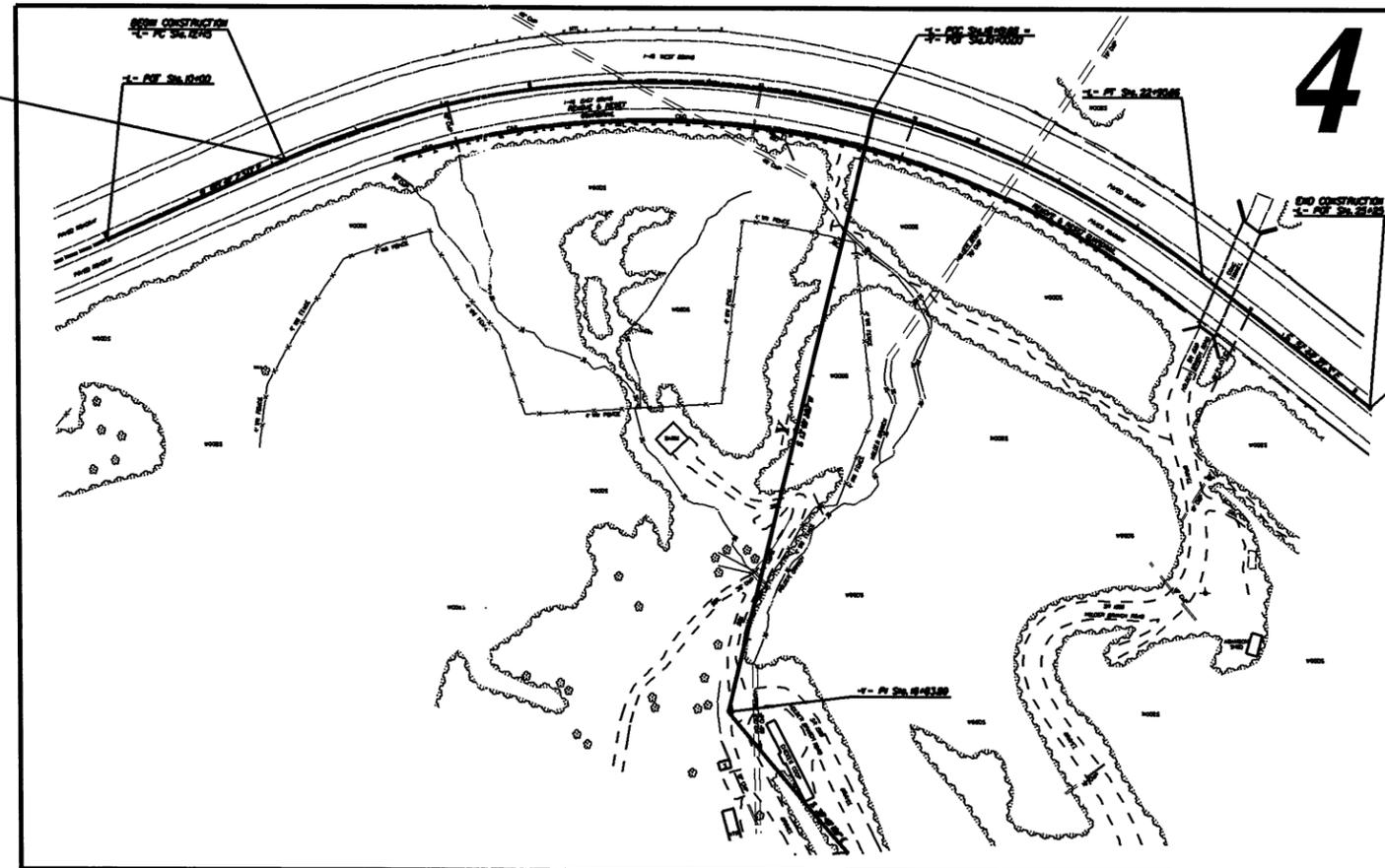


TIP PROJECT: I-5402

CONTRACT: 46282.2.1

BEGIN PROJECT I-5402
-L- 12+15.00

TO CANTON



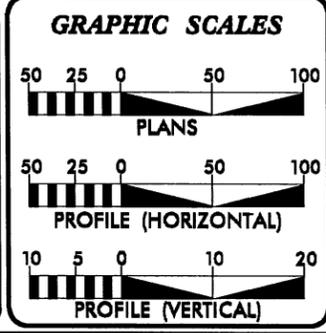
END PROJECT I-5402
-L- 24+25.00

TO WIGGINS RD.



Permit Drawing
Sheet 1 of 7

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2000 =	43,350
ADT 2020 =	71,000
DHV =	12 %
D =	60 %
T =	31 % *
V =	70 MPH
* TTST =	25% DUAL 6%
FUNC CLASS =	INTERSTATE
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT IMS-040-1 (220) =	0.229 MILES
TOTAL LENGTH STATE PROJECT 46282.1.1 =	0.229 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 27, 2011

LETTING DATE: NOVEMBER 18, 2012

JIMMY S. GOODNIGHT, PE
PROJECT ENGINEER

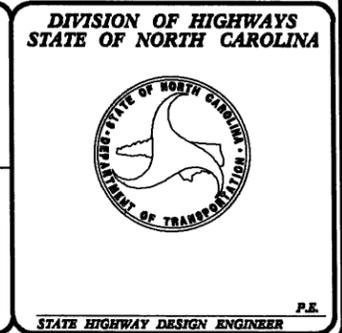
STEVE D. KENDALL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

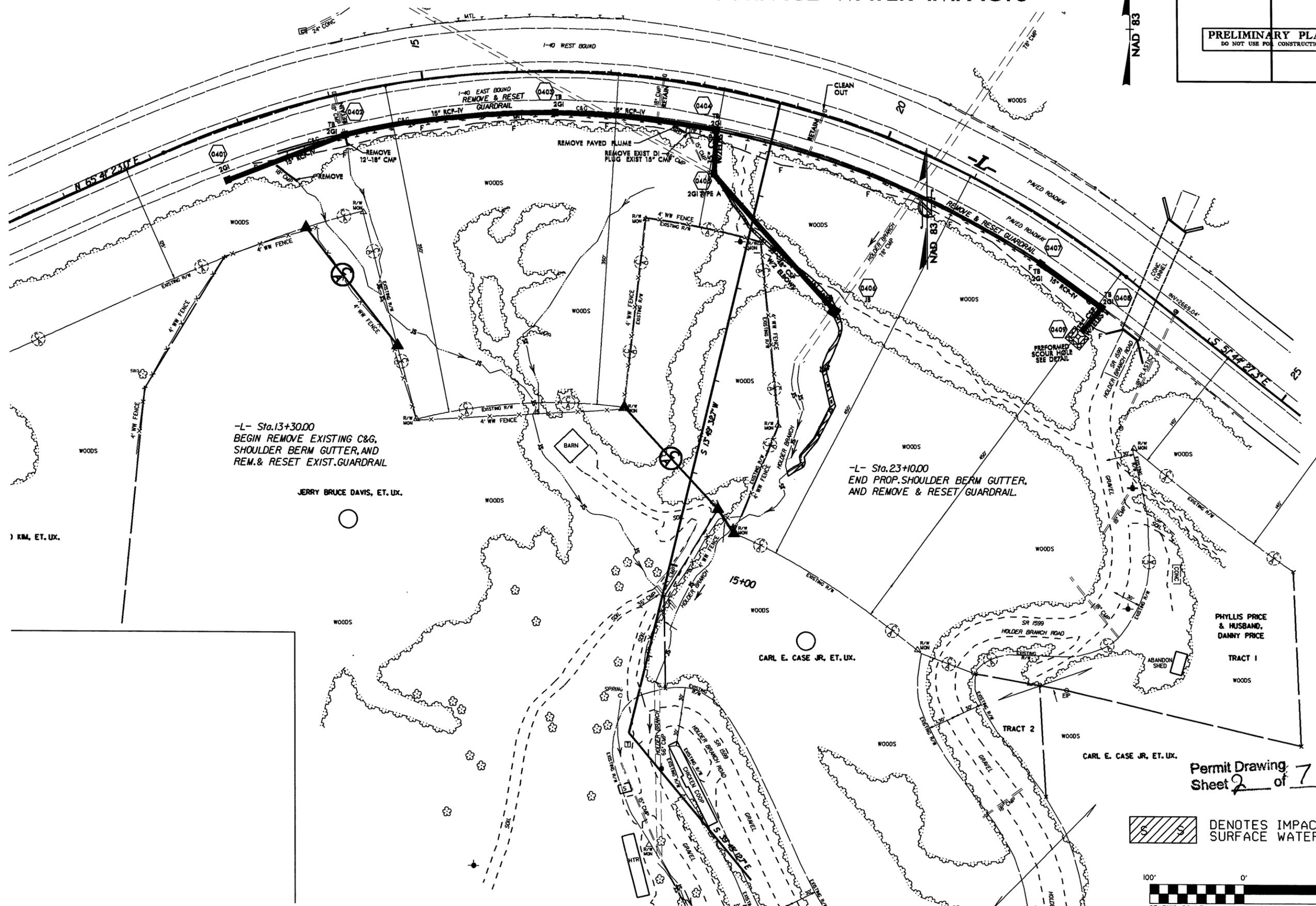
SIGNATURE: _____ P.E.



\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

PERMIT DRAWING SURFACE WATER IMPACTS

PROJECT REFERENCE NO. 1-5402	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

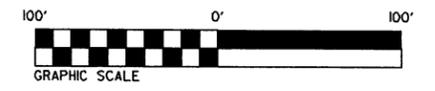


-L- Sta. 13+30.00
 BEGIN REMOVE EXISTING C&G,
 SHOULDER BERM GUTTER, AND
 REM. & RESET EXIST. GUARDRAIL

-L- Sta. 23+10.00
 END PROP. SHOULDER BERM GUTTER,
 AND REMOVE & RESET GUARDRAIL.

Permit Drawing
 Sheet 2 of 7

DENOTES IMPACTS IN SURFACE WATER



8/17/99

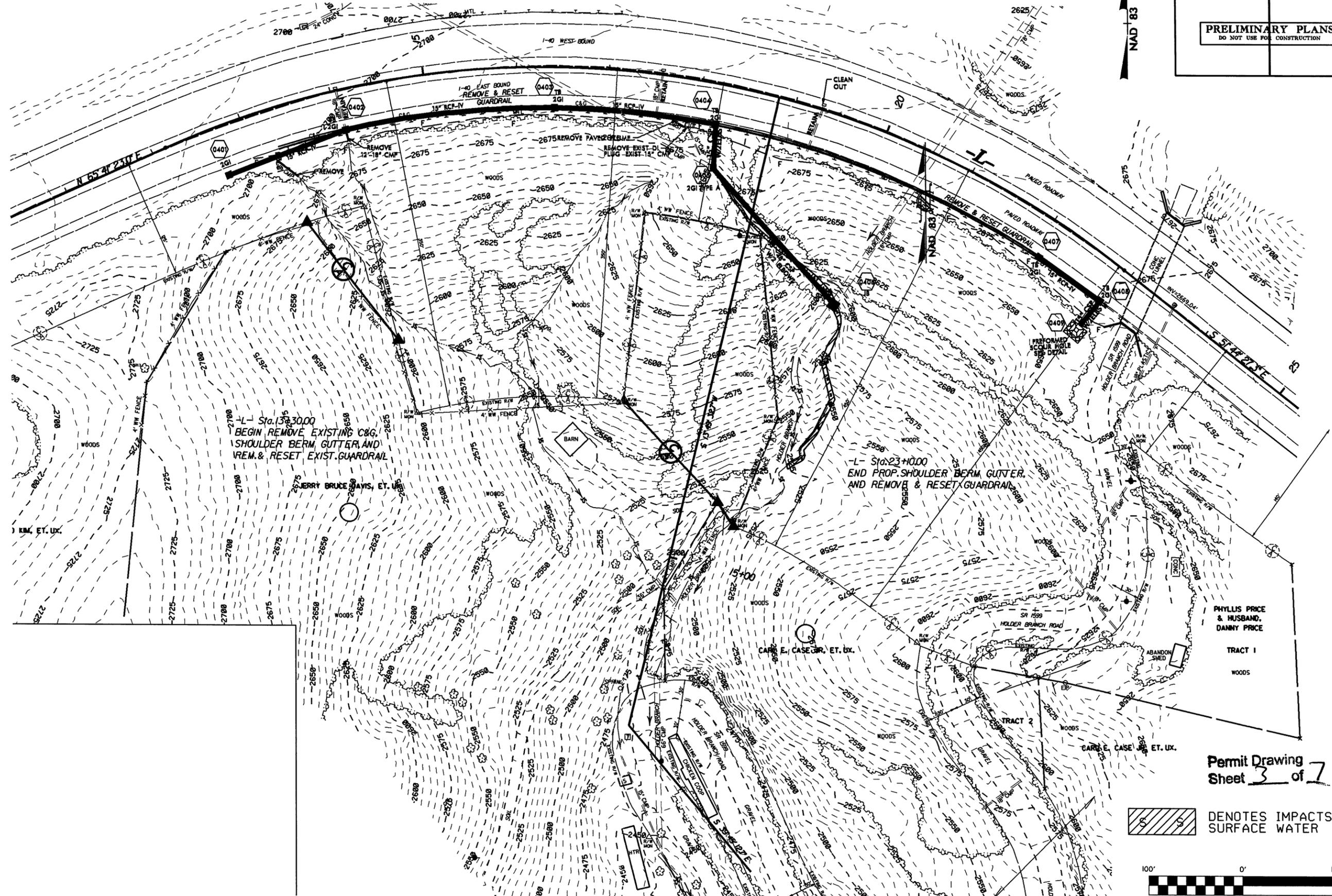
 SYSTEMS

8/17/99

PERMIT DRAWING SURFACE WATER IMPACTS

PROJECT REFERENCE NO. 1-5402		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

NAD 83

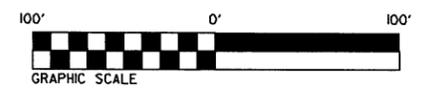


-L Sta. 13+30.00
 BEGIN REMOVE EXISTING C&G,
 SHOULDER BERM, GUTTER AND
 REM. & RESET EXIST. GUARDRAIL

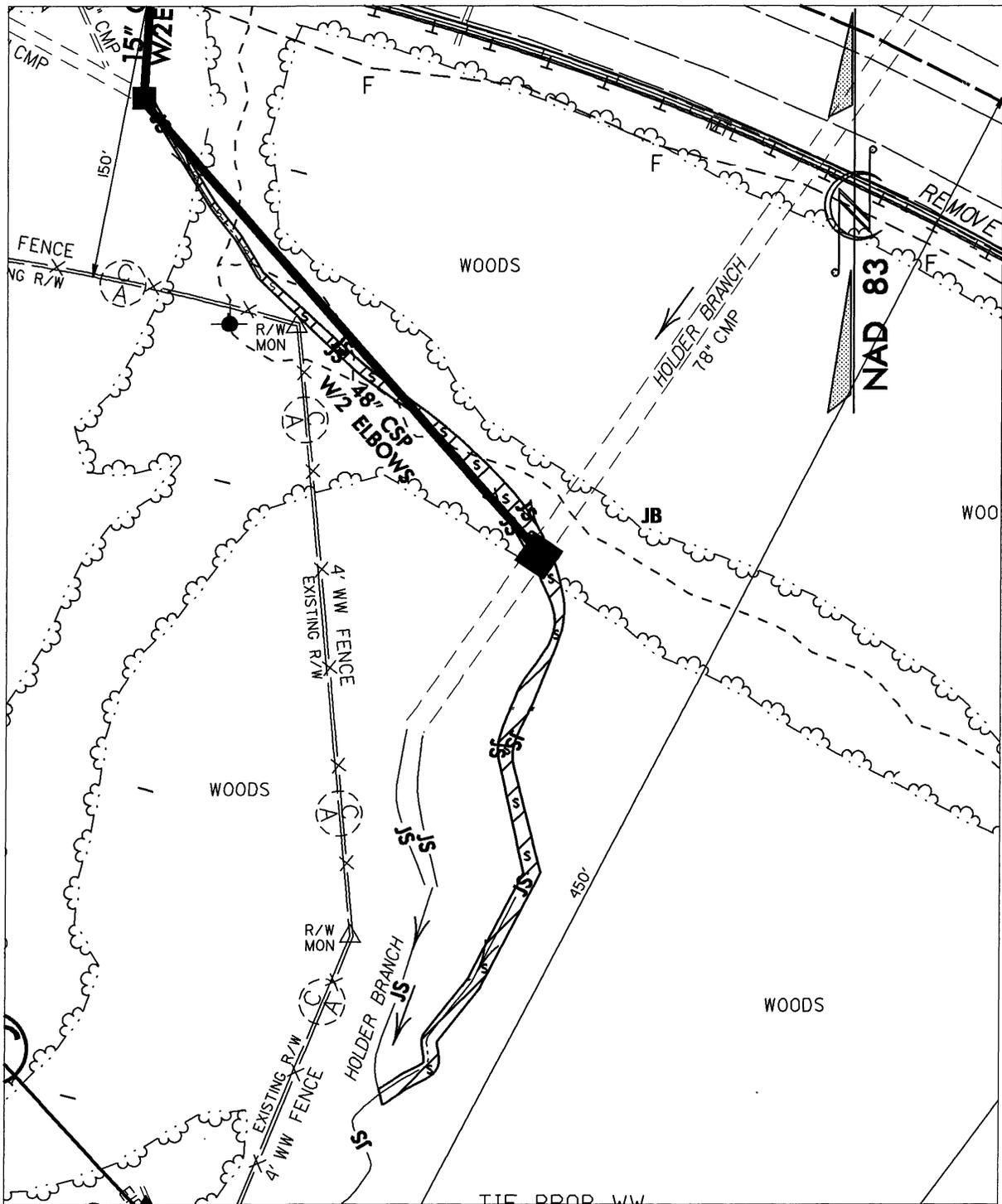
-L Sta. 23+00.00
 END PROP. SHOULDER BERM, GUTTER,
 AND REMOVE & RESET GUARDRAIL

Permit Drawing
 Sheet 3 of 7

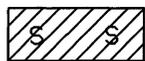
 DENOTES IMPACTS IN
 SURFACE WATER



 SYSTEMS
 DESIGN



PERMIT DRAWING SURFACE WATER IMPACTS



DENOTES IMPACTS IN
SURFACE WATER

50' 0' 50'



GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS
HAYWOOD COUNTY

PROJECT: 46282.1.1 (I-5402)

I-40 EBL

MP 35 TO MP 36

ADDRESS SLOPE INSTABILITY

SHEET

4 OF 7

11/28/11

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS							
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW Impacts (ac)	Temp. SW Impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)		
1	18+29/20+11 -L-	48" CSP W/2 ELBS								0.04		392		
TOTALS:										0.04		392		

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HAYWOOD COUNTY
WBS - 46282.1.1. (1-5402)

PROPERTY OWNERS

Jerry and Carol Davis 235 Holder Branch Rd. Canton NC 28716

Carl E. Case, Jr., et. Ux. 258 Alvany Grey Rd. Canton NC 28716

Phyllis and Danny Price 91 Star Ridge Rd. Canton NC 28716

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HAYWOOD COUNTY
WBS - 46282.1.1. (I-5402)

SHEET

7 of 7

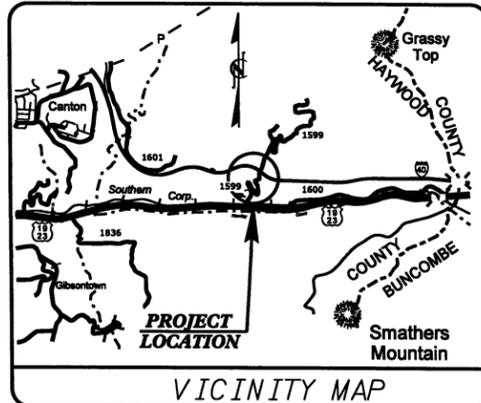
11/28/2011

09/08/09

TIP PROJECT: I-5402

CONTRACT: 46282.2.1

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: I-40 EBL FROM MP 35 TO MP 36

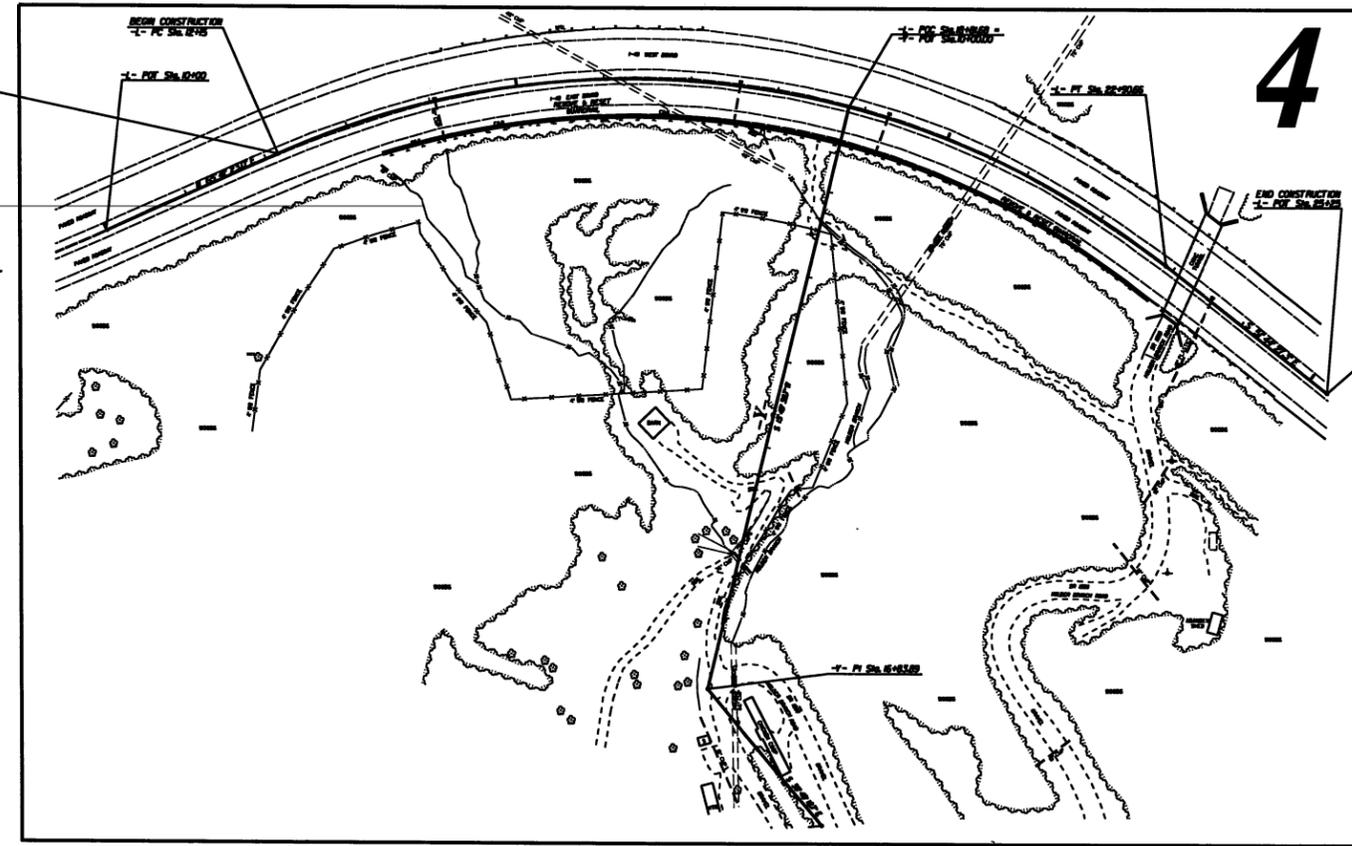
TYPE OF WORK: ADDRESS SLOPE INSTABILITY.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5402	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46282.1.1	IMS-040-1 (220)	PE	
46282.2.1	IMS-040-1(220)35	RW & UTILITIES	
		CONSTRUCTION	



BEGIN PROJECT I-5402
-L- 12+15.00

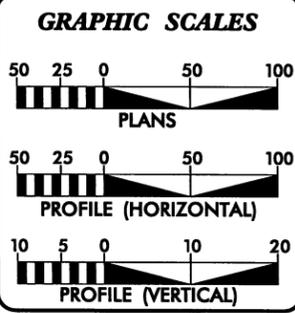
TO CANTON



END PROJECT I-5402
-L- 24+25.00

TO WIGGINS RD.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2000 =	43,350
ADT 2020 =	71,000
DHV =	12 %
D =	60 %
T =	31 % *
V =	70 MPH
* TTST =	25% DUAL 6%
FUNC CLASS =	INTERSTATE
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT IMS-040-1 (220) =	0.229 MILES
TOTAL LENGTH STATE PROJECT 46282.1.1 =	0.229 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 27, 2011

LETTING DATE: NOVEMBER 18, 2012

JIMMY S. GOODNIGHT, PE
PROJECT ENGINEER

STEVE D. KENDALL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

27-SEP-2011 09:32 R:\Roadway\Proj\I5402.Rdy.-t.sh.dgn \$\$\$USERNAME\$\$\$

6/2/99

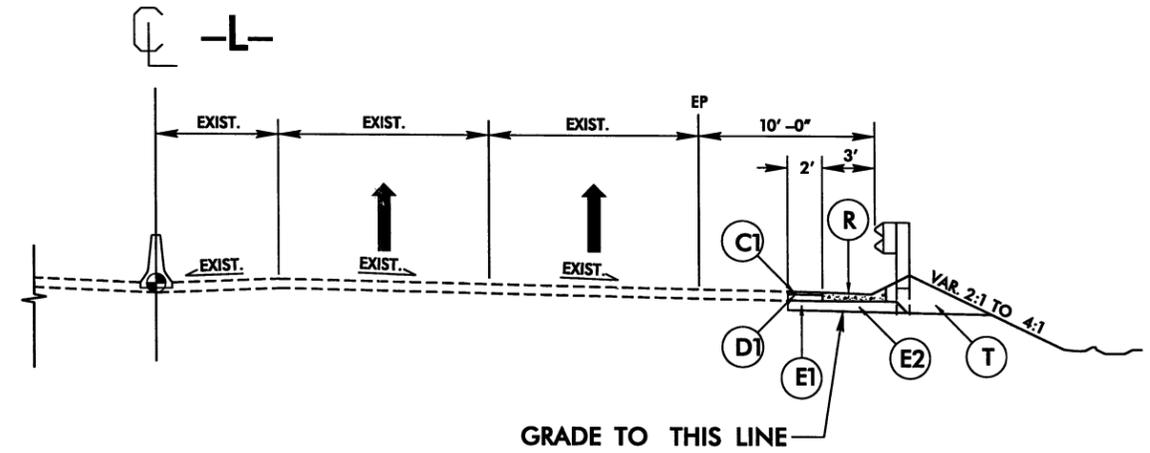
PROJECT REFERENCE NO. 1-5402	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R	SHOULDER BERM GUTTER Std. 846.01.
D1	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.		

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



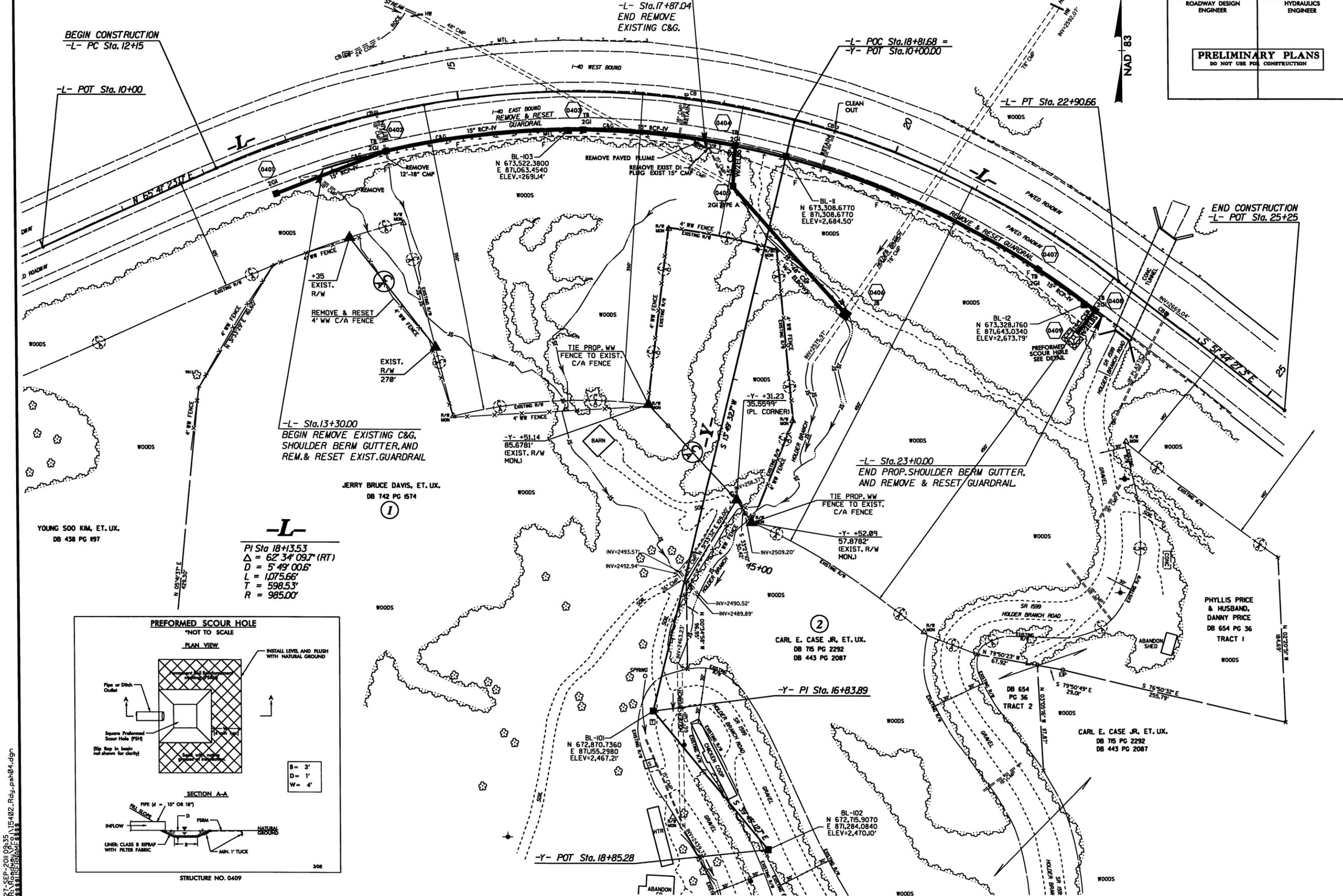
TYPICAL SECTION NO. 1

-L- Sta. 13+30.00 to Sta. 23+10.00 RT.

21 SEP 2011 09:32 \\FS402.Rdy. typ.dgn

8/17/99

PROJECT REFERENCE NO.		SHEET NO.	
1-5402		4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS			
DO NOT USE FOR CONSTRUCTION			



BEGIN CONSTRUCTION
-L- PC Sta. 12+15

-L- POT Sta. 10+00

-L- Sta. 17+87.04
END REMOVE
EXISTING C&G.

-L- POC Sta. 18+81.68 =
-Y- POT Sta. 10+00.00

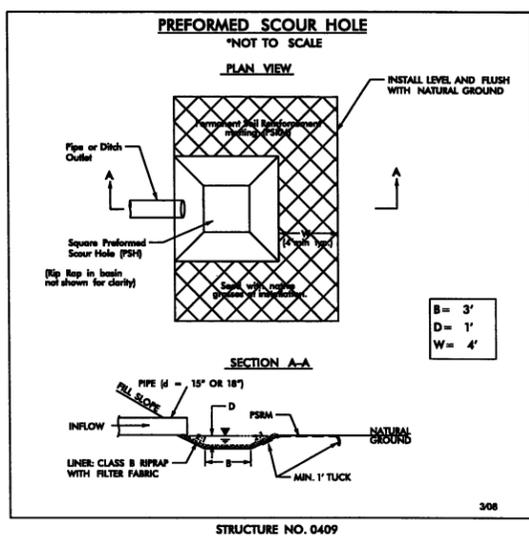
-L- PT Sta. 22+90.66

END CONSTRUCTION
-L- POT Sta. 25+25

-L- Sta. 13+30.00
BEGIN REMOVE EXISTING C&G,
SHOULDER BERM GUTTER, AND
REM. & RESET EXIST. GUARDRAIL

-L- Sta. 23+10.00
END PROP. SHOULDER BERM GUTTER,
AND REMOVE & RESET GUARDRAIL.

-L-
 PI Sta 18+13.53
 $\Delta = 62^\circ 34' 09.7''$ (RT)
 $D = 5' 49'' 00.6''$
 $L = 1,075.66'$
 $T = 598.53'$
 $R = 985.00'$



27 SEP 2001 09:35
R:\PROJECTS\15402_Rdy_pah04.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$