Env

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 21, 2003

ROADSIDE ENVIRONMENTAL UNIT
Unit Head
Envir. Operatons
Roadside Devel.
EC & Veg. Mgt.
Field Oper. Eng.

JUL 28 2003

Design
S&W Engineering
Rest Area
Vegetation Mgt.
Beautification

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

ATTN: Mr. Steve Lund
NCDOT Coordinator

SUBJECT: Individual Permit Application for NC 24/27 widening to a multilane facility from west of SR 1142 (Browns Hill Road) at the Western City Limits of Locust to east of Big Bear Creek near SR 1253 (Sam Road), Stanly County, TIP No.'s R-0967CA & CB; State Project No. 6.689002T. Division 10. $475 to Work Order 6.689002T (WBS Element 34355.1.2 & 34355.1.3).

Let 12-16-03

Dear Sir:

The NCDOT proposes to widen a 15.2 km (9.4 mi) length of NC 24/27 in Stanly County. Enclosed please find the cover letter, ENG 4345 Form, 8 ½ x 11 drawings, and half-sized plan sheets for the subject project. A five-lane facility with curb and gutter is proposed from the western city limits of Locust to just east of SR 1213 (Pond Rd.) and Island Creek (Section CA). A four-lane divided roadway using a 15m (46ft) grassed median is proposed from east of Island Creek to the western city limits of Albemarle near the intersection of NC 24/27 with SR 1963 (Oakboro Rd./Saint Martin Rd.)(Section CB). The proposed right-of-way (ROW) width for the project is 31m (100ft) for the five-lane cross-section, and 62m (200ft) for the four-lane median divided section.

Summary of Impacts: Impacts on jurisdictional areas of the CA section consists of a total of 0.05 acres of permanent wetland impacts which are riverine. There will also be approximately 499 linear feet of jurisdictional stream impacts on the CA section.

Impacts on jurisdictional areas of the CB section consists of a total of 0.16 acres of permanent wetland impacts which are riverine. There will also be approximately 863 linear feet of jurisdictional stream impacts on the CB section.

Summary of Mitigation: The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the NEPA and design processes. Detailed descriptions of these actions are presented elsewhere in this application. We propose to relocate 318

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.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

linear feet on Section CA using natural stream design. We propose to use the Back Creek Mitigation Site to mitigate for 499 linear feet of jurisdictional stream impacts on Section CA. This site located in Mecklenburg County (Yadkin River Basin, Hydrologic Unit 03040105) contains 3,700 feet of stream restoration. We propose to use the Ecosystem Enhancement Program (EEP) to mitigate for 863 linear feet of jurisdictional stream impacts on Section CB.

Purpose and Need

The proposed project will improve safety and traffic handling capacity of NC 24/27 by providing motorists a multi-lane thoroughfare from Albemarle to Locust. NC 24/27 is a primary east-west route throughout Stanly County. The project is one of several widening projects on NC 24/27 from Charlotte to Albemarle. Completion of this project and a nearby project in Cabarrus County will provide a multi-lane corridor from Charlotte to Albemarle. This project is included in the NCDOT's "Transportation 2001" intrastate highway program. The CA and CB sections are scheduled to be let December 2003.

Alternatives: NCDOT investigated several alternatives for R-0967CA and CB which were discussed in detail on pages 7 and 8 in the EA.

NEPA Document Status

A Finding Of No Significant Impact (FONSI) for R-0967C was approved by the Project Development and Environmental Analysis Branch (PDEA) on December 2, 1998. A State Environmental Assessment (EA) for R-0967C was approved by PDEA on January 30, 1998. The EA explains the purpose and need for the project, provides a description of the project and characterizes the social, economic, and environmental effects of the project. Copies of the EA have been provided to the regulatory agencies involved in the approval process. Additional copies will be provided upon request.

Independent Utility

According to 23 CFR 771.111(f), "...in order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the action evaluated...shall:

(1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
(2) Have an independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and,
(3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements."

The proposed project is needed to connect projects from NC 24/27 in Locust to NC 24/27 in Albemarle that are recently completed or to be completed in the near future. The western terminal will tie into the recently completed section of NC 24/27 in Locust (TIP Project R-0967B). The eastern terminus will tie into a section of NC 24/27 east of Big Bear Creek that will be completed in 2007 (TIP Project R-0967CC). The locations of

the proposed project's termini have been coordinated with other programmed TIP projects in the area. The locations of this project's termini do not preclude the development and assessment of multiple alternates for other programmed TIP projects in the area. In this regard, the proposed project demonstrates logical termini and independent utility.

This project can stand alone as a functioning project and is designed to be compatible with other TIP projects in the area. The environmental impacts of the other projects will be fully evaluated in separate environmental documents. NCDOT has determined this project meets the criteria set forth in 23 CFR 771.111(f).

Resource Status

Delineations: Wetland and stream delineations were conducted in June 7, 1999 and October 21, 1998 by NCDOT biologists using the criteria specified in the 1987 Corps of Engineers Wetland Delineation Manual. Mr. Steve Lund of the USACE Asheville Regulatory Field Office verified the delineations in the field on October 30, 2001. In addition to the delineations, the streams were characterized and data recorded on both the NCDWQ Stream Classification Form and the USACE Intermittent Channel Evaluation Form. The following characterization of the jurisdictional sites summarizes the June 1997 Natural Systems Report including the data form, aforementioned forms, and field notes. R-0967CA has 0.05 acres of jurisdictional wetlands and 499 feet of jurisdictional streams. R-0967CB has 0.16 acres of jurisdictional wetlands and 863 feet of jurisdictional streams. The jurisdictional impacts are summarized in Table 1.

Wetlands: There are no temporary wetland impacts or any impacts to ponds. The small wetland at Site 1 of the CA section is a non-persistent emergent palustrine system in the floodplain bordering an unnamed tributary to Island Creek. This wetland is dominated by panic grass (*Panicum* sp.) and smartweed (*Polygonum sagittatum*). The small wetland at Site 5 of the CB section is in the floodplain bordering an unnamed tributary to Stony Run Creek. This wetland is dominated by black needle rush (*Juncus effusus*). The larger wetland at Site 11 of the CB section is in the floodplain bordering an unnamed tributary to Big Bear Creek. This wetland is dominated by black willow (*Salix nigra*), elderberry (*Sambucus canadensis*), black needle rush, bulrush (*Scirpus cyperinus*), bedstraw (*Galium* sp.), red maple (*Acer rubrum*), blackberry (*Rubus* sp.), and green ash (*Fraxinus pennsylvanica*).

Streams: The project corridor is located within the Yadkin-Pee Dee River Drainage Basin (DWQ sub-basins 03-07-12, 03-07-13, and 03-07-14). Drainage from the project flows into Island Creek (13-17-26) which is a tributary to Rocky River, Stony Run (13-17-31-5-5) which is a tributary to Big Bear Creek, and Big Bear Creek (13-17-31-5) which is a tributary to Long Creek. Island Creek and its tributaries are in the Richardson and Lanes Creeks sub-basin (03-07-14) and are classified as C. Stony Run and Big Bear Creek and their tributaries are in the Lower Rocky River sub-basin (03-07-13) and are classified as C. Island Creek, Stony Run, and Big Bear Creek are perennial streams and their tributaries are either perennial streams or intermittent important streams (as classified by the USACE Intermittent Channel Evaluation protocol). Mitigation will be provided for all such stream impacts.

Table 1. Jurisdictional Wetland Impacts

SITE	STATION	Wetlands (ac)
CA Section		
1	16+53 to 17+55 -L- lt.	0.05
CB Section		
5	100+40 lt.	0.007
11	145+60	0.15
Total		**0.207**

Table 2. Jurisdictional Stream Impacts

SITE	STATION	Streams	Natural Stream Design (ft)	Stream Name	DWQ ID No.	Stream Class./Mitigation Ratio
CA Section						
1	16+53 to 17+55 –L- lt.	361 ft	318	Ut Big Meadow Creek	13-17-15	Intermittent/1:1
2	42+70 –L- lt. & rt.	46 ft		Ut Island Creek	13-17-26	Intermittent/1:1
5	60+57 to – L- lt. & rt.	92 ft		Island Creek	13-17-26	Perennial/2:1
CB Section						
1	72+00	216 ft		Ut Island Creek	13-17-26	Intermittent/1:1
3	85+00 rt.	89 ft		Cumcumber Creek	13-17-26-1	Intermittent/1:1
5	100+40 lt.	89 ft		Ut Stony Run	13-17-31-5-5	Intermittent/1:1
7	111+00	98 ft		Ut Stony Run	13-17-31-5-5	Intermittent/1:1
9	118+34 to 118+74	321 ft		Ut Stony Run	13-17-31-5-5	Perennial/2:1
11	145+60	49 ft		Ut Big Bear Creek	13-17-31-5	Perennial/2:1
12	133+29	0.02 ac temp. fill		Stony Run	13-17-31-5-5	Perennial/NA
Total		**1361**	**318**			

Temporary Causeways

There will be 0.02 ac temporary impacts from the construction of a temporary rock causeway in Stony Run for the construction of the new westbound bridge. A temporary rock causeway will be required for construction of the interior bents in order to provide for construction access. The causeway will facilitate the construction of drilled

shafts. The causeway will consist of plain Class II rip rap. The rip rap will be placed on top of filter fabric.

Restoration Plan: No permanent fill will result from the construction of the temporary rock causeway. The materials used as temporary fill in the construction of the causeway will be removed.

Schedule for Construction of Causeway: It is assumed that the Contractor will begin construction of the proposed causeway shortly after the date of availability for the project. The Let date is December 16, 2003 with a date of availability of January 19, 2003.

Removal and Disposal: The causeway will be removed within 90 days of the completion of the deck slab for the structure. The temporary rock causeway will be removed by the Contractor using excavating equipment. All materials placed in the stream by the Contractor will be removed. The Class II rip rap that is removed may be used on end slopes where Class II rip rap is required at the discretion of the Engineer. All other materials removed by the Contractor will be disposed of at an off-site upland location.

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. As of January 29, 2003, a total of two federally-protected species are listed for Stanly County (Table 2).

Table 2. Federally-protected species for Stanly County

SCIENTIFIC NAME	COMMON NAME	STATUS
Haliaeetus leucocephalus	Bald eagle	Threatened (proposed for delisting)
Helianthus schweinitzii	Schweinitz's sunflower	Endangered

Endangered: a species that is in danger of extinction throughout all or a significant portion of its range.
Threatened: a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

A Biological Conclusion of "No Effect" for the bald eagle was resolved in several documents including the Environmental Assessment. This conclusion was based on the fact that there is no suitable habitat present for bald eagle in the project area. The last survey for Schweinitz's sunflower was done in September 1996. No specimens of the species were found at that time. Since this survey was done longer than two years ago, a re-survey will be conducted this Fall.

Cultural Resources

Archaeology: On January 30, 1996 the SHPO concurred that no additional archaeological investigation is warranted in connection with the project. A copy of the January 30, 1996 letter is located in the EA on page A-13.

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- Slopes: Fill slopes in wetlands are at a 2:1 ratio.
- Ditching: It is the policy of the NCDOT to eliminate lateral ditching in wetlands as much as possible, thus preserving the hydrology of adjacent wetlands. There are no ditches in wetland on either project.
- Median Width: The project was designed using a 46-foot median width
- Method of Clearing: Project R-0967CA and CB will use Method III.
- Pipe Culvert Design: Pipe culvert and box culvert inverts are to be buried one foot below the stream bed where feasible, depending on the relative elevations of the stream bed. All pipe culverts and box culverts will maintain the normal stream flow and channel characteristics. This design will allow unimpeded passage by fish and other aquatic organisms.
- BMP's: In order to minimize potential impacts, NCDOT's Best Management Practices for the Protection of Surface Waters will be enforced during the construction phase of the project. This will include:

  1. installation of temporary silt fences, dikes, and earth berms to control runoff during construction
  2. placement of temporary ground cover or re-seeding of disturbed sites to reduce runoff and decrease sediment loadings
  3. reduction of clearing along streams

- Sta. 60+75 (CA Section) Preformed Scour Hole
  The original design called for directing stormwater directly into Island Creek. To minimize impacts to the water quality and aquatic life, the design was changed to incorporate a preformed scour hole.

- Sta. 133+29 (CB Section) Bridge – Stony Run
  The original design presented in the EA called for a box culvert at the crossing of Stony Run. To minimize impacts to the water quality and aquatic life, the design was changed to a bridge. This design was presented in the FONSI. No bridge bents will be in the water. There will be minimal temporary impacts to jurisdictional waters from construction of the bridge as previously described in this application.

- Sta. 155+26 (CB Section) Bridge – Big Bear Creek
  To minimize impacts to the water quality and aquatic life, this stream will be bridged. No bridge bents will be in the water. There will not be any impacts to jurisdictional waters from construction of the bridge.

- Site 1 Station 16+53 to 17+55 -L- lt. (CA Section): We will be doing natural stream design at this site. A Natural Channel Design Report is provided in this application. Approximately 318 linear feet of channel will be relocated at this site.

COMPENSATION: The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new

wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

FHWA STEP DOWN COMPLIANCE: All compensatory mitigation must be in compliance with 23 CFR Part 777.9, "Mitigation of Impacts" that describes the actions that should be followed to qualify for Federal-aid highway funding. This process is known as the FHWA "Step Down" procedures:

1. Consideration must be given to mitigation within the right-of-way and should include the enhancement of existing wetlands and the creation of new wetlands in the highway median, borrow pit areas, interchange areas and along the roadside.
2. Where mitigation within the right-of-way does not fully offset wetland losses, compensatory mitigation may be conducted outside the right-of-way including enhancement, creation, and preservation.

Compensatory Mitigation for R-0967CB:
Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since R-0967CB is listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 863 feet of jurisdictional streams will be offset by compensatory mitigation provided by the EEP program.

Compensatory Stream Mitigation for R-0967CA: 407 feet of off-site mitigation at a ratio of 1:1 and 92 feet of off-site mitigation at a ratio of 2:1 will mitigate for 499 linear feet of jurisdictional stream impacts on Section CA. The mitigation will come from the Back Creek Mitigation Site. Both the proposed project (R-0967CA) and the proposed stream mitigation site are in the same Hydrological Unit (03040105). The Back Creek Site involves the restoration of 3,700 feet of Back Creek. The methods being used include altering the dimension, pattern, and profile of the stream, reforestation of the riparian buffer, and establishment of a permanent conservation easement. The following is a brief description of the Back Creek Mitigation Site.

Back Creek Mitigation Site

The NCDOT has identified a reach of Back Creek located on the properties of Daniel H. Fisher (Back Creek II Developers), Thelma C. Morgan, and Mecklenburg County Storm Water Services in Mecklenburg County, North Carolina as having potential restoration to mitigate stream impacts. The property, known as the Back Creek Stream and Wetland Mitigation Site, is located on the south side of NC 49 approximately 2 miles southwest of the community of Harrisburg in Mecklenburg County. From the Back Creek Site, Back Creek flows eastward into Rocky River approximately 2 miles downstream of NC 49. The Back Creek Site is located in the Hydrologic Unit 03040105 and the NCDNR classifies Back Creek as Class C waters (Index Number 13-17-7).

The mitigation components planned for the Back Creek Site consist of restoring the natural pattern, dimension, and profile of the stream and restoring the natural functions provided by the stream. Alteration of the existing land use will consist of reforestation of the riparian buffer and establishing a permanent conservation easement.

A Feasibility Study for this site was completed in June 2002. The mitigation plan should be completed by August 2003. The regulatory agencies approved the site at field meetings held on March 4, 2003 and June 16, 2003. As a result, we are finalizing the mitigation plan and will transmit the document to the agencies under separate cover. A copy of the easement for this site is attached to this application.

Regulatory Approvals

Application is hereby made for a Section 404 Individual Permit as required for the above-mentioned activities. By copy of this letter, we are also requesting a 401 General Water Quality Certification. In compliance with Section 143-215.3D(e) of the NCAC we will provide $475 to act as payment for processing the Section 401 permit application as previously noted in this application (see Subject line). Seven copies of the application are being provided to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

Thank you for your assistance with this project. If you have any questions or need any additional information about this project, please contact Mr. Matt Haney at (919) 715-1428.

Sincerely,

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

GJT/mmh
Enclosure

cc: Mr. John Dorney, Division of Water Quality (7 copies)
Ms. Marella Buncick, USFWS

Mr. Marla Chambers, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Ms. Debbie Barbour, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. B.G. Payne, P.E., Division 10 Engineer
Mr. Larry Thompson, Division 10 DEO
Mr. David Franklin, USACE, Wilmington
Mr. William D. Gilmore, P.E., EEP, Raleigh
Ms. Kathy Matthews, USEPA
Mr. John F. Sullivan, III, FHWA

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-003
Expires December 31, 2004

Public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes 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 this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. 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

Authority: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research and Sanctuaries Act, 33 USC 1413, Section 103. 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. 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 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 COMPLETED

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
North Carolina Department of Transportation Project Development & Environmental Analysis	
6. APPLICANT'S ADDRESS	**9. AGENT'S ADDRESS**
1548 Mail Service Center Raleigh, NC 27699-1548	
7. APPLICANT'S PHONE NOs. W/AREA CODE a. Residence b. Business 919-733-3141	**10. AGENT'S PHONE NOs. W/AREA CODE** a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

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.

_____ _____
APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OR PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions
NC 24/27 widening from SR 1142 (Browns Hill Rd) to SR 1253 (Sam Rd)

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Island Creek, Stony Run, Big Bear Creek

14. PROJECT STREET ADDRESS (if applicable)

15. LOCATION OF PROJECT

Stanly NC
COUNTY STATE

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) **Section, Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.**

See cover letter

17. DIRECTIONS TO THE SITE
See vicinity map associated with permit drawings

18. Nature of Activity (Description of project, include all features)
Widening of NC 24/27, an existing two-lane facility, to a multi-lane facility from SR 1142 (Browns Hill Rd) to SR 1253 (Sam Rd) in Stanly County. The project Is 15.2 km (9.4 mi) in length. A five-lane facility with curb and gutter is proposed for the western section (from western city limits of Locust to east of Island Creek, Section CA). A four-lane facility divided with a 15 m (46 ft) median is proposed for the eastern section (from east of Island Creek to SR 1963, Oakboro/Saint Martin Rd, Section CB). The proposed right of way (ROW) width for the project is 31 m (100 ft) for the five-lane cross-section, and 62 m (200 ft) for the four-lane divided Section.

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

The proposed project will relieve congestion by increasing the safety and traffic capacity of this section of NC 24/27.

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Roadway fill, pipe/culvert construction

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

Roadway fill

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

Wetland impact: 0.207 ac
Stream impact: 462 ft perennial
899 ft intermittent
0.02 ac temporary fill in surface waters
Stream impact needing mitigation: 1361 ft

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

24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental lis

See listing of property owners associated with permit drawings

25. List of Other Certifications 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

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

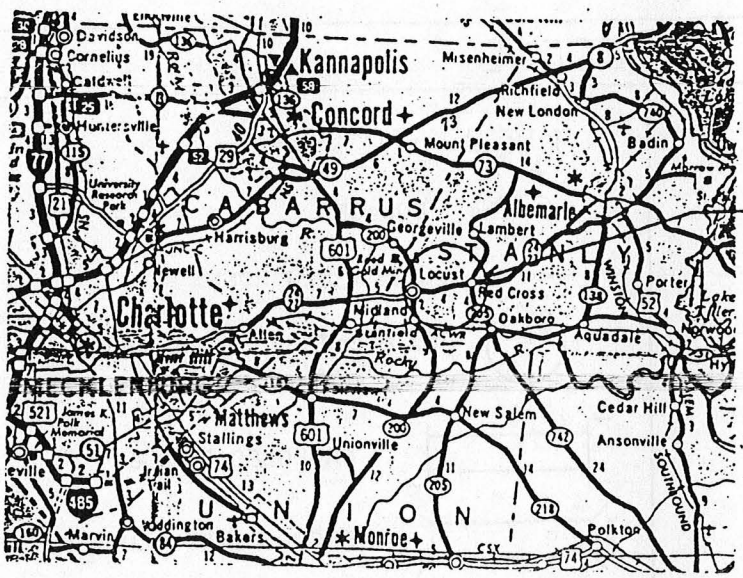
26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized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

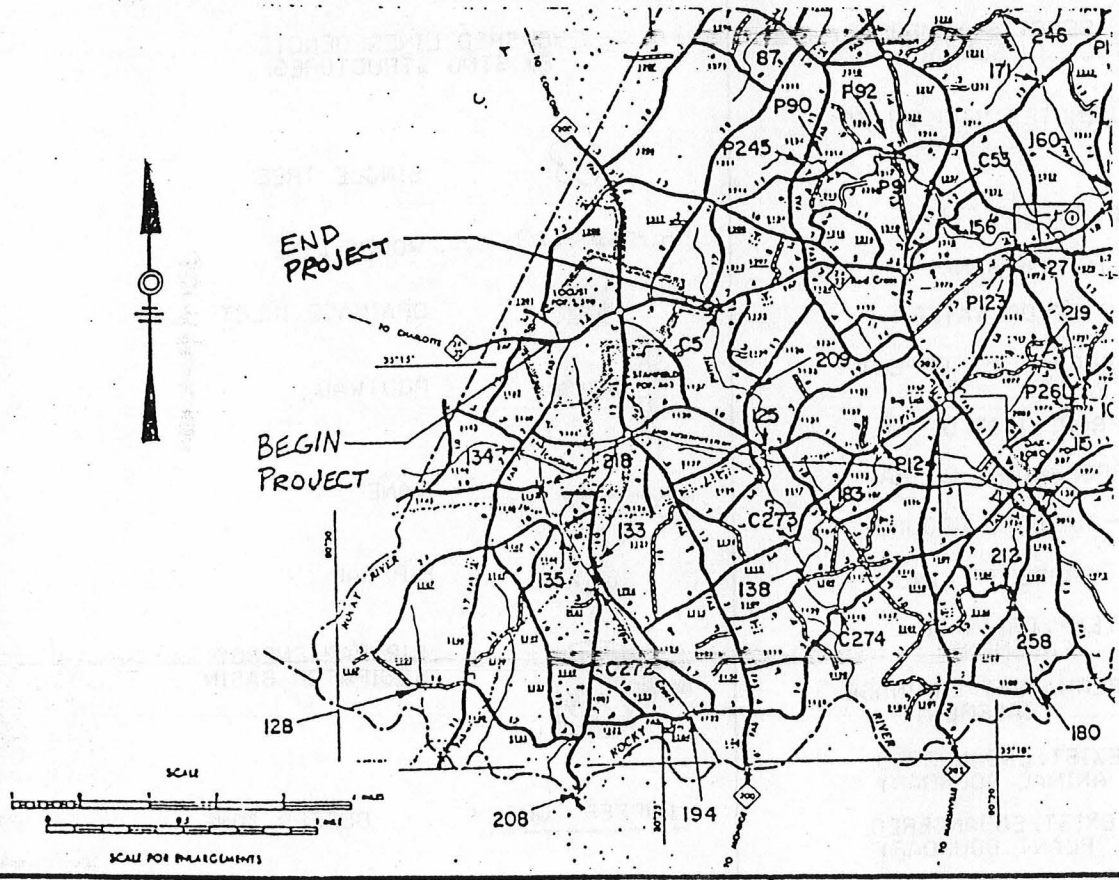
M. Randall Cranford 7-15-03

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.





VICINITY MAPS

N.C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS
STANLY COUNTY
PROJECT: 6.689002T (R0967CA)
WIDENING OF NC 24/27 WEST OF
SR-1142 TO EAST OF ISLAND CREEK

SHEET 1 OF 16 AUGUST 1999

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

X X X LIVE STAKES

BOULDER

COIR FIBER ROLLS

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

VANE

RIP RAP

RIP RAP ENERGY DISSIPATOR BASIN

BUFFER ZONE BUFFER ZONE

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CA)

WIDENING OF NC 24/27

WEST OF SR 1142 TO EAST

OF ISLAND CREEK

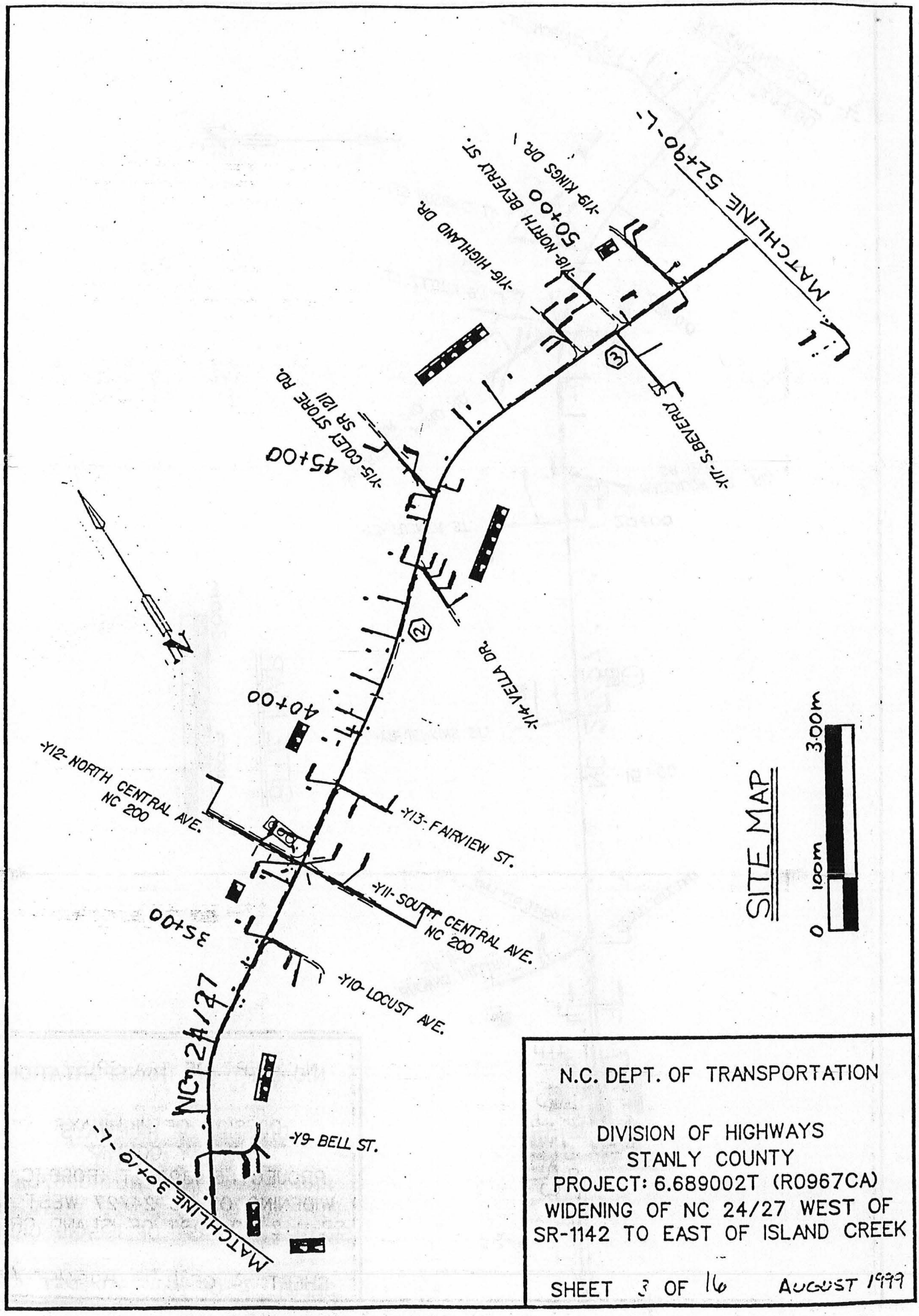
SHEET 1A OF 16

4/15/03

N.C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS
STANLY COUNTY
PROJECT: 6.689002T (R0967CA)
WIDENING OF NC 24/27 WEST OF
SR-1142 TO EAST OF ISLAND CREEK

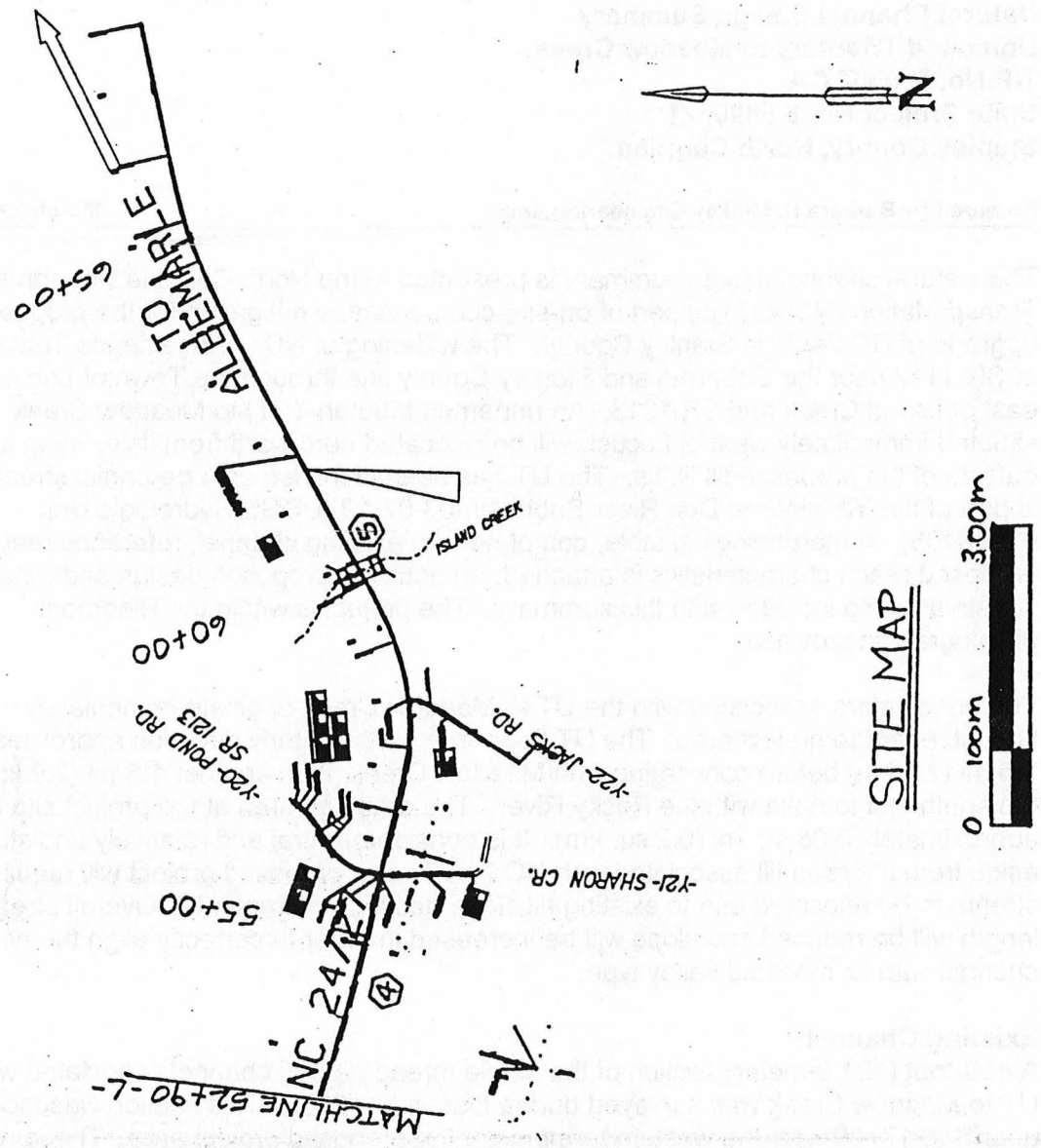
SHEET 2 OF 16 AUGUST 1977



N.C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS
STANLY COUNTY
PROJECT: 6.689002T (R0967CA)
WIDENING OF NC 24/27 WEST OF
SR-1142 TO EAST OF ISLAND CREEK

SHEET 3 OF 16 AUGUST 1999



N.C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS
STANLY COUNTY
PROJECT: 6.689002T (R0967CA)
WIDENING OF NC 24/27 WEST OF
SR-1142 TO EAST OF ISLAND CREEK

SHEET 4 OF 16 AUGUST 1977

Natural Channel Design Summary
Unnamed Tributary to Meadow Creek
TIP No. R-0967 CA
State Project No. 6.689002T
Stanley County, North Carolina

Prepared by Barbara H. Mulkey Engineering, Inc. **March 2003**

This natural channel design summary is presented to the North Carolina Department of Transportation (NCDOT) as part of on-site compensatory mitigation for the proposed upgrade of NC 24/27 in Stanley County. The widening of NC 24/27 extends from west of SR 1142 near the Cabarrus and Stanley County line through the Town of Locust to east of Island Creek and SR 1213. An unnamed tributary (UT) to Meadow Creek, situated immediately west of Locust, will be relocated northward from its existing location outside of the proposed fill limits. The UT has been identified as a perennial stream and is part of the Yadkin/Pee Dee River Subbasin 03-07-12 (USGS Hydrologic Unit ~~03040105~~). ~~A morphological~~ table, complete with existing channel, reference reach, and proposed reach characteristics is attached. In addition, proposed design and detail sheets are also included with this summary. The project is within the Piedmont physiographic province.

The headwaters associated with the UT to Meadow Creek originate immediately west of Locust, near the project area. The UT flows in a northwesterly direction approximately 1.5 mi (2.9 km) before converging with Meadow Creek, then another 1.5 mi (2.9 km) to the southeast to unite with the Rocky River. The drainage area at the project site is approximately 0.08 sq. mi (0.2 sq. km). It is considered rural and relatively undisturbed, aside from the road fill associated with NC 24/27. The proposed project will require the stream to be relocated due to existing fill slope design requirements. Overall stream length will be reduced and slope will be increased in order to correctly align the new channel with its modified valley type.

Existing Channel

A 400-foot (121.9-meter) section of the single thread natural channel associated with the UT to Meadow Creek was surveyed during December 2002. This section was located ~~near Sta. 17+00 near~~ the ~~western terminus~~ of the proposed project area. The surveyed reach exhibited channel characteristics similar to a G4 stream type, as noted by the Rosgen Classification of Natural Rivers. The G4 stream type exhibits low to moderate sinuosities, moderate channel gradients, and low channel width/depth ratios. This stream type is very unstable due to the very high sediment supply available from both upslope and channel derived sources. Its pools are often filling with bedload, as the potential for sediment storage is high. No natural pools were observed during the existing channel surveys. Bank erosion and bedload transport rates are typically high and the ratio of bedload to total sediment load often exceeds 50%. These stream types are very sensitive to disturbance and tend to make significant adverse channel adjustments to changes in flow regime and sediment supply from the watershed (Rosgen and Silvey, 1998). Several headcuts were noted along the surveyed reach, with the largest at stream station 2+18. This headcut dropped approximately 4 ft (1.2 m). The UT exhibited a bankfull cross sectional area of 3.67 sq. ft (0.34 sq. m), an average slope of 0.0406, and a D50 of 9.0 mm. A detailed summary of existing channel conditions is presented in attached morphological table.

Reference Reach

Due to the existing, unstable condition of the UT, a stable stream (UT Varnals Creek) outside of the project area was selected as the reference reach. This channel was selected based on its watershed components, stream type, and other general characteristics. The reference reach channel is situated in Alamance County and classifies as a B4a. It exhibits a drainage area of 0.24 sq. mi (0.62 sq. km) and a bankfull cross sectional area of 7.9 sq. ft. Based on surveys, the channel is stable and exhibits very low bank height ratios. Its valley characteristics are very comparable with the existing channel. Little to no bank erosion was noted during the survey. A detailed summary of reference conditions are also presented in the attached morphological table.

Proposed Channel

The proposed channel was based on dimensionless ratios derived from the reference reach survey and data interpretation. The bankfull width will be increased from 4.6 ft (1.4 m) to 7.5 ft (2.3 m) and the bankfull mean depth will be reduced from 0.79 ft (0.24 m) to 0.5 ft (0.15 m). As a result, the width/depth ratio will increase to approximately 15 from the existing 5.8 ratio. A decrease in both the bankfull mean velocity and bankfull discharge is anticipated. The design stream will exhibit additional floodprone area; however, meander lengths will be reduced to better reflect reference reach pattern characteristics. The radius of curvatures will average approximately 16.0 ft (4.9 m), an increase of approximately 3.0 ft (0.9 m). Slopes will be slightly increased due to the loss of overall stream length; however, energy will be dissipated via step/pool morphology characteristic with the B stream type. Rock cross vanes will be the primary method influencing the step/pool morphology. These cross vanes will be established throughout the channel in riffle sections and used to provide grade control, center the thalweg, and protect the stream banks on both sides of the new channel until vegetation is established. The cross vanes will also decrease shear stresses throughout the reach. The riparian zone adjacent to the channel will be planted with native vegetation conducive to wetter, floodplain areas.

Proposed channel stabilization characteristics are presented on the attached detail sheet. It is anticipated that the riparian zone will be planted with native trees and shrubs above bankfull depth and herbaceous species within the channel.

Sediment Transport

Based on pebble counts and bar samples taken along the existing channel, the D50 averages 9.0 mm and the D84 averages approximately 34.0 mm. The existing channel exhibits a critical shear stress of 1.50 lbs/ft^2 which may entrain up to a 150 mm particle. Based on the design, the proposed channel will exhibit a critical shear stress of 1.26 lbs/ft^2 entraining up to a 100 mm particle. This reduction in entrainment will further reduce degradation. In addition, cross vanes will be installed throughout the riffle sections to further reduce the possibility of additional channel degradation.

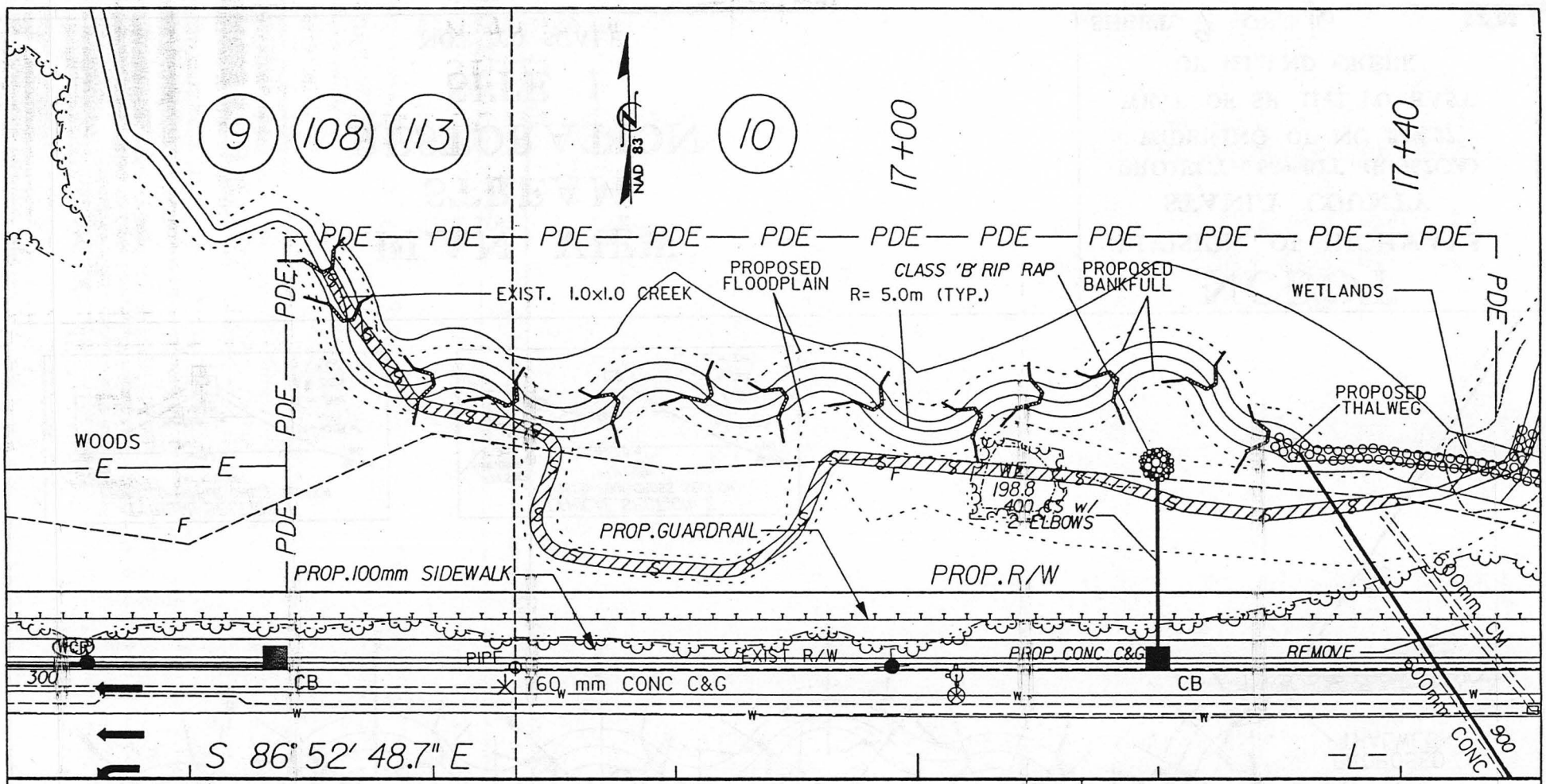
References

North Carolina Department of Environment and Natural Resources (NCDENR), 1998. Yadkin/Pee Dee Basinwide Water Quality Management Plan.

Rosgen, D. and L. Silvey, 1998. Field Guide for Stream Classification. Wildland Hydrology, Inc.

Appendix B Morphological Measurement Table

Variables	Existing Channel	Proposed Reach	USGS Station	Reference Reach
1. Stream type	G4	B4a		B4/1a
2. Drainage area	0.08 sq. mi.	0.08 sq. mi.		0.24 sq. mi.
3. Bankfull width	4.6 ft.	7.5 ft.		9.7 ft.
4. Bankfull mean depth	0.79 ft.	0.5 ft.		0.8 ft.
5. Width/depth ratio	5.8	15.0		12.7
6. Bankfull cross-sectional area	3.67 sq. ft	3.75 sq. ft.		7.9 sq. ft.
7. Bankfull mean velocity	5.50 fps	5.38 fps		5.23 fps
8. Bankfull discharge, cfs	20.2 cfs	20.2 cfs		41.33 cfs
9. Bankfull max depth	1.09 ft.	0.69 ft.		1.1 ft.
10. Width of floodprone area	9.1 ft.	14 ft.		26.2 ft.
11. Entrenchment ratio	2.0	1.9		2.7
12. Meander length	70.0 ft	45.0 ft.		59.0 ft.
13. Ratio of meander length to bankfull width	15.2	6.0		6.0
14. Radius of curvature	13.0 ft	16.0 ft.		13.4 ft.
15. Ratio of radius of curvature to bankfull width	2.8	2.1		1.4
16. Belt width	50.0 ft.	30.0 ft.		15.0 ft.
17. Meander width ratio	10.9	4		1.5
18. Sinuosity (stream length/valley length)	1.16	1.15		1.2
19. Valley slope	0.0518 ft./ft.	0.0537 ft./ft.		0.0458 ft./ft.
20. Average slope	0.0406 ft./ft.	0.0458 ft./ft.		0.0405 ft./ft.
21. Pool slope	0.0062 ft./ft.	0.005 ft./ft.		0.0047 ft./ft.
22. Ratio of pool slope to average slope	0.15	0.10		0.1
23. Maximum pool depth	1.41 ft.	2.0 ft.		1.6 ft.
24. Ratio of pool depth to average bankfull depth	1.78	4.0		1.9
25. Pool width	15.0 ft.	9.0 ft.		12.0 ft.
26. Ratio of pool width to bankfull width	3.26	1.2		1.2
27. Pool to pool spacing	Not Available	22.8 ft.		34.5 ft.
28. Ratio of pool to pool spacing to bankfull width	Not Available	3.0		6.3



PLAN VIEW
STREAM
IMPACTS
SITE 1
SCALE = 1:500

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

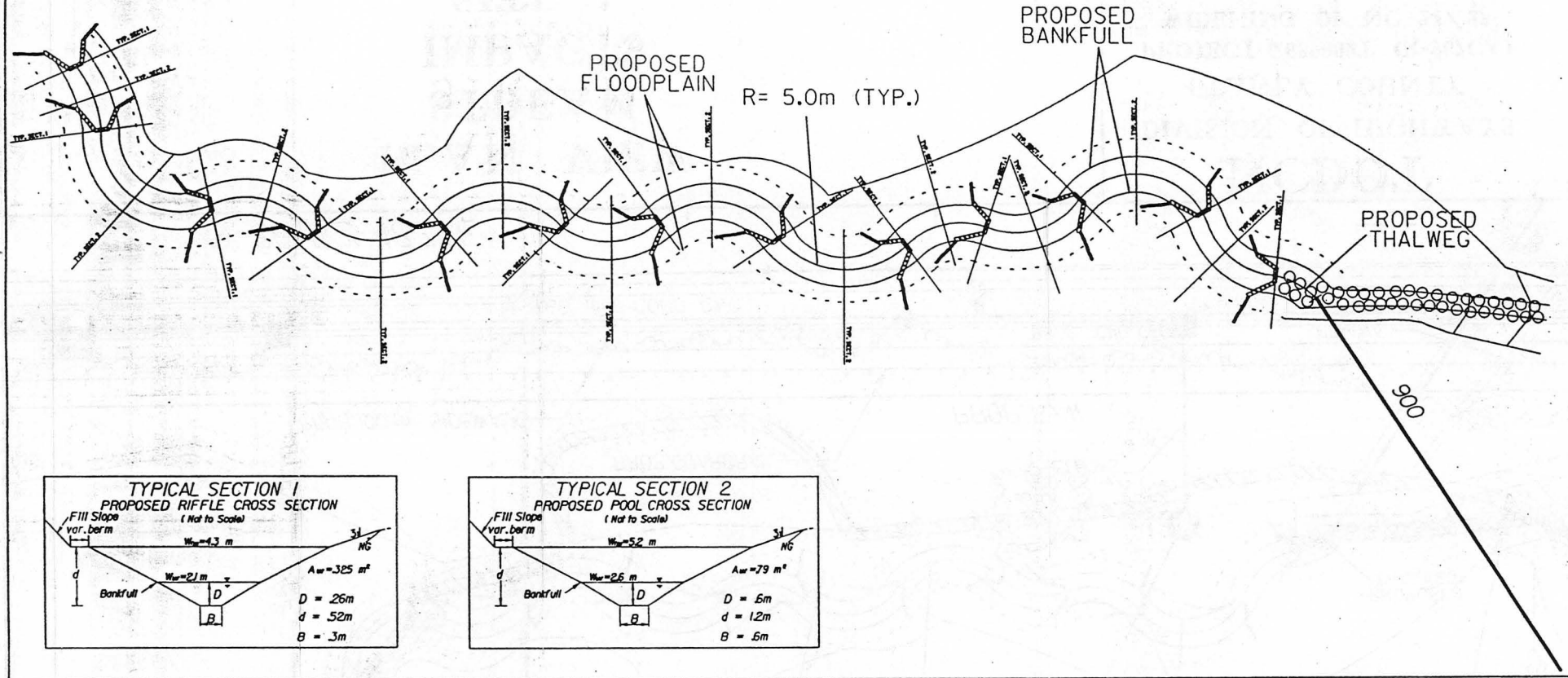
PROJECT: 6.689002T (R-967CA)

WIDENING OF NC 24/27

WEST OF SR 1142 TO EAST

OF ISLAND CREEK

SHEET 8 OF 16 **5/03**



PLAN VIEW
STREAM
RESTORATION
SITE 1

NOT TO SCALE

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CA)

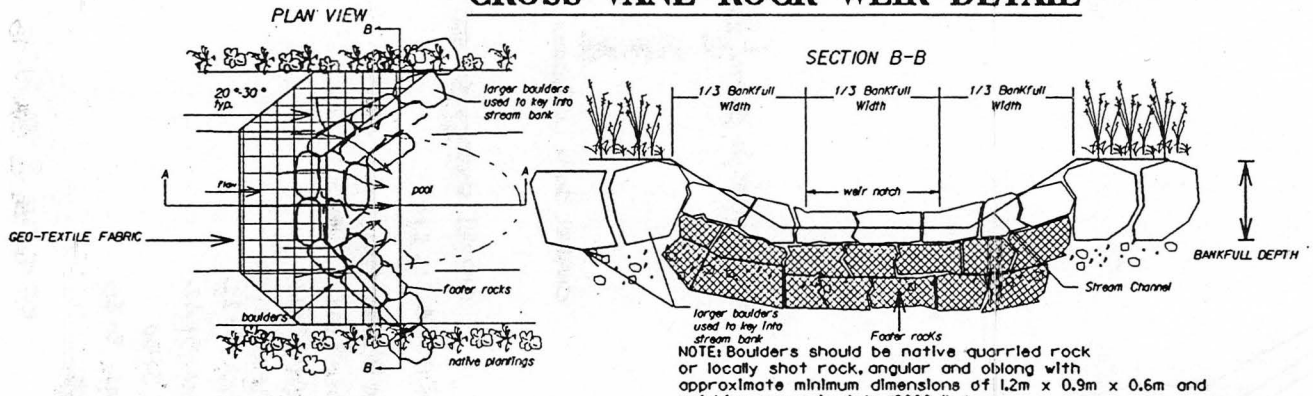
WIDENING OF NC 24/27

WEST OF SR 1142 TO EAST

OF ISLAND CREEK

SHEET 9 OF 16 **5/03**

CROSS VANE ROCK WEIR DETAIL



NOTE: Boulders should be native quarried rock or locally shot rock, angular and oblong with approximate minimum dimensions of 1.2m x 0.9m x 0.6m and weighing approximately (2000 lbs)

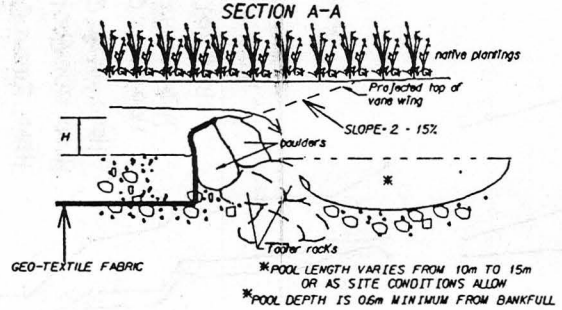
Larger boulders should have approximate minimum dimensions of 1.2m x 1.2m x 0.9m

Rocks should fit tightly with minimal spaces

Footer rocks should be minimum of 3 times 'H' in depth for gravelbed streams and a minimum of 6 times 'H' in sand bed streams

Geotextile fabric should be placed on upstream side of boulders. Fabric should be overlain on exposed boulders and buried to a minimum depth of 2H or as directed by on site engineer. Fabric should extend upstream a minimum length of of 2 m or as directed by on site engineer. For urban type projects and/or sandbed streams, fabric should be backfilled with existing bed material.

H = .05m



CROSSVANE DETAIL

NOT TO SCALE

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CA)

WIDENING OF NC 24/27

WEST OF SR 1142 TO EAST OF ISLAND CREEK

SHEET 10 OF 16 **5/03**

EL.

490 ft

480 ft

470 ft

0+00

0+50

1+00

1+50

2+00

2+50

3+00

3+50

4+00

DISTANCE

CULVERT INV. @ STA 0+00
EL. 488.85

SCOUR HOLE @ STA 0+03

HEAD RIFFLE @ 0+11

HEAD RUN @ 0+71
HEAD POOL @ 0+78
MAX POOL D @ STA. 0+93
HEAD RIFFLE @ 0+99

HEAD RUN @ 1+22

HEAD RIFFLE @ 1+65
HEAD RUN @ 1+72
HEAD RIFFLE @ 1+90

HEAD RUN @ 2+19

HEAD CUT BEGINS @ STA. 2+18

CHANNEL GOES UNDERGROUND @ STA 2+46

CHANNEL EMERGES @ STA. 2+64

HEAD RIFFLE @ STA 2+67

HEAD RUN @ STA. 2+91
HEAD RIFFLE @ STA. 2+98
HEAD RUN @ STA. 3+13
HEAD RIFFLE @ STA. 3+17
HEAD RUN @ STA. 3+22
HEAD RIFFLE @ STA. 3+42
HEAD RUN @ STA. 3+50
HEAD RIFFLE @ STA. 3+58
HEAD RUN @ STA 3+65

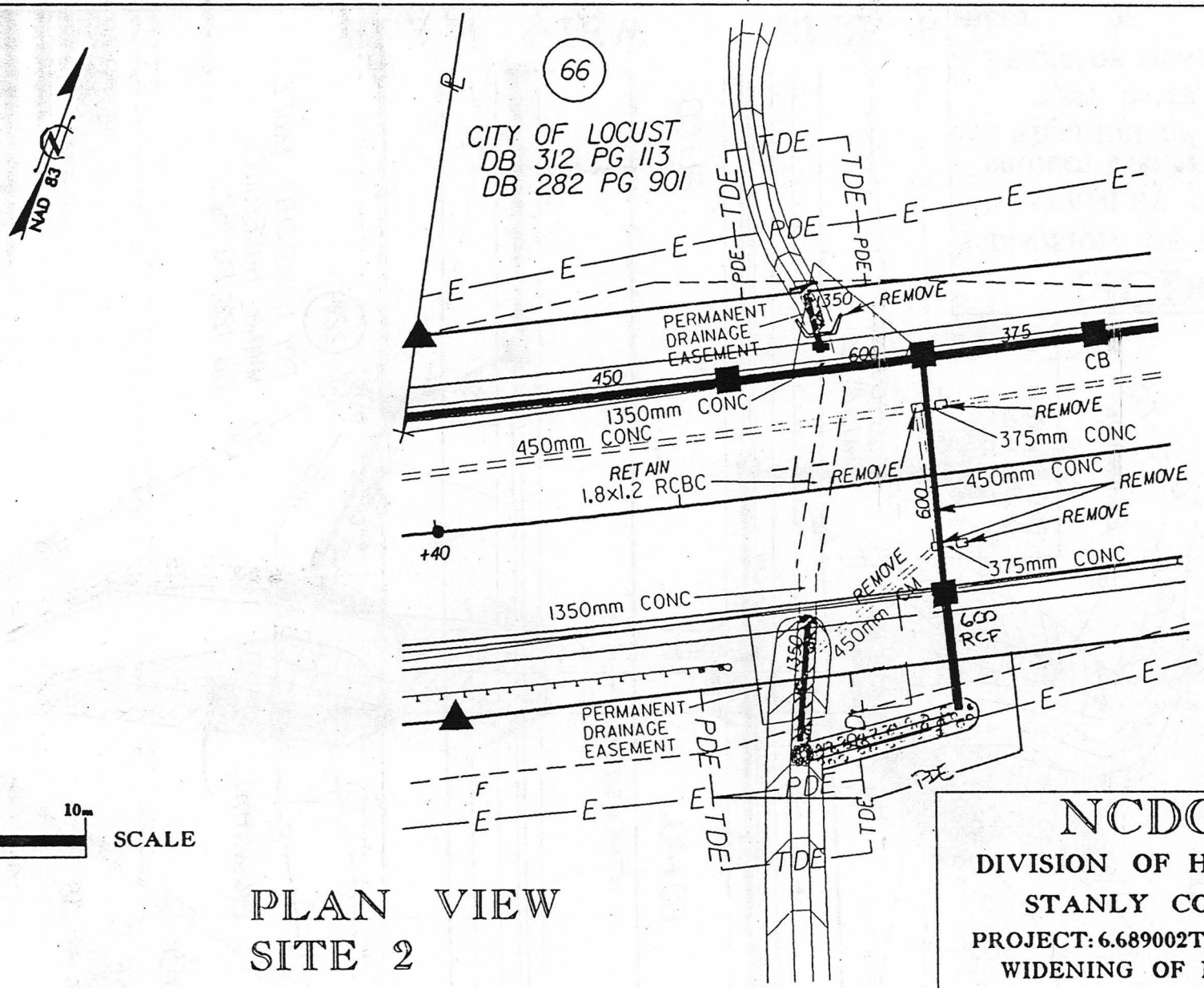
END OF PDE @ STA. 3+78

HEAD RIFFLE @ STA. 4+00

THALWEG
WATER SURFACE
BANKFULL

WATER SLOPE = 0.0466
VALLEY SLOPE = 0.0365

TIP NO. R-967 CA, STANLEY COUNTY
UNNAMED TRIB. TO ROCKY RIVER
LONGITUDINAL PROFILE



PLAN VIEW
SITE 2

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

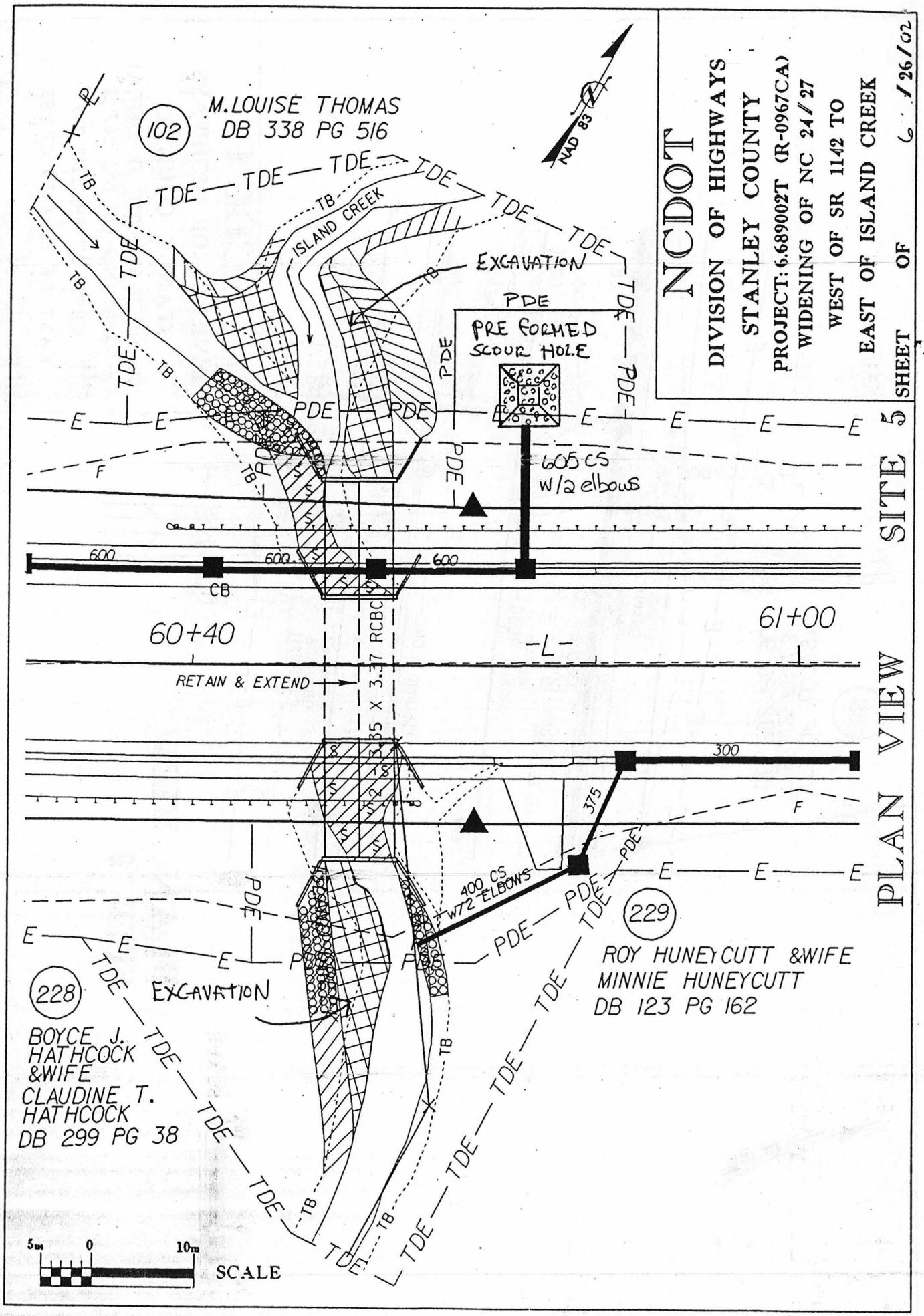
PROJECT: 6.689002T (R-0967CA)

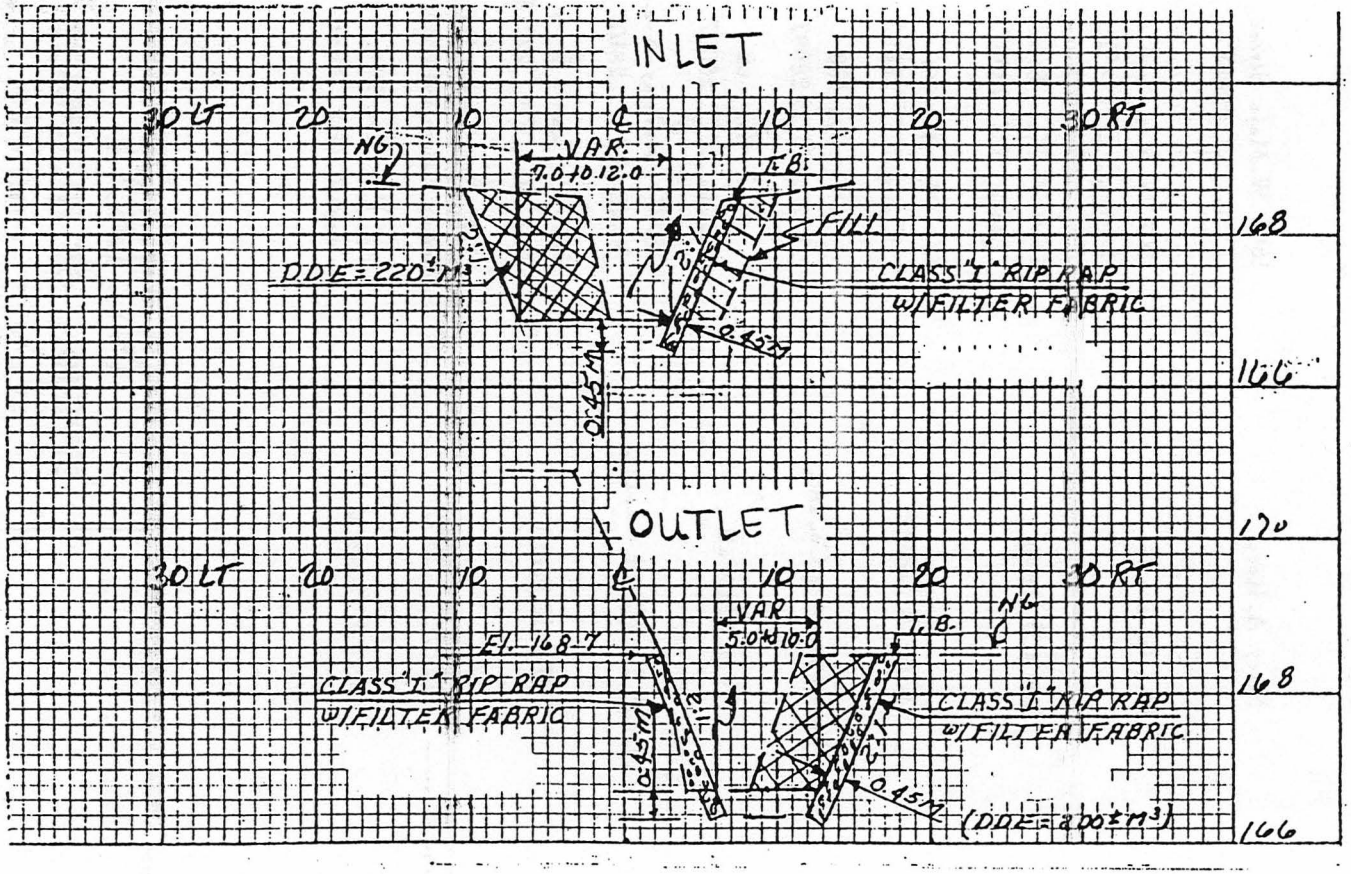
WIDENING OF NC 24/27

WEST OF SR 1142 TO

EAST OF ISLAND CREEK

SHEET 12 OF 16 6/27/02


NCDOT
DIVISION OF HIGHWAYS
STANLEY COUNTY
PROJECT: 6.689002T (R-0967CA)
WIDENING OF NC 24/27
WEST OF SR 1142 TO
EAST OF ISLAND CREEK
SHEET 5 OF 6
1/26/02
PLAN VIEW SITE 5
NAD 83
M. LOUISE THOMAS
DB 338 PG 516
102
ISLAND CREEK
EXCAVATION
PRE FORMED SCOUR HOLE
605 CS W/2 elbows
400 CS W/2 ELBOWS
RETAIN & EXTEND
3.85 X 3.37 RCBC
60+40
61+00
CB
600
300
375
TDE
PDE
TB
E
F
229
ROY HUNEYCUTT &WIFE
MINNIE HUNEYCUTT
DB 123 PG 162
228
BOYCE J. HATHCOCK &WIFE CLAUDINE T. HATHCOCK
DB 299 PG 38
EXCAVATION
5m 0 10m
SCALE



TYPICAL CROSS-SECTION FOR SITE 5

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-0967CA)

WIDENING OF NC 24/27

WEST OF SR 1142 TO

EAST OF ISLAND CREEK

SHEET 14 OF 16 **11/27/01**

PROPERTY OWNERS

NAMES AND ADDRESSES

SITE NO.	PARCEL NO.	OWNER	ADDRESSES
1	10	Judy & John Godwin	1404 W. Main Street Locust, NC 28097
1	9	Mary A. Roye	1508 W. Main Street Locust, NC 28097
1	108	Melvin E. Love	1507 W. Main Street Locust, NC 28097
1	113	Lydia S. Dotson	1419 W. Main Street Locust, NC 28097
2	66	City Of Locust	PO Box 190 Locust, NC 28097
2	199	Locust Lumber Co., Inc.	PO Box 130 Locust, NC 28097
3	79	Vicki McCall	PO Box 562 Locust, NC 28097
3	210	McCoy Feed Seed Co., Inc.	13735 Broadway Ave. Midland, NC 28107
4	215	Glen R. Smith	3019 Tuckahoe Street Arlington, VA 22213
5	102	M. Louise Thomas	735 Pine Valley Rd. Winston Salem, NC 27106
5	228	Boyce J. Hatcock	PO Box 194 Locust, NC 28097

NCDOT

DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CA)

WIDENING OF NC 24/27

WEST OF SR 1142 TO EAST

OF ISLAND CREEK

SHEET 15 OF 16 5/03

SUMMARY

Site No.	Station (From/To)	Structure Size	WETLAND IMPACTS: Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Interchange Isolated Wetland (ha)	Mechanized Clearing (Method II) (ha)	SURFACE WATER IMPACTS: Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Channel Lost (m)	Relocated Channel (m)	Enclosed Channel (m)
1	16+53 to 17+55 -L- lt.	none	0	0	<.01	0	<.01	0.011	0	110	97	0
2	42+70 -L- lt. & rt.	1.8x1.2 RCBC w/ 1350 RCP	0	0	0	0	0	<.01	0	14	0	14
			0	0	0	0	0		0		0	
			0	0	0	0	0		0		0	
5	60+57 TO -L- lt. & rt.	2@3.35x3.37 RCBC	0	0	0	0	0	0.015	0	28	0	22
TOTALS:					<.01		<.01	0.026	0	152	~~97~~ 97	36

All sites are above headwaters.

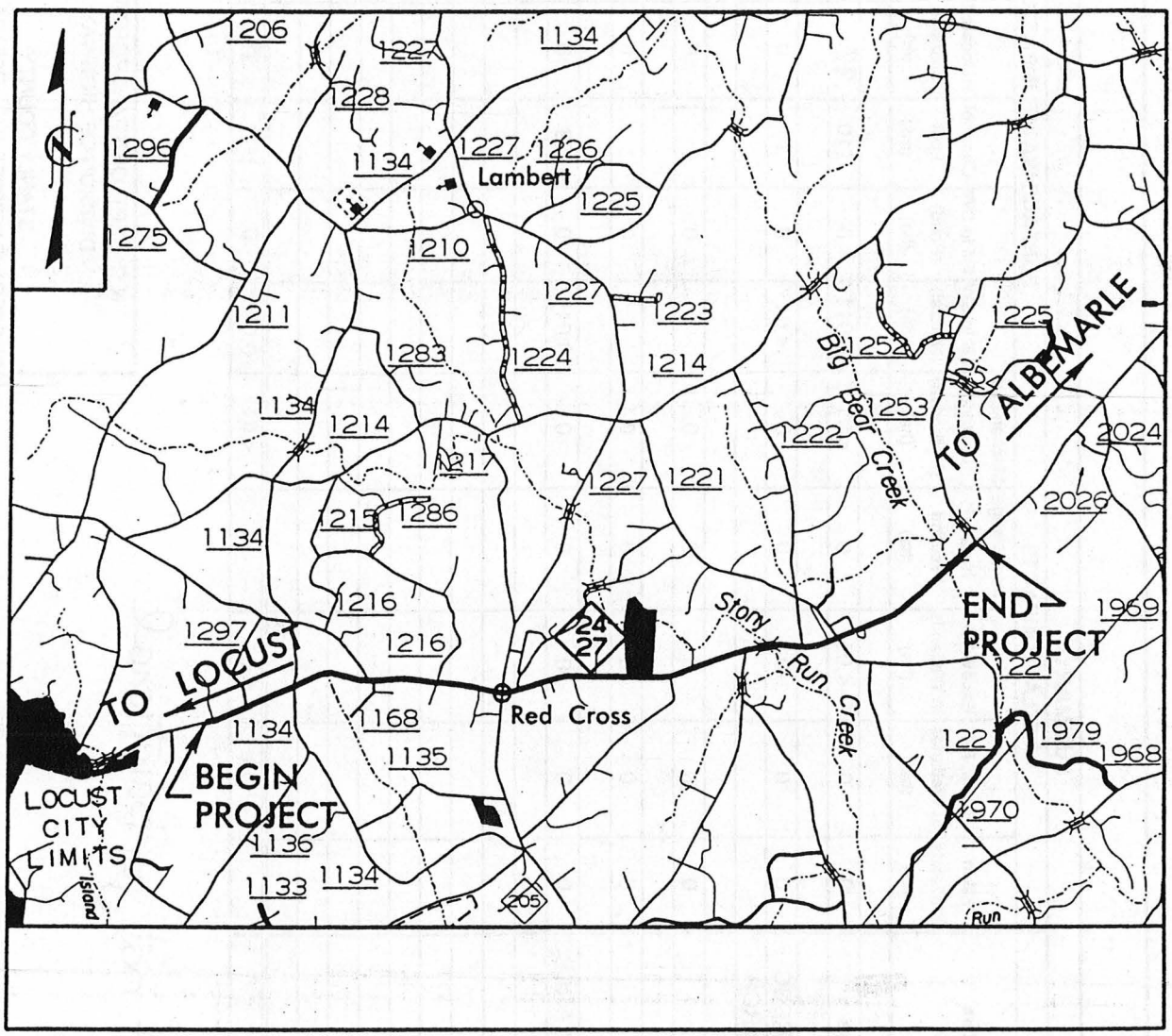
* original site 3 & 4 not jurisdictional

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY
PROJECT: 6.689002T R967CA

SHEET 16 OF 16 May, 2003

VICINITY MAP



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

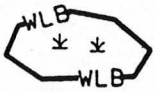
STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 1 OF 21 9-27-00

LEGEND

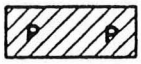
WLB WETLAND BOUNDARY



WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

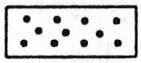


DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

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

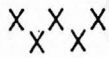
TDE TEMP. DRAINAGE EASEMENT

PDE PERMANENT DRAINAGE EASEMENT

EAB EXIST. ENDANGERED ANIMAL BOUNDARY

EPB EXIST. ENDANGERED PLANT BOUNDARY

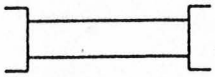
WATER SURFACE

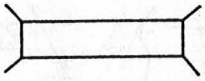

LIVE STAKES


BOULDER

COIR FIBER ROLLS

ADJACENT PROPERTY OWNER OR PARCEL NUMBER


PROPOSED BRIDGE


PROPOSED BOX CULVERT


PROPOSED PIPE CULVERT

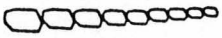
(DASHED LINES DENOTE EXISTNG STRUCTURES)


SINGLE TREE

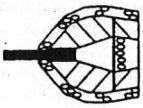
WOODS LINE


DRAINAGE INLET


ROOTWAD


VANE


RIP RAP


RIP RAP ENERGY DISSIPATOR BASIN

BUFFER ZONE

BUFFER ZONE

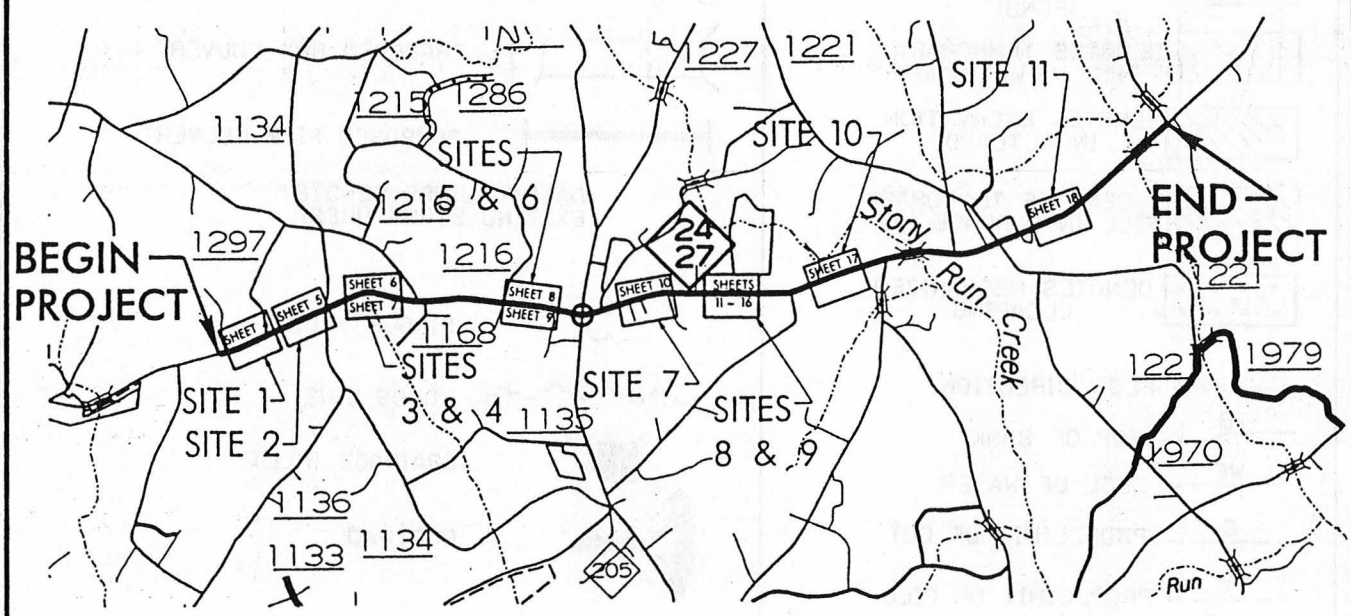
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 2 OF 21 9-27-00

SITE MAP

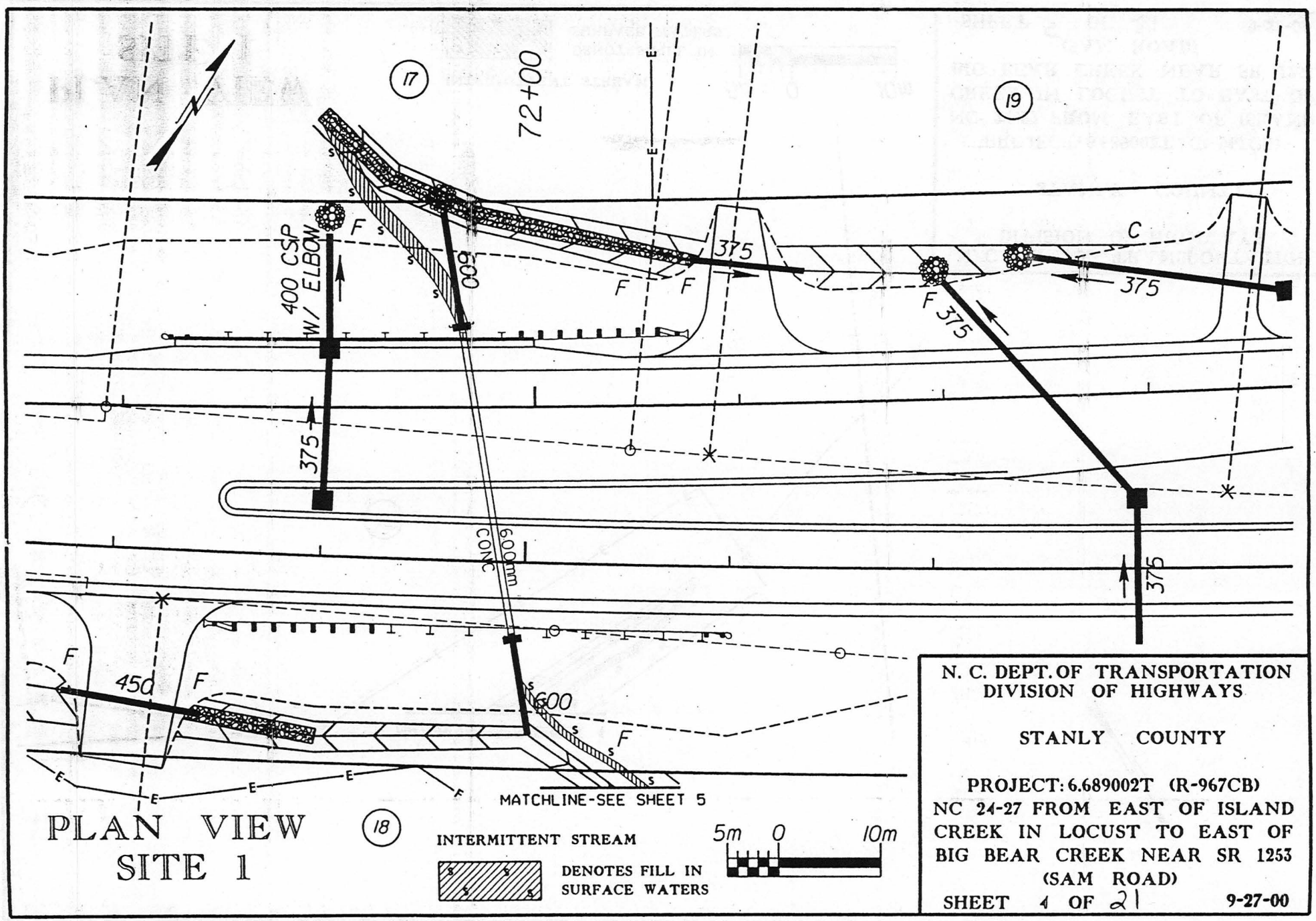


N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 3 OF 21 9-27-00



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
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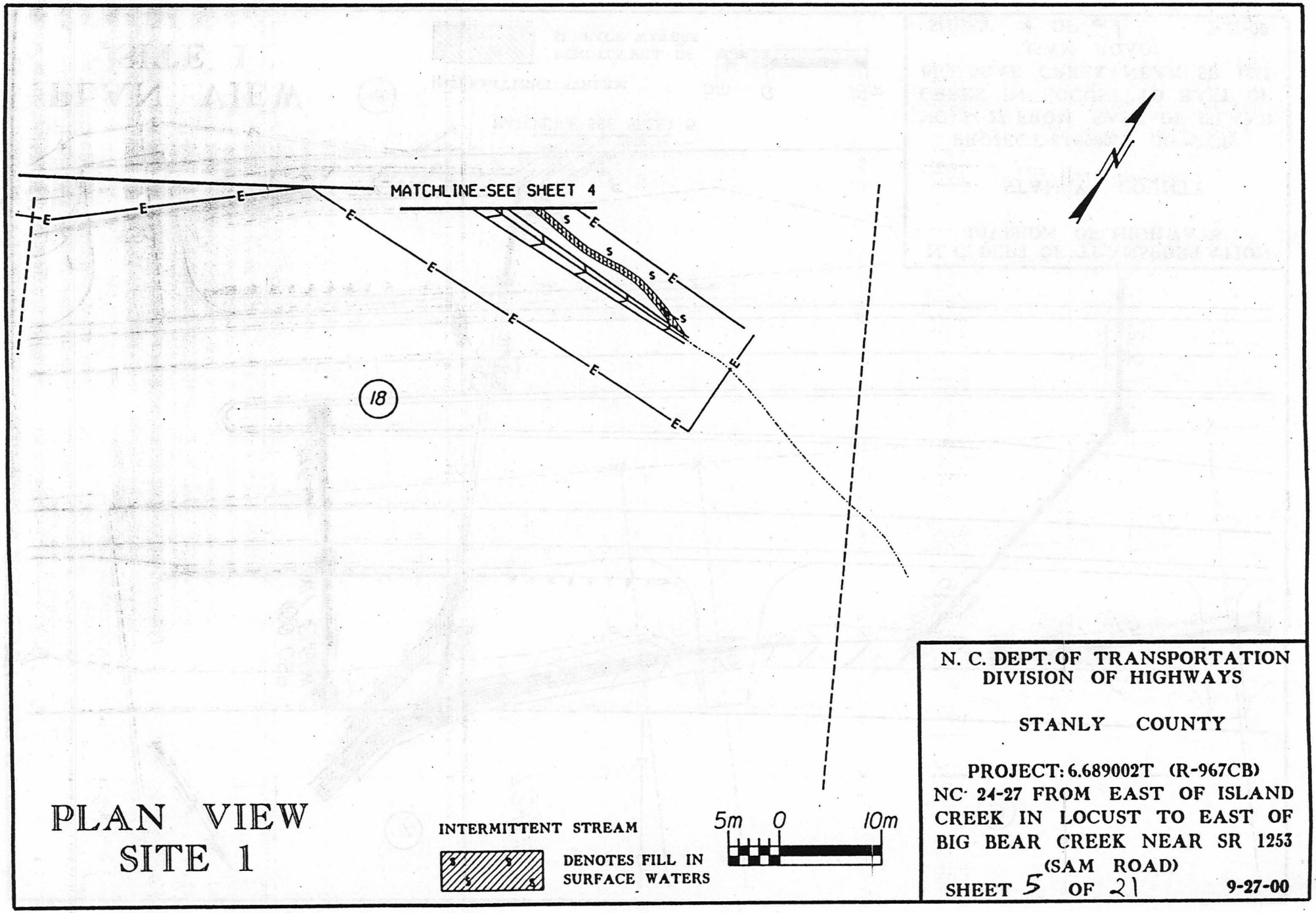
SHEET 1 OF 21 9-27-00



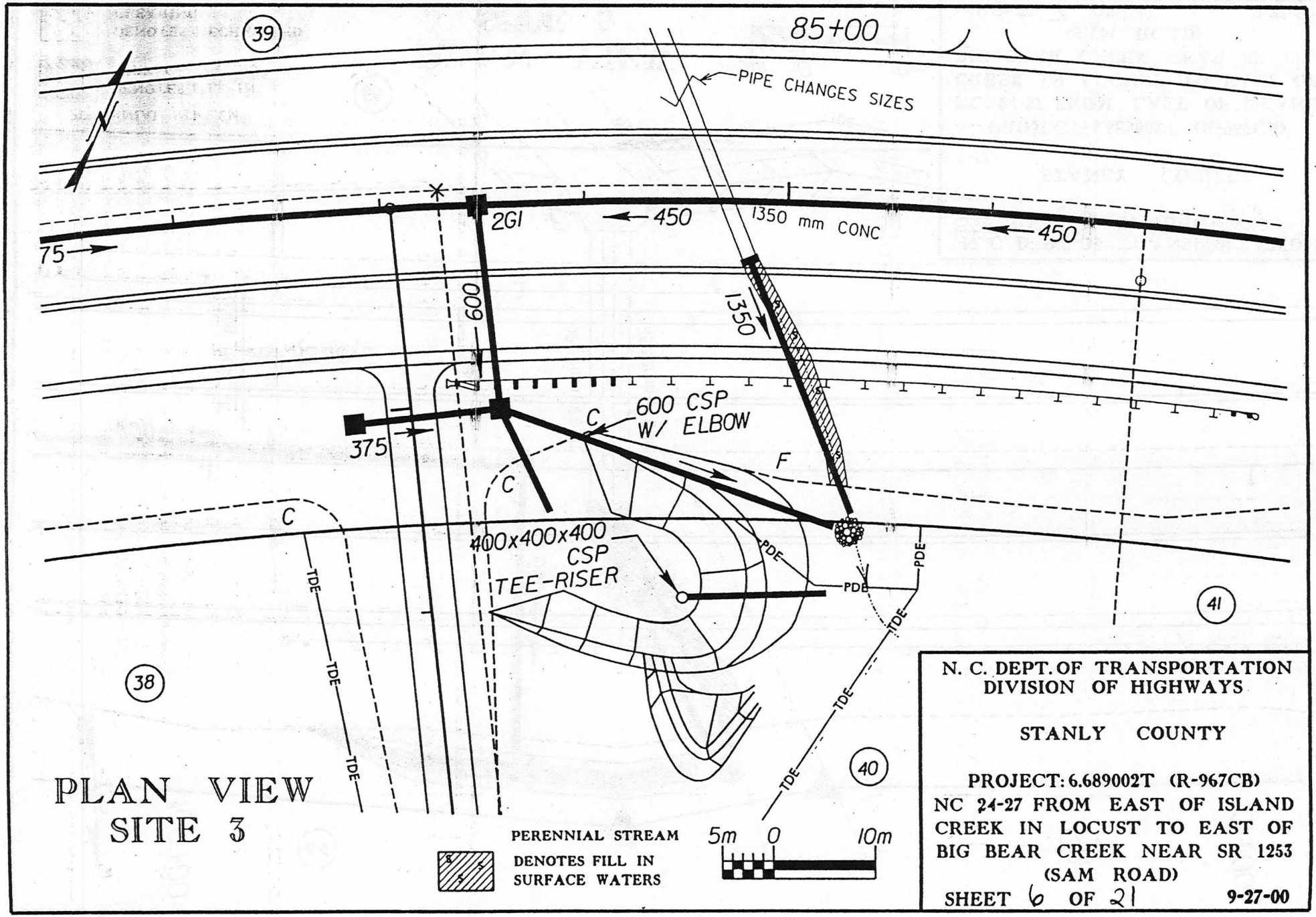
PLAN VIEW
SITE 1

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 5 OF 21 9-27-00



N. C. DEPT. OF TRANSPORTATION
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STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
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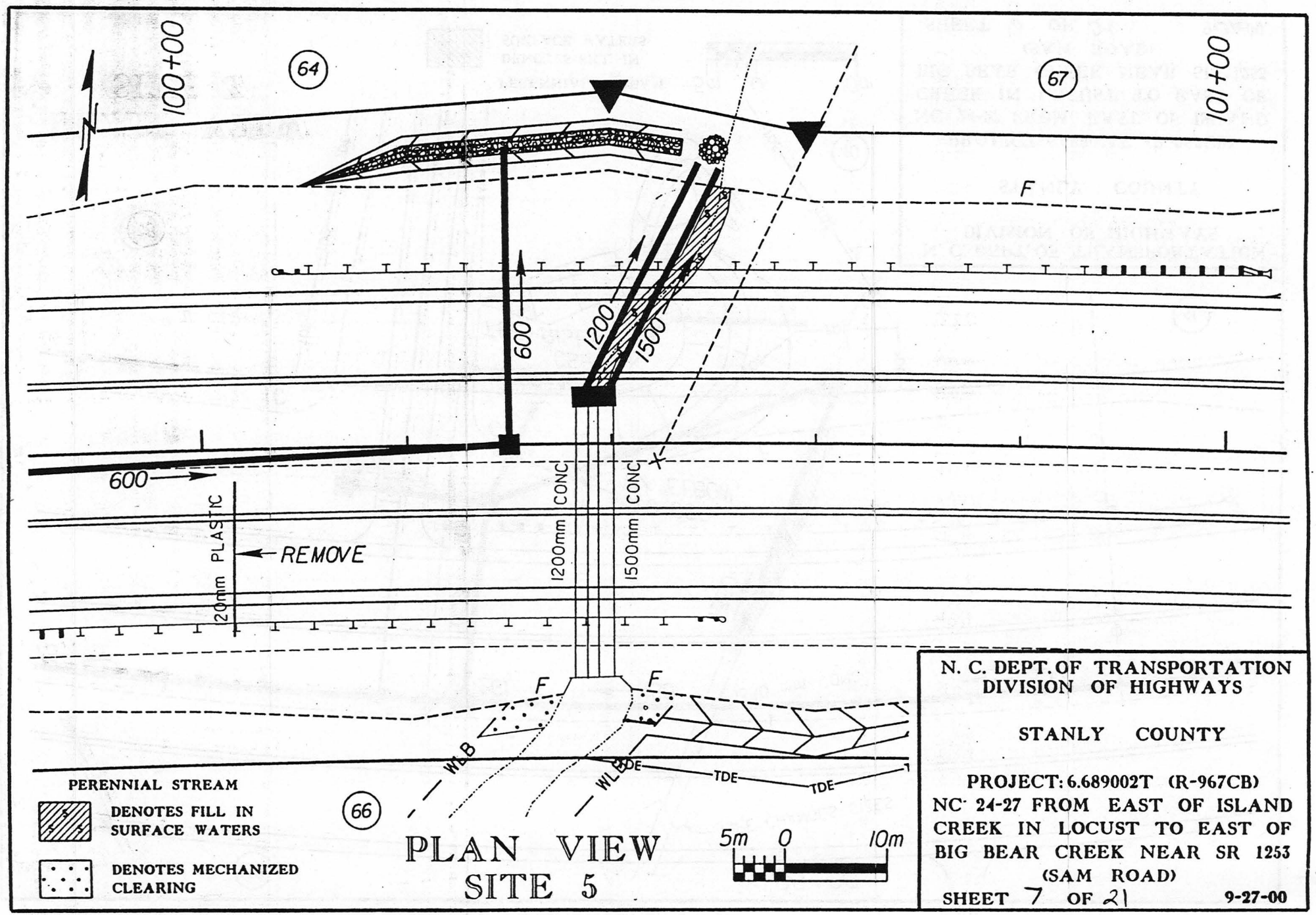
SHEET 6 OF 21 9-27-00



PLAN VIEW
SITE 5

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

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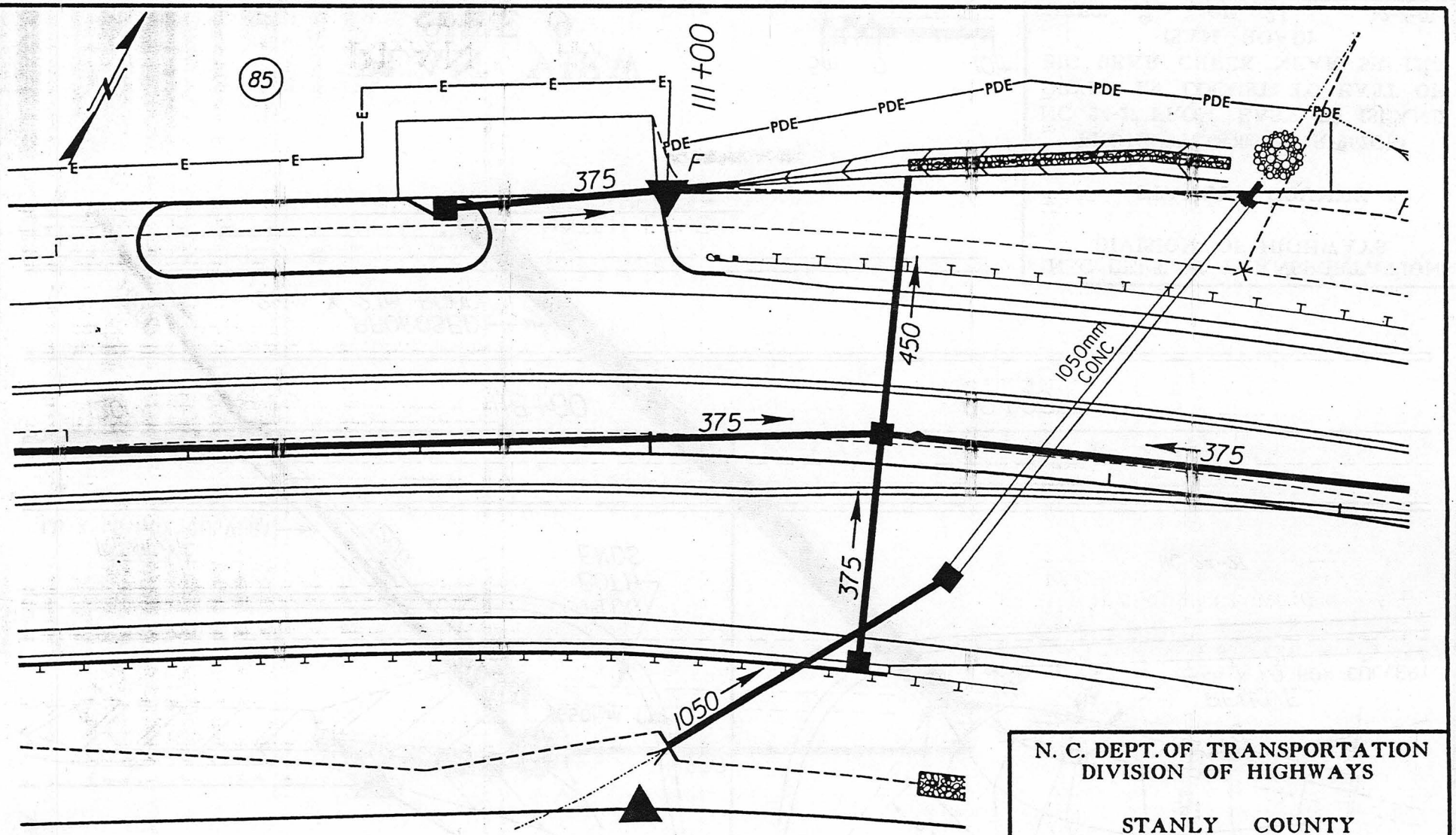
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 7 OF 21 9-27-00



PLAN VIEW
SITE 7

INTERMITTENT STREAM / STORMWATER CHANNEL

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DIVISION OF HIGHWAYS

STANLY COUNTY

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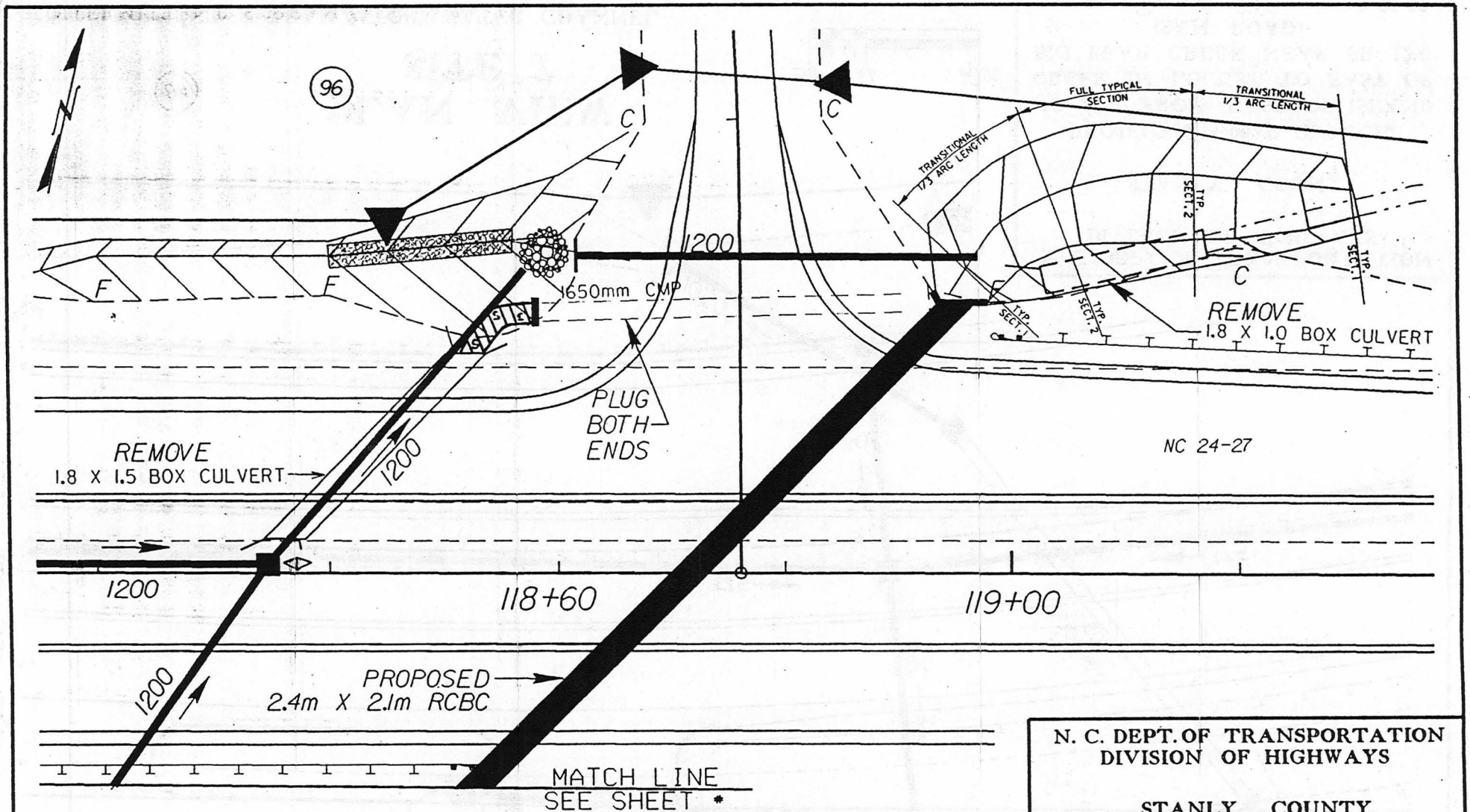
SHEET 8 OF 21 9-27-00



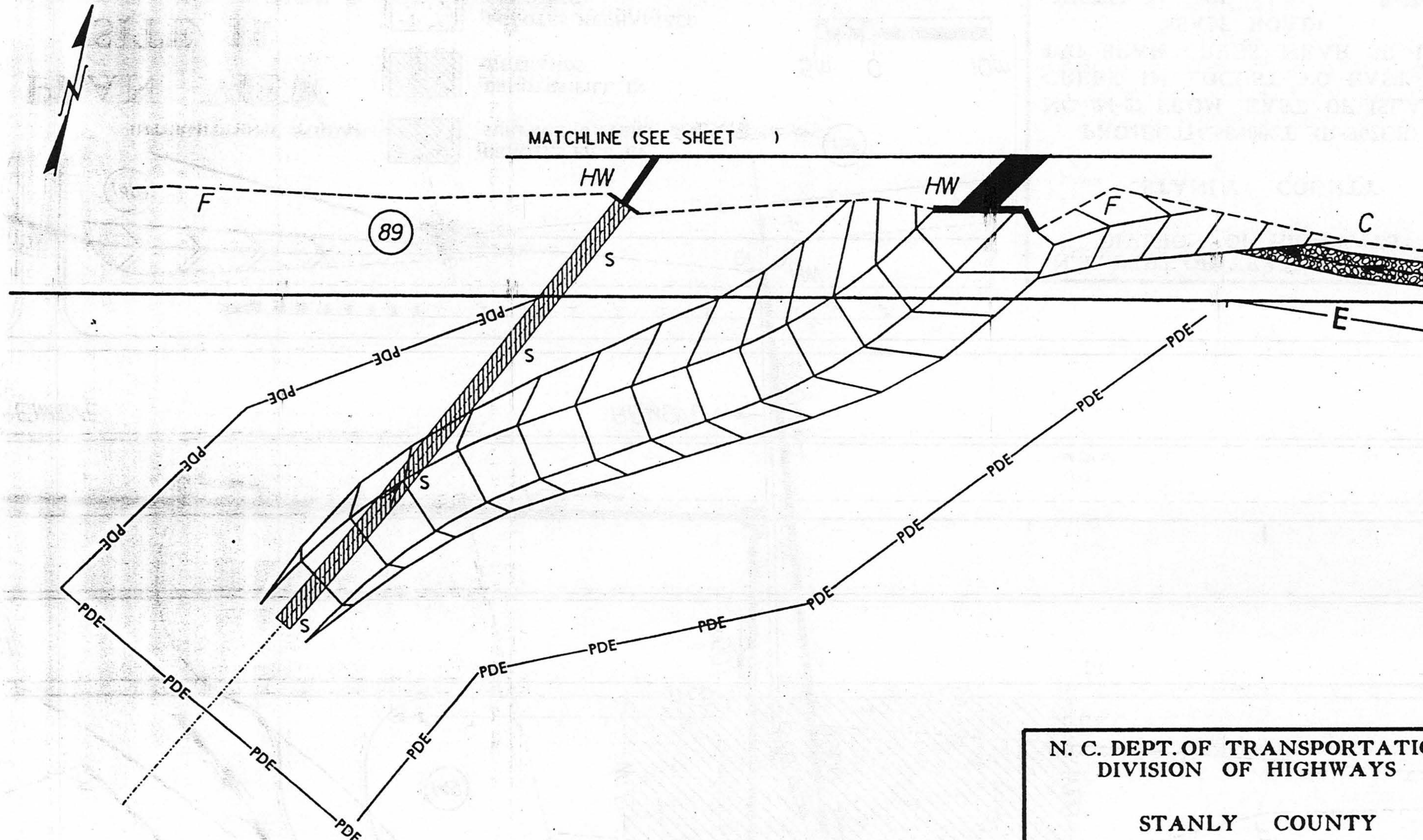
PLAN VIEW
SITE 9

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 9 OF 21 12-4-01



PERENNIAL STREAM

DENOTES FILL IN SURFACE WATERS

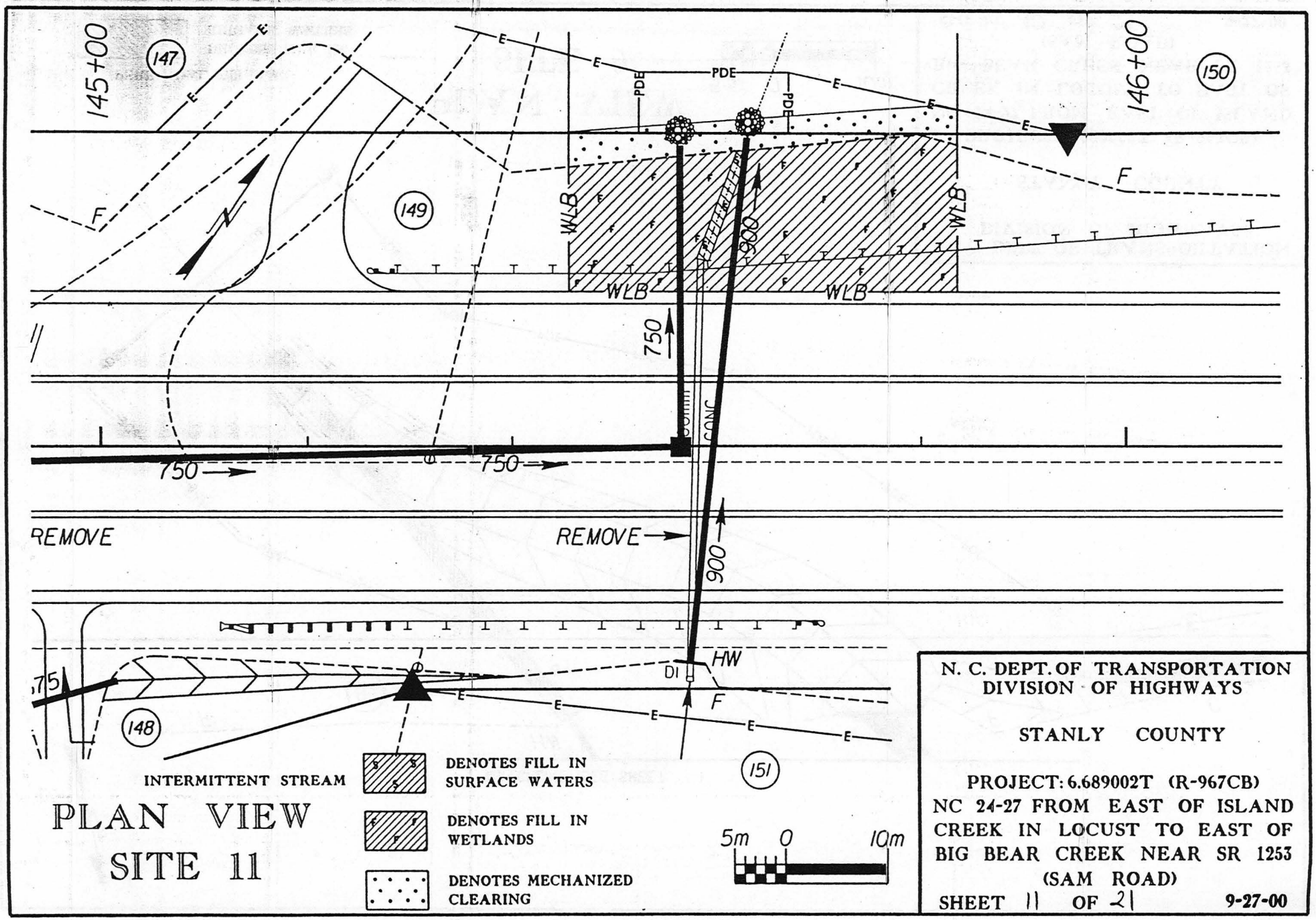
PLAN VIEW
SITE 9

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 10 OF 21 9-27-00



PLAN VIEW
SITE 11

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

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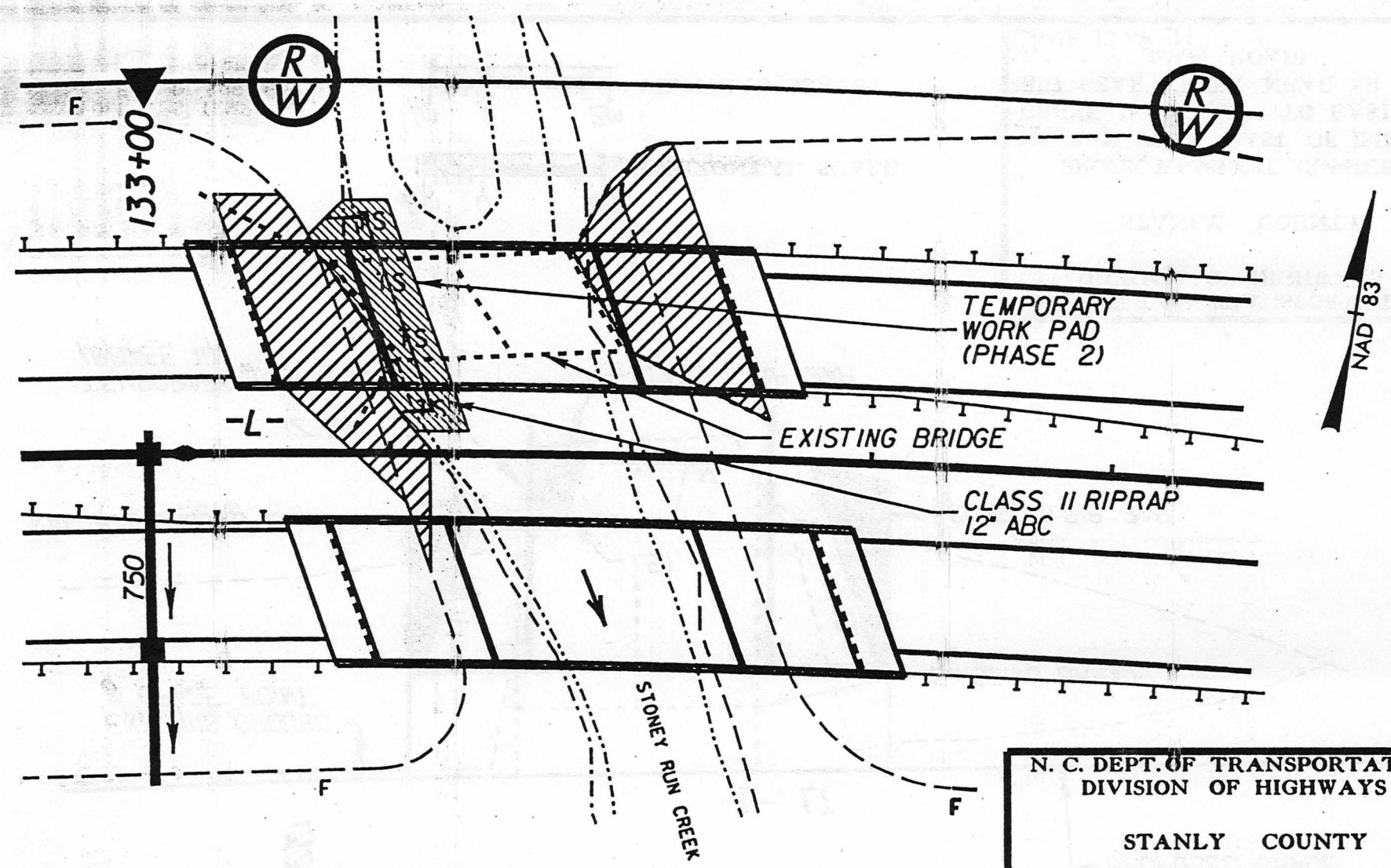
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

SHEET 11 OF 21 9-27-00



PLAN VIEW
SITE 12

DENOTES MATERIAL TO BE EXCAVATED

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

5m 0 10m

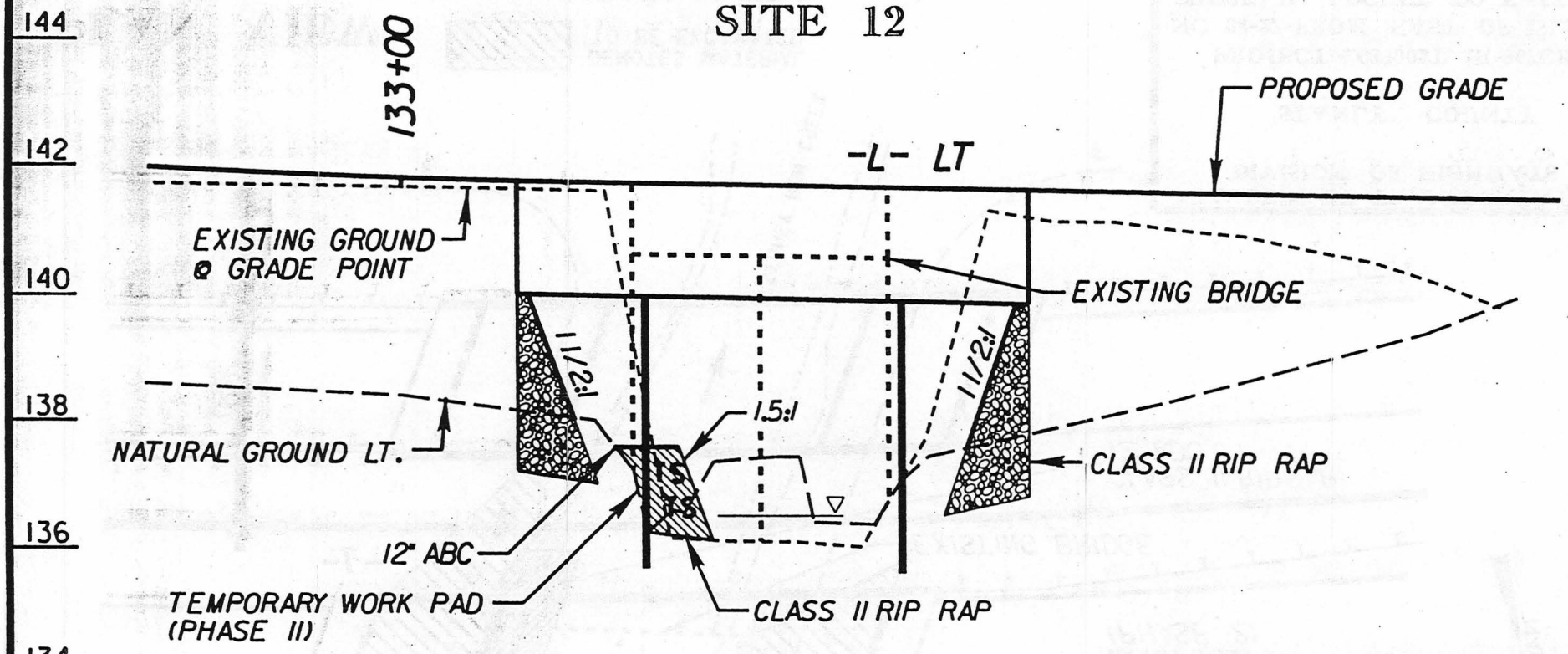
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

Sheet 12 of 21

PROFILE VIEW
SITE 12



5m 0 10m HORIZONTAL SCALE

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

1m 0 2m VERTICAL SCALE

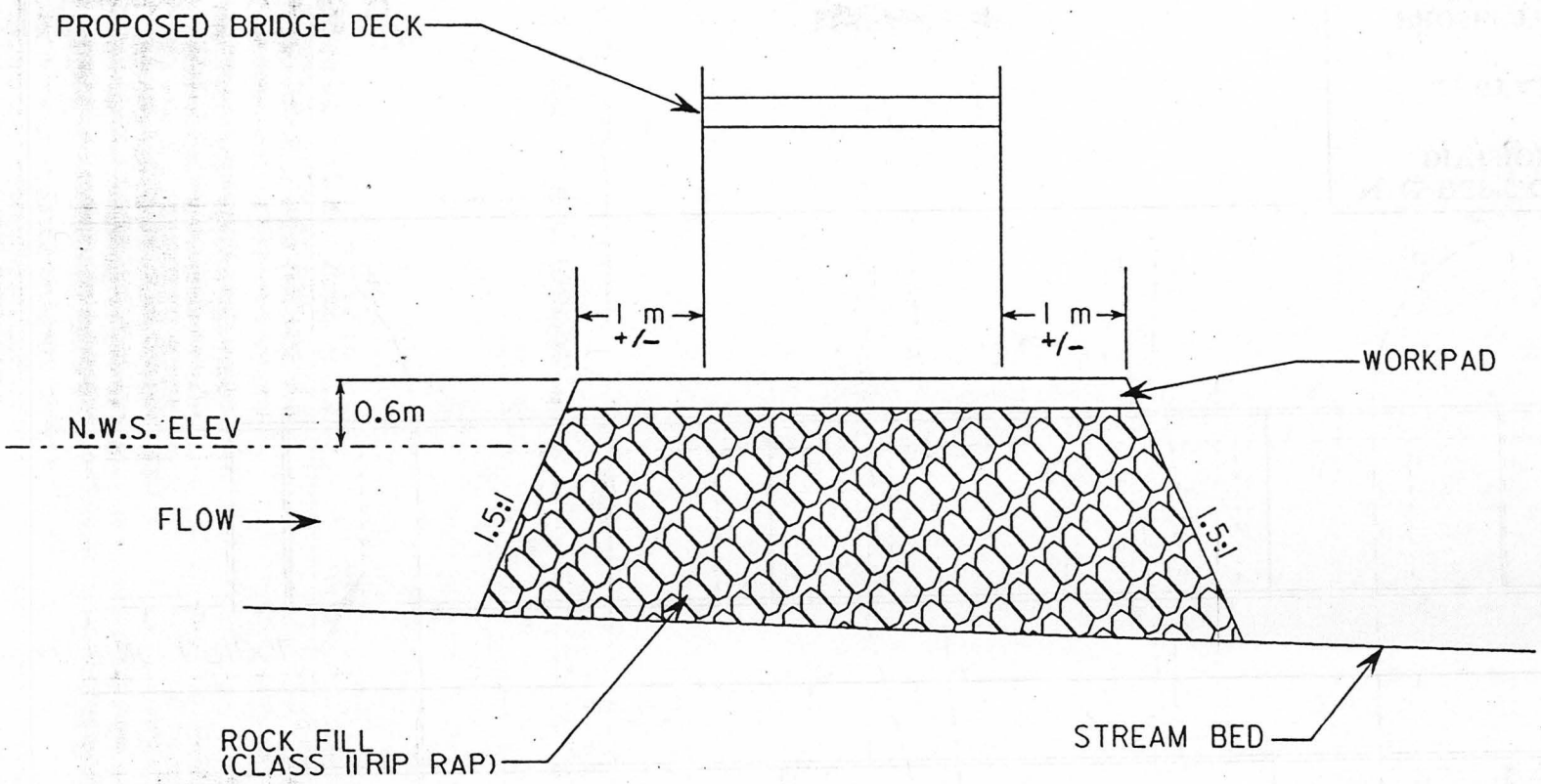
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

Sheet 13 of 21

WORK PAD DETAIL
(NOT TO SCALE)



QUANTITY ESTIMATES

VOLUME OF CLASS II RIP RAP= 540 cy (410 m^3)

AREA OF CLASS II RIP RAP= 0.04 ha

Estimate 720 mTons Class II Rip Rap

N. C. DEPT. OF TRANSPORTATION
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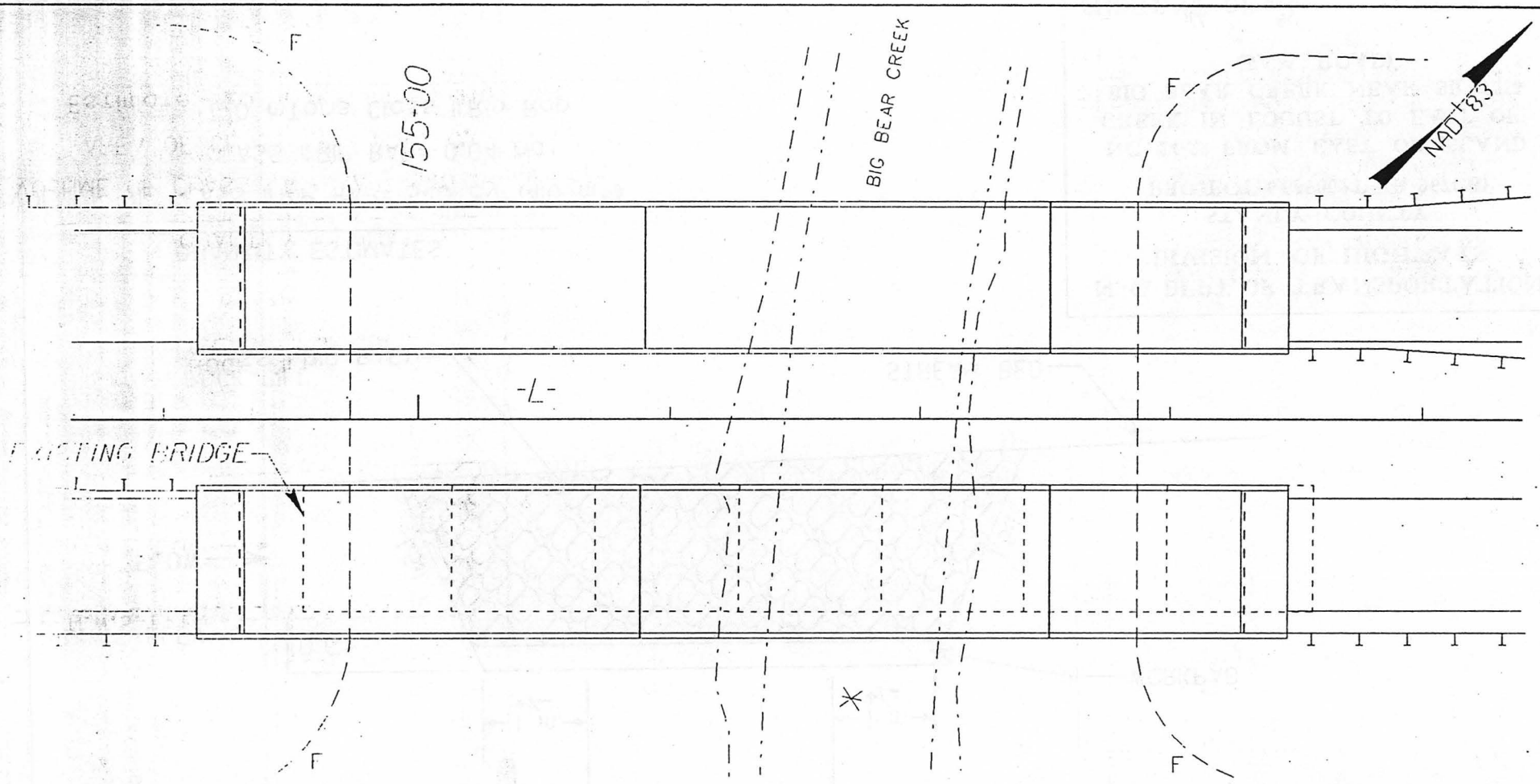
SHEET 14 OF 21



PLAN VIEW
SITE 13

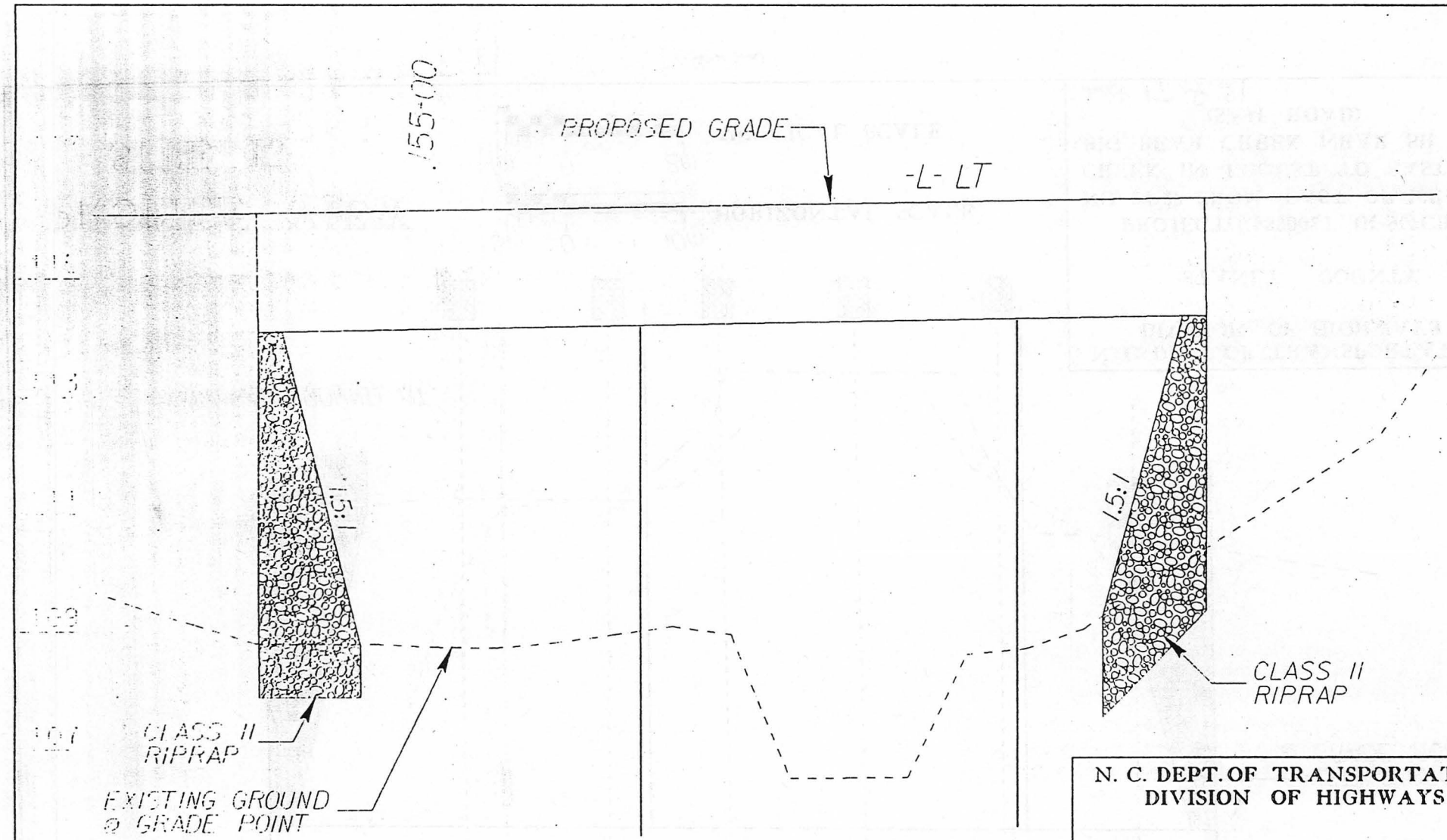
5m 0 10m

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

Sheet 15 of 21



PROFILE VIEW

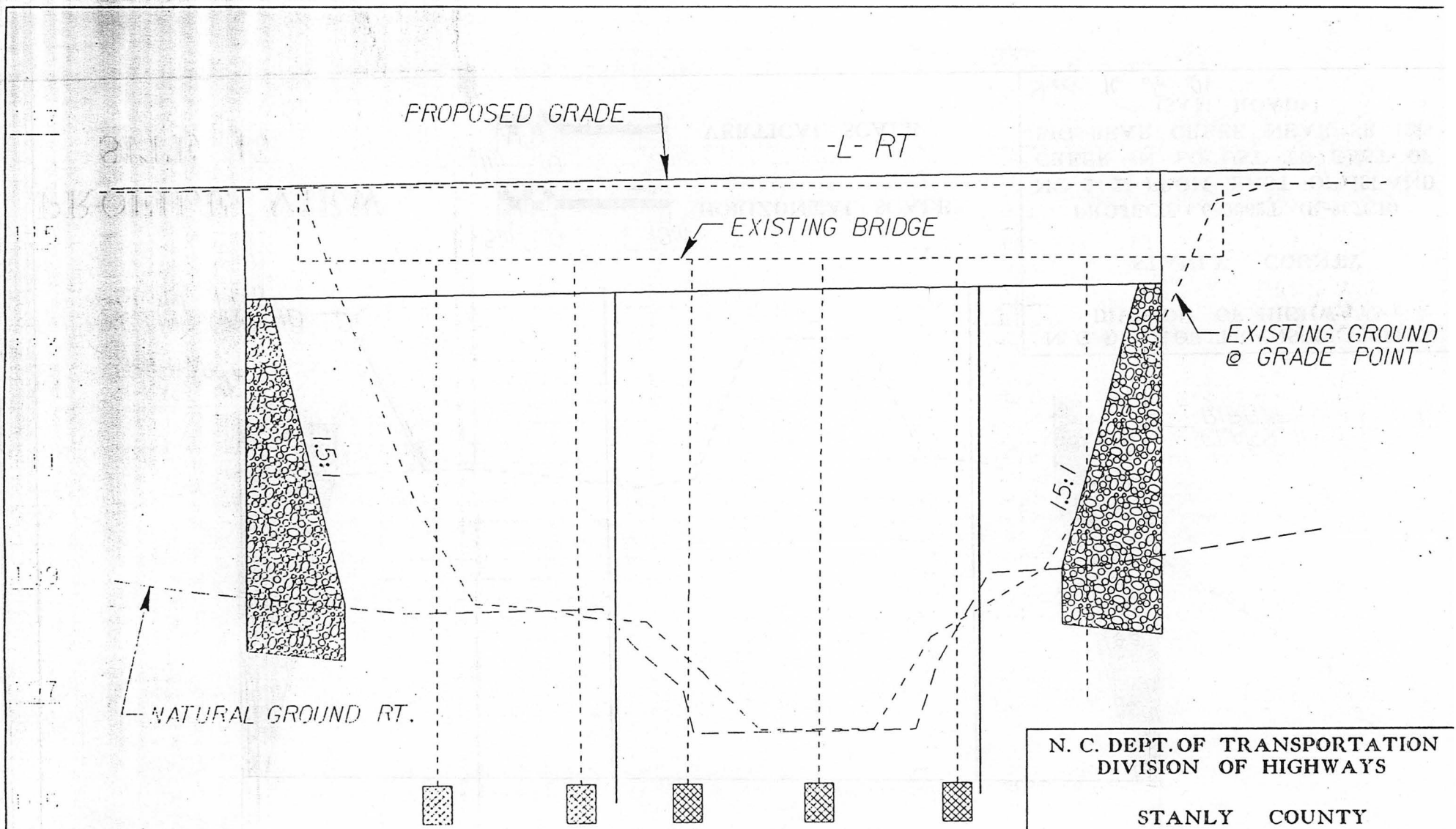
SITE 13

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

Sheet 16 of 21



PROFILE VIEW
SITE 13

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

PROJECT: 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS					BUFFER IMPACTS	
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)	Relocated Channel (m)	Zone 1 (ha)	Zone 2 (ha)
1	72+00	600					0.005			66			
3	85+00 RT	1350					0.004			27			
5	100+40 LT	1 @ 1200, 1 @ 1500				0.003	0.005			27			
7	111+00	1050					0.001			30			
*													
9	118+34 to	1200					0.013			98			
	118+74	2.4x2.1 RCBC											
11	145+60	900	0.05			0.01	0.001			15			
12	133+29	1@10,1@20,1@10 BRIDGE							0.01				
13	155+26	1@32,1@32,1@16 BRIDGE							0				
TOTALS:			0.05	0	0	0.013	0.029	0	0.01	263		0	0

* original site 8 has been combined into site 9

N.C. DEPT. OF TRANSPORTATION
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STANLY COUNTY

PROJEC 6.689002T (R-967CB)
NC 24-27 FROM EAST OF ISLAND CREEK IN LOCUST TO EAST OF BIG BEAR CREEK NEAR SR 1253 (SAM ROAD)

10/3/02

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME & ADDRESS
(17)	David L. Mullis & wf. Nancy H. P.O. Box 447 Stanfield, N.C. 28163
(18)	David L. Mullis & wf. Nancy H. P.O. Box 447 Stanfield, N.C. 28163
(19)	Joyce B. & Franklin D. Hensley P.O. Box 274 Locust, N.C. 28097
(30)	Lillian B. Love 12640 N.C. 24-27 Highway Stanfield, N.C. 28163
(31)	Ronald T. & wf. Nancy L. Eudy 12611 N.C. 24-27 Highway Stanfield, N.C. 28163
(32)	M. D. Brattian (Heirs) 17668 Branton Road Stanfield, N.C. 28163
(38)	Robert D. Thompson & wf. Bobbie K. 12785 N.C. 24-27 Highway Oakboro, N.C. 28129
(39)	Richard M. Hatley & wf. Beverly B. 12847-B N.C. 24-27 Highway Oakboro, N.C. 28129
(40)	Stacy D. Thompson 12785 N.C. 24-27 Highway Oakboro, N.C. 28129
(41)	Cathy C. Hill 12882 N.C. 24-27 Highway Oakboro, N.C. 28129
(42)	County of Stanly ~~Box~~ 201 S. 2nd Street Albemarle, N.C. 28002

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

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SHEET 19 OF 21 9-27-00

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME & ADDRESS
(43)	Roy L. Barbee & wf. Virginia ~~16042~~ N.C. 24-27 Highway Oakboro, N.C. 28129
(44)	Dillon E. Whitley 14170 McLester Road Oakboro, N.C. 28129
(64)	Velma R. Whitley 16343 N.C. 24-27 Highway Oakboro, N.C. 28129
(66)	~~James Edward~~ Speight Jr. 204 East 1st. Street Oakboro, N.C. 28129
(67)	Donald W. Perry Sr. & wf. Patsy A. 20457 Running Creek Church Road Stanfield, N.C. 28163
(68)	Loudivine W. Eubanks 16418 N.C. 24-27 Highway Oakboro, N.C. 28129
(84)	West Stanly High School 16686 NC 24-27 Highway Oakboro, NC 28129
(85)	South Central Oil Co., Inc. 2121 West Main Street Albemarle, N.C. 28001
(89)	Ashley Heights Inc. P.O. Box 1289 ~~Albemarle~~, N.C. 28002
(96)	Grimmer-Whitley Development Co., Inc. P.O. Box 898 Matthews, N.C. 28106
(111)	J. Clayton Burris 20258 N.C. 24-27 Highway Oakboro, N.C. 28129

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

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SHEET 20 OF 21 9-27-00

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME & ADDRESS
112	Craig Burris & Heirs ~~20337~~ N.C. 24-27 Highway Oakboro, N.C. 28129
113	Nevin M. & Patricia Huneycutt 16422 McLester Road Oakboro, N.C. 28129
114	Jimmy H. Poplin 20321 N.C. 24-27 Highway Oakboro, N.C. 28129
147	~~J.T. Barbee &~~ wife Louise 20777 N.C. 24-27 Highway Oakboro, N.C. 28129
148	David F. Morrow 608 Channing Circle Concord, N.C. 28027
149	Jeffrey L. & Pamela B. Hinson 210 South Main Street Oakboro, N.C. 28129
150	Sally Ann Nettleton 678 Ives Row Cheshire, CT. 06410
151	William C. Burris 20836 N.C. 24-27 Highway Oakboro, N.C. 28129

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

STANLY COUNTY

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SHEET 21 OF 21 9-27-00